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INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

MOROCCO PROJECT. 608-0176

CONVENTIONAL ENERGY MANAGEMENT AND TRAINING

GRANT

000127

April, 1984

UNCLASSIFIED

PD-AAR-842

MOROCCO

0176

12M-41459

USAID/Morocco

608

CONVENTIONAL ENERGY MGT. AND TRAINING

6. ESTIMATED DATE OF OBLIGATION (FACD)

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)

MM DD YY
06 30 88

A. Initial FY 84

B. Quarter 3

C. F. Y. 85

8. COSTS (\$000 OR EQUIVALENT \$1 = 7.80 DH)

FUNDING SOURCE	FIRST FY 84			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L.C.	G. Total
Appropriated Total	3,416	584	4,000	4,270	730	5,000
(Grant)	(3,416)	(584)	(4,000)	(4,270)	(730)	(5,000)
(Loan)	(-0-)	(-0-)	(-0-)	(-0-)	(-0-)	(-0-)
Other U.S. 1. N/A						
2.						
Host Country	40	413	453	76	1,613	1,689
Other Donor(s)						
TOTALS	3,456	997	4,453	4,346	2,343	6,689

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ES	B743	878		0	0	4,000	0	5,000	0
(2)									
(3)									
(4)									
TOTALS				0	0	4,000	0	5,000	0

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

872 840 876

11. SECONDARY PURPOSE CODE

780

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code TNG
B. Amount 157

13. PROJECT PURPOSE (maximum 480 characters)

To build the internal capabilities of the National Petroleum Exploration and Development Agency (ONAREP) (1) to apply cost-effective private sector management principles and techniques; (2) to strengthen its ties to potential private sector partners in petroleum activities and investments; (3) to explore, develop, and produce hydrocarbon resources.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
1 0 8 5 0 3 8 7

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

N/A

USAID/Morocco Controller's approval of Proposed methods of Implementation and Financing.

Mark S. Matthews

17. APPROVED BY

Signature

Robert C. Chase

APR 16 1984

Title

Director
USAID/Morocco

Date Signed

MM DD YY
0 14 1 2 8 4

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

N/A

M O R O C C O

CONVENTIONAL ENERGY MANGEMENT AND TRAINING PROJECT

608-0176

PROJECT PAPER

GRANT

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ACRONYMS

A D L	-	Arthur D. Little, Inc.
A O C	-	Advice of Charges
B M	-	Million Cubic Meters
B P D	-	Barrel per day
B R P M	-	Bureau des Recherches et Participations Minières
I P C S	-	International Petroleum Consulting Services
M E M	-	Ministère de l'Energie et des Mines
ONAREP	-	Office National de Recherches et d'Exploitations Pétrolières
T O E	-	Ton Oil Equivalent
U S E D	-	U.S. Executive Director to the World Bank

MEASURES AND EQUIVALENCIES

1,000 cubic feet dry gas - 26 cubic meters

Calorific Equivalency of Meskala Natural Gas:

800.4 m³ x 10⁶ - 1.0 x 10⁶ TOE

Morocco's 1982 Consumption of Imported Petroleum

Duration	Volume	Price
365 days	4.1 million TOE	\$1,070 million
8 1/2 hrs	4,000 TOE	\$1.0 million

EXCHANGE RATE:

October, 1983	7.80 DH/\$
March, 1984	7.95 DH/\$

LIST OF PROJECT AND MISSION REVIEW COMMITTEE MEMBERS

USAID Project Committee Members

Gary Bricker, Project Manager
Jay Smith, USAID Economist

AID/W Contributors to Project Development:

Alan Jacobs, S&T/EY
Pamela Baldwin, S&T/EY
Jim Bever, NE/TECH

ONAREP Contributors

Mohamed Douieb, Director General
Rabah Bouchta, Secretary General
Said Hajji, Chief of Division for Administrative Affairs and Training
Mohamed Khales, Technical Director
Khalid Oudghiri, Production Engineer

Mission Review Committee

Robert Chase, DIR
Harry Petrequin, D/DIR
Stacy Rhodes, PROG
Mark Matthews, CONT
Anne Williams, RLA
Stan Nevin, RCO

T A B L E SPAGE

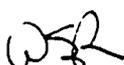
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ACTION MEMORANDUM FOR THE DIRECTOR, USAID/RABAT

FROM : William S. Rhodes, USAID/PROG 

SUBJECT: Authorization of USAID/Morocco's Conventional Energy Management and Training Project, 608-0176

Problem: Your signature is required for the Project Authorization of Morocco's Conventional Energy Management and Training Project.

Discussion: On January 27, 1984, the Mission Review Committee (MRC), under your chairmanship, reviewed and recommended approval of the Conventional Energy Management and Training Project. The purpose of the Project is to strengthen the internal capabilities of the National Petroleum Exploration and Development Agency (ONAREP) 1) to apply cost-effective private sector management principles and techniques; 2) to establish ties with private sector partners in petroleum investments; and 3) to explore, develop, and produce hydrocarbon resources. This four-year project has a life-of-project funding of \$5,000,000.

The project will provide technical advisors who, in collaboration with ONAREP's senior management, will undertake activities in three broad areas: 1) financial and management issues; 2) exploration design and analysis; and 3) reservoir and production engineering. Training for ONAREP personnel will include limited graduate study, short courses and seminars, conferences, industry internships, and specialized on-the-job training.

Subsequent to the Mission's Review of the Project Paper, minor revisions in the project design were made as a result of further discussions with ONAREP. First, the number of resident advisors was reduced from 9 to 6, and the period of in-country residency was increased from two to three years. The technical assistance budget allocation does not change. Second, to accommodate the extended T.A. presence in-country and also to allow for a reasonable timeframe for academic training, the duration of the project was lengthened by nine months, from September 30, 1987 to June 30, 1988. And third, the number of A.I.D. evaluations was reduced from three to two and rescheduled appropriately. In lieu of a 3rd major evaluation, a periodic monitoring program was added; it will assist A.I.D. and ONAREP to revise, as needed, the resident contractor's annual work plan and associated budget. Members of the MRC were informed of these changes and no objections were raised.

One substantive issue raised during the NEAC's review of the evaluation of the predecessor Technical Assistance in Conventional Energy Project (936-5724) is the appropriate funding mechanism for this follow-on project. The NEAC recommended that USAID provide financing for the new project in the form of a grant to the GOM which, in turn, would loan the funds to ONAREP at the official GOM interest rates. The Mission Review Committee considered this along with other financing options. The consensus of the MRC members was that the loan mechanism would entail the imposition of an unprecedented GOM internal arrangement which USAID would have little (if any) ability to enforce, and that a private sector philosophy within ONAREP could best be instilled through the efforts of the technical assistance team provided under

the project rather than through a complicated financing arrangement. A cable has been sent to the NEB explaining the MRC's decision on this issue.

A Congressional Advice of Program Change was sent to Congress on March 15, 1984, to reflect that A.I.D. plans to obligate \$4,000,000 in FY'84 ESF grant funds. This CN will expire on March 31, 1984. There are no current human rights issues under Section 116 of the Foreign Assistance Act that would preclude provision of this assistance to Morocco.

Pursuant to Redelelegation of Authority No. 113.3A, you have authority to authorize projects not in excess of \$10 million, within which limits this \$5,000,000 project falls.

Recommendation: That you approve the project and project funding by signing the attached authorization.

APPROVED: N. Chase

DISAPPROVED: _____

DATE: APR 16 1984

Clearances: PROG : J. Giusti : JGJ
 RLA : A. Williams : AW
 CONT : M. Matthews : M. Matthews
 OTP : G. Bricker : _____

PROJECT AUTHORIZATION

Name of Country: Morocco

Name of Project: Conventional
Energy Management and
Training Project

Number of Project: 608-0176

1. Pursuant to Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Conventional Energy Management and Training Project for Morocco (the Cooperating Country) involving planned obligations of not exceed \$ 5,000,000 in grant funds over a three year period from date of authorization subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project. The planned life of the project is four years and three months from the date of initial obligation.

2. The project consists of the provision of technical assistance, training, and commodities to assist the Cooperating Country to build the internal capabilities of the National Petroleum Exploration and Development Agency (ONAREP) (1) to apply cost-effective private sector management principles and techniques; (2) to strengthen its ties to potential private sector partners in petroleum activities and investments; and (3) to explore, develop and produce hydrocarbon resources.

3. The Project Agreement which may be negotiated and executed by the officer(s) to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

a. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in the United States, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have the Cooperating Country or the United States as their place of nationality, except as A.I. D. may otherwise agree in writing. Ocean shipping financed by A.I. D. under the project shall, except as A.I.D. may otherwise agree in writing be financed only on flag vessels of the United States.

b. Convenants

The Project Agreement shall contain covenants in substance as follows:

1. The Cooperating Country agrees that no long term technician will proceed to Morocco until the Cooperating Country has provided the following to A.I.D. in form and substance satisfactory to A.I.D.:

(a) The written designation of an appropriate full-time counterpart for such technician; and

(b) A written statement for each contract team member explaining what his authorities and responsibilities will be while working within ONAREP, including but not limited to his relationships with his counterpart, to whom he reports within ONAREP, which ONAREP employees he supervises, his ability to authorize the expenditure of funds on behalf of ONAREP, and his relationships with World Bank funded contractors or other such expatriate professionals.

2. During the life of project the Cooperating Country agrees that it and ONAREP will work to establish an official or contractual rate structure of indigenous natural gas and to conclude a contract to sell indigenous natural gas.

3. The Cooperating Country agrees that ONAREP will provide the following logistic support for the contract team members: office space and equipment, secretarial assistance, customs clearance of project commodities, telex facilities and telephone extension, field transportation and per diem for the team and their counterparts, one automobile per team member, operation, maintenance and repair costs of such vehicles, lecture rooms, and English language training rooms for ONAREP's staff.

4. The Cooperating Country agrees that ONAREP will assure A.I.D. in writing that its employees receiving technical and academic training will have their normal salaries maintained and that after training they will continue to work within ONAREP in areas that will be oriented towards serving the goals of this project.

5. The Cooperating Country agrees that ONAREP will frequently discuss with A.I.D the progress of appraisal activities in Morocco, principally those occurring in Essaouira and all other actions contemplated under World Bank auspices likely to affect this project or the resident advisors funded via the United States contribution.

6. The Parties agree to make every effort to assure that the contractor treats as confidential all information and work documents provided by ONAREP and developed under the contract, and that the contractor restrict distribution of such information and documents to the Parties unless ONAREP otherwise agrees.

Signature: 
Robert C. Chase
Director

Dated: APR 16 1981

THE PROJECT SUMMARY AND RECOMMENDATIONS:

- A. Grantee: Government of Morocco
- B. Implementing Agency: Office National de Recherches et
d'Exploitations Pétrolières - ONAREP
(Morocco's National Petroleum Corporation)
- C. Amount: U.S. Contribution of \$5.0 million: \$4.0 million to be
obligated in FY'84 and the balance in FY'85 or FY'86.
- D. Terms: This activity is to be grant-funded from the Economic
Support Fund (ESF)
- E. Total Project Cost: The total project cost is \$6.698 million:
\$5.0 million funded by AID and the equivalent
of \$1.698 from ONAREP (25% of the Pro-
ject costs).
- F. Description of the Project: In 1982 over 85 percent of Morocco's
commercial energy resources were imported in the form of petroleum
products. These imports were valued at slightly over \$1.0 billion,
or almost 40 percent of Morocco's total import bill. Over the
1980-83 period, continued drought conditions cut by more than
one-half Morocco's domestic hydroelectric output, resulting in
a 9 percent reduction in available domestic power. This has
resulted in an increasing reliance on imported fuels and
systematically scheduled electrical outages.

Less than 1% of Morocco's commercial power consumption is currently
derived from domestic hydrocarbon production. But a recent natural
gas discovery in Essaouira Province and increased offshore explora-
tion by major petroleum companies lend credence to the hypothesis
that Morocco may have commercially viable hydrocarbon deposits. The
World Bank (IBRD) is providing substantial funding to assist ONAREP
accelerate its appraisal program of the Essaouira discovery.

ONAREP's General Directorate, an AID evaluation and an IBRD-funded
management review have identified certain operating and management
procedures within ONAREP which merit reform if the company is to conform
to international standards and to conduct petroleum exploration and
development in accordance with cost effective principles. ONAREP with
GOM backing has asked AID to provide technical assistance in this
critical area.

The AID project will assist ONAREP (1) to undertake management reform,
(2) to strengthen its ability to attract private financing, and
(3) to accelerate its exploration/appraisal programs.

F.1.: Goal: The Project's goal is to contribute to the alleviation of current economic problems in Morocco by accelerating the efficient development of the country's indigenous hydrocarbon resources and strengthening the long-term capacity of the GOM for exploration, development, and production of those resources in partnership with the private sector.

F.2.: Purpose: The specific purposes of the Project are to strengthen the internal capabilities of ONAREP (1) to explore, develop, and produce hydrocarbon resources; (2) to establish ties with private sector partners in petroleum investments; and (3) to apply cost-effective private sector management principles and techniques. Technical assistance to be provided includes six resident advisors over a three-year period, supplemented by the intermittent assignment of additional experts for short periods. Training provided under the Project will include graduate study, short courses, industry internships, seminars, and conferences in the United States, as well as short courses and seminars in Morocco.

F.3. Inputs:

U.S. Contribution:

60 person-months (p.m.) of organizational/financial advice, 76 p.m. of exploration advice, 42 p.m. of production engineering services, 9 short-term consultant months, (6 in Morocco and 3 in the U.S.) focused principally on financial management limited reservoir computation services, four masters, 82 p.m. of training in U.S., 42 p.m. of in-country training and up to 9 p.m. of attendance at seminars/conferences.

GOM Contribution:

6 full-time ONAREP counterparts, major logistic support, participant salary maintenance, round-trip airfare.

F.4.: Outputs:

- a more efficient, productive management structure within ONAREP;
- a more extensive and knowledgeable interest in Morocco's petroleum potential by international investors and operators;
- an accelerated ONAREP usage of IBRD loan to appraise the Essaouira discovery;
- well trained ONAREP professionals making field decisions pragmatically and independently on a timely (and less costly) basis;
- greater financial autonomy and internal budgetary control for ONAREP firmly established;

- long-term strategic planning process for hydrocarbon exploration/development by ONAREP in operation;
- ONAREP's Planning and Studies Unit fully staffed and operational.

G. Recommendations:

The Mission Review Committee (MRC) has reviewed the Conventional Energy Management and Training Project Paper on January 27, 1984. Issues and resolutions discussed appear as Annex M. The MRC recommends that the USAID/Morocco Director:

1. Approve the \$5.0 million project proposal and authorize the Project.
2. Negotiate a Project Agreement based on the PP with the GOM.

I. PROJECT RATIONALE AND DESCRIPTION

A. BACKGROUND

Aggravated Energy Dependence

In 1982 over 85 percent of Morocco's commercial energy resources were imported in the form of petroleum products. These imports were valued at slightly over 1.0 billion or almost 40 percent of Morocco's total import bill. Over the 1980-83 period, continued drought conditions cut by more than 90% Morocco's domestic hydroelectric output, resulting in a 16 percent reduction in available domestic power. This has resulted in an increasing reliance on imported fuels and electrical outages. The Government of Morocco (GOM) is in the midst of a severe balance-of-payments crisis and fiscal austerity program as a result of increased oil and food imports, reduced export earnings, and high debt service requirements. One of the adjustment measures taken by the GOM is to curb the growth of energy demand through price increases and an active campaign to induce energy savings. The current energy rate structures are economically sound with the exception of electricity rates which have a notable subsidy feature. Over the coming 5-10 year horizon, the government has stated three main policy objectives for the energy sector: (1) promotion of energy import substitution, (2) promotion of efficient energy use; and (3) increasing of domestic resource mobilization and budgetary savings through reduction in subsidies.

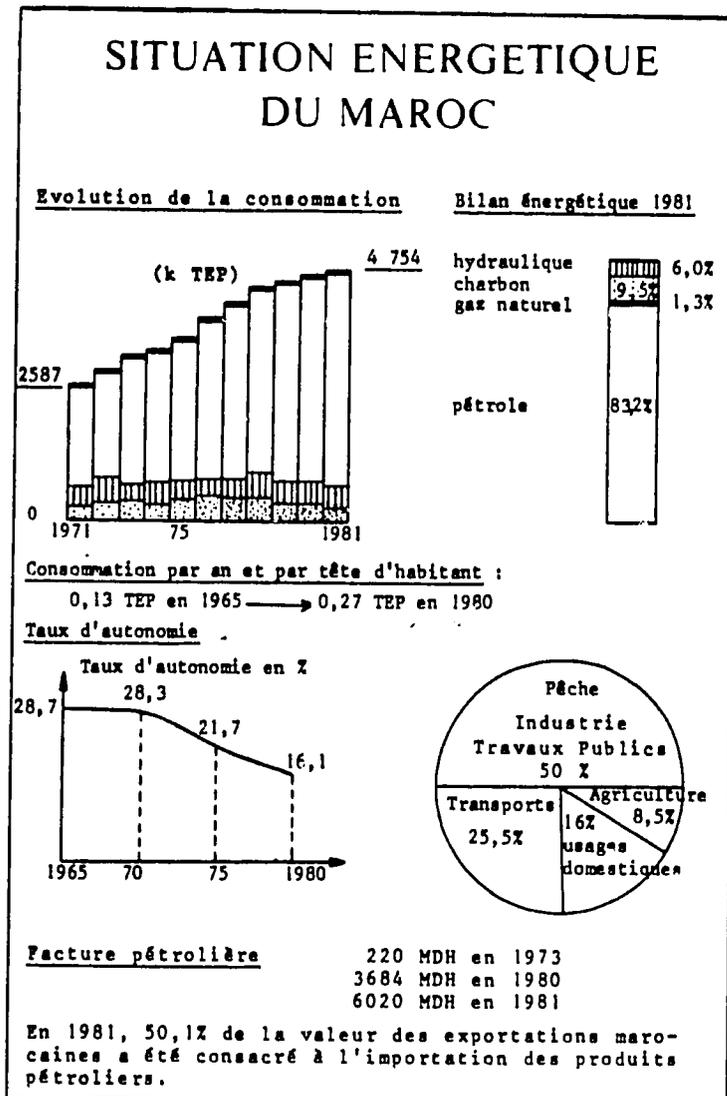
In an effort to expedite development of domestic energy supplies, the GOM has begun to implement a number of energy development investments. The most practical short-term prospect appears to be petroleum exploration and development. Oil imports, despite a recent softening of world prices, continue to account for a rising portion of Morocco's export earnings. Because world oil trade is largely in dollars, and because the dollar has risen over 14 percent in relation to the Moroccan dirham since January 1983, international oil prices have risen substantially for Morocco. Thus, it is imperative that Morocco accelerate efforts to bring existing domestic energy resources, notably natural gas, on line at the earliest possible date. (See Figure 1 re Morocco's energy posture.)

Management Issues Impacting Appraisal/Development of Potential Petroleum Resources

Four years ago Morocco inadvertently discovered natural gas in Essaouira province. Since that time the Government has been appraising the commercial potential of the discovery with IBRD assistance. ONAREP is new to the petroleum business and is struggling to improve its management and operating efficiency. A management audit by business advisory firm has reviewed ONAREP's administration and has made recommendations for reform employing private market principles and techniques. The Project intends to address the financial and managerial issues identified by the study.

ONAREP is aware of its limitations and short-comings as a state-owned petroleum company understaffed for the job at hand. AID's working scenario is that the current discoveries will remain only modest internationally but important for the local economy. If so, ONAREP must face alone major challenges regarding its managerial, financial, and technical capacities. If a moderate sized development effort involving 30-40 wells, plus gas field surface facilities, plus pipelines is to be mounted, the GOM will have to borrow foreign exchange to develop the resource based on the implicit import displacement value of the wealth trapped in the ground. This probable scenario is feasible but onerous in the midst of increasing

Figure 1



austerity. Technical assistance in orchestrating such an option would clearly be cost-effective.

A Favorable Legal/Regulatory Environment for Private Enterprise Assistance

Morocco is actively seeking to stimulate private foreign investment in energy development. Its new investment code, combined with improved re-interpretation of hydrocarbon data, have already convinced 3 U.S. petroleum companies and one Canadian to accept off-shore concessions valued at over \$75.0 million. One of the companies is also re-interpreting on-shore data to determine whether or not to begin on-shore exploratory drilling. Unfortunately these concessions are only minor actions within the companies' annual exploration strategy. The basic problem in stimulating greater investment by the major oil companies is that the majors are primarily interested in petroleum for export and hard currency profits. Morocco's current objectives are less ambitious, and are directed towards immediate import substitution. The rationale behind international petroleum companies' decisions not to mount extensive exploration programs at this time in Morocco is explored further in Annex F. The basic problem is that while Morocco's known conventional energy resource base is too small to be internationally attractive, it is clearly important enough to make a favorable impact on the domestic economy. Development of Morocco's potentially commerciable reserves of oil and natural gas appears to be the best near-term solution to solving the COM's severe balance-of-payment problem.

B. RATIONALE

1. RELATIONSHIP TO AID ENERGY ASSISTANCE POLICY

The current AID Energy Assistance Policy recognizes that fossil fuel demand will continue to grow in developing countries, that the development of oil and gas resources in less developed countries is constrained by various risks and by prospects that appear too modest to be of major interest to the international oil companies, and that AID has a role to play - albeit a limited one - in technical assistance, training, institutional and policy development, and assistance in basic geological and geophysical analyses. These are precisely the activities proposed for the Morocco Conventional Energy Management and Training project.

Specifically, AID's Energy Assistance Policy Paper states:

In the near to medium term, fossil fuels will continue to be a critical commercial energy source for both industrialized and developing countries. In fact, if they are successful in promoting economic growth, most developing countries will need to increase their relative reliance on these fuels while they begin to search for long-term replacements. Large tracts of unexplored, or poorly explored, sedimentary basins exist throughout the Third World, and a recent World Bank study estimates that production from these countries could increase from 2.6 million barrels per day now to 5.9 million barrels or more per day by 1990.

The private sector will be the primary source of capital and expertise to exploit fossil fuels. In some developing countries, private investment has been impeded by corporate fears of expropriation or high taxation, lack of potential for exportable surplus, and misunderstanding and mistrust between the host government and the corporation. AID's role in the fossil fuel area -- oil, gas, coal -- will take the form of technical assistance for training and institutional development, policy advice, and financing of some geological and geophysical studies in coordination with other assistance agencies.

2. RELATIONSHIP TO AID ENERGY SECTOR STRATEGY

AID's Energy Sector Strategy stresses four key areas:

- 1) Energy analysis, planning and policy development;
- 2) Energy-related training and manpower development;
- 3) Energy technology evaluation and transfer; and
- 4) Energy supply enhancement and demand management.

This Project contains elements of all four areas, but its principal focus is in the fourth area, supply enhancement, with a strong element of planning, policy development and training. The Energy Sector Strategy states that assistance should be provided in the fourth area only when certain criteria are met, including:

the availability of ESF funds;

the presence of critical economic problems and constraints on development, such as severe debt burdens or balance-of-payments deficits, that could be alleviated at least in part by an increase in energy supply;

the existence (or suspected existence) of an indigenous resource base whose discovery and/or development could be significantly accelerated by a project in this area; and

the possibility of leveraging, and not replacing, capital from private sources in the planned energy supply enhancement project.

As noted in the Background section above, current circumstances in Morocco meet all four of these criteria. Morocco would seem a model case for this type of assistance.

3. COMPLEMENTARY ROLES OF AID AND WORLD BANK

This section will set out the terms of the World Bank loans in the petroleum field, the coordination which has occurred to date between AID and the Bank, and the USG's position with respect to the Bank loans. Justification for the existence of an AID role in light of the World Bank's activities will follow.

(a) Scope of World Bank Oil and Gas Loans to ONAREP

The first petroleum exploration loan provided to ONAREP by the Bank, in the amount of \$50 million, has financed five exploratory wells since 1981. On-going interpretation of data from these wells indicates what now appears to be a modest commercial-scale field of natural gas at Meskala, in Essaouira Province. The extent of the reserve is being determined through further drilling and analysis of drilling cores. The first loan also provided for technical assistance, including a study by Arthur D. Little, Inc. (ADL) of the corporate organization and management structure of ONAREP.

The second IBRD loan, signed in Washington on 23 May, 1983, will be for \$75 million. Of that amount, \$40-45 million will go for drilling nine wells and carrying out high-resolution seismic work aimed at further appraisal of the Meskala field. A World Bank funded contract with the French national oil company, Elf Aquitaine, will provide technical personnel in ONAREP's department of exploration, drilling and production. The Elf personnel will focus on appraisal drilling in the Meskala gas field.

The balance of the loan will be allocated as follows:

Joint Venture Promotional Program: \$15-18 million to finance further onshore seismic exploration, integration and analysis of geological and geophysical data, and presentation of the resulting data to oil companies in order to promote investment in Moroccan exploration and drilling.

Technical Assistance, Studies and Training: \$10 million to begin implementation of ADL recommendations, to conduct natural gas market studies, continue core analysis, conduct feasibility and design studies of gas production and distribution facilities, and provide training, both long-term outside Morocco (principally at the Institut Francais de Petrole) and short-term seminars at ONAREP.

(b) AID-IBRD Coordination

AID and the World Bank carried out extensive consultations on Moroccan energy assistance during the last two years. These discussions have taken place in both Washington and Rabat; in Washington, frequent meetings have been held between Bank

personnel and AID personnel in NE/TECH, PPC and S&T/EY. In one such meeting, AID energy staff reviewed the U.S. position on the World Bank petroleum loans to Morocco with the Alternate U.S. Executive Director at the Bank.

In Rabat, Bank and AID personnel from both S&T/EY and USAID/Rabat held joint meetings with ONAREP in 1982 to work out a division of effort between the two donors; these joint discussions led to the establishment of the scope of work and personnel allocation for Bechtel's current technical assistance to ONAREP under S&T/EY's Conventional Energy Technical Assistance Project (936-5724).

With respect to the broader Moroccan energy picture, AID and the World Bank have shared data, reports, progress assessments, methodologies and even personnel. Coordination between personnel of the S&T/EY-funded Energy Policy and Conservation project (608-5728) in Morocco and an IBRD team which drafted "Issues and Options in the Energy Sector" (October, 1982) is a case in point.

It can be expected that the cooperative, collegial relationship between the World Bank and AID in relation to energy assistance for Morocco will continue under the new USAID energy projects, since it is openly encouraged and supported by both ONAREP and the Ministry of Energy and Mines.

(c) U.S. Government Position on IBRD Petroleum Loans

Since 1981, the U.S. government has been supportive, generally, of the World Bank's petroleum lending program. The U.S. position has stressed the view that oil and gas exploration, development and production are activities that should be undertaken principally by the private sector rather than by bilateral or multilateral donors. It is significant, therefore, that the U.S. Executive Director (USED) at the Bank cast his first (and thus far only) affirmative vote on a petroleum loan in the case of the second Moroccan loan, which was approved by the Bank Board in May, 1983. U.S. support was justified in this case, the USED concluded, because of the Moroccan government's clear willingness and good-faith efforts to attract private investment in and exploration of its hydrocarbon resources. Morocco, the U.S. concluded, represents a situation in which a limited infusion of capital from official lending sources could reduce or eliminate barriers to private participation and leverage substantial oil company investment.

This position was based on a number of encouraging actions and policies by the Moroccan Government. More specifically, the Government of Morocco has offered attractive terms to expatriate private investment partners through a recent revision of its investment code and has established an official policy of offering straight 50-50 revenue-sharing from oil and/or gas production resulting from private exploration. The Moroccans have also undertaken an aggressive private foreign

investment promotion program, which has been aided significantly by the S&T/EY Conventional Energy Technical Assistance Project (936-5724). Under that project, an American petroleum geologist assigned full-time to ONAREP through AID's contract with Bechtel, along with a British consultant, assembled a detailed compilation of available geological and geophysical data. Presentations to U.S. and multinational oil companies (both majors and independents) have taken place at seminars in London, Calgary, Houston, Dallas and Los Angeles.

These steps are indicative of a positive private investment climate in the petroleum field in Morocco. Just as encouraging are Morocco's exploration contracts with Mobil, Amoco and Arco for selected offshore exploratory blocks, and a recent agreement with Amoco for onshore seismic studies. Under these concessions each oil company will drill at least one offshore well during the first four years and at least a second one in the subsequent three years. ONAREP may opt to finance about 30 percent of the operations as an incentive for the majors to stay in Morocco. An approximation of the value of concession agreements is \$10 million per offshore well and 2-3 wells per accord. To date three wells have been drilled.

The World Bank USED has also concluded that official lending to ONAREP for the exploration of the Essaouira basin does not displace either private oil company investment capital or lending from private banking sources. This is because ONAREP's exploration program remains at a relatively early, high-risk stage with early finds indicating the presence of little or no oil, and a potential gas resource that is probably sufficient only to meet a portion of domestic demand. This means that foreign oil company interest in appraisal drilling on a concession basis is virtually non-existent. Yet, private lending to the GOM for further exploration is severely constrained by its lack of foreign exchange and the IMF sponsored austerity program which limits public borrowing. For these reasons, ONAREP has undertaken an exploration program at Essaouira using Moroccan drilling rigs and crews (which are financed in Dirhams), albeit with expatriate technical assistance funded by the World Bank. By contrast, it is revealing to note that the U.S. companies drilling offshore have chosen to do so in the belief that exportable oil deposits are found in these areas.

In his official statement on the second Moroccan petroleum loan, USED George Hoguet said:

"At the outset, let me say we support this loan and are encouraged by the approach taken by the Moroccan authorities to their overall hydrocarbon exploration strategy. Drilling acreage is available to foreign private investors both on and offshore, and there exists no legal prohibition on local investors who wish to enter the business. A flexible petroleum code, designed to attract scarce risk capital and leverage limited domestic resources is in place and

being updated. Conservation efforts through realistic pricing mechanisms are in place, although considerable potential still exists in restraining electricity demand.

"This loan is quite different from many recent hydrocarbon loans the Board has seen. The project is a clearcut exploration and appraisal drilling program rather than hydrocarbon development; the financial rate of return is not particularly high and is subject to great variability; private equity capital has been given a chance to evaluate the prospects; the price for any new gas discovered will be set on the basis of the cost of alternative energy sources; the borrower is not particularly well established and does not have substantial hydrocarbon reserves or large financial resources of its own.

"In other words, the probability of displacement of alternative financing is substantially lower than in other recent cases. This loan is predicated on one of the initial critical justifications for the Bank's presence in the oil and gas sector: That there are hydrocarbon reserves of insufficient size to be of interest to private external capital but which are still large enough to be of interest to domestic investors, including public authorities."
(April 26, 1983)

ONAREP's efforts to secure technical assistance from private oil companies have had only limited success. The Moroccan company sought drilling personnel, including rig superintendents, from a broad range of U.S. and multinational companies through a 1982 request for proposals; however, all U.S. companies declined to bid and ONAREP ultimately selected Elf Aquitaine to provide that assistance, with World Bank funding. Providing such technical assistance on an ad hoc basis rather than within a comprehensive concessionary agreement is outside the normal course of business for U.S. oil companies, which themselves rely on drilling sub-contractors for the vast majority of their field work.

The Government of Morocco has been forthright in stating that it cannot go much beyond the current Bank-funded appraisal drilling program at Essaouira without a substantial infusion of private capital. The Bank, including the USED, agrees with that conclusion. It is hoped that the current program along with the geological and geophysical analysis being undertaken in other regions of the country, will show sufficient promise to encourage new private investment.

(d) The AID and World Bank Roles: A Comparison

The World Bank loans to ONAREP, now totalling \$125 million for oil and gas development, might seem to overshadow or even obviate the need for AID technical assistance budgeted at \$2.95 million through September 1984 from the current S&T/EY project, and proposed at \$5 million in ESF funds for the FY 84 USAID follow-on project. As the following discussion shows, the AID program is consistent with, complementary to, and non-duplicative of the World Bank program.

- Short-Term Appraisal vs. Long-Term Institution-Building: While the Bank's loans are focused on the appraisal of the Essaouira basin and the possible development of the Meskala gas discovery, AID's effort will strengthen the organizational structure of ONAREP and improve the overall management of ONAREP. AID's funding will complement IBRD policy to encourage ONAREP to develop full partnerships with private oil companies and financial institutions. This orientation is evidenced clearly in Section 3.C. below, Project Description, where the specific assignments of project personnel for technical assistance roles are described. In short, however, AID will provide for top-level managerial and strategic planning support; private investment promotion assistance; economic analytical capability; basic geological/geophysical research support; reservoir engineering assistance and reserve estimation; and help with design, costing and feasibility analysis of production-related facilities. The basic objective of the USAID project is to aid ONAREP in developing an effective corporate structure and mode of operations, a solid human resource base and a long-term strategic orientation that will maximize productivity, revenues and private-sector participation.

- Local vs. National Scope: While the IBRD-funded activity focuses on the promising Meskala region, AID will direct its funding toward the gradual development of a better geological and geophysical data base for Morocco as a whole. ONAREP has already identified the Doukkala region as its next priority, after the Essaouira basin, for exploration and for solicitation of private-sector interest. Several offshore areas in both the Atlantic and the Mediterranean are also targeted, and indeed, these are the areas where major oil companies have shown greatest interest to date. What is needed now is for ONAREP to develop a comprehensive geological and geophysical exploration program and data base with initial emphasis on Essaouira, Doukkala and selected offshore areas, but with a national scope as well. The complement of geological and geophysical expertise to be provided under the Project will address this need.

- U.S. Technology Transfer: The United States is the acknowledged world leader in petroleum technology, especially in the fast-changing fields of geological and geophysical analysis. The USAID project will provide exposure to state-of-the-art U.S. methodologies and expertise in these areas and, in so doing, is expected to stimulate Moroccan interest in purchasing U.S. equipment and services for petroleum exploration and development. At the same time, a U.S. presence in these areas, however modest, can be expected to increase the U.S. oil industry's familiarity with and interest in Moroccan petroleum potential. This Project thus has substantial potential for broadening the market for petroleum consulting services in Morocco beyond the traditional French advisory sources.

DETAILED PROJECT DESCRIPTION

1. Goal: The Project's goal is to contribute to the alleviation of current economic problems in Morocco by accelerating the efficient development of the country's indigenous hydrocarbon resources and strengthening the long-term capacity of the GOM for exploration, development and production of those resources in partnership with the private sector.

2. Purpose: The specific purposes of the Project are to strengthen the internal capabilities of the National Petroleum Exploration and Development Agency (ONAREP) (1) to apply cost-effective private sector management principles and techniques; (2) to establish ties with the private sector partners in petroleum investments; and (3) to explore, develop, and produce hydrocarbon resources. Technical assistance to be provided includes nine resident advisors over a three-year period, supplemented by the intermittent assignment of additional experts for short periods. Training provided under the Project will include graduate study, short courses, industry internships, seminars and conferences in the United States, as well as short courses and seminars in Morocco.

3. Project Inputs

3.a. U.S. Contribution

3.a.1. Long-Term Technical Assistance (Resident Advisors)

Experience under the centrally-funded predecessor project has shown that assistance in the highly-technical hydrocarbons field can most effectively be given through the assignment of full-time resident personnel. By working with ONAREP on a daily basis, U.S. advisors can gradually prepare their counterparts for full assumption of responsibilities involved in petroleum exploration, development and production - a new endeavor for Morocco.

The specialized fields that will be represented by AID-funded advisors to ONAREP, along with the level of effort assigned to each, are indicated in Table 1. More detailed descriptions of their functions and the qualifications necessary for filling these posts are found in Annex K.

TABLE 1

RESIDENT TECHNICAL ASSISTANCE TEAM

(person-months or p.m.)

1. Senior Petroleum Management/Finance Advisor (Chief-of-Party) - 36 p.m.
2. Joint Venture Promotion Specialist - 24 p.m.
3. Geologist - 36 p.m.
4. Geophysicist - 36 p.m.
5. Reservoir Engineer - 24 p.m.
6. Production Engineer (Surface Facilities) - 18 p.m.

A total of 174 person-months of resident technical assistance will be provided. This long-term technical assistance falls into three general categories:

(a) Managerial and Financial Advisory Team (Positions land 2):

These two critical positions best advance the essential objectives of the Project, i.e., long-range institution-building, effective and efficient management of the national hydrocarbon development program, and extensive private-sector participation in that program, and are thus crucial to the success of the Project.

(b) Exploration Advisory Team (Positions 3 and 4):

Strengthening of ONAREP's technical skills in exploration and reservoir appraisal is also important to the achievement of the Project goals. At present these areas constitute the principal raison d'etre for ONAREP, since it is an indication of promising gas deposits and the ongoing need to better understand the dimensions of this deposit -- and possibly others -- that have led the GOM and AID to accord high priority to petroleum activities as a potential means to an improved economy and balance-of-payments position.

(c) Technology Advisory Team (Positions 5 and 6):

Current onshore drilling is being done by ONAREP in the Essaouira basin on the Meskala structure and is therefore covered under the World Bank loan and the contract with Elf Aquitaine under that loan. In addition, major oil companies have undertaken very limited drilling in several offshore areas. Contract drilling services would be possible to obtain from outside private-sector companies once geological and geophysical studies have been shown sufficiently optimistic; given AID's firm policy of not displacing privately available capital and/or services, it is therefore not possible to justify an AID role in drilling.

The last two positions of the T.A. team are justifiable as an AID activity because of the specific circumstances of the Moroccan case. In normal circumstances, the presence of a recoverable reserve of a commercial scale would be sufficient to bring about timely expenditure on planning, feasibility analysis, design and construction of production-related facilities. In this case, however, there are three countervailing problems facing Morocco:

- the reserves discovered at Meskala (and at another small field at nearby Toukimt) are, in their currently known dimensions, too small to be of other than local interest;
- current fiscal problems and severe shortages of foreign exchange make it extremely difficult to move ahead with production-related investments; and
- these same problems have created extremely strong pressure on ONAREP to bring the small existing fields into production as rapidly as possible, thereby beginning ONAREP's gradual transition from a state-supported agency to an autonomous self-financing company.

In light of these factors, and the fact that planning for production-related work is outside the scope of the World Bank funded activities, the Project will provide a reservoir engineer and two production engineering experts to ONAREP.

The six positions described above, constitute the full complement of the resident assistance team.

3.a.2. Short-Term Consultant Specialists (9 p.m.):

ONAREP has diverse needs for technical assistance in specific areas, many of which cannot be determined far in advance and will not require sustained long-term efforts. To meet these needs, the Project will include an allocation of funds to pay for short-term specialists. The level of effort allocated to this project element is 9 person-months. Short-term work under the project will generally encompass special studies and analysis to strengthen ONAREP's financial management and organization. It is desirable to maintain flexibility in this component of the project in order to provide a quick-response capability attuned to changing needs.

3.a.3. T.A.Home Office Support (9 p.m.):

The field personnel will be supported in the Home Office by a part-time Project Director working 25% of his time on Project management. The Project Director will, with technical guidance from the resident Chief-of-Party select the short-term advisors for 6 months of TDY to ONAREP and assign 3 work-months for management advisors and technologists located in the U.S. to work on the project. The Project Director will also manage much of the Project's participant training program as noted in the Financial and Implementation Plans. Another key service under the control of the Home Office will be a limited line item for computer time and reservoir estimation studies. A very small initial procurement package will be required of the Home Office as described in Annex K.

3.a.4. Training:

Chronic Moroccan shortages of qualified petroleum exploration and production professionals require an organized effort to:

- project manpower demand and develop adequate recruitment procedures and training budgets to fill vacancies within ONAREP;
- maintain and expand the skills of current experienced petroleum exploration and production professionals; and
- provide practical and immediately useful job skills to newly graduated petroleum exploration and production professionals and technicians.

The training component of the Project will contribute substantially to the development of a long-term capability in ONAREP to explore, develop and produce oil and gas resources in partnership with the private sector. In keeping with a policy shared by the GOM and USAIP, the project will emphasize specialized, highly practical short-term and on-the-job training. Only four fellowships will be made available for degree-oriented academic study. ONAREP will devote early and substantial effort to a comprehensive assessment of its future manpower needs and to the development of a comprehensive long-term training plan, with priority rankings, schedules and budgets designed to respond to the assessment's specific findings. In that way, decisions under the Project about specific training to be offered can follow logically from a rational and thorough appraisal that will assure that tightly constrained training funds are spent cost-effectively.

The general categories of manpower training to be included under the Project, with associated levels or numbers of each follow:

- Master's Degrees at U.S. Universities - Four Masters, two technical (science and engineering) degrees, and two degrees in economics or business administration (handled via AID's existing training contracts);
- Short courses and internships in the United States, varying in length from 3.5 to 8.0 months per trainee - approximately seven participants per year for two years for a total of about 82 participant-months (LOP); USAID will directly fund via existing AID short-term contracts about 29 participant-months per year of classroom training usually followed by about 12 participant-months per year of industrial internships funded by the contractor. Examples of short-term training currently available from AID would be ADL's petroleum management course or the International Petroleum Consulting Services (IPCS) four-month technology course from which a few ONAREP engineers have already benefitted;
- Attendance at seminars and conferences of about two week duration - approximately 12 persons over the LOP for a total of 6 participant-months. Examples of such conferences would be the UNITAR-sponsored course on assessing small gas fields. Training location would be the U.S. unless waived.

- In-country courses and seminars on specialized topics in Morocco, with an average length of two weeks -- approximately six seminars (three per year) serving 14 persons each, or a total of 42 participant-months LOP. The T.A. and training contractor would TDY two lecturers for these special seminars thereby allowing the resident T.A. team to focus on its assignments. Topics would be selected by the contractor, USAID, and ONAREP at the beginning of each year. Establishing a prudent rate structure for natural gas and knowledge of competing energy technologies are issues currently uppermost in the minds of ONAREP's key decision-makers. Engineering related topics such as reservoir estimating, well testing and contract supervision are also of interest to ONAREP. Funded within the contract.

- English language training for candidates proposed for technical and academic training as well as for ONAREP counterparts of the U.S. team members will be eligible for reimbursement via the U.S. contractor. Up to 30 ONAREP employees may be designated to take regular English courses during the first 20 months of the project. Those who expect to receive training for 3 months or longer in the U.S. may receive up to three-months of intensive English language training (at least 4 hours per day) if test results indicate this is required. Language instruction will be given at ONAREP's main offices if there are enough candidates at similar skill levels.

Roughly 229 person-months of training will be provided through the Project, divided between academic training (96 person-months, assuming 24 months per person) and technical training (133 person-months) of which 42 will be provided in Morocco. In terms of numbers of persons involved, the emphasis on technical and in-country training becomes clear: only four will enter U.S. degree programs. However, approximately 14 will be trained in U.S. short courses and internships. International seminars and conferences will attract 12 individuals, while about 34 will benefit from specially tailored seminars in Morocco.

As with the short-term technical assistance component, it is useful to keep the training component highly flexible at the outset so that the Project will be fully responsive to evolving needs. On the same basis, it is useful again to provide illustrative areas in which training appears to be especially needed. Selection of specific candidates and programs will follow regular AID procedures as applied by USAID's training office.

Illustrative short-term and industrial training fields are described in Annex K. Please see Sections III.B. and III.C. for strategy to implement the training program.

3.b. GOM Contribution

ONAREP will support the project with the equivalent of approximately \$1.7 million largely in the form of counterpart personnel.

- Counterpart personnel: 60 p.m. for the financial management group, 76 p.m. for the exploration advisory team, and 42 p.m. for the production advisors.
- Office and logistic support: proper office and secretarial support for the six advisors including company cars, transportation and per diem when traveling within Morocco on assignment.
- Salary maintenance for participants.

Table 5 provides cost estimates for these GOM inputs in greater detail.

4. Project Outputs:

To appreciate fully the anticipated project outputs, it must be emphasized that the project does not intend to contribute directly to the production of new energy resources in Morocco nor can it assure such production will be forthcoming. In addition, it is necessary to place this \$6.7 million project in the larger context of ONAREP's overall effort. Specifically, the AID project is expected to enhance and accelerate ONAREP's institutional development so it may more effectively use two IBRD loans totaling \$125 million, and, of course, optimize the company's own funding, valued at \$250 million. Needless to say, without the large financial commitments of the IBRD and the GOM, AID's \$5.0 million assistance package would have little meaning.

With the above caveats, the project can still be expected to accelerate GOM's appraisal of the Meskala discovery. It will also assist ONAREP prepare exploration strategies for other promising geologic areas. More importantly the project's focus on management and finance should help ONAREP re-orient its operations and procedures to conform more to accepted standards in the management of a new petroleum company. This much needed reform will improve ONAREP's efficiency and will encourage the flexibility and decentralized authorities needed for ONAREP to operate more effectively. Assisted by a full-time promotion specialist, ONAREP is expected to attract more expatriate petroleum companies to Morocco under concession agreements, thus providing greater reliance on private markets. The promotion specialist and corporate management advisor will in concert advise ONAREP regarding the appropriateness and benefits of converting to a contract drilling operation instead of continued reliance on force account drilling by largely inexperienced crews not motivated by profit.

In sum, the principal outputs are as follows:

- 1 - a more efficient, productive management structure within ONAREP;
- 2 - a more extensive and knowledgeable interest in Morocco's petroleum potential by international investors and operators;
- 3 - an accelerated ONAREP useage of IBRD loan to appraise the Essaouira discovery;

- 4 - well trained ONAREP professionals making field decisions pragmatically and independently on a timely (and less costly) basis;
- 5 - greater financial autonomy and internal budgetary control for ONAREP firmly established;
- 6 - long term strategic planning process for hydrocarbon exploration/development by ONAREP in operation;
- 7 - ONAREP's Planning and Studies Unit fully staffed and operational.

The principal outputs will be met over the 36-months of contractor residency by establishing a work plan targeted to assist ONAREP achieve the following specific types of management or financial reform. These "benchmarks" are considered to be objectively verifiable by the evaluation teams whereas the seven outputs stated immediately above are open to a wide range of interpretation.

"Benchmark Achievements Expected from the Project":

- 1) To institute a monitoring program to quantify performance in the field on a cost-per-unit of production basis.
- 2) To establish an internal audit capability responsive to MEM and MOF needs.
- 3) To propose a salary and bonus structure which rewards outstanding professional performance.
- 4) To propose an approach so that the "drilling contractor" will have time and quality incentives vis-à-vis its client, ONAREP (this may involve ONAREP divesting of its drilling operations or relinquishing direct responsibility).
- 5) To institute techniques of economic analysis which will help to espouse development projects with high rates of return and market-clearing rate structure.
- 6) To advise ONAREP how to maximize its use of joint venture concessionaires.
- 7) To integrate standard risk analysis techniques into its exploration and appraisal proposals.
- 8) To advise ONAREP on the comparative costs/benefits of placing as much of the downstream activities as possible under the control of local private interests, especially transmission, distribution, refining, and bottling.
- 9) To advise ONAREP on the costs/benefits of moving to contract drilling based on competitive bid: on cost and time per meter drilled.

- 10) To propose a new organizational hierarchy which will delegate greater technical and financial/authority discretion to line professionals consistent with an enhanced recruitment program to fill critical professional positions.
- 11) To propose procedures which will increase a horizontal exchange of management information within ONAREP which is now classically vertical.
- 12) To advise ONAREP how it may revise its organizational structure/behavior away from that of mining company reflecting its DRPM heritage and more towards the looser more flexible systems common to small petroleum companies.
- 13) To develop a capacity within ONAREP to order and stock perishable drilling supplies leading to the relinquishing of its costly drilling mud production service which does not meet international standards.
- 14) To establish a physical inventory/accounting system for perishable supplies and durable equipment.

5. End of Project Status (EOPS):

In short, the AID project is a classic technical assistance effort focused on the highest management echelons of ONAREP. Its major outputs are to strengthen ONAREP'S management, establish/activate an effective Planning and Studies Unit, and to accelerate ONAREP's appraisal and exploration programs.

The ONAREP management and senior technical staff will be more conscious of cost-saving techniques common to the petroleum industry. A more autonomous financial management system will have been put in place. The exploration staff will be more capable in establishing its own exploration strategies over the long-term. The production division will be more capable to determine its own estimates of recoverable reserves and projected draw-downs. These benefits will be reinforced by training of the mid-level staff in petroleum management and technology. The above EOPS is expected whether or not ONAREP's gas discovery proves commerciable. In fact, the project can still be considered a success if ONAREP determines that the Meskala discovery is not worth developing. Technical assistance in helping ONAREP conclude it should terminate plans to develop Meskala would be just as professionally helpful as technical assistance which had the good fortune of focusing on a profitable commerciable discovery. Given the GOM's serious balance-of-payment problems, the earlier ONAREP can come to a definitive "go/no go" decision the better for ONAREP's financial posture. Of course, if Meskala or other discoveries of the future do demonstrate positive economics then, the EOPS may well be characterized by increased production and the accelerated displacement of imported hydrocarbons.

6. Assumptions

The most important assumption is that ONAREP management --now typically parastatal-- is willing to make hard decisions leading to a more private corporate style of conducting business, in order to increase efficiency. A semi-private style of management will certainly help ONAREP compete with imported fuels - coal

or oil - in the event it starts domestic oil or gas production. The traditional governmental structures of Morocco, vested interests, and political realities are all constraints on this needed reform, recognized as essential by ONAREP's top management. The distance ONAREP can go down the road of privatization is limited by numerous countervailing domestic forces beyond the immediate control of the project.

The underlying assumption permitting ONAREP to attract a greater number of joint venture partners from abroad is that indeed, Morocco's geology will prove "oil prone" and that technical dossiers establishing this hypothesis will be state-of-the-art and distributed widely.

The final key assumption is that IBRD funds and scarce GOM-owned foreign exchange continue to be made available on a timely basis to ONAREP.

II. COST ESTIMATE AND FINANCIAL PLAN

A. Cost Estimate

Tables 2 and 3 summarize the USG and GOM cost estimates respectively. The \$6.7 million project will disburse relatively evenly over the 42 month LOP, starting in April 1984. About 15 percent of the USG contribution will be incurred in local currency expenditures, as shown in Table 4. The costing of project outputs/inputs shows that ONAREP is implicated financially in almost all aspects of the project. (See Table 5). Both the USG and GOM contributions presume a 6 percent per annum inflation rate. The AID-funded T.A. and training contract includes a 5 percent contingency factor. Detailed cost estimating sheets are found in USAID's internal version of Annex F, Detailed Financial Analysis.

ONAREP's contribution will come from GOM General Treasury outlays allocated in the early months of each CY based on budget requests submitted in late fall of the preceeding year. ONAREP has given its assurances that it has requested and will receive appropriate outlays for this project.

TABLE 2

608-0176 CONVENTIONAL ENERGY MANAGEMENT AND TRAININGUSAID EXPENDITURE ESTIMATE
SUMMARY

(\$000)

<u>USG CONTRIBUTION</u>	<u>7/84-5</u>	<u>7/85-6</u>	<u>7/86-7</u>	<u>TOTAL</u>
<u>I. DIRECT A.I.D. CONTRACT</u>				
A. Est. Cost	1,560	1,428	830	3,818
1. Field T.A.	1,255	1,156	686	3,097
2. Field Training	53	57	52	162
3. Home T.A.	198	158	92	448
4. Home Training	54	57	---	111
B. Est. Fixed Fee of 10%	156	143	83	382
C. Est. Contract Charges	1,716	1,571	913	4,200
D. 5% Contingency Based on Est. Contract Charges	86	78	46	210
E. Total Available to Fund Contract (C+D)	1,802	1,649	959	4,410
<u>II. USG Direct Training via Existing Contracts at ST/EY</u>	155	211	50	416
<u>III Periodic Project Evaluations (11th + 22nd months)</u>	55	58	61	174
T O T A L	2,012	1,918	1,070	5,000

-
- 1) Price Inflation of 6% per annum factored into Estimates.
 - 2) Item D. Contingency set at 5% instead of Agency's recommended 10% "physical contingency" since mainly a T.A. contract. If AID/offeror price negotiations cannot stay within the limits of total funding available, the level-of-effort of Production Engineers and/or short-term contractor staff will be reduced.

TABLE 3

608-0176 CONVENTIONAL ENERGY MANAGEMENT AND TRAINING
ONAREP EXPENDITURE ESTIMATE
SUMMARY

(\$000 equivalent)

<u>GOM Contribution</u>	<u>7/84-5</u>	<u>7/85-6</u>	<u>7/86-7</u>	<u>TOTALS</u>
I. Counterparts and Logistic Support	516	445	246	1,213
II. Costs Related to Training in Morocco	73	78	20	171
III. Costs Related to U.S. Based Training via				
A. Contractor	34	36	0	70
B. AID	82	119	34	235
 TOTAL ONAREP PROJECT CONTRIBUTION	 705	 678	 300	 1,689

-
- 1) Price inflation of 6% per annum factored into estimates.
 - 2) Base figures reflect ONAREP document D.F./D.B. No. 34/82 of August 11, 1982.
 - 3) Exchange Rate of 7.80 DH/\$.
 - 4) Errors due to rounding.

TABLE 4

608-0176 PROJECT COST ESTIMATE AND FINANCIAL PLAN: SUMMARY
(U.S. \$000)

	A I D		O N A R E P		PROJECT TOTAL	
	FX	LC	FX	LC	FX	LC
I. Personnel of combined Project						
Team in Morocco						
A. Salaries	1,056	92	0	562	1,056	654
B. Employee Benefits	264	23	0	225	264	248
C. Overhead	845	74	0	89	845	158
D. Travel, Per Diem, Trans.	174	150	46a)	203	220	353
E. Major Direct Costs	94	278	30b)	48	124	326
F. Miscellaneous Direct Costs	10	37	0	16	10	53
II. Home Office Personnel of U.S. Contractor						
A. Salaries	115	0	0	0	115	0
B. Employee Benefits	29	0	0	0	29	0
C. Overhead	92	0	0	0	92	0
D. Travel, Per Diem, Trans	20	0	0	0	20	0
E.1. Reservoir Est. Services	140	0	0	0	140	0
E.2. Office Equip. for Export to Morocco	20	0	0	0	20	0
F. Miscellaneous direct Costs	32	0	0	0	32	0
III. Training Provided to ONAREP in Morocco (Contractor-Sponsored)	120	42	0	171	120	213
IV. Training Provided to ONAREP in U.S. (Contractor-Sponsored)	111	0	0	69	111	69
V. Contractor's Fee	382	0	0	0	382	0
VI. 5% Contingency for U.S. T.A. and Training Contractor	210	0	0	0	210	0
VII. Periodic Evaluations of Project	140	34	0	0	140	34
VIII. Training Provided to ONAREP in U.S. (AID-sponsored)	416	0	0	235	416	235
TOTALS	4,270	730	76	1,613	4,346	2,343
	5,000		1,689		6,689	

Inflation factored at 6% per annum.

a) Foreign Travel of ONAREP's Promotion Division Chief

b) 6 Fiat cars - Moroccan-assembled, componentry value only.

c) Errors due to rounding.

T A B L E 2

COSTING OF PROJECT OUTPUTS/INPUTS

(\$000)

Project 608-0176

TITLE: Morocco Conventional Energy Management and Training

PROJECT INPUTS		PROJECT OUTPUTS									
		SERVICES OR GOODS DELIVERED WITHIN THE PROJECT									
								82 mo.	9 months	42 months	
		Petroleum Mgt.+ Fi- nance Adv.	Exploration Design + Analysis	Technical Assistance in Product	Short-Term Technical Assistance Advice	Reservoir Estimations	Office Equipment	Four Masters from U.S.	Technical Training in U.S.	U.S. Semi- nar Atten- dance	Training at ONAREP
AID Contribution:	60 p/m	431									
	72 p/m		382								
	42 p/m			244							
	9 p/m				48						
	Reservoir Est. Computer Time					140					
	Typewriter, Computer, Word Proc.						20				
	Placement/ Scholarship							189			
	Internship + Short Course Fees								321		
	6 Conference Fees/year									17	
	Two Lecturers 3 Times/yr.										162
ONAREP Contribution:	60 p/m	194									
	72 p/m		198								
	42 p/m			112							
	6 p/m				25						
	Reservoir Est. Computer Time					0					
	New Office Equipm. (See Overhead)						0				
	Salary Maintenance							127			
	Salary Maintenance								106		
	Salary Maintenance									16	
	Salary Maintenance										56
		625	580	356	73	140	20	316	427	33	218

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INTANGIBLE ASSOCIATED SUPPORT

TOTAL

Employee Benefits	Overhead	Office Operation	Contract Contingency	Contract Fix Fee	Travel	English, Rent, Allow. + Miscel.	Evaluations	TOTAL
316	1,011	238	210	382	343	372	174	5,000
225	84	56	0	0	337	153	0	1,689
541	1,095	294	210	382	680	525	174	6,689

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B. Financial Plan

Upon project authorization and execution of a Project Agreement, USAID and ONAREP will proceed with technical and academic participant training in those areas where S+T/EY has already negotiated centrally managed training contracts. These charges will be funded directly by USAID depending on the timing of specific candidates. These costs would total about \$416,000 over the LOP.

The major project cost, the T.A. and training contract, estimated at \$4.4 million would call for an ONAREP approved PIO/T and RFP submission in the Commerce Business Daily as soon after ProAG execution as possible so as to allow for an early transition with the current S+T/EY-funded project. The cost reimbursement (level-of-effort) plus fixed fee contract will be funded in annual increments which obligate monies two months beyond the scheduled evaluations. Subsequent funding would be forthcoming pursuant to recommendations from project evaluations which would impact the annual revision to the work plan and budget which AID would require of the Contractor. Since ONAREP's consulting and training needs cannot be rigidly determined so far in advance, it is recommended that the best approach to financial planning would be to adjust the contractor's work plan and budget estimates as the Project evolves.

The Project evaluations combined with monitoring visits would result in the contractor submitting to AID annual work plan revisions. Thus, the amounts projected for contract expenditure on a twelve month basis from July 1 through June 30 are the same as line entry E. of Table 2. Project expenditures either by USG FY or GOM CY are projected in Tables 7 and 8 below. Detailed Financial Plans are found in Tables 13-15 in Annex F.

C. Assessment of the Methods of Implementation and Financing of Proposed Project Activities

The USAID/Morocco's "Financing Policy and Procedures" document prepared by the USAID/Morocco Controller stipulates existing methods of financing USAID activities in Morocco. The PP design team has reviewed these options and believes that in light of the GOM's severe austerity measures ONAREP does not have the financial resources available to make timely payments for AID-funded goods and services and to seek reimbursement from USAID. It is noteworthy that the IBRD in its loan management with ONAREP has also agreed to directly pay for goods and services because of persistent cash problems within the GOM's Finance Ministry.

Rather USAID has selected the Direct AID cost reimbursement contract method for technical services, minor commodity procurement, and some short-term training having an estimated value of 84% of the USG contribution to the Project (73% - technical advice, 11% - training, negligible - commodities). The USAID/Controller will utilize direct payment procedures. As most of these contract services will be provided in Rabat, Morocco, adequate monitoring and oversight will be assured. (See Table 6 below). Internal control is deemed to be good.

The other key Project component, short-term and academic training equivalent to 8 % of the USG contributions to the Project, will be AID direct training under existing AID/W agreements with technical back-stopping by AID's Office of Energy and ST/IT. Payments will be made from AID's Participant Training Master Disbursing Account.

T A B L E 6

PROJECT 608-0176 : CONVENTIONAL ENERGY MANAGEMENT AND TRAINING

- Methods of Implementation and Financing

<u>Method of Implementation</u>	<u>Method of Financing</u>	<u>Approximate Value</u> (U.S. \$000)
1. English Language Training (Trainee enrollment using USAID letter)	- Direct Payment to ALC	3
2. U.S. Short-Term Training (ST/EY contract)	- USAID to Transfer Funds to Supplement ST/EY- managed Training Contracts under AID/W Project 936-9997	227
3. U.S. Academic Training (ST/EY contract)	- USAID to Transfer Funds to Supplement ST/EY- managed Training Contracts under AID/W Project 936-9997	186
4. T.A. for Evaluations - work orders under existing ST/EY managed IQC's	- Direct Payment to Contractor to Supplement IQC's managed by ST/EY	174
5. Contingencies	- To be determined if/as necessary	210
6. USAID Direct Contract (cost reimbursement fixed fee) for T.A., Training, commodities	- Direct letters of commitment (3 annual tranches totaling \$3,891 for TA, \$289 for Training and \$20 for Commodities)	4,200
		5,000

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TABLE 7

PROJECTION OF A.I.D. EXPENDITURES BY U.S. FISCAL YEAR
(OCTOBER 1 - SEPTEMBER 30)

(\$000 or equivalent)

Fiscal Year	AID		TOTAL
	Estimate	Contingency	
1984	1,812	85	1,897
1985	1,828	78	1,906
1986	1,078	58	1,136
1987	61	0	61
Total	4,779	221	5,000

TABLE 8

PROJECTION OF G O M EXPENDITURES BY CALENDAR YEAR
(GOM FISCAL YEAR)

(\$000 or equivalent)

Calendar Year	ONAREP	(DH)
	(\$000 equivalent)	
1984	453	3,533
1985	675	5,265
1986	436	3,401
1987	125	975
Totals	1,689	13,174

NOTES to TABLES 7 and 8:

- 1) Calendar year projections requested by GOM's MOF to assist their financial planning.
- 2) 6% per annum inflation factor into estimates.
- 3) 7.80 DH/\$ exchange rate.
- 4) Errors due to rounding.

4% of the USG Project contribution will cover evaluation/monitoring services to be secured via one of a dozen AID/W IQC's qualified in conventional energy technical assistance. USAID/Morocco will issue a PIO/T for specific scopes of work under these existing IQC arrangements to reduce the administrative burden of full competition and duplication of effort.

Finally, 4% of the USG contribution is held for contingencies.

A 6% per annum inflation projection has been factored into USAID's international cost estimates.

It is believed that the above methods of implementation and financing are the most effective, provide thorough oversight by USDH's, and are expeditious. Project-funded auditing will not be required in view of the direct AID management of most of the funds and a generous evaluation/monitoring budget. The "Project Officer Check List for Administrative Approval of Vouchers" (see page 10 of AA/M "Payment Verification Policy Implementations Guidance" memo of 12/30/83) will be used by USAID.

The USAID/Morocco Controller concurs with Project 0176's Method of Implementation and Financing Plan and has been delegated the authority to approve the Project Paper authorized in the field by USAID/Morocco's Director. The Controller's approval appears on the Project Data Sheet.

III. IMPLEMENTATION PLAN

Following authorization of the Project, USAID/Morocco will negotiate a Project Agreement with the Ministry of Energy and Mines, ONAREP and the Ministry of Finance. The agreement will designate ONAREP as the GOM implementing agency with the Ministry of Energy and Mines (MEM) having technical oversight responsibilities and MOF through MEM having responsibility for timely provision of the GOM budgetary contribution. (Annex L provides a draft project description to appear in the Project Agreement.) The Project Agreement will obligate \$4 million Project budget out of FY 1984 ESF funds and the balance from FY'86 funds. Actual disbursement will take place on an incremental basis throughout the three-year Project life.

A. TECHNICAL ASSISTANCE AND TRAINING CONTRACT:

Competitive procurement processes will be used for all aspects of the Project. The process of selecting the technical assistance contractor will be undertaken immediately upon execution of the Project Agreement by USAID, ONAREP, and MEM. Selection will be completed by summer 1984, allowing a smooth transition from the centrally-funded technical assistance activities to the Mission Project. The technical assistance contract will be an AID direct contract.

The Director-General of ONAREP (or his designee) will participate as an observer on the selection committee. Final contractor selection will be made with the concurrence of ONAREP. ONAREP will also be present during contract negotiations which will be held at USAID/Morocco under the chairmanship of the RCO. USAID/Rabat will fund either the conventional energy officer from S&T/EY or a knowledgeable private technical consultant to advise the contract selection committee.

Once the committee has selected the highest ranked firms with which it intends to negotiate a contract, representatives from the firms (Project Director, Legal Counsel, and Accountant) will meet with the RCO to negotiate contract terms. No later than three weeks after successfully executing a contract, the contractor will send appropriate representatives to Morocco to prepare for mobilization of resident staff, to hire local secretaries and administrative assistants, and to submit to USAID's satisfaction a detailed work plan for the first twelve months of resident technical assistance and training consistent with the contract and budget negotiated the month before.

Once the first year's work plan is approved, the entire resident staff would be authorized to be fielded. As mentioned earlier, subsequent work plans will be based on independent AID evaluations and submission of a revised work plan.

Beyond these annual assessments, before undertaking major initiatives such as reservoir studies or major training programs, the contractor will be required to submit related TORs and budgets to AID and ONAREP for approval.

The Production Technology team may, if circumstances are warranted, have its ETA delayed while ONAREP awaits the results of appraisal work. The maximum delay would be until 1/1/85.

USAID's Request for Proposals will include:

- a statement of the Project's overall objectives;
- a summary of the Project's context and rationale, including its relationship to the World Bank's petroleum activities in Morocco;

- a detailed description of the project elements and related requirements for personnel, corporate capabilities and scope of work;
- a schedule for activities;
- a list of commodities to be provided; and
- criteria for contractor selection.

Please see Annex K for a draft SOW for the T.A. and Training Contract.

Proposers will be directed to respond with their corporate qualifications and experience, a description of the general approach they would propose to take including arrangements for fielding and backstopping the resident team, the resources they would draw upon to provide short-term technical assistance, resumes of persons to fill professional positions, and a cost estimate.

In case there are over-runs in the actual contract negotiations, they will be absorbed in the 5% factor. If by chance the 5% factor cannot absorb the over-run the level-of-effort in the following line items will be reduced: reservoir studies, short-term T.A. at the home office, and short-term T.A. in the field.

A small portion of the technical assistance and training contract will include commodity procurement to equip the contractor's field office and to provide needed equipment in the offices set aside within ONAREP for the contractors. This equipment with spare parts will be ordered by the contractor in the U.S. promptly after contract execution following normal AID regulations so that its delivery will coincide with the arrival of the field staff who will arrange for local installation. At the end of the project, ONAREP will assume the duty to operate, maintain, and repair project equipment. Operation, maintenance, and repair of the equipment will be the responsibility of the contractor until definitive departure from Morocco. Contractor will also ship an adequate amount of associated perishable office supplies and arrange for local training on items such as desk-top calculators, word processors, and printers. An indicative procurement list is provided in Annex K below.

After contract signing the USAID/Morocco Controller will disburse against vouchers received. USAID/Morocco will make payments directly to the Contractor on receipt and review of monthly invoices. Payment method will be a point to clarify during negotiations.

B. USG DIRECT TRAINING VIA EXISTING S+T/EY CONTRACTS

To the extent feasible, USAID will use centrally-funded training contracts already in place and managed by S+T/EY. In this regard, USAID recognizes Project 936-9997 as a repository of conventional energy training options which should be tapped for more formal classroom instruction prior to sending ONAREP employees to industry internships. Project 936-9997 is currently undergoing re-competition.

The Conventional Energy Training Project 936-9997 will continue to be the center of AID expertise in the arrangement and management of the academic and short-term training in fields related to fossil fuels and electricity. It would be an unnecessary duplication of effort and cost for USAID to contract separately for these services, or to include them in the scope of work for the technical assistance contractor.

The service contract for S+T/EY's Conventional Energy Training Project 936-9997 will be re-competed in early 1984 and is expected to be activated by April, 1984. S+T/EY will program with their Contractor the certain training needs identified within USAID Project 608-0176.

Thus, USAID will add about \$416,000 to this central contract ear-marked for about 38 participant-months of ONAREP technical training and 96 participant-months of academic training.

Two types of training will be provided under this mechanism: short-term formal technical training and masters level academic training. It is intended that the majority of short-term candidates receiving classroom training under AID auspices will immediately upon completion receive on-the-job training under the auspices of the T.A. and training contractor prior to returning home to Morocco.

C. TRAINING VIA THE PROJECT'S CONTRACTOR

The contractor will conduct technical training programs for ONAREP employees. 42 participant-months will be provided in the form of 2 two-week lectures per year for 14 students. The contractor will also fund 4 students per year for internships in private industry for about three months each. In addition to the above training, the contractor will fund attendance at seminars in the U.S. (6 persons per year) and a local Rabat-based English language training program. As technical and academic candidates approach the time to be examined for English language competence the contractor may fund up to 3-months of intensive or remedial language training per student. Annex I details the key considerations in selecting participants and arranging for their training needs whether their training is funded under the T.A. contractor or via USAID.

USAID estimates that the T.A. and training contractor will need about \$17,000 to manage seminars and conferences, and \$111,000 for industry internships either within the contractor's own firm or in collaboration with other U.S. based companies working principally in the petroleum sector. The T.A. and training contractor would also need approximately \$157,000 for its 6 "custom made" seminars in Morocco and its funding of English language courses for ONAREP employees.

USAID, ST/EY, the home office of the T.A. contractor, and ST/EY's Training Contractor will closely coordinate sequential technical training opportunities in the U.S. It is proposed that ONAREP personnel finishing training provided by ST/EY-managed contractors sometimes move directly to another training locale under the auspices of the home office of the 0176 T.A. Contractor.

The domestic U.S travel costs associated with such a combined USG/contractor training program will be apportioned as follows: USG - one way to the site of formal classroom training; T.A. contractor - from site of formal classroom training to site of private internship and back to New York. GOM will cover RT fare to New York. Table 8 below summarizes the implementation considerations for training.

D. LOGISTIC SUPPORT

A proper level of logistic support is absolutely vital to the smooth cost-effective functioning of highly paid management consultants to the petroleum industry. AID-funded advisors and their ONAREP counterparts must have logistic support which is responsive and appropriate or else risk waste. Independent management audits have already provided ONAREP guidance on this point. The agency is now taking steps necessary to reduce waste and expedite decision making. In

conformance with recent audit results and in accordance with typical practice in the hydrocarbon sector, the Project will receive the logistic support indicated below. The organization heading each list is responsible for providing the support and paying for it unless otherwise noted:

AID

FSI Language testing

ACADEMIC, TECHNICAL, AND ENGLISH LANGUAGE TRAINING MATRIX

No.	Type of Training	Funded by	Provided by	Final Date for Nomination	Minimum English Score		Training Period		Duration Months	No. of Particip.	Total Participant Months-LOF
					At Nomination	Before Trg.	Begin	End			
1.	Reg. English Lang. Classes	608-0178	ALC/Rabat	12/83	N/A	See below	o/a 1/84	o/a 3/84	3	30	N/A
2.	Reg. English Lang. Classes	608-0176 Contingencies USAID	ALC/Rabat	3/84	N/A	See below	4/84 post ProAg	9/84 post contract fielding	6	30	N/A
3.	Short-Term Courses such as EMTP or ADL petroleum mgt. course. See 6 below for industry internships	608-0176 USAID	IIE-S&T/EY contract (Project 936-9997)	5/84	35 ALIGU	70 ALIGU	9/84	2/85	5.0	3	58
				12/84			4/85	6/85	3.5	4	
				5/85			9/85	2/86	5.0	3	
				12/85			4/86	6/86	3.5	4	
4.	MBA and MS Academic Training	608-0176 USAID	IIE-S&T/EY contract (Project 936-9997)	2/84	55, if regular classes offered.	TOEFL 500 or higher as required by school	9/84	9/86	24	2	96
				1/85			90 ALIGU	9/85		9/87	
5.	Reg. English Lang. Classes	608-0176 Resident Contractor	T.A. Contractor	8/84	N/A	N/A	9/84	4/86		max. of 27 yr. one and 20 yr. two	N/A
5.	Intensive/ Remedial Engl. Lang. Classes	608-0176	T.A. Contractor	3 months before departure for technical trg.	50	70 ALIGU	NLT 3 months before departure	1 month before departure	2 months per candidate	NTE four per year	N/A
				4 months before depart. for acad. trg.	35	500 TOEFL; 90 ALIGU	4 months before depart.	1 month before depart.	3 months per candidate	NTE three per year	
6.	Technical Seminars in Morocco (2 per year)	608-0176	T.A. Contractor	1 month before seminar	Not required though highly desirable	Not required though highly desirable	fall spring	fall spring	0.5	14 per seminar	42
7.	Private Industry Internships in U.S. after short-term courses in 3. above	608-0176	T.A. Contractor directly or via sub-contract	1/85	See 3 above	See 3 above	2/85	5/85	3	2	24
				5/85			6/85	9/85		2	
				1/86			2/86	5/86		2	
				5/86			6/86	9/86		2	
8.	ONAREP employee attendance of seminars/conferences	608-0176	T.A. Contractor	Varies	N/A	65-70	after 9/84	before 8/87	0.5	12	6

USAID

- Commissary privileges
- Diplomatic pouch for personal and project related mail
- Health Unit access
- Certification that personal effects and project commodities are tax-exempt per Bi-lateral and Project Agreement
- Assistance with Driver's license, resident identity card
- Co-Chairmanship of Quarterly Project Steering Committee (See IV Monitoring Plan)

ONAREP

- Custom clearance of project commodities through customs
- Access to ONAREP phone, telex - one phone extension per resident advisor
- Counterparts and participant salaries
- Contractor staff and counterpart field transportation + and per diem
- RT Morocco - New York travel of ONAREP participants
- One office per AID resident contractor (6)
- Provision of company automobile for each resident advisor
- Operation, maintenance/repair costs of above vehicles
- One office for 2 contractor-hired secretaries
- Lecture rooms
- Language training rooms
- Co-Chairmanship of Steering Committee

M O F

- Assurance of GOM contribution

M E M

- Attendance at Steering Committee sessions

CONTRACTOR FIELD OFFICE

- Housing Service
 - locate
 - allowances per USAID guidance
 - rental contract
 - maintenance
- Customs clearance of personal effects into/out of Morocco
- Shipping/travel arrangements
- Expediter

- Participants' language exams/Registration
- Participants' academic examinations (GMAT/GREs)
- Participants' in-transit funds
- Company phone/telex
- Contract accounting
- Translation/Interpretation services
- Remedial French as required
- 36 months of English/French-speaking Administrative Assistant for Contractor's office
- 24 months of English/French-speaking Secretary for Contractor's office
- 21 months of English/French-speaking Secretary for Contractor's office
- 24 months of English/French-speaking Secretary for Contractor's staff in ONAREP
- 19 months of English/French-speaking Secretary
- English language training for up to 27 ONAREP employees at a time
- Progress report drafting, translating, copying and distribution.

CONTRACTOR HOME OFFICE

- Shipping/travel arrangements except POV
- Expediter
- Complete administration of short-term students' training and support
- Contract accounting
- Office commodity procurement
- Monthly vouchering of billing
- Medical certification for each Resident Candidate
- Submission proposal of letter signed by each candidate that he is available for 90 days from final date of proposals submission to USAID
- Cost of French testing if candidate cannot travel to Foreign Service Institute/Washington
- Costs of U.S. travel of industry internees, and attendees at seminars/conferences.

E. SOURCE/ORIGIN OF GOODS/SERVICES

The T.A. and training firm awarded the contract shall be a U.S.-owned company with home offices in the United States. Any sub-contract firms will also be U.S.-owned. At least 2 of the 6 resident professional positions will be filled by the prime contractor. The Chief-of-Party and Promotion Specialist must be staff members of the prime contractor. All training outside Morocco will take place in the United States unless specifically waived. Procurement of goods and services of Moroccan source/origin or shelf-items normally imported from Code 935 countries will be allowable for reimbursement.

F. TRANSITIONAL PERIOD

Based on an ONAREP request and recommendations from an annual evaluation, the current contract for conventional energy technical assistance to Morocco was supplemented by \$1.3 million and extended to September 30, 1984. This bridge funding was provided on a "procurement by negotiation" basis awaiting the results of general competition for a multiple-year USAID funded contract.

Consequently, the time from the signing of the 0176 Project Agreement to September 30, 1984 at the latest will be a transitional period in the technical assistance and training currently being provided to ONAREP. For prudent planning purposes and cautious budgeting it is assumed that the contractor currently providing assistance to ONAREP would be replaced. The new technical assistance team would be provided up to 8 weeks of overlap with the departing contractors to exchange dossiers, conduct site visits, and to familiarize themselves with ONAREP administrative procedures.

TABLE 10

PROJECT IMPLEMENTATION CALENDAR
PROJECT 608-0176

<u>DATE</u> <u>1984</u>	<u>RESPONSIBLE PARTY</u>	<u>ACTION</u>
1/84	USAID	Submits PP to Mission Review Committee
4/84	USAID	Authorizes Project
1/84	USAID	Initiates English language training for up to 27 ONAREP staff under 608-0178
Late 4/84	ONAREP, MEM, USAID MOF	Sign Project Agreement, submit PIO/T to RCO
4/84	RCO	Issues RFP
4-5/84	Proposers	Prepare proposals/budgets
6/84	USAID	Selects highest ranked proposer
Mid 6/84	USAID	Invites proposers to negotiate
7/84	USAID/Proposer	Negotiate contract in Rabat
Mid 8/84	USAID/Controller	Reviews 1st Work Plan
Mid 8/84	Contractor	Ships to Rabat office Commodities
9/84	Contractor	Makes admin. reconnaissance visit and submits detailed work plan for USAID approval
9/84	Contractor	Hires admin. assistants and secretaries
9/84	Contractor	Ships personal household effects/appliances of residents or buys locally
Mid 9/84	USAID	Requests Contractor field resident staff
Late 9/84	Contractor	Resident Advisors Arrive
8/84	USAID	Sponsors 2 masters candidates
Late 9/84	Contractor	Receives shipment
Early 19/84	Contractor	Arranges for installation
9/84	USAID	Transfers English language training & some short-term training responsibilities to contractor

<u>DATE</u>	<u>RESPONSIBLE PARTY</u>	<u>ACTION</u>
12/84	Contractor	Issues first quarterly report
<u>1985</u>		
6/85	Contractor	Submits second work plan/budget for USAID approval
6/85	USAID, Controller	Amends L/COM for second annual tranche
8/85	USAID	Sponsors 2 masters candidates
10/85	USAID/ONAREP	Evaluate Project and contractor performance
<u>1986</u>		
2/86	Product-Engineer	Departs
5/86	Contractor	Submits final work plan/budget for USAID
6/86	2 masters	Return to Project
6/86	USAID/Controller	Issues 3rd L/COM
8/86	Contractor	Ends English Language Training
9/86	Jt. Venture Promotion Specialist and Reservoir Engineer	Depart
<u>1987</u>		
3/87	USAID/ONAREP	Evaluate Project and contractor performance
9/87	Two Masters	Return to Project
9/87	Mgt. Advisor, Geologist and Geophysicist	Depart
9/87	Contractor	Issues last quarterly report
<u>1988</u>		
6/88		Project Assistance Completion Date (PACD)

IV. MONITORING PLAN

The bulk of the Project represented by the technical assistance and training contractor will be monitored by the USAID Technical Projects Office and ONAREP's Administrative Affairs Office. The contractor's home office project director will report regularly to the resident Chief-of-Party on technical assistance provided in the United States as well the conduct of conferences and industrial internships. Technical and academic trainees will be monitored by existing AID/W conventional energy training contractors who will report to USAID and ONAREP via S&T/EY. Monthly the ONAREP Administrative Affairs Chief, the USAID OTP Division Chief, and Contractor Chief-of-Party will meet to review progress and issues for monitoring and trouble-shooting in the short-term.

The major monitoring device will be submission by the T.A. and training contractor of quarterly reports describing progress in attaining goals or targets set by the annual work plan. Issues, proposed resolutions, and budget status will also be discussed. Upon receipt of the quarterly report USAID and ONAREP will convene a Steering Committee meeting chaired by the AID Director and the ONAREP Director-General or their respective designees. The resident contractor will also attend represented by the Chief-of-Party and two other resident advisors of his choice. A representative of the MEM Energy Directorate will also attend the Steering Committee meetings. In addition to reviewing progress and issues, the Steering Committee will be used as a forum to approve or modify the details of specific tasks which the contractor is to undertake within his negotiated scope of work. In that spirit, the contractor will submit detailed draft descriptions of specific Work Plan tasks and budgets for assignments to be undertaken during the following 3 months. Minutes of the Steering Committee meetings will be kept by ONAREP and distributed to all attendees including the contractor's Project Director.

To assure adequate support and timely preparation, the contractor will notify ONAREP and all of the pending arrival of TDYer's stipulating the duration and terms of reference. USAID will indicate its concurrence before departure of the short-term advisor to Morocco. (See Section VII for related Evaluation Plan).

V. SUMMARIES OF ANALYSES

A. Technical Analysis Summary

Although the basic geology of Morocco is quite well known and much has been published on it, information on the petroleum geology of Morocco, has not been assembled or presented in an organized manner such that it can be used to benefit a systematic exploration program.

Potential source rocks, which may have generated oil or natural gas, cover a large part of the sedimentary basins and include Miocene shales, Jurassic limestones and shales, and Paleozoic shales. Structures capable of trapping hydrocarbons are numerous, therefore, geophysical exploration (seismic, gravimetric, magnetic and geochemistry) should be accelerated.

In the late 70's BRPM struck natural gas in Toukint and N'Dark in the Essaouira Basin. Foreign-owned companies once again grew interested in concessions as improvements in computerized seismic interpretation led them to draw more conclusive analyses as to where petroleum deposits might be. Unfortunately, the late 70's simultaneously brought a re-trenchment in GOM budgeting for petroleum development. So, BRPM turned to World Bank funding to carry on the work.

With \$50.0 million in WB funds, BRPM drilled seven wells in Essaouira and three in the Gharb of which 3 struck petroleum. Of these three, one seemed to be of commercial quality. This is an excellent discovery rate given BRPM's inexperience, since one wet well out of 10 dry is the industry norm; and one new field out of 50 finds a similar norm.

The product is under high pressure, rich in liquid condensates and may spread over a large area, though caution should be expressed since reservoir studies have not been completed. In 1981, BRPM divested itself of all petroleum related responsibilities and returned to a more narrowly defined minerals exploration and production role. In its stead, the Office National de Recherches et d'Exploitations Pétrolières (ONAREP) was created to focus the GOM's interest in the domestic petroleum sector.

Current estimates show a wide range of variation of potential production of the Meskala/Toukint reservoir. Estimates have become broader over time instead of better focused due to (1) reduced estimates of the Triassic stratum's percentage recoverable (about 30%) caused by persistent low porosity and (2) recent finds in the Paleozoic (where hydrocarbon migration is pronounced and re-establishment of pressure quite rapid after draw-down testing). The Paleozoic tests lead ONAREP to leave open the high end of their estimated reserves. These two technical discoveries have tended to widen the range of reasonable estimates of the Toukint/Meskala reservoir.

During 1983, the volumetric assessment of recoverable Meskala/Toukint reserves varied dramatically from month-to-month by factors of several hundred. Estimates remain too unreliable to be economically meaningful for planning purposes. It does appear, however, that the field is not of international stature. (See Table 11, Annex E-7).

Estimates are still only notional due to the highly variable porosity and complex subsurface geology of the Essaouira Basin. High estimates on Meskala may still vary by a factor of + several hundred until gas bearing Paleozoic strata are more accurately ascertained about 10/84.

A rough estimate of the displacement value of commercial energy is made in the Technical Annex but is of little real utility until the field is better appraised.

The arguments for mounting a midterm technical assistance program with ONAREP are predicated on three precepts: (1) there are indeed petroleum deposits in Morocco which are of commercial quality for the domestic market yet which may not interest seasoned well-capitalized foreign companies, (2) improved compilation, interpretation and packaging of technical dossiers along with a more efficient internal management will allow ONAREP to make a better case in international investment fora, (3) in the absence of private interest the World Bank is the appropriate funding source for appraisal capital until commercial investors become the logical financiers of directly productive investments. Yet, the World Bank itself is averse to providing funds beyond the immediate appraisal of Meskala, because it is so for the most promising known field and the GOM desires to focus efforts where near-term results can be shown.

AID management advice would assist ONAREP handle the potential energy resource along market optimization lines to enhance the benefits of a limited resource in the midst of a national austerity crisis. AID assistance at this time would accelerate technical assessment of Essaouira and similar basins. Finally, under the hypothesis that there is a wealth of yet untapped conventional energy, the wise management of these resources over the long-term must still be assured. Several recent international re-financing cases have easily borne out that a wealth of domestic resources does not necessarily lead to sound economic management of those same resources.

For the meantime, ONAREP is "hedging all its bets" by pursuing several options simultaneously: (1) inviting joint ventures (2) using WB funding for immediate needs not projected in its five-year plan, and (3) extensive survey and interpretation work in numerous promising basins.

In the next year or two ONAREP management will reach a key decision point. Specifically, do the Meskala finds warrant it becoming the manager of joint ventures, contract services, or should it continue explorational production operations under force account as in the past. World market forces, relative projected profit margins for foreign companies, and competing petroleum prospects will all play a part in this decision. Given the current modest size of the Meskala find, GOM will play only a minor role in making this decision despite the base case projection that Meskala could displace 5% to 30% of Morocco's oil bill. The issue is one of relative magnitude, maturity of the international oil industry, and global marketing interests compared to the fledgling ONAREP and Morocco's immediate energy crisis. (See Annex E for detailed technical analysis).

B. Financial Analysis Summary:

Sales price, recoverable volume, and effective demand - the three main components in determining the financial feasibility of a natural gas find have yet to be established in the case of Morocco. Current estimates of the viability of several marketing scenarios lead financial analysts to conclude that Morocco may well have located a resource with an attractive internal rate of return and respectable net present value. However, the sensitivity analysis presumes a sizeable steady volume of natural gas. Recoverable reserve estimates for Meskala have dropped appreciably from the 1,000 billion cubic meter estimate to a modest 6-12 billion cubic meters. Yet, Meskala's paleozoic zone has to be fully tested

and current estimates could still be off by a factor of several hundred. 12-18 more months of appraisal drilling will be required to arrive at defensible estimates. Without known deliverable reserves, it is difficult to determine potential market demand.

Price as in most countries is politically determined in the final analysis but ONAREP and MEM are holding out for an internationally acceptable price equivalent to no. 2 fuel oil minus 10-15% based on heating value. This is thought to be a sufficient incentive to convert oil-fired plants into gas-fired.

A sales price 10-15% below that of fuel oil based on its heating value would yield acceptable net present values as well as real internal rates of return in the 14-28% range for many potential applications. Over the life of the frequently analyzed Asmar cement plant conversion project new capital costs and "sunk costs" of exploration could be recovered. Gas prices any lower would not allow for full recovery of known ONAREP expenses, unless of course more commercial petroleum reserves were discovered at lower rates of exploration outlays.

Regrettably ONAREP has yet to sign a sales contract since it is receiving stiff competition from imported coal, an alternative fuel which ostensibly seems cheaper. However, ONAREP is driving home the point that plant conversion costs, rapid physical deterioration of coal-fired boilers, and transportation of the coal tend to reduce coal's attraction as a substitute for oil. Since all of the coal conversions have been at coastal sites which use imported coal purchased with foreign exchange, a decision at the highest levels will probably be required to avoid the drain on the balance-of-payments and convert to indigenous gas paid in dirhams.

One of the problems of the small Toukimt/Meskala gas field is the absence of a nearby-effective market. It is not immediately attractive since it is economically trapped. If reserves were to prove larger, the long hoped-for pipe line north to El Jadida or perhaps Casablanca would resolve the issue of an effective demand market. Thus, current financial analyses are only short-term projections based on a very limited knowledge of the reservoir.

One must be reminded that the above discussion addresses the issue of the financial viability of a single gasfield in the context of a \$200 million appraisal effort. AID's \$5.0 million contribution is essentially overhead support and T.A. As such it is not a directly productive investment.

C. Economic Analysis Summary:

The catalytic effect of having experienced, trained managers and technicians available should easily shorten the time that resources are made available by 2 or 3 years. The natural gas located at Meskala is thought to be able to displace 5-30% of the current imported resources equal to \$50-\$300 million in savings per year. Accelerated displacement and cost reductions for future exploration will have a strongly beneficial impact on the entire economy.

Still the project remains a transfer of technical assistance. No reliable economic benefits can be projected at this time, though the detailed annex attempts to do so. Both ONAREP and the Moroccan economy stand to benefit from an improvement in the efficiency of oil and gas exploration and development. ONAREP will benefit directly by raising the probability it will discover recoverable reserves for a given amount of planned expenditures on exploratory drilling. Such improvements in efficiency should advance the date at which production activities can begin to meet both operating costs and contribute to further exploration.

However, current cost estimates to develop the Meskala field alone range from \$200 to \$1,450 million using a contract drilling and production approach rather than force account. Though these cost projections may seem enormous, Meskala would remain a modest field - internationally unimportant. However, the national impact could be significant since current production estimates equal 5 to 30% of national consumption. Such comparisons reveal how small Morocco's economy really is as a portion of international petroleum trade.

While the bulk of the AID-funded contract team's work will be to improve management practices and operational efficiency, the financial advisor will fill another significant gap in the operation. His work will contribute to analyze both the profitability of projects and the comparative advantage for the Moroccan economy in undertaking gas and oil production projects as compared to alternative energy sources. Even if ONAREP does not express an interest in comparing its production projects to alternatives, project-specific calculations can be further analyzed through the Directorate of Energy's planning model in the MEM. This model will be employing shadow prices (or at least border prices) in comparing the economic benefits and costs of alternative energy investments. The prior work of ONAREP's Planning Division should make it possible to improve the MEM's data base for the oil and gas sector while helping ONAREP make project-specific decisions.

The conclusion which is argued but which can not be quantitatively demonstrated in a defensible manner is that AID's \$5.0 million project will accelerate the process presuming there are commercially recoverable resources. If one presumes conservatively that the economy could reap a net savings of \$2.0 billion over 3 years thanks to the provision of proven technical assistance, each month saved is worth \$56 million. Over the 3 years of accelerated development, one could presume AID-funded assistance would at least contribute 10% of the saving, thereby allowing the GOM to defer the expenditure of \$150 million in oil imports.

D. Administrative Analysis Summary:

ONAREP, 83% owned by the GOM, was spun off from the Government's Mineral Ore Exploration Agency (BRPM) two years ago to concentrate on oil, gas, and oil shale development. It is preparing to undergo major institutional reform so as to align itself more with internationally accepted management practices of petroleum companies. Key to this reform is the establishment of a studies and planning division to handle the mid-term and long-term growth strategy of ONAREP. Also important is the acceptance of private oriented management tactics such as divestiture of drilling operations. ONAREP is very open to joint venture concessions and wishes to encourage expatriate private investors yet so far foreign companies have not found any resources though three American companies (AMOCO, ARCO and Mobil) continue exploratory drilling. ONAREP is adequately capitalized for the size of its operations. Its net internal cash generation is about 25 million DH while "losses" taken largely in the form of exploration and drilling are averaging 400 million DH per year. About 2/3 of ONAREP's operations are funded from GOM appropriations and the remainder from IBRD loans. ONAREP has the full support of the GOM. Measures are now under consideration to allow ONAREP to manage funds in a more autonomous fashion. A condition of greater autonomy is a more developed internal system for inventories, performance monitoring, and accounting. This new degree of freedom is thought necessary to make cost-effective, timely decisions in what is acknowledged to be a high-risk, high-cost industry.

ONAREP as of September, 1983 had about 1,170 employees. Of the 250 professional level positions (52 senior level and 197 mid level) identified only about 150 are currently filled due to lack of recruitable talent in Morocco. About 65 expatriates help fill the gap.

Recognizing its need for a strong, highly professional organization to undertake petroleum activities, ONAREP recently commissioned (with World Bank funding) a study of the Office's organization, management structure and procedures, and long-range objectives. The study was carried out by Arthur D. Little, Inc., in collaboration with two Moroccan consulting firms.

The management review of ONAREP developed 4 main conclusions:

1. ONAREP is not conforming to international operating standards,
2. It has qualified professional talent in insufficient numbers,
3. The GOM's legal and investment environment is favorable,
4. GOM state budget combined with W3 funding give it adequate capitalization.

Three main recommendations were put forth:

1. Stabilize the flow of GOM funds to ONAREP
2. Use talent more effectively
3. Strengthen internal management and accounting.

One of the highlights of the ADL study was that the MOF needed to provide ONAREP greater discretion in the usage of State funds in the interest of more efficient exploration and more timely development. Before ONAREP could be given this freedom its internal accounting abilities would have to be noticeably strengthened.

The broad conclusions of the study, which is not yet in final form, clearly indicate the need for expatriate assistance in long-range strategic planning, economic analysis and management, as well as in the promotion of private-sector participation. Assistance in these areas will be the highest priority of the Project and specifically of the resident technical assistance staff. Other preliminary A.D. Little recommendations address the need for strong, decentralized management of ONAREP's exploration, drilling, reservoir appraisal and eventual production functions; AID will also assist in some of these areas through assignment of resident personnel.

VI. CONDITIONS PRECEDENT AND COVENANTS

1. A Covenant will concern the designation of counterparts for each member of the resident technical assistance team. The written designation of an appropriate full-time counterpart for each resident advisor will be a covenant for fielding each resident advisor.

In this connection ONAREP will deliver to USAID and the contractor's Project Director a certification for each resident contract team member explaining what his authorities and responsibilities will be during his stay within the ONAREP Organization. The certification will explain (1) how he is to work with his counterpart (as colleague, supervisor, advisor, subordinate), (2) to whom he reports within the ONAREP hierarchy, (3) those ONAREP employees possibly under his guidance, (4) whether or not he is authorized to obligate funds on behalf of ONAREP operations (This will be especially important in the case of the sub-surface production engineer). Receipt of this certification will be a condition precedent for fielding each resident advisor.

To the degree that the AID funded team members work in concert with World Bank-funded contractors, other non-Moroccan professionals, ONAREP will be asked to state clearly their relative limits of authority.

2. Covenant - MEM and ONAREP will attempt (1) to establish an official or contractual rate structure for indigenous natural gas and (2) to conclude a contract to sell indigenous natural gas.

3. Covenant - The provision by ONAREP of logistic support for the contract team members and counterparts will be a Covenant. Its basic elements will be comprised of office rental; office equipment (typewriters, copy service, telephones, telexes); secretarial help (the number of secretaries varying according to the number of resident advisors, at a ratio of three professionals per secretary); and company automobiles for the use of resident team members. An exhaustive exposition of logistic support is found in Section III.D.

4. Covenant - ONAREP will assure USAID in writing that its employees receiving technical and academic training will have their normal salaries maintained and job security upon completion of training and that their subsequent work in ONAREP will be oriented to serve the goals of the project.

5. Covenant - ONAREP will share with USAID frequent progress reports on its appraisal activities in Morocco, principally those occurring in Essaouira and all other actions contemplated under WB auspices likely to affect AID-funded staff, participants, or program budgeting.

6. Covenant - USAID and ONAREP will establish a mechanism and schedule for two major evaluations of the project and sporadic monitoring.

7. Covenant - ONAREP will review with USAID at least every six-months the degree to which it relies on private sector partners and principles to carry out its program and on its plans (if any) to evolve into a company with a greater degree of private equity. If this review can not be negotiated as a covenant, it will become a standard question in each evaluation.

VII. EVALUATION PLAN

The Project will undergo comprehensive evaluation two times: approximately one year after the arrival of the technical assistance contractor and again approximately 6 months prior to the expiration of the technical assistance contract. The evaluations will review ONAREP's effort to realign its management to conform with private market incentives and its attempts to conduct its development and production program in a more cost-effective fashion. The GOM's efforts to determine an equitable and reasonable rate structure for natural gas will also be reviewed.

Multi-disciplinary teams will conduct these independent evaluations of the Project. Each team will be led by a corporate manager experienced in the petroleum industry. It will also include an expert familiar with petroleum finance and accounting and an expert in one of the technical areas represented by the current mix of resident advisors.

In each case, a multi-disciplinary team will be selected to carry out the evaluation. The team will be led by a person with long-term senior-level corporate management experience (preferably in the international oil industry) and will also include experts familiar with petroleum financial accounting. The team will be knowledgeable in at least one of the technical areas covered by the Project (geological and geophysical exploration, reservoir and production engineering).

A detailed scope of work will be prepared for each comprehensive evaluation at the appropriate time; however, the following general questions will be addressed in each instance:

- 1) Are there improvements in ONAREP's internal management, planning and organization since the start of the Project that reflect the efforts of the senior advisor?
- 2) What has been ONAREP's record during the project period in attracting private-sector partners to invest and/or participate in oil and gas exploration in Morocco, and what has been the role of Project funded activities or personnel in aiding that effort?
- 3) What is the status of ONAREP's estimation of recoverable gas reserves, and how has it evolved since the project's outset? Have the efforts of the exploration geologists and the reservoir engineer contributed measurably to progress in this area?
- 4) What investment decisions for gas production, distribution and pricing has ONAREP taken during the Project period, and how have Project personnel contributed to those decisions?
- 5) Are there measurable improvements since the beginning of the Project in any of the following indices:
 - a) ONAREP's production and distribution of oil and/or gas;
 - b) ONAREP's production-based revenues;

- c) The proportion of ONAREP-produced energy to total energy consumed in Morocco; or
 - d) Morocco's expenditure levels for imported oil?
- 6) How many Project-trained professionals are currently at work in ONAREP? How are they using their training, and what differences have their new knowledge and skills made to ONAREP's effectiveness, technical strength and overall progress?
- 7) Has ONAREP progressed towards encouraging private sector investment and has it developed a private enterprise management style?

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VIII. ANNEXES

- A. NEAC Authorization to Develop Project Paper
- B. Logical Framework
- C. 5 C (2) Checklist
- D. ONAREP Request for Assistance
- E. Detailed Technical Analysis
- F. Detailed Financial Analysis
- G. Detailed Economic Analysis
- H. Detailed Administrative Analysis
- I. Participant Procedures
- J. "Categorical Exclusion" - Environmental clearance
- K. Draft SOW for Technical Assistance and Training Services
- L. Draft Annex I of Project Grant Agreement
- M. Project Issues Identified at the Mission Review Committee and Resolutions.

OFFICIAL FILE

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ACTION: **OTP**. DUE: 10/14.
 INFO: DIR, A/DIR, **OTP**, RCO, PHN
 PROG, CHRON, RF.

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TAGS:

SUBJECT: NEAC REVIEW OF EVALUATIONS OF MOROCCO ENERGY
 POLICY DEVELOPMENT AND CONSERVATION SUB-PROJECT
 (936-5728) AND MOROCCO CONVENTIONAL ENERGY TECHNICAL
 ASSISTANCE SUB-PROJECT (936-5724)

REFS: A) NEAC ISSUES PAPER 7/6/83; B) S. KLEIN/E.
 HUGHES-LEONARD MEMO TO J. BOLTON, JULY 7, 1983; C) S.
 KLEIN/J. BEVER 7/13/83 MEMCON RE: MTNG W/ALT. U.S.
 EXEC.DIR.TO IBRD; D) RABAT 6917 E) RABAT 6417

L. NEAC MET ON JULY 7, 1983 AND WAS CHAIRED BY AA/NE W.
 ANTOINETTE FORD. IN SUMMARY, NEAC REVIEWED THE
 EVALUATIONS OF THE TWO SUBJECT S&T/EY SUB-PROJECTS,
 WHICH WERE UNDER CONSIDERATION IN THE MOROCCO FY84 ABS
 FOPNE FUNDED FOLLOW-ON PROJECTS AS ENERGY PLANNING
 ASSISTANCE PROJECT (608-0180) FOR AT LEAST FOUR YEARS
 AND CONVENTIONAL ENERGY PROJECT (608-0176) UP TO AT
 LEAST THE END OF 1985. NEAC AUTHORIZED USAID TO PROCEED
 TO PROJECT PAPER DEVELOPMENT FOR EACH OF THESE FOLLOW-ON
 PROJECTS.

2. NEAC DISCUSSION OF ISSUES FOLLOWS:

A) LACK OF USE OF STANDARD PROJECT EVALUATION SUMMARY
 (PES) FRAMEWORK TO ORGANIZE WRITING OF THE EVALUATIONS.
 NEAC AGREED THAT FOR FUTURE EVALUATIONS OF S&T BUREAU
 PROJECTS AND SUB-PROJECTS WHICH OPERATE IN THE NE REGION,
 NE PROJECT OFFICERS SHOULD ENCOURAGE S&T TO REQUIRE ITS
 STAFF AND EVALUATION CONTRACTORS TO USE THE PES FRAMEWORK.

B) CONCERN THAT CONVENTIONAL ENERGY EVALUATION TEAM DID
 NOT PROVIDE SUFFICIENT DOCUMENTATION FOR ITS
 CONCLUSIONS. NEAC NOTED THAT SUCH INTERIM EVALUATION
 TEAMS NEED TO BE GIVEN MORE TIME IN THE FIELD AND SHOULD
 WHERE POSSIBLE, BE PERFORMED AT A TIME IN THE PROJECT
 WHEN MORE CONCRETE EVIDENCE IS AVAILABLE.

C. MORE ATTENTION NEEDED IN THE ENERGY PLANNING PROJECT
 IN THE AREAS OF SHADOW PRICING, DEMAND DATA COLLECTION
 AND ANALYSIS, AND USE OF EXISTING ENERGY MODELS AND
 SOFTWARE. NEAC AGREED THAT IN THE FUTURE, THE PLANNING
 PROJECT ADDRESS ENERGY PRICING ANALYSES USING, AT LEAST,

FOR PRICING AND THAT THE PRICING ANALYSES BE PROGRAMMED FOR GREATER FLEXIBILITY AND EASE OF USE; THAT MORE EMPHASES BE GIVEN TO ENERGY DEMAND DATA COLLECTION AND ANALYSES, IN COOPERATION WITH OTHER MINISTRIES; THAT EXISTING NATIONAL ENERGY PLANNING MODELS AND EXISTING COMPATIBLE SMALL COMPUTER SOFTWARE BE REVIEWED AS NEEDED FOR ADAPTATION OR USE AS APPROPRIATE. FURTHERMORE, GIVEN THE MISSION'S EMPHASIS IN AGRICULTURE, NEAC EMPHASIZED THE IMPORTANCE OF FURTHER ENERGY DEMAND ANALYSES IN THE AGRICULTURE SECTOR AS PART OF FURTHER AID FUNDED ENERGY PLANNING WORK IN MOROCCO. NEAC SUGGESTED USAID MAY WISH TO CONSIDER EITHER A CP IN THE PRO AG OR A PIL REQUIRING MINISTRY OF ENERGY FORMATION OF AN OFFICIAL OFFICE ("SERVICE" IN GOM TERMS) FOR ENERGY PLANNING AND POLICY ANALYSIS UNDER THE FOLLOW-ON PLANNING PROJECT, IN ORDER TO ASSURE CONTINUITY OF GOM COUNTERPARTS AND REINFORCE THE PROJECT'S INSTITUTION-BUILDING ASPECTS.

D. THE DEGREE TO WHICH THE CONVENTIONAL ENERGY PROJECT WITH ONAREP, A PARASTATAL OF THE MINISTRY OF ENERGY, ADDRESSES PRIVATE SECTOR CONCERNS. NEAC AGREED THAT AID SHOULD BE WILLING TO CONSIDER FOLLOW-ON ASSISTANCE TO ONAREP WITHIN THE CONTEXT OF PROMOTING AND ENCOURAGING MAXIMUM PARTICIPATION BY THE PRIVATE SECTOR. SPECIFICALLY, AID WOULD SUPPORT ONAREP: (I) IN STREAMLINING ITS MANAGEMENT TO FUNCTION MORE CLOSELY AS A PRIVATE OIL COMPANY; (II) IN CONSIDERING THE FORMATION OF AN EVENTUAL JOINT VENTURE DRILLING COMPANY; (III) IN ENCOURAGING BORDER PRICE-EQUIVALENT RATES FOR ITS GAS; AND (IV) IN STIMULATING PRIVATE INVESTMENT THROUGH

IMPROVEMENTS IN HYDROCARBON TAX LAWS AND INVESTMENT CODES AND PROMOTION OF PRIVATE SECTOR INVESTMENT SEMINARS. FURTHERMORE, SUBSEQUENT TO NEAC'S REQUEST, BEVER OF NE/TECH/HRST AND KLEIN OF PPC MET ON 7/11/83 WITH THE ALTERNATE U.S. EXECUTIVE DIRECTOR TO THE WORLD BANK (USED), GEORGE HOGUET, AND CONFIRMED THAT AID'S SUPPORT FOR TECHNICAL ASSISTANCE IN CONVENTIONAL ENERGY IN MOROCCO WAS CONSISTENT WITH USED POLICY ON OIL AND GAS ASSISTANCE FROM THE WORLD BANK FOR MOROCCO. (SEE REFS B AND C.)

E. ESF/DA SPLIT AND LOAN/GRANT SPLIT. NEAC CONFIRMED THE FY84 ABS PLAN TO FINANCE THE FOLLOW-ON CONVENTIONAL ENERGY PROJECT OUT OF THE ESF ACCOUNT AS A GRANT AND THE FOLLOW-ON ENERGY PLANNING ASSISTANCE PROJECT FROM THE DA ACCOUNT, ALSO AS GRANT. HOWEVER, GIVEN ONAREP'S STATUS AS A "PRODUCTIVE ENTERPRISE," AND IN ORDER TO EMPHASIZE TO THE GOM THE IMPORTANCE OF ENCOURAGING A PRIVATE SECTOR PHILOSOPHY FOR DEVELOPMENT OF OIL AND GAS BY ONAREP, NEAC REQUESTED THAT USAID PROVIDE FINANCING FOR THE FOLLOW-ON

CONVENTIONAL ENERGY PROJECT AS A GRANT TO GOI AND
30%, IN 1984, TOAN THE FUNDS TO ONAREP AT THE GOING
OFFICIAL GOV INTEREST RATES. NEAC SUGGESTED THAT USAID
CONSIDER A CP IN PROAG TO EFFECT THIS ARRANGEMENT.

F. BRIDGE TRANSITION FINANCING AND CONTRACTING FOR BOTH
PROJECTS. IN ORDER TO ASSURE CONTINUITY OF THE CURRENT
AMERICAN TECHNICAL ASSISTANCE UNTIL FOLLOW-ON CONTRACTING
IS COMPLETE, NEAC APPROVED NE COOPERATIVE FINANCING WITH
S&T OF THE TRANSITION PERIOD FOR THE EXISTING S&T
SUB-PROJECTS UNTIL SUCH TIME AS THE NE FOLLOW-ON PROJECTS
BEGIN, INCLUDING TIME FOR OVERLAP IF NEW CONTRACTORS ARE
SELECTED. NE WOULD PROVIDE FOR TRANSITION UP TO DOLS.
175,200 SDA AND UP TO DOLS. 420,000 ARDN IN FY83 FUNDS,
WITH ANY ADDITIONAL FY84 FUNDS TO BE DETERMINED AT A
SUBSEQUENT STAGE IN FY84. FYI, DOLS. 600,000 PROVIDED IN
FY 83 TO S AND T. END FYI.

G. AT NEAC'S REQUEST, NE/TECH/HRST HELD SUBSEQUENT
MEETINGS WITH SER/CM, GC/NE AND GC/COM TO DISCUSS
COMPETITIVE VERSUS NON-COMPETITIVE FOLLOW-ON CONTRACTING
MODES. THIS ISSUE WAS RESOLVED WHEN THE NON-COMPETITIVE
REVIEW BOARD REQUIRED COMPETITION FOR THE FOLLOW-ON
CONVENTIONAL ENERGY PROJECT AS A CONDITION TO APPROVING
NON-COMPETITIVE EXPANSION OF BECHTEL'S CONTRACT TO COVER
THE COSTS OF THE TRANSITION PERIOD (WHICH-THE BOARD
APPROVED IN MID-AUGUST AFTER RECEIVING; REF D), AND WHEN
USAID SENT REF (E) IN FAVOR OF COMPETITION FOR THE
FOLLOW-ON ENERGY PLANNING PROJECT (AFTER WHICH THE BOARD

APPROVED, IN MID-SEPTEMBER, NON-COMPETITIVE EXTENSION OF
DEVELOPMENT SCIENCES INC.'S CONTRACT FOR THE TRANSITION
PERIOD).

H. PROJECT DEVELOPMENT SCHEDULE FOR EACH PROJECT. NEAC
AUTHORIZED USAID TO PROCEED DIRECTLY TO PP DEVELOPMENT
FOR BOTH FOLLOW-ON PROJECTS BEING FUNDED AND-MANAGED BY
THE NE BUREAU. NEAC REQUIRED THAT THE EVALUATION PLAN
FOR THE FOLLOW-ON CONVENTIONAL ENERGY-PROJECT BE PLANNED
SO AS TO CAREFULLY MONITOR ONAREP'S PROGRESS TOWARDS
ENCOURAGING PRIVATE SECTOR INVESTMENT AND-ITS DEVELOPMENT
OF A PRIVATE ENTERPRISE MANAGEMENT STYLE. SHULTZ

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CONVENTIONAL ENERGY MANAGEMENT AND TRAINING 608-0176

PROJECT LOGICAL FRAMEWORK

<u>NARRATIVE SUMMARY</u>	<u>OBJECTIVELY VERIFIABLE INDICATORS</u>
<p><u>Program or Sector Goal:</u></p> <ul style="list-style-type: none"> a) Alleviate economic/monetary BOP problems b) Provide greater domestic contribution to energy resource mix 	<p><u>Measures of Goal Achievement:</u></p> <ul style="list-style-type: none"> a) BOP accounts b) Partial displacement of imported fuels with local fuels
<p><u>Project Purpose</u></p> <p>Build internal capability of ONAREP</p> <ul style="list-style-type: none"> 1) to transfer cost-effective private sector management principles and techniques 2) to strengthen ties to potential private sector partners, 3) to explore, develop, produce petroleum resources. 	<p><u>End of Project Status</u></p> <ul style="list-style-type: none"> 1) more cost-effective operation, professional incentives 2) more joint ventures, joint venture drilling or divestiture of drilling operations, private sector consumer contracts, "downstream" private services 3) ONAREP staff designing exploration programs, managing development and marketing gas (oil)
<p><u>Outputs:</u></p> <ul style="list-style-type: none"> a) Accelerated appraisal and development of known basins b) Accelerated exploration program c) more cost-effective management system d) greater reliance on private market 	<p><u>Magnitude of Outputs:</u></p> <ul style="list-style-type: none"> a) Minimum 1-3 months acceleration in appraisal activities b) Doukkala basin ready for exploratory drilling c) lower overhead costs per exploration, development of production unit d) joint ventures and contract drilling
<p><u>Inputs:</u></p> <ul style="list-style-type: none"> a) \$5.0 million of U.S.T.A./training b) \$1.7 million of GOM T.A. 	<p><u>Implementation Target:</u></p> <p>over 370 p-m in T.A.; confirmation reservoir studies. Four masters; over 130 participant-months.</p>

CONVENTIONAL ENERGY MANAGEMENT AND TRAINING: 608-0176

PROJECT LOGICAL FRAMEWORK

<u>IMPORTANT ASSUMPTIONS</u>	<u>MEANS OF VERIFICATION</u>
<ul style="list-style-type: none"> a) commercial reserves are, in fact, in place in Morocco b) sales price can be negotiated to allow conversion to domestic fuels c) no new international oil price shocks either up or down 	<ul style="list-style-type: none"> a) exploration, appraisal drilling; opinion of experienced petroleum consultants b) public record
<ul style="list-style-type: none"> 1) ONAREP embraces management reform already in process 2) expatriate firms are convinced of technical dossiers' worth 3) ONAREP has conviction to abandon force account approach while being parastatal (presumes resources are produced/sold) 	<ul style="list-style-type: none"> review of annual report public record discussion with other major donor, IBRD
<ul style="list-style-type: none"> a) high-level management T.A. can affect technical execution via sound planning b) Doukala stratigraphy can be unraveled c) overhead does not increase proportionally to value of production; T.A. and training can reduce it in relative terms d) there is an exploitable resource to pay for the activities 	<ul style="list-style-type: none"> a) schedules of key activities b) comparison of old/new technical reports. c) ONAREP accounts
<p>MOF sustains its commitment to fund ONAREP at high levels on a regular basis.</p>	<p>Annual books of ONAREP</p>

CONVENTIONAL ENERGY MANAGEMENT AND TRAINING: 608-0176

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESP.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;
 (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

(a) Congressional Notification

(b) YES

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,00, will there be (a) YES

- (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
- (b) YES
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? None required
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.) N.A.
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? N.A.

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.
- "Project enhances WB-funded loan to appraise Meskala gas field. WB-loan focuses largely on short-term physical drilling costs. WB officials have declined to consider funding advisor to provide mid-term management advice or extensive training.
- NO
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- (a)will accelerate time that COM can reduce petroleum imports,
 (b)will accelerate implementation of local privately-owned "down-stream" gas distribution network;
 (c) NO
 (d)Yes by encouraging implementing agency to distance itself from force account drilling and to invite contract drilling companies to work in Morocco.
 (e)YES
 (f)NA
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- Project will actively promote U.S. petroleum industry to come work in Morocco on contract or concession basis pursuant to very attractive investment code. Project will fund 30 person-months of a senior petroleum promotion specialist to conduct technical and financial seminars for private industry officials.

9. FAA Sec. 612(b), 636(b);
FY 1982 Appropriation
Act Sec. 507. Describe
steps taken to assure
that, to the maximum
extent possible, the
country is contributing
local currencies to meet
the cost of contractual
and other services, and
foreign currencies owned
by the U.S. are utilized
in lieu of dollars.
- GOM will contribute
about 25% of the cost of
the project, including
the cost of international
airfares.
10. FAA Sec. 612(d). Does
the U.S. own excess
foreign currency of the
country and, if so, what
arrangements have been
made for its release?
- U.S. does not own excess
foreign currency of Morocco
11. FAA Sec. 601(e). Will
the project utilize
competitive selection
procedures for the
awarding of contracts,
except where applicable
procurement rules allow
otherwise?
- YES
12. FY 1982 Appropriation Act
Sec. 521. If assistance
is for the production of
any commodity for export,
is the commodity likely
to be in surplus on world
markets at the time the
resulting productive
capacity becomes
operative, and is such
assistance likely to
cause substantial injury
to U.S. producers of the
same, similar or
competing commodity?
- N.A.
13. FAA 118(c) and (d).
Does the project comply
with the environmental
procedures set forth in
AID Regulation 16? Does
- YES

the project or program take into consideration the problem of the destruction of tropical forests?

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)? N.A.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and N.A. - ESF Project.

otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?

N/A - ESF Project.

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

N/A - ESF Project.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

N/A - ESF Project.

e. FAA Sec. 110(b).
Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than \$100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character.

N/A - ESF Project.

f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

N/A - ESF Project.

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage

N/A - ESF Project..

institutional development;
and supports civil
education and training in
skills required for
effective participation in
governmental processes
essential to self-government.

2. Development Assistance Project
Criteria (Loans Only)

- a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest. N.A.
- b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? N.A.
- c. ISDCA of 1981, Sec. 724 (c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)? N.A.

3. Economic Support Fund
Project Criteria

- a. FAA Sec. 531(a). Will this assistance promote economic or political
- The Project will encourage the cost-effective management of Morocco's national petroleum company. If commerciable resources are proven, the Project will indirectly accelerate the

- stability? To the extent possible, does it reflect the policy directions of FAA Section 102?
- b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities? NO
- c. FAA Sec. 534. Will ESP funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives? NO
- d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? NO
- resource's develop thereby indirectly helping Morocco reduce its high level of foreign energy dependence and improve its balance-of-payments posture.

ONAREP Request for Assistance

Annex D-1

TRANSLATION

ONAREP LETTER : DA/DFP/No. 83/430

To: R.C. Chase
Director, USAID/Rabat

November 9, 1983

Mr. Director,

Pursuant to our latest meetings in which USAID and our Agency examined our development assistance program, we are pleased to confirm that we are fully satisfied with the quality of the services provided and with the results achieved within the cooperation framework of the Agreement signed by USAID and ONAREP on May 13, 1982.

You are fully aware that Moroccan petroleum exploration is undergoing a crucial phase which requires substantial financial and human resources to enable us to reach the goals set for our Agency by the Government of His Majesty the King.

Within this context, I have the honor to ask that you diligently review the possibility of extending this development and technical assistance beyond June, 1984.

If this proposal meets with your approval, we suggest that the basic contours of this assistance be reviewed so that it might conform more closely to ONAREP's current needs:

1) Technical Assistance:

In addition to positions already identified, we would like to benefit from technical advice in corporate management, production engineering (sub-surface and surface), and petroleum economics.

2) Training:

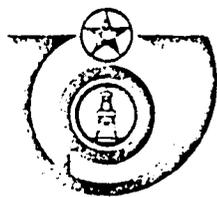
Since short-term courses (IPCS type) have given good results, we would like to expand this type of training; afterwards, the most successful trainees would be selected for long-term academic training.

We should also consider the possibility of organizing very specific seminars in Morocco (techniques, management) for the executive staff of ONAREP.

If you need additional information to consider our request, please do not hesitate to contact us.

Sincerely yours,
Mohamed Douieb
Executive Director
ONAREP

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المكتب الوطني للأبحاث والاستثمارات النفطية

OFFICE NATIONAL DE RECHERCHES
ET D'EXPLOITATIONS PETROLIERES

936-5724

OFFICIAL FILE

REF : DA/DFP/N° 83/430

Rabat, le : 9 NOVEMBRE 1983 في الرباط

ACTION: OTP. DUE: 11/30.
INFO: DIR, A/DIR, PROG, RCO,
CHRON, RF.

MONSIEUR R.C. CHASE
DIRECTEUR USAID - RABAT
137, AVENUE ALLAL BEN ABDALLAH

- R A B A T -

Monsieur le Directeur,

Suite à nos dernières réunions d'évaluation de la coopération entre l'USAID et notre Office, nous avons le plaisir de vous confirmer notre entière satisfaction quant à la qualité des prestations et des résultats atteints grâce à l'accord de coopération conclu entre l'USAID et l'ONAREP en date du 13 Mai 1982.

Vous n'ignorez pas la phase cruciale traversée actuellement par la recherche pétrolière au Maroc, et qui nécessite la mise en place des moyens financiers et humains importants pour nous permettre d'atteindre des objectifs fixés à notre Office par le Gouvernement de SA MAJESTE LE ROI.

Dans ce cadre, j'ai l'honneur de vous demander de bien vouloir examiner avec toute l'attention souhaitée la possibilité d'une prolongation de l'accord de coopération et d'assistance technique au delà de Juin 1984.

Notre souhait est qu'en cette occasion, les principes retenus pour définir cette coopération, soient revus dans le sens d'une meilleure adéquation avec les besoins immédiats de l'ONAREP surtout en ce qui concerne :

1) - L'ASSISTANCE TECHNIQUE

En plus des experts déjà en place, nous souhaitons bénéficier de la compétence de techniciens en planification, production (fond et surface) et économie.

2) - LA FORMATION PROFESSIONNELLE

L'expérience des stages particuliers (type IPCS) ayant donné de bons résultats, il est souhaitable d'en multiplier l'organisation, les meilleurs candidats étant retenus après pour une formation plus académique.

.../2

ب. م. م. م.
الرباط

17 شارع ميشليفن - أكدال - الرباط
17, Av. Michlifén. Agdal. Rabat

الهاتف: Tél:

705-05 / 721-70 / 721-71

تيليكس: بيو. ويت 15 - 317 م

Téléx: Burepet 317-15M

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ONAREP

م.و.ب.س.ن.

.../...

Parallèlement, pourrait être étudiée la possibilité de mettre sur pied au MAROC des séminaires spécifiques (techniques, management) à l'intention du personnel cadre de notre Office.

Bien entendu nos services sont à votre entière disposition pour tous renseignements complémentaires nécessaires à la prise en compte de notre demande.

Veuillez agréer, Monsieur le Directeur, l'expression de nos salutations distinguées./.

Le Directeur Général

Mohamed DOUIEB

ACTION TAKEN

No Action Necessary

Replied by : _____

Initials & Date

Handwritten signature/initials

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DETAILED TECHNICAL ANALYSIS

Annex E-1

a) MOROCCO'S CONVENTIONAL ENERGY EXPLORATION HISTORY AND RECENT INITIATIVES

Prior to Independence the French-owned Societe Cherifienne de Petrole (SCP) conducted all exploration which resulted in small finds now essentially depleted.

The new post-Independence Petroleum Code encouraged many international joint ventures: (1) AGIP - onshore Tarfaya in 1958 and (2) Esso - offshore Tarfaya 1967 - 1971, (3) ELF AQUITAINE Phillips - 1978. These joint ventures which resulted in over 80 drills were signed with the GOM's Bureau de Recherches et de Participations Minieres (BRPM) which grew in technical abilities as the concessionaires explored. In the early 70's the international companies relinquished their concessions as non-commercial due to poor reservoir quality. Unable to sustain the interest of joint venture companies, BRPM was forced to explore and drill with three company rigs on its own account along with SCP which had been converted to 50% GOM ownership.

Fortunately in the late 70's BRPM struck natural gas in Toukimt and N'Dark in the Essaouira Basin. Also, foreign-owned companies were once again growing interested in concessions as improvements in computerized seismic interpretation led them to draw more conclusive analyses as to where petroleum deposits might be.

Unfortunately the late 70's simultaneously brought a re-trenchment in GOM budgeting for petroleum development. So, BRPM turned to World Bank funding to carry on the work.

With \$50.0 million in WB funds, BRPM drilled seven wells in Essaouira and three in the Gharb of which 3 struck gas. Of these three, one seemed to be of commercial quality.* The product is under high pressure, rich in liquid condensates and may spread over a large area, though caution should be expressed since reservoir studies have not been completed. In 1981, BRPM divested itself of all petroleum related responsibilities and returned to a more narrowly defined minerals exploration and production role. In its stead, the Office National de Recherches et d'Exploitations Pétrolières (ONAREP) was created to focus the GOM's interest in the domestic petroleum sector.

Pursuant to ONAREP's creation, an extensive joint venture promotional campaign was mounted. All the while, the appraisal wells surrounding the MKL-101 discovery well kept striking high pressure gas deposits in the Triassic. Thanks to rising optimism, three joint venture agreements for offshore exploration with American Oil companies were signed within 9 months: ARCO for \$18.0 million, Mobil for \$37.5 million, and AMOCO for \$22.0 million. More recently, AMOCO has signed a second concession agreement for onshore work. The ELF-Aquitaine work is not a concession but rather a performance contract funded via the second WB loan for Meskala appraisal. While ONAREP is to be praised for its promotional abilities, no foreign venture has yet discovered petroleum resources comparable to the Meskala find. Nevertheless

* This is an excellent discovery rate given BRPM's inexperience, since one wet well out of 10 dry is the industry norm; and one new field out of 50 finds a similar norm.

Morocco as a petroleum prospect is still very much in its infancy, largely unexplored, and highly promising based on the data currently available. Please see figure 2 for location of current and future concession permits now under active consideration and promotion.

b) ANALYSIS OF THE NEED FOR THE PROPOSED TECHNICAL ASSISTANCE PROGRAM

I. Exploration

Need for the Assistance

- Although the basic geology of Morocco is quite well known and much has been published on it, information on the petroleum geology of Morocco, has not been assembled or presented in an organized manner such that it can be used to benefit a systematic exploration program.

- Potential source rocks, which may have generated oil or natural gas, cover a large part of the sedimentary basins and include Miocene shales, Jurassic limestones and shales, and Paleozoic shales. Structures capable of trapping hydrocarbons are numerous, therefore, geophysical exploration (seismic, gravimetric, magnetic and geochemistry) should be accelerated.

- Hydrocarbon prospects offshore of Morocco represent a good potential for further exploration and consists primarily of salt domes, and Devonian reefs at relatively great depths.

- The gas/condensate discovery in Meskala in 1981 coincides with a renewal of interest of foreign companies in Morocco's prospects.

- While the geologists of ONAREP are competent, most of them are from BRPM, and so far, they have not the time to direct all of their talents to exploration for petroleum.

- ONAREP's Exploration Directorate has 64 geologists/geophysicists in all (including 22 expatriates), who are spread very thinly to cover five major divisions: sub-surface, surface, laboratories, geophysics and promotion.

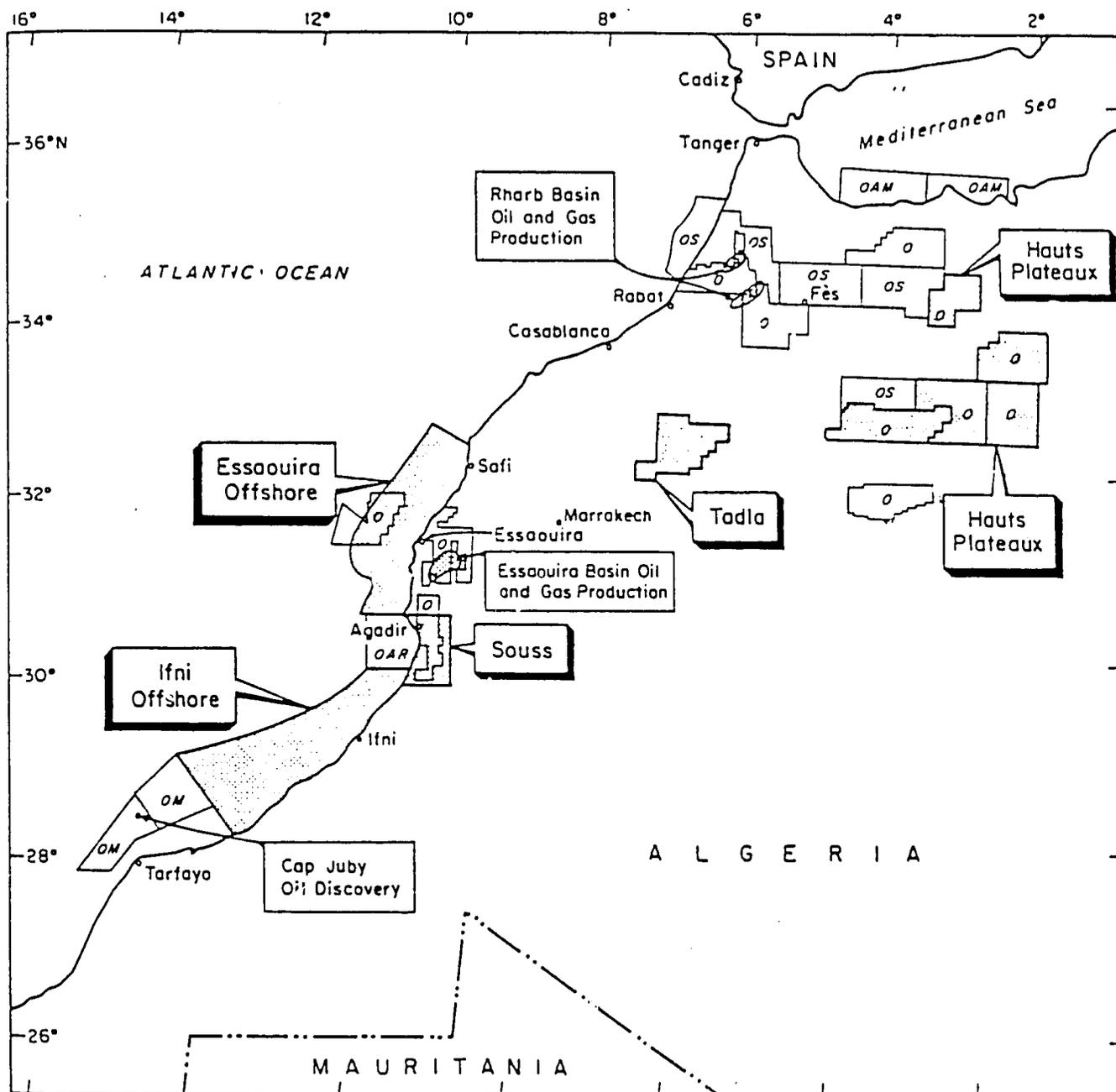
- In order to expedite assessment and appraisal of potential hydrocarbons in Morocco, ONAREP should hire more experienced geologists and geophysicists. In tandem with staff build up, exploratory commitments by foreign operators should be increased and may be further enhanced by several successful promotion programs.

II. Promotion

Need for the Assistance

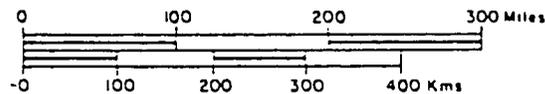
- Annual oil production which peaked at about 2,900 BPD in 1963, has declined to about 350 BPD by 1981.

FIGURE 2



LEGEND

- Areas Designated for Study
- Permit Areas Held by : ONAREP
- OS Permit Areas Held by : ONAREP - SCP
- OM Permit Areas Held by : ONAREP - Mobil
- OAR Permit Areas Held by : ONAREP - Arco
- OAM Permit Areas Held by : ONAREP - Amoco
- International Boundary



ONAREP

MOROCCO

Location Map Showing
Areas Designated For Study

- In 1981, natural gas was discovered in deeper pre-Jurassic horizons at Meskala in the Essaouira Basin. Although the gas is of good quality and is rich in liquid condensates, the reservoir rock is tight (1 millidarcy) and porosity of 10 percent. It is envisaged that the reservoir will be stimulated by a special hydraulic fracturing technique to improve its recovery factor and increase its productivity.

- The existing staff and personnel of the Technical Directorate are more experienced in conventional drilling operations but lack expertise in operations production both for surface and subsurface engineering to maximize recovery of gas at optimum cost.

- The need for an experienced reservoir engineer with strong background in pressure transient analysis, gas well testing and drilling fluids is of utmost importance to help ONAREP develop the Meskala gas field and other potential hydrocarbon discoveries.

III. Manpower and Staffing Pattern

Need for the Training

The need for an organized effort to support the Manpower Training Program at ONAREP's Exploration Directorate and Production Division is of utmost importance to enhance the technical competence and career development of ONAREP's personnel. The following observations support this effort:

- Recruitment of young graduates is being undertaken without enough skilled senior professionals in ONAREP to provide normal on-the-job training or early professional guidance to junior engineers.

- Experienced professionals are so busy meeting daily operating responsibilities, that little time is available to attend training programs which allow them to broaden their base of technology.

- Levels of experienced manpower may soon dictate whether ONAREP is able to undertake any particular project.

- Training for both new and experienced personnel must be more efficient and be job-oriented.

- New ONAREP employees assigned to professional positions in the Exploration Directorate and Production Division have graduated from a number of universities in a variety of disciplines. Because of this diversity of academic background, there must be a defined point from which the manpower training starts - there must be a base level. This base level should represent ONAREP's view of the minimum knowledge expected of a graduate in a selected professional speciality.

- New ONAREP employees should be given the opportunity to develop and maintain technical competence in a chosen specialty at the earliest date so that the employee can begin contributing in a meaningful way as a professional.

- An employee within one technical speciality should become more aware of the technical knowledge of other closely associated specialties.

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c) PRODUCTION POTENTIAL OF THE MESKALA/TOUKIMT DISCOVERY

Table 9 below denotes the wide range of variation of potential production of the Meskala/Toukimt reservoir as currently estimated. As one may note the estimates have become broader over time instead of better focused due to (1) reduced estimates of the Triassic stratum's percentage recoverable (about 30%) caused by persistent low porosity and (2) recent finds in the Paleozoic (where hydrocarbon migration is pronounced and re-establishment of pressure quite rapid after draw-down testing). The Paleozoic tests lead ONAREP to leave open the high end of their estimated reserves. These two technical discoveries have tended to widen the range of reasonable estimates of the Toukimt/Meskala reservoir.

A rough estimate of the displacement value of commercial energy can be made but is of little real utility until the field is better appraised:

A flow of 2.193 million cubic meters of wet gas per day from Meskala is equivalent in calorific value to about 1.0 million TOE/years (this equivalency includes the value of high octane condensates which may be unique to Meskala.) Now, Morocco's commercial energy sector consumes about 4.8 million TOE per year of which 85% is derived from imported oil costing about \$1.050 billion annually.

Therefore if
 $2.193\text{m}^3 \times 10^6 \text{ per day} = 1.00 \text{ TOE/yr}$

Then
 $X \text{ m}^3 \times 10^6 \text{ per day} = 0.048 \text{ TOE/yr}$

and
 $X = 0.105\text{m}^3 \text{ per day} = 0.048 \text{ TOE/yr}$

In short, for each daily increment of natural gas production equal to $105,000\text{m}^3$, about 1% of Morocco's current commercial energy consumption could be replaced presuming energy resource conversions are possible. Indeed, the IBRD estimates that about 60% of the oil-fired applications in Morocco could be economically converted to gas-fired.

Question: If all the possible gas conversions were implemented how much gas would have to be available each day?

$60\% \times 85\% = 51\%$ of the consumption is convertible to gas.

In short, 51% of the present economy might conceivably be re-tooled. Each 1% conversion roughly requires 0.105 million m^3 per day. Therefore indigenous gas production would at least have to equal

$51 \times (0.105) = 5.355$ million m^3/day or
 $1,955$ million m^3/year

Hence, Table 10 below shows the wide range of plausible impacts of the Meskala field on the Moroccan economy in the midst of current uncertainty.

TABLE 11

Annex E-6

Premature Production Estimates for Meskala/Toukimt
Compared to BTU Value of Moroccan Petroleum Imports

OIL IMPORTS	Annual Moroccan Commercial Energy Consumption 1982 (millions)		
	4.8 TOE		
<hr/>			
GAS EQUIVALENT	Meskala Low Est.	Calorific power of natural gas (equivalent to 4.8 TOE/year)	Meskala high est.
	182m3 4.7%	3,833 m3 100%	12,775 + m3 333%+

Note: Production above $1,955 \text{ m}^3 \times 10^6$ could not be absorbed by the current industrial base. Levels above this amount could be used for economic expansion then perhaps export for foreign exchange.

TABLE 12

VOLUMETRIC COMPARISON OF GAS PRODUCING FIELDS/COUNTRIES WITH CURRENT ESTIMATES FOR
MESKALA / TOUKIMT, MOROCCO

Location of Gas Resource	Time of Estimate	Estimated/Actual Gross Production per Year m ³ x 10 ⁶	Relative Magnitude	Estimated Total Economically Recoverable Reserves m ³ x 10 ⁹	Implicit Life of Production Years	Authority/Source
Morocco's current level	1975-81	65-79	0.04	rapidly depleting		1)
MESKALA/ TOUKIMT RESERVOIR PROJECTIONS DURING APPRAISAL PERIOD	10/82	1,098 - 5,494	0.60-3.01	8.8 - 51.2		1) and 2)
	4/83	489 880 1,174	0.27 0.48 0.64	5.6 8.8 12.3		3)
	5/83	1,278 by 1987 1,825 by 1989	0.70 1.0	12.0 - 15.0		4)
	10/83	182 - 12,775	0.10-7.00	12.0 - ?	10-30	5)
Miskar Field, Tunisia		1,700	0.93	30.0	3-4	2)
Egypt	1982	2,796	1.53	142.9	≅ 1	6)
Pakistan	1980	8,286	4.54	171.4	≅ 1	7)
France	1980	10,264	5.62	?	?	7)
Hassi El R'Mel, Algeria	1982	30,000	16.44	2,000 - 2,500	67-83	2)
Mexico	1980	34,800	19.07	?	?	7)
Canada	1980	95,200	52.16	1,876	20-29	8)
	1982	64,320	35.24			
U. S. A.	1980	520,000	284.93	?	?	9)
	1982	490,000	268.49			

Sources for Table 11

1. IBRD. Morocco: Issues and Options in the Energy Sector. (draft)
October 1982, p.21
2. Mikutowicz, Bechtel Technical Memorandum of March 2, 1983
3. IBRD: Morocco: issues and Options in the Energy Sector. (draft)
October 1982, p. 35
4. USAID discussion of 5/7/83 with Secretary General of ONAREP
5. USAID and S&T/EY discussion of 10/12 with Secretary General and Technical Director of ONAREP
6. Cairo cable 14808 "Industrial Outlook Report. Minerals - Egypt - 1982"
7. USDOE. International Energy Annual, 1982.
8. Herald Tribune, April 6, 1983
9. Washington Post, January 9, 1983 p. 15

NOTES:

1. Conversions: 1,000 cubic feet = 26m³
2. Meskala estimates remain only notional due to highly variable porosity and complex subsurface geology. High estimates on Meskala may still vary by a factor of + several hundred until gas bearing Paleozoic strata are more accurately ascertained on or about 10/84.
3. Life of field based on hypothesis of constant rate of depletion. If otherwise, based on sources using geophysical models.

DETAILED FINANCIAL ANALYSISa) PROJECT RELATED ANALYSIS

Financial analysis of the viability of the \$6.7 million project investment (25% Moroccan contribution) must be founded on 3 overriding factors which have yet to stabilize as of late March, 1984: (1) price of domestic natural gas resources, (2) the economically recoverable volume of gas, and (3) location of effective market demand. During August, 1983 a number of indicative sensitivity analyses for these three factors were received by ONAREP.

Price: A sales price 10-15% below that of fuel oil based on its heating value would yield acceptable net present values as well as real internal rates of return in the 14-28% range for many potential applications. Over the life of the frequently analyzed Asmar cement plant conversion project new capital costs and "sunk costs" of exploration could be recovered. Gas prices any lower would not allow for full recovery of known ONAREP expenses, unless of course more commerciable petroleum reserves were discovered at lower rates of exploration outlays. ONAREP has not as yet been able to establish a gas price since ONAREP is receiving stiff competition from the local coal parastatal which is also wanting to convert oil-fired boilers to coal-fired. Potential consumers are also nervous about the reliability of the supply in view of the fact that the Meskala appraisal phase has not ended. While ONAREP desires to set the price at international rates, a determination of volume and proximity to eventual demand are two factors yet to be clarified.

Volume: ONAREP has already concluded from its work funded under the second WB loan that the Triassic layers of Meskala will not prove sufficiently rich in recoverable hydrocarbons to justify a pipeline to Casablanca. 6 billion m³ are now thought positively recoverable and probably 12-15 Bm³. About 30-50% of the known reserves are thought recoverable over a 10-30 year life-of-project. Thus, the Triassic now indicates a very low recovery rate when compared to earlier glowing projections. In fact, the known volume today is a third of the lowest demand projections of 12 months earlier.

However, reinterpretation of new appraisal wells may alter the current projection especially in light of a recent short production tests. Perhaps, twelve more months of deeper drilling will suffice to allow ONAREP to project a new higher volume of recoverable reserves. Current recoverable reserve estimates above 12 BM³ are strictly conjectural.

Demand Market: Various schemes have been reviewed to sell Meskala gas: (1) firing a local cement plant, (2) building a 25 megawatt gas-fired electrical plant near the site, (3) sale of the rich liquid condensate and reinjection of the dry gas. The most analyzed prospect, the cement plant, indicates a total identified investment of \$27 million excluding recurrent costs and conversion of the cement plant. In order to displace with dirham purchased gas about \$8.02 million/year in dollar-purchased no. 2 fuel oil.

Annex F-1a

One of the problems of the small Toukimt/Meskala gas field is the absence of a nearby effective market. It is not immediately attractive since it is economically trapped. If reserves were to prove larger, the long hoped-for pipe line north to El Jadida or perhaps Casablanca would resolve the issue of an effective demand market. Thus, current financial analyses are only short-term projections based on a very limited knowledge of the reservoir.

b) PROBABLE FINANCIAL ANALYSIS OF THE 0176 PROJECT INVESTMENT: The Meskala field, while potentially representing 5-30% of current energy consumption is still a very modest find. If only Meskala is located then the GOM will probably be forced to solicit loans on its own account to displace only a small portion of its rising fuel bill, instead of opening it up to concessional joint ventures. In short, while financially quite viable, its national economic impact would be small but not insignificant. If this low production scenario is borne out, then sensitivity analysis shows that delaying production sharply reduces the attractiveness of even this limited scale investment.

For the above reasons a convincing quantitative financial analysis is not possible at this time. One can, however, estimate implicit savings to the Moroccan economy due to the accelerated development of local conventional fuel resources based on AID technical assistance. A number of scenarios can be demonstrated.

Accelerated Timing to Reach Gas Consumption

By assisting ONAREP with in-house computerized pipeline designs, the current contractor has already accelerated design of preliminary engineering by 6 months so that the ASMAR cement plant may convert to gas-fired production displacing 35,000 tons of imported fuel oil each year. This conversion is projected to save Morocco \$8.62 million per year. A six month lead will therefore be equivalent to \$4.31 million.

It should be emphasized that ONAREP does not have in house the petroleum production talent to design the pipeline. Instead of waiting until all reserves were projected in order to request a hard currency loan for detailed design, ONAREP was able to use AID assistance to finish detailed designs so that it could immediately go to the capital markets for construction when the project reached maturity. Similar levels of cost savings can be assumed in the exploration sector where immediate returns are almost unknown by definition.

As a closing point, it must be stressed that the AID project assists ONAREP in two critical financial areas: (1) it promotes a more efficient timely use of WB funds, and (2) it should assist in encouraging private firms to explore in Morocco.

c) GENERIC PROBLEMS WHICH NORMALLY MAKE GAS DEVELOPMENT OVERSEAS UNATTRACTIVE to Petroleum Companies*

The conventional energy predicament of Morocco mirrors that in many of the developing countries which have stumbled upon petroleum resources or which have not been explored systematically. Private Sector petroleum exploration has not dominated the Third World for a variety of "push-and-pull" reasons largely economic but also institutional to some extent. It should be underscored that the performance in exploring developing countries cannot be explained in terms of an absence of relative geologic potential.

*Taken largely from Palmer. See bibliographic entry 15.

-A

The Situation

Consumer prices for petroleum products has sky-rocketed in 10 years disrupting and altering the economic structure and political stability of several countries -- not to mention aggravating their BOP and debt schedules. Nevertheless, private sector exploration - be it an expatriate firm or local company - in the developing world has not responded with the supply/demand response of classic economics. In fact, both private and public exploration in developing countries has stagnated. Until recently Morocco was a typical example. Yet, in the United States the total number of exploratory wells increased by 50% over the same 10-year time period. Finally, there are only a few foreign-held companies which participate in exploring for petroleum in oil importing developing countries. A theoretical question must be asked: Why does this dysfunctional situation exist?

Contributing Factors from Developed Countries:

1. The United States is the world's major source of venture capital for oil exploration.
2. U.S. laws and resultant financial packaging encourage domestic exploration by allowing for substantial tax deductions in the form of drilling fund shares for individuals and depletion allowances for corporations.
3. U.S. legislation has tightened tax rules governing U.S. corporations overseas further adding to the disincentive.
4. High quality of U.S. geologic data and known fields permit market-entry or expansion at lower costs and smaller scales.
5. Oil pipelines and gas transmission facilities in the U.S. are already established near major demand markets.
6. Political stability.

Contributing Factors from Developing Countries:1. Gas Prone Prognosis:

Many developing countries have geologic characteristics which suggest gas rather than oil. Yet, gas must be of enormous quantity near a high-demand market to be sold economically for hard currency. (Turning a profit in hard currency which can be repatriated is, of course, the business objective of foreign-owned petroleum corporations.) Therefore, only a minority of very large companies can assume the risks associated with exploring for gas per se. In fact, though exploration efforts may discover gas, what the company is exploring for is oil - which would be economically attractive both for domestic consumption and international sale.

Thus, though a gas discovery is better than no discovery at all, most private companies are very reluctant to become involved in gas development for the domestic market in developing countries because of several factors: the large financial commitment in distribution and marketing infrastructure, the high market risk associated with sales linked exclusively to the growth of local demand; the absence of clear ex ante gas pricing rules; and the problem of access to foreign exchange to ensure remittance of earnings.

Gas wells of the type now being developed in Morocco would under normal market conditions in the U.S. be classified as marginal and capped until demand dictated they be "brought on line". The fact that this is not happening in Morocco is a sign of relatively higher demand and the government's determination that the risk and BOP cost of being 85% dependent on foreign energy resources is unacceptable.

2. Major Oil Companies' Business Strategies:

The major oil companies have direct control over sizeable proven petroleum reserves both domestically and internationally. To "make the play" to explore in relatively unknown areas of the developing world, sophisticated risk analysis must logically lead their decision-makers to conclude that an unknown prospect holds out the promise of profit potential even higher than the known proven reserves they currently market. An added factor exacerbating this conservative exploration posture is that world wide demand for their product has dropped thereby causing the majors to halve their exploration budgets and to increase the harshness of their pre-investment financial criteria.

2.1 Certain economies of scale are imposed by most foreign-held joint venture partners before a production and marketing agreement could be signed. It is widely acknowledged by oil industry representatives that the major oil companies are primarily interested in areas with potential for large fields - in excess of 500 million barrels of oil - and have no serious interest in exploring for oil fields with reserves of less than 50 million barrels (although they may nevertheless, develop small fields discovered while searching for larger ones). Nor are they interested in exploring for gas fields with reserves of less than 3-5 trillion cubic feet - the minimum reserves required for a liquified gas export project to be economic. Yet, given the historical distribution of field sizes, it can be expected that over 70 percent of fields discovered in developing countries will be in the smaller range. Yet, from the country's point of view, at present costs and prices, these small fields can make an important contribution to net foreign exchange earnings.

Another factor deterring private foreign intervention is that petroleum companies have limited managerial resources available for developing country operations since they are required to ration exploration expenditures which are a function of internal cash generation. Thus, only a few exploration programs are mounted each year though typically a hundred or so requests reach the oil companies each year. Statistically speaking the odds are very much against petroleum exploration even in its current state-of-the-art: 1/10 to find; 2/50 a field; 3/10 a big field. Exploration under the best scenario is still largely an issue of where to take tax deductions and how to absorb the balance in overhead.

The same logic is adhered to even more strongly as one analyzes the business tactics of small majors and independent oil producers. Their small-scale of operations rarely allows them to amass the cash and talent needed to initiate a foreign venture which their accounting services must project to be a complete loss in so far as the probability of successfully generating a hard currency profit is concerned.

3. Host Country Government Policies

- a) Acreage is unavailable to the private sector.
- b) State-held oil companies hold sole exploration rights over tracts of land beyond their capability to explore.
- c) Tax and investment codes deter private capital.

Though Moroccan law has all subterranean wealth owned by the State, Morocco has exercised a very liberal interpretation of this law.

4. Political and Financial Risk

Major oil companies of course welcome operating in a stable business environment. However, political risk is not a fundamental barrier to launching an exploration program in view of the fact that they are large enough to have a diversified exploration portfolio situated in a number of developing countries. Political risk can of course loom large for the smaller exploration company putting all its foreign investment in one country.

In conclusion, a review of the international market background indicates that the negative factors in the case of Morocco are largely due to the paucity of oil discovered and international market forces. ONAREP is following the norm in developing countries: force account exploration and drilling until a foreign company is convinced they are attractive enough.

Local Private Interests

High net worth individuals in developing countries do exist but are quite few in number. Stock exchanges and venture investment brokers are even more rare. Business enterprise in developing countries responds more conservatively to a risky offer than their U.S. equivalents for several reasons: hard currency control measures which thwart importation of foreign equipment, poor tax laws, and legal access to land. Probably the second biggest barrier to local private participation after lack of capital is the paucity of petroleum management personnel, virtual absence of technical staff, and non-existent computer analysis services. To mount a private company in a developing country actually owned and managed by locals would be impossible to do in a state-of-the-art fashion without wasteful duplication of products and services already available in the international market.

TABLE 13
FINANCIAL SUMMARY
(\$000 or DH Equivalent)

Categories	Obligations prior to this Agreement		Funds Obligated by this Agreement		Funds Obligated to Date		Balance of Project to be obligated subject to availability of funds		Life of Project Funding	
	AID	GOM	AID	GOM	AID	GOM ¹⁾	AID	GOM ²⁾	AID	GOM
1. English Lang. Training	0	0	3	26	3	26	0	0	3	26
2. U.S. Short-Term Trg.	0	0	227	18	227	18	0	56	227	74
3. U.S. Academic Training	0	0	186	62	186	62	0	66	186	128
4. Project Evaluations	0	0	113	-	113	-	61	-	174	-
5. Contingency for TA Cont.	0	0	172	-	172	-	38	-	210	-
AID DIRECT COSTS AND RELATED (1-5)	0	0	(701)	(106)	(701)	(106)	(99)	(122)	(800)	(228)
6. Pet. Finan./Mgt. Advice	0	0	347	36	347	36	84	158	431	194
7. Pet. Explor. Design/Anal.	0	0	248	23	248	23	134	164	382	187
8. Pet. Reservoir + Prod. Engineering	0	0	244	24	244	24	0	61	244	85
9. Pet. Reservoir Computer Studies	0	0	140	-	140	-	0	-	140	-
10. Commodities (cars/office)	0	0	19	64	19	64	1	3	20	67
11. English Lang. Trg.	0	0	9	13	9	13	6	76	15	89
12. In-Country Technical Seminars	0	0	95	16	95	16	52	35	146	51
13. U.S. Conference/Workshop (Fees/Salaries)	0	0	17	8	17	8	0	17	17	25
14. U.S. Fet. Industry Internsh. (Fees/Salaries)	0	0	111	15	111	15	0	16	111	31
15. Travel + Related (Morocco, U.S., Intern'l)	0	0	255	71	256	71	87	265	343	336
16. Rental/Allowances	0	0	285	6	285	6	87	24	372	30
17. Contract Mgt./Office Oper./Misc./TDYers	0	0	190	12	190	12	80	45	270	57
18. Employee Benefits/Co. Overhead	0	0	1,025	59	1,025	59	302	250	1,327	309
19. Fee for T.A. Contract	0	0	313	-	313	-	69	-	382	-
T.A. AND TRAINING (CONTR.-RELAT.) (6-19)	0	0	(3,299)	(347)	(3,299)	(347)	(901)	(1,114)	(4,200)	(1,461)
20. Total Contribution (1-19) (USG+GOM)	0	0	4,000	453	4,000	453	1,000	1,236	5,000	1,689

6% per annum inflation factored into estimates.

1) CY '84 operating budget

2) CY '85-7 operating budgets.

TABLE 14
ESTIMATED EXPENDITURES BY U.S.A.I.D.
 (U.S. Fiscal Year) - (1 October through 30 September)
 (\$000)

Categories	1984	1985	1986	1987	1988	TOTAL
1. English Lang. Trg.	3	0	0	0	0	3
2. U.S. Short-Term Trg.	20	110	97	0	0	227
3. U.S. Academic Trg.	90	96	0	0	0	186
4. Project Evaluations	0	55	58	61	0	174
5. Contingency for T.A. Contract	86	78	46	0	0	210
<u>AID Direct Costs (1-5)</u>	(199)	(339)	(201)	(61)	0	(800)
6. Pet. Finan/Mgt. Advice	160	170	101	0	0	431
7. Pet. Explora. Design/Anal.	120	127	135	0	0	382
8. Pet. Reservoir + Prod. Engineering	135	109	0	0	0	244
9. Pet. Reservoir Computer Studies	30	50	0	0	0	140
10. Commodities	18	1	1	0	0	20
11. English Lang. Trg.	1	7	7	0	0	15
12. In-Country Technical Seminars	46	49	52	0	0	146
13. U.S. Conference/Workshop Fees, etc.	8	9	0	0	0	17
14. U.S. Pet. Industry Internships	54	57	0	0	0	111
15. Travel and Related	155	101	37	0	0	293
16. Rental/Allowances	152	133	87	0	0	372
17. Contract Mgt./Office Opera./ Miscel./TDY ers	96	94	80	0	0	270
18. Employee Benefits/Co. Overhead	518	507	302	0	0	1,327
19. Fee	156	143	83	0	0	382
<u>T.A. and Trg. Contract (6-19)</u>	(1,699)	(1,567)	(935)	0	0	(4,201)
20. TOTAL CONTRIBUTION (1-19)	1,898	1,906	1,136	61	0	5,000

6% per annum inflation factored into estimates.
 errors due to rounding.

27

TABLE 15
ENGAGEMENTS PREVUS PAR L'ETAT MAROCAIN
(Année Fiscale Marocaine) - (1er Janvier - 31 Décembre)

(En Milliers de DH)
(Taux de Change : 7,8 DH. = \$1,00)

Catégories	1984	1985	1986	1987	1988	TOTAL
1. Formation en langue anglaise	203	0	0	0	0	203
2. Formation de courte durée aux E-U	140	289	148	0	0	577
3. Formation universitaire aux E-U	484	515	-	-	-	998
4. Evaluations de projet	-	-	-	-	-	-
5. Imprévus pr. contract. de l'assist. tech.	-	-	-	-	-	-
Dép. dir. - dép. s'y rapportant de l'AID(1-5)	(827)	(803)	(148)	-	-	(1,778)
6. Conseil Je fin/gest. ds domaine pétrol.	282	577	476	179	-	1,513
7. Analyse - concept. des exploit. pétrol.	179	499	530	250	-	1,459
8. Ingén. de product. - de réservoirs pétr.	187	359	117	-	-	663
9. Etudes informat. relat. aux résér.	-	-	-	-	-	-
10. Facilités (voitures, bureau)	499	15	8	-	-	523
11. Formation en langue anglaise	101	413	179	-	-	694
12. Séminaires techniques au Maroc	125	133	140	-	-	398
13. Conf/stages aux E-U (frais, salaires)	62	62	70	-	-	195
14. Stages dans industrie pétrolière aux Etats-Unis (frais, salaires)	117	125	-	-	-	242
15. Frais de voyage et s'y rapportant (Maroc, E-U, Intern 1)	534	1,076	757	234	-	2,621
16. Loyer/indemnités	47	94	70	24	-	234
17. Gestion du contrat/fonctionnement du bureau/divers consultants	94	195	156	-	-	445
18. Avantages sociaux employés / frais généraux des contractants	460	913	749	289	-	2,410
19. Frais de contrat pour l'assist. tech. Assistance technique et formation (concernant le contractant) (6-19)	(2,707)	(4,462)	(3,253)	(975)	-	(11,396)
20. Contribution totale (1-19) (GEU-GM)	3,533	5,265	3,401	975	-	13,174

Il a été tenu compte, dans les estimatifs, d'un taux d'inflation de 6% par an
Erreurs dues à des chiffres arrondis.

DETAILED ECONOMIC ANALYSIS

The economic case for providing assistance for oil and gas exploration, development and production is primarily the possibility of greatly reducing the costs of these operations through the transfer of U.S. oil industry technology and management practices. It is important to maximize the cost-effectiveness of these operations in view of the relatively large investments Morocco plans to make in finding and developing its oil and gas resources.

The value of AID assistance to ONAREP in improving the efficiency of its operations and in accelerating possible discovery and development is potentially very great. ONAREP is a relatively young organization with slow drilling rates and inefficient operations which could be greatly improved by the style of management common in U.S. oil companies. Put another way, it should be possible to accelerate the rate at which ONAREP's operations approach the efficiency of private oil companies at the same scale of operation.

Both ONAREP and the Moroccan economy stand to benefit from an improvement in the efficiency of oil and gas exploration and development. ONAREP will benefit directly by raising the probability it will discover recoverable reserves for a given amount of planned expenditures on exploratory drilling. Such improvements in efficiency should advance the date at which production activities can begin to meet both operation costs and contribute to further exploration.

A second economic reason for assisting Morocco in hydrocarbon development is also valid for alternative sources of energy and for energy conservation. That is the high cost of imported petroleum products, particularly in view of the general shortage of hard currency to pay the oil bill. According to the I.B.R.D.*, "an oil and gas exploration program provides the best prospects in the medium term for augmenting indigenous (energy) supplies".

In this connection, it should be noted that in 1982, Moroccan oil output equalled only 15,200 tons and natural gas production only 78.6 million cubic meters or 58,950 TOE. At border prices of \$30 per barrel or about \$250/TOE for both oil and gas, ONAREP's total production was worth no more than \$18.5 million. These figures may be compared to 1982 national consumption of 4.1 million TOE of petroleum products and an oil import bill of \$1,070 million.

With respect to the first argument of improving ONAREP's efficiency, we do not have data on the U.S. petroleum industry's standards for various operations by companies of similar size to ONAREP. However, we do have the qualitative assessment of an unpublished World Bank mission which recommended the following improvements:

* Morocco: Priorities for Public Sector Investment (1981-85), June 1983, p. 82

- (i) that ONAREP be provided with the financial resources and autonomy in the decision making and use of funds needed for the timely procurement of equipment, supplies, and services, in order to prevent costly delays in the program;
- (ii) that ONAREP strengthen its logistics support to drilling operations;
- (iii) that ONAREP engage a firm of drilling consultants experienced in planning, drilling, and testing high pressure gas reservoirs at the earliest possible date. Top quality services are essential in view of the special difficulties involved in high pressure gas operations.
- (iv) that ONAREP also engage, in parallel, highly qualified reservoir engineering services to assist in its assessment of reserves and of well productivity; and
- (v) that ONAREP pay particular attention to the need to coordinate the work done by consultants, other expatriate professionals (ONAREP has French, Romanian, Soviet, and U.S. as well as Moroccan staff in key positions), and its own staff.

The company is characterized as being small by international petroleum industry standards, and thinly staffed at key technical and managerial levels. Finally, the unforeseen magnitude of the discovery at Meskala is leading ONAREP into a major effort on an unprecedented scale for this young company.

ONAREP's petroleum exploration program has grown to approximately 63 million dollars in 1982 to explore the most promising locations of the country's presumed 10 to 30 million TOE of oil reserves and the 5 to 200 million TOE of natural gas reserves. Keeping down the cost of the exploration program per TOE of recoverable reserves will have a major impact for both ONAREP and the national economy which will have to bear the cost of exploration activities until the expected reserves are located and production can begin.

By contrast, current cost estimates to develop the Meskala field alone range from \$200 to \$1,450 million using a contract drilling and production approach rather than force account. Though these cost projections may seem enormous, Meskala would remain a modest field - internationally unimportant. However, the national impact could be significant since current production estimates for Meskala equal 5 to 30% of national consumption.

The recommendations listed above strongly suggest that without appropriate assistance ONAREP is likely to waste large amounts of money in comparison to what could be achieved with U.S. technology and management assistance. To illustrate the potential benefits from providing state-of-the-art technical assistance, the MEM's energy planning model is used below for the Meskala field.

While the bulk of the AID funded contract team's work will be to improve management practices and operational efficiency, the finance/management advisor's work will fill another significant gap in the operation. His work will contribute to the analysis of the profitability of projects, while the comparative advantage for the Moroccan economy in undertaking gas and oil production projects (as compared to alternative energy sources) can be further analyzed through the Directorate of Energy's planning model. This model will be employing shadow prices

(or at least border prices) in comparing the economic benefits and costs of alternative energy investments. The prior work of the T.A. contractor should make it possible to improve the MEM's data base for the oil and gas sector while helping ONAREP make project-specific decisions.

The best current effort at projecting the benefits of Meskala gas production to the economy are typified in the Figures 3.A and 3.B. In the first figure the lower line indicates the value in \$ of imported petroleum products presuming that Meskala is brought into production in 1990. A sharp reduction in imports at that time is due to the conversion of oil-fired plants to gas-fired. The long-term benefit is short lived however as petroleum imports regain their previous levels in the late 1990's. The extra hard currency investment and operating costs needed to bring Meskala "on line" are shown by the difference between the lower line and the upper. The cost is roughly estimated at \$500 to \$1,500 million dollars.

Figure 3.B. shows the same expenditures but depicts Meskala gas being sold in 1987 - 3 years earlier due to the provision of competent experienced petroleum project managers and engineers. The dark area in Figure 3.B. shows the implicit savings of having trained personnel assist in the development of Meskala. The savings is on the order of several billion dollars i.e. 2-3 years of current import levels. Thus, the point is driven home once again that given a relatively small gas field and a highly petroleum dependent small economy, local production at the Meskala scale is very important. Yet, even more important is the need to act promptly to maximize implicit cost savings.

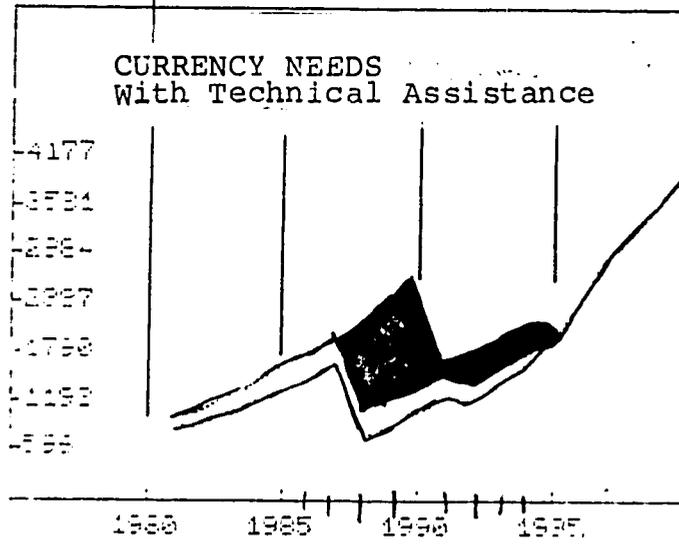
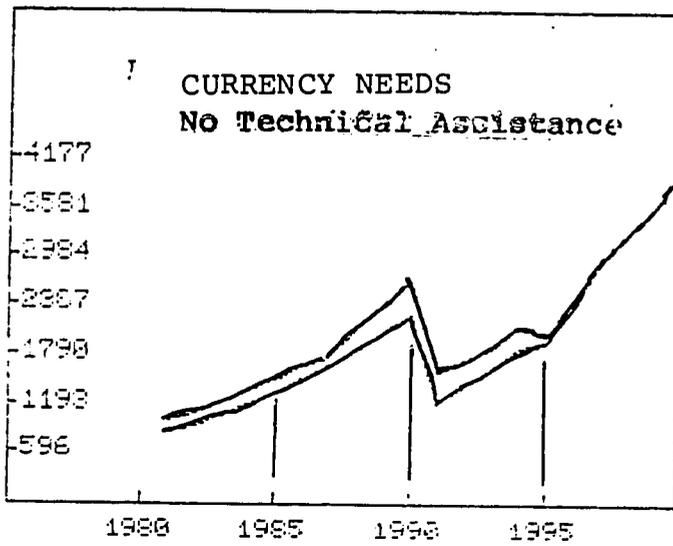
The conclusion which is argued but which can not be quantitatively demonstrated is that the \$6.7 million project will accelerate the process presuming there are commercially recoverable resources. Over the 3 years of projected accelerated development, one could presume AID funded assistance of 6 petroleum management experts would at least contribute 10% of the total savings in time.

Assuming Meskala remains a modest field (182 m3 million/year) and that all its production is used to displace imported fuel, then it would displace 4.7% of Morocco's oil imports, a hard currency savings of about \$47 million per year. (See Table 10). Thus, the 608-0176 project could surely be argued to be able to accelerate the time the GOM could reap these savings by at least 3 or 4 months valued at \$12-16 million for the Meskala field alone.

With respect to the second economic reason for assisting oil and gas exploration, development and production, the data show that the development of the Meskala fields will probably yield a high rate of return under a wide range of assumptions, resulting in significant savings for the national economy.

The World Bank's unpublished estimates of rates of return to development of Meskala are favorable, at international prices, but they appear to depend upon efficient well development which in turn depends upon ONAREP meeting the recommendations listed above. The proposed technical assistance under this project is an effective way to meet the recommendations by making use of the best available technology in the international petroleum industry.

Efficient development of high-pressure wells at Meskala and greater cost-effectiveness in its overall exploration and development program will help Morocco alleviate its balance of payments problems without creating the drag of an uncompetitive oil company on the economy. In this sense, the technical assistance USAID provides will assist the GOM in meeting current and future energyn demand while reducing the payments imbalance in its external accounts.



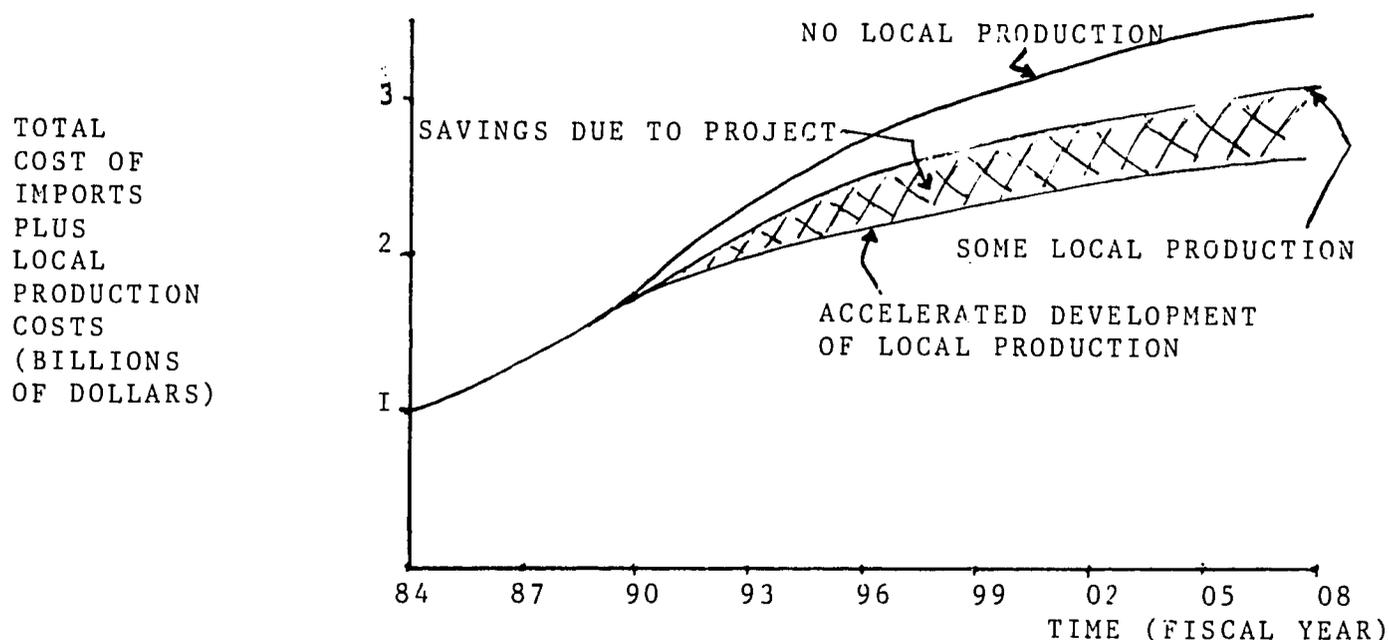
While it is true (and of great national concern) that Morocco is heavily dependent upon imported petroleum products, it would not make sense to promote oil and gas exploration if there were not at the same time promising geological structures (as illustrated by the Meskala discovery). Import dependency, albeit dramatic given the escalation of international pricing during the 70's, is not in itself a reason to assist oil and gas exploration efforts. These must be, as there fortunately is in the case of Morocco, reasonably good prospects of finding reserves which can be developed and produced at costs less than or equal to the economic cost of importing the same petroleum products.

Also, it should be noted that Morocco is devoting some resources to the development of alternate sources of energy. The GOM is not pinning all its hopes on oil and gas. This is consistent with the prospects for favorable rates of return on hydro-electric projects (generally multi-purpose), coal conversion and energy conservation, and oil shale and nuclear energy development. No single energy source shows significantly greater potential returns on investment, so it is a rational approach for Morocco to maintain a diversified energy development portfolio, with oil and gas exploration an important element in the medium-term.

The potential value of the project to the national economy is in saving foreign exchange and reducing the cost of obtaining a given level of energy consumption. In order to be a worthwhile investment, the savings in energy import costs attributable to the project must be greater than the cost of producing an equal amount of energy domestically (measured in economic prices). The technical analysis suggests that it is likely to be economical to produce gas from the Meskala field (and highly probable this will be true of other basins as well). The technical analyses above indicated the types of cost-saving improvements which could be achieved with the help of U.S. technical assistance. It is assumed that the Meskala field alone could be brought into production three years earlier in large measure due to our assistance. The economic value of accelerating field development is shown in the graph.

TABLE 4

Economic Value of Accelerated Development



We cannot predict accurately local production costs or the speed with which ONAREP would achieve state-of-the-art techniques without the project's U.S. assistance. However, we can ask what level of savings attributable to the project is required to make it a worthwhile investment. The table below shows these magnitudes for several different time horizons.

TABLE 16
Internal Rates of Return (%)
under different assumptions

<u>Annual</u> <u>Saving due</u> <u>to Project</u>	<u>Periods during which savings are realized</u>			
	<u>3 yrs</u>	<u>5 yrs</u>	<u>10 yrs</u>	<u>20 yrs</u>
\$1,500,000	-	-	-	12.54
\$2,000,000	-	-	12.80	15.62
\$2,500,000	-	-	15.79	18.19
\$3,500,000	-	14.84	-	-
\$4,700,000	13.13	19.93	-	26.51
\$5,200,000	15.05	-	-	-
\$6,000,000	17.82	-	-	-
\$7,000,000	20.88	-	-	-

These rates of return are calculated on the planned cost profile of the 6.7 million dollar project with constant annual benefits beginning in 1990. The USAID standard of a fifteen percent return is achieved if the project can bring about annual savings of \$5,200,000 from 1990-1994. Lower rates of annual savings attributable to the project would be necessary if it is assumed that ONAREP would not otherwise catch up to the operating standards established through U.S. assistance until 10 or 20 years later.

If Meskala accounts for 30% of national energy consumption in 1990, it seems eminently feasible to achieve annual savings attributable to our assistance of more than \$5,200,000 on production valued at over \$300,000,000. If exploitation of Meskala accounts for only 5% of national energy consumption in 1990 and beyond, it may still be possible to achieve high annual savings given the cost of imported energy sources.

In addition to Meskala, U.S. assistance will advise on development of the dozen or so sites which have promising geological structures but which must still be explored. The cost-effectiveness of the prospection will be improved through U.S. assistance and any major discovery and subsequent development would add to the savings obtained through the Meskala field. While the potential is significant in Morocco, it remains to be seen whether the gamble of assisting in the high-risk oil and gas exploration and development business will achieve the pay off AID normally expects. One major unforeseen discovery among the little known but promising geological structures of Morocco would more than justify the assistance in cutting ONAREP's costs through better overall management. On the other hand, if none of the promise of hydrocarbons is borne out, no amount of assistance to achieve greater efficiency can be said to have been worthwhile. On the basis of the limited data available, it seems worthwhile to add a small but potentially very effective component to the other assistance being provided by the World Bank (principally) and accept the high risk element involved in the oil and gas business.

DETAILED ADMINISTRATIVE ANALYSIS:a) IMPLEMENTING AGENCY: OFFICE NATIONAL DE RECHERCHES ET D'EXPLOITATIONS PETROLIERES (ONAREP)

ONAREP is a wholly owned public enterprise established by law on November 10, 1981 complemented by royal decree November 29, 1982. ONAREP is authorized through its statutes to undertake all industrial, commercial, and financial activity compatible with the objective of accelerating development of indigenous petroleum and oil shale resources. To this end, it can (i) explore for and develop such deposits; or (ii) form or take participation in companies or promote any action by companies, aiming at either the exploration, development, treatment, or marketing of hydrocarbons and oil shale.

ONAREP operates under the tutelage of the Ministries of Energy and Mines and of Finance, and is governed by an Administrative Council and a Committee of Directors. The Administrative Council is headed by the Prime Minister (as President), and includes as members the Ministers of Energy and Mines, Finance, Planning, Interior, Commerce and Industry, Transport, Equipment, Labor, and the Head of the governmental authority for economic affairs. The Committee of Directors is headed by the Minister of Energy and Mines and includes the Ministers of Finance and Planning, the Head of the economic affairs authority, or their representatives.

The responsibility for managing ONAREP rests with a General Director, assisted by a Secretary General. Since his assumption of his post ONAREP's General Director has re-organized the company into two Directorates (for petroleum exploration and for technical operations), and three divisions (for oil shale, financial, and administrative affairs). The two Directorates are organized along functional line.

The Direction de l'Exploration Pétrolière comprises three basic divisions: (i) the division for regional exploration which consists of teams of geologists and geophysicists assigned to each of several regional basins on-shore and off-shore who are charged with the study, planning, or supervision of exploration work in these areas; (ii) the division for sub-surface studies which is charged with the geological supervision of wells drilled either by ONAREP on its own or by ONAREP's partners; and (iii) the division for petroleum participations whose functions include the promotion of foreign participations in exploration and production, the administrative follow-up of joint venture agreements, and the economic study of petroleum prospects.

The Direction Technique has four divisions: (i) the drilling division which is charged with the responsibilities of design and supervision of drilling, well testing, and completion operations; (ii) the drilling operations division which executes these programs; (iii) a production division responsible for the planning and supervision of petroleum development projects, and (iv) an equipment division which procures and maintains equipment and consumables and provides other general logistic support. The technical Directorate covers essentially all areas except exploration and administration.

b) STAFFING

ONAREP as of September, 1983 had about 1,170 employees. Of the 250 professional level positions (52 senior level and 197 mid level) identified only about 150 are currently filled due to lack of recruitable talent in Morocco. About 65 expatriates help fill the gap, 40-45 French expatriates focused primarily on Meskala, 8-9 Soviets, 6-7 Romanians and a few Iranian and Japanese.

The great majority of the ONAREP employees come from BRPM where their talents were focused primarily on non-phosphate mining and minerals explorations. Only a dozen or so ONAREP staff have formal training and experience in oil and gas development. ONAREP management is currently seriously considering divesting its drilling operations involving 400 technicians.

The current ONAREP organizational chart Figure 4, is essentially a BRPM heritage structured naturally along the lines of a mining company. ONAREP management is soon to finalize a complete review of its management practices, authorities and weaknesses. Based on draft versions of this work ONAREP is viewing the wisdom of instituting radical changes in its structure along the lines indicated in Figure 5 "Suggested Reorganization of ONAREP". AID and ONAREP agree that the proposed structure is more that of a full blown oil company than one just starting up during early production days. The organizational chart reflects the higher gas scenarios put forth in early 1983. A key recommendation was to activate the studies and planning division.

The management review of ONAREP developed 4 main conclusions:

1. ONAREP is not conforming to international operating standards,
2. It has qualified professional talent in insufficient numbers,
3. The GOM's legal and investment environment is favorable,
4. GOM state budget combined with WB funding give it adequate capitalization

Three main recommendations were put forth:

1. Stabilize the flow of GOM funds to ONAREP
2. Use talent more effectively
3. Strengthen internal management and accounting.

One of the highlights of the ADL study was that the MOF needed to provide ONAREP greater discretion in the usage of State funds in the interest of more efficient exploration and more timely development. Before, ONAREP could be given this freedom its internal accounting abilities would have to be noticeably strengthened.

c) ONAREP ACCOUNTS AND FINANCES

As shown in tables 17 and 18 over half of ONAREP's expenditures come from State appropriations and almost 40% from borrowings, largely the WB. About 5-10% of ONAREP's financial resources stem from the sale of oil and gas from a few depleting wells. Over half of ONAREP's resources have been allocated to petroleum exploration expenditures which are currently listed as "investments" in the sense that they will be recovered from the eventual sale of oil or gas.

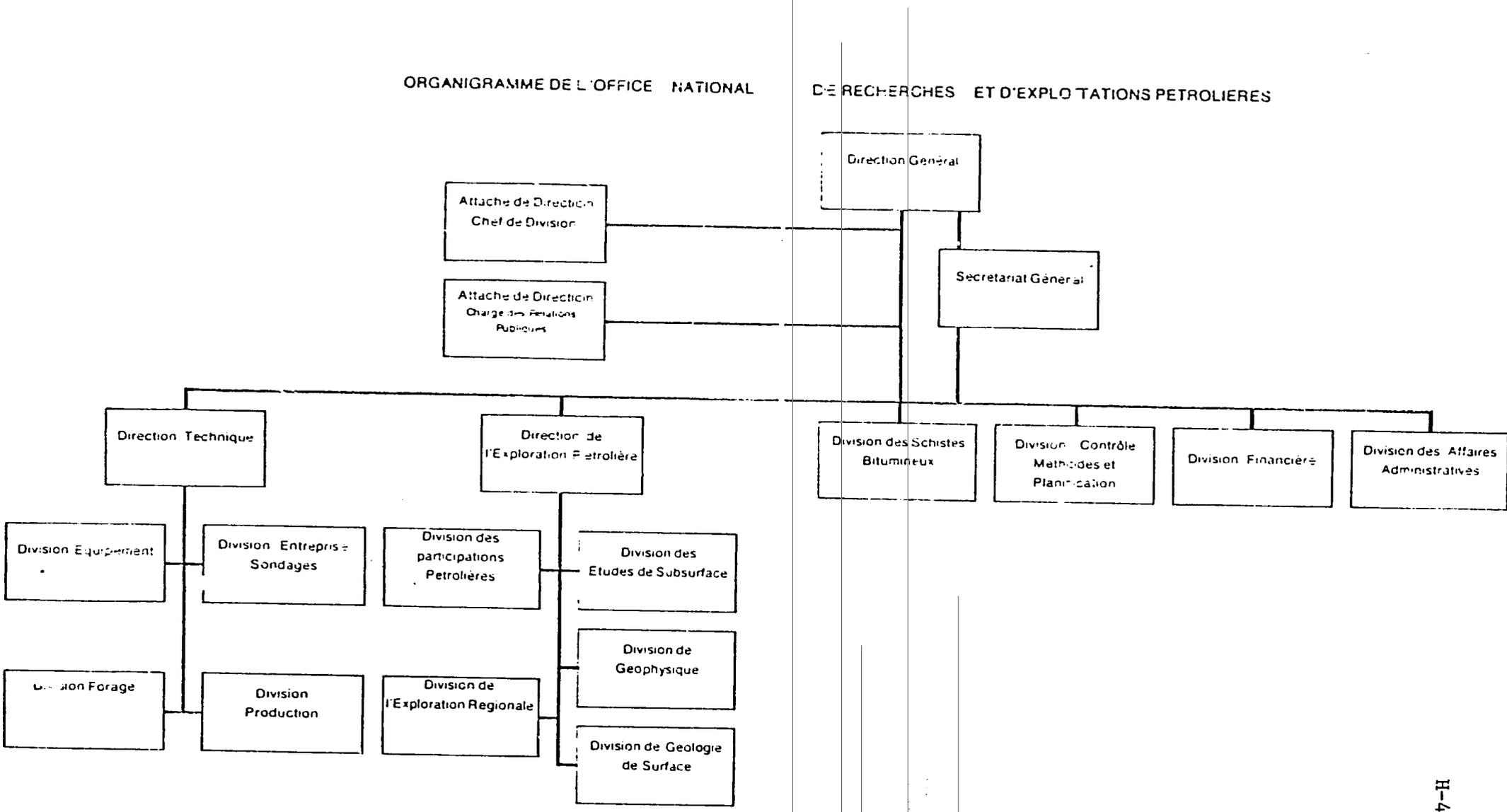
Encouraged by early indications of commerciable finds, the GOM has allowed ONAREP appropriations to grow dramatically in the midst of general austerity.

Conclusion

ONAREP is aware of its limitations and short-comings as a state-owned petroleum company understaffed for the job at hand. Yet, few experienced firms will explore in Morocco on a concessional basis when better known alternative basins are available. If the current discoveries remain only modest internationally but important for the local economy, then ONAREP must face alone major challenges regarding its managerial, financial, and technical capacities. If a moderate sized development effort involving 30-40 wells, plus gas field surface facilities, plus pipelines is to be mounted, the GOM will have to borrow foreign exchange to develop the resource based on the implicit import displacement value of the wealth trapped in the ground. This probable scenario is feasible but onerous. Technical assistance in orchestrating such an option would clearly be cost effective.

FIGURE 5

ORGANIGRAMME DE L'OFFICE NATIONAL DE RECHERCHES ET D'EXPLOITATIONS PETROLIERES



4/5

Figure 6 - Suggested Reorganization of
ONAREP

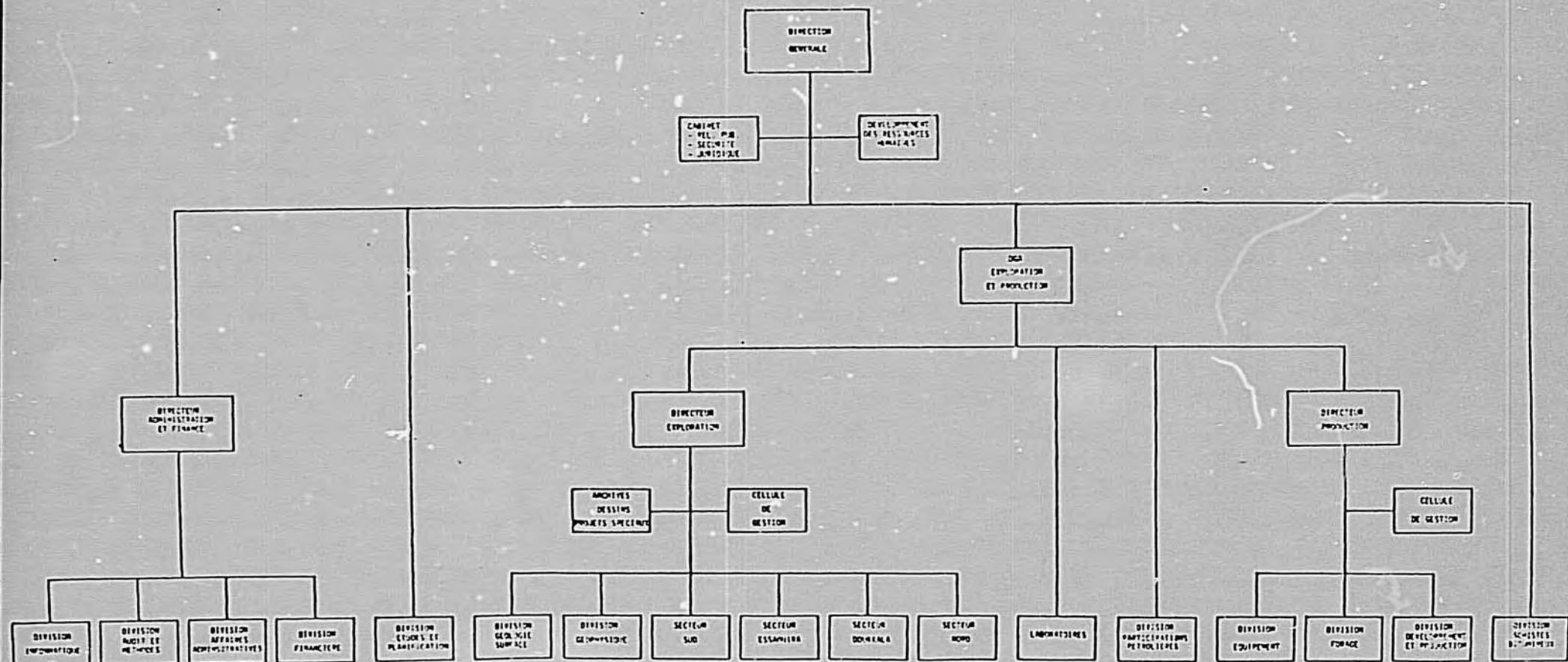


TABLE 17

ONAREP

Statements of Sources and Application of Funds 1982-84
(In DH million)

Year Ending December 31	Provisional 1982	--Forecast-- 1983 1984	
<u>APPLICATIONS</u>			
Petroleum Exploration investments			
First Petroleum Project	125.0	80.0	-
Proposed project	-	150.0	330.0
Other investments	<u>85.0</u>	<u>135.0</u>	<u>175.0</u>
Total Petroleum Exploration	<u>210.0</u>	<u>365.0</u>	<u>505.0</u>
Oil Shale Studies			
Bank project	34.0	75.0	25.0
Other investment	<u>28.0</u>	<u>25.0</u>	<u>20.0</u>
Total Oil Shale	<u>62.0</u>	<u>100.0</u>	<u>45.0</u>
Plant			
Development facilities 1/	-	30.0	315.0
Other	<u>81.0</u>	<u>120.0</u>	<u>190.0</u>
Total Plant	<u>81.0</u>	<u>150.0</u>	<u>505.0</u>
Working Capital:			
Inventories	18.0	38.0	47.0
Increase (Decrease) in other current assets	54.0	47.0	68.0
Decrease (Increase) in current liabilities	<u>(25.0)</u>	<u>(40.0)</u>	<u>(55.0)</u>
Increase (Decrease) in Working Capital	<u>47.0</u>	<u>45.0</u>	<u>60.0</u>
 TOTAL APPLICATIONS	 <u>400.0</u>	 <u>660.0</u>	 <u>1,115.0</u>
<u>SOURCES</u>			
Net income before interest	21.0	22.5	25.5
Depreciation and provisions	20.0	30.0	38.0
Less debt service:			
Amortization	-	-	(25.0)
Interest	<u>(26.0)</u>	<u>(42.5)</u>	<u>(38.5)</u>
Net internal cash generation	<u>15.0</u>	<u>10.0</u>	<u>-</u>
Borrowings			
First Petroleum Exploration Loan	159.0	85.0	-
The Oil Shale Loan	-	43.0	20.0
Proposed Second Exploration Loan	-	98.0	220.0
Other Long-term loans	<u>-</u>	<u>20.0</u>	<u>300.0</u>
Total borrowings	<u>159.0</u>	<u>246.0</u>	<u>540.0</u>
Government budgetary appropriations	<u>226.0</u>	<u>404.0</u>	<u>575.0</u>
 TOTAL SOURCES	 <u>400.0</u>	 <u>660.0</u>	 <u>1,115.0</u>

1/ Includes investments for the development of Toukimt.

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TABLE 18

ONAREPBalance Sheets 1982-84
(In DH million)

Year ending December 31	Actual 1981	Provisional 1982	---Forecast---	
			1983	1984
<u>ASSETS</u>				
Gross Plant	185.5	266.5	416.5	921.5
Less Depreciation	<u>(96.6)</u>	<u>(114.8)</u>	<u>(142.8)</u>	<u>(178.8)</u>
Net Plant	88.9	151.7	273.7	742.7
Petroleum Exploration	217.4	427.4	792.4	1,297.4
Oil Shale Studies	55.7	117.7	217.7	262.7
Investment in Affiliates	35.8	35.8	35.8	35.8
Working Capital:				
Inventories	94.3	112.3	150.3	197.3
Other Current Assets	91.2	145.2	192.2	260.2
Less Current Liabilities	<u>(95.1)</u>	<u>(120.1)</u>	<u>(160.1)</u>	<u>(215.1)</u>
Net Working Capital	90.4	137.4	182.4	242.4
Total Assets	<u>488.2</u>	<u>870.0</u>	<u>1,502.0</u>	<u>2,581.0</u>
Government Equity	404.7	625.7	1,009.7	1,571.7
Provision for Pension Funds	12.3	14.1	16.1	18.1
Long-term Debt	71.2	230.2	476.2	991.2
Total Liabilities	<u>488.2</u>	<u>870.0</u>	<u>1,502.0</u>	<u>2,581.0</u>
Quick ratio	0.96	1.21	1.20	1.21
Current ratio	1.95	2.14	2.14	2.13
Debt/Equity Ratio	15/85	26/74	32/68	38/62

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PARTICIPANT PROCEDURES

1. English Language

An ALIGU average score of 70 will be the minimum for participants receiving short-term technical training. However, higher scores may be required by specific training programs. Prior to placement at a U.S. university most long-term participants will be required to take the Test of English as a Foreign Language (TOEFL). If a U.S. university requires a TOEFL score, a participant may only proceed to that university after a satisfactory TOEFL score is achieved. Most U.S. universities require a minimum TOEFL of 500, and some require higher scores.

2. Required Tests for Academic Training

The Graduate Record Examination (GRE), given four times a year in Rabat or the Graduate Management Admission Test (GMAT), given once a year only in Rabat may be required by certain universities. If the tests are given in time for admission to a U.S. university, these tests will be taken in Rabat; otherwise, the T.A. contractor will fund invitational travel for participants to take these tests in neighboring countries, such as Tunisia, Spain or Portugal.

3. Program Selection and Participant Placement

AID requires 20-150 days processing for academic training and 90 days for short-term technical training. A training request (PIO/P) with attached Biographical Data will be written on each participant. ONAREP, the participant and USAID will agree on the training requested for the participant. AID, upon receipt of the PIO/P, will apply to the appropriate universities, which can provide the requested training program. ONAREP, the participant, and USAID will approve the Training Implementation Plan developed by AID before the participant leaves for the U.S.

4. Travel Arrangements

a. In-Country Travel

In-country travel arrangements to a training site will be the responsibility of ONAREP.

b. International Travel

The USAID contribution to the Project will normally not be used to fund international travel. In accordance with AID HB-10 (Participant Training) regulations, international travel costs will be paid for by the Grantee. Domestic U.S. travel to the training site will be funded via the T.A. contractors. The Moroccan T.A. sub-contractor will also be expected to pay the international travel of its short-term participants.

5. Processing of Participants

Once the participant has been selected, all the required documents have been submitted, and he has achieved the English language requirements, the USAID Training Officer will prepare him/her for departure to U.S. This includes a visa request and maintenance advance. Finally, an arrival cable will be sent to the training site so that the participant may be met.

All proposed participants must include the following documents in their dossiers :

- (1) A signed letter of nomination from his/her organization, approving the candidate's release for the training period, describing generally the responsibilities the participant will assume upon returning, and payment of the participants salary during the training period.
- (2) A detailed description of the desired training.
- (3) A curriculum vitae (resumé) and / photographs.
- (4) Certified true copies of Diploma (mandatory for Academic candidates).
- (5) Certified true copies of Grade reports (mandatory for Academic candidates).
- (6) Three Letters of Recommendation (mandatory for Academic candidates).
- (7) A certificate stating that the candidate's English or third country language proficiency is sufficient for the proposed training in the particular country selected.
- (8) An agreement (engagement) signed by the candidate that he/she will serve his/her organization when he/she returns home for a certain period of time in accordance with current GOM regulations.
- (9) A medical certificate, attesting the physical health of the proposed participant. (From the "Santé Publique")

6. Pre-Departure Orientation for U.S. Participants

A joint GOM/USAID pre-departure orientation will be given to each participant which will include discussions on the culture and life in the U.S. and what a Moroccan participant could expect when he/she first arrives in the U.S.

7. Monitoring of Participants

S&T/EY and the Home Office of the T.A. Contractor will monitor the participants' program and will send periodic reports to the USAID who will discuss the training reports with the ONAREP. On the other hand, the Mission and ONAREP should also evaluate the participants' progress while in training, through reporting mechanisms.

8. Return of Participants to Morocco after Completion of Training

At least one month before the participant's departure from the U.S., S&T/EY or the Home Office of the T.A. Contractor will send a cable to the USAID advising them of the participant's ETD. In turn, ONAREP will assure that the participant did in fact return and will have a suitable job waiting for him/her in his/her field of training on arrival in Morocco.

UNITED STATES GOVERNMENT

memorandum

DATE: January 27, 1984

REPLY TO
ATTN OF: NE/PPD/ENV, Stephen F. Lintner, SFL
Bureau Environmental Coordinator

SUBJECT: Morocco - Conventional Energy Management and
Training Project (608-0176) - Environmental Clearance

TO: NE/TECH/HRST, James A. Bever,
Project Chairperson

I have reviewed the subject proposed project and find that it is subject to a "Categorical Exclusion" under the provisions of 22 CFR 216.2(c)(2) (i) and (iii) "A.I.D. Environmental Procedures."

It should be noted for Mission reporting purposes that the project supports the objectives of Section 118 of the Foreign Assistance Act, "Environment and Natural Resources," in that it will provide for improved management and development of conventional energy resources through institution building, special analysis and training.

cc: CC/NE: G. Davidson
AID/Rabat: G. Bricker, Mission Project Chairperson
AID/Rabat: J. Dorman, Mission Environmental Officer
AID/Rabat: A. Williams, Regional Legal Advisor



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

ANNEX KSCOPE OF WORK: T.A. and Training Services to be Contracted under
608-0176Objective

Provide over a 24-month residency period in Morocco technical assistance and training to help Morocco's National Petroleum Company (Office National de Recherches et d'Exploitations Pétrolières - ONAREP) build its internal capability

- (1) to explore for, develop, produce petroleum products
- (2) to strengthen its ties to private sector partners, and
- (3) to adopt cost-effective private sector management principles and techniques.

Scope of work

A. Provide 9 resident advisors: 3 managerial/financial advisors, 3 petroleum exploration advisors, and 3 production technology advisors during the time periods specified below. All nine advisors would be fielded during the same start-up month of residency.

Management/Financial Advisory Group:

(1) Senior Petroleum Management Advisor (Chief-of-Party): This person, who will directly advise the Chief of ONAREP's Studies and Planning Division, will also be the Chief-of-Party for the U.S. contractor. He will also be available to advise the Director General of ONAREP. He will be concerned with the following tasks:

- advice on long-range strategic corporate development;
- general issues of ONAREP management;
- management of the Division and of its two internal sections (The Planning Section and the Studies Section);
- project investment analysis;
- liaison with the Ministry of Energy and Mines (MEM), the Ministry of Plan, and Ministry of Finance;
- assistance to the Director-General in presenting corporate strategies to MEM and to ONAREP's Board of Directors;

- participation in appropriate internal management committees of ONAREP;
- development and dissemination to ONAREP staff of annual corporate operating plans; and
- general supervision of special studies conducted by the staff of the Studies and Planning Division and by outside consultants.

To carry out these staff functions at the highest corporate level, the Senior Advisor must be well seasoned in international business, versed in all aspects of petroleum industry management, and able to communicate well in both written and oral French. It is desirable that he hold an advanced degree in business administration or in economics. As team leader, this individual must have demonstrated analytical capabilities, a solid professional record, strong skills in inter-personal and cross-cultural relations, and proven leadership potential. He will work at ONAREP throughout the two-year T.A. contract.

(2) Joint Venture Promotion Specialist: The primary responsibility of this person will be to help ONAREP's top management levels, as well as the Promotion Division, attract oil companies (both independents and majors), drilling companies and financial institutions to participate in oil and gas exploration and development in Morocco. Such efforts have already included presentation by ONAREP of detailed geological and geophysical data to oil companies in the U.S. and elsewhere, and revision of the Moroccan investment code to include special incentives for energy-related investment.

ONAREP recently established a Promotion Division, headed, interestingly, by a Moroccan petroleum engineer trained at the University of Kansas under an AID grant. This division will have as its principal areas of responsibility:

- promotion of the interest of petroleum companies and other potential investors in the exploration and production of oil and gas in Morocco;
- negotiation of exploration contracts and/or development and production agreements between ONAREP and private companies;
- protection of the interests of ONAREP and the Government of Morocco within the context of private-sector participation in the petroleum sector; and
- coordination of ONAREP's control and supervision of contracts between ONAREP and private firms in petroleum exploration, development and production.

The person filling this position should have an academic background in petroleum engineering and economics or management, with practical experience in all three areas. He must have broad contacts

in the U.S. oil business (especially the independent exploration and drilling companies and comparable divisions of the integrated major companies) and must possess effective communication skills. He should be knowledgeable about the terms of typical exploration contracts and concession agreements and about the procedures involved in negotiating and managing such agreements. The participation specialist will be in residence for two years.

(3) Corporate Financial Advisor: This person would aid ONAREP in improving its financial management procedures and practices, budgeting, internal auditing and control, and automated financial record-keeping. Rationalization of ONAREP's financial management is an "absolute" priority, especially since the budgetary and cash flow problems now being experienced government-wide in Morocco have seriously hampered ONAREP's flexibility and quick-response capability, two essential characteristics of the petroleum industry.

The financial expert should have demonstrated skills in financial management and accounting, and should have extensive corporate experience as a controller, preferably in an oil or gas enterprise. Since his dealings will be virtually all inside the corporation, effective written and oral skills in French are important. The financial advisor will be assigned to Morocco for eighteen months.

Exploration Advisory Group:

(4) National Exploration Program Advisor: This person will work with a Moroccan counterpart responsible for developing and managing ONAREP's exploration program at the national level. He will assist in the ongoing development of a comprehensive national exploration program by directing (with his counterpart) the compilation and analysis of existing geological maps and seismic profiles, magnetic and gravity data, geochemical surveys, core analysis and well logging where drilling has occurred. He will contribute substantially to national exploration program management, including the development of long- and short-term strategies for gathering and analyzing additional data, and for procuring state-of-the-art analytical systems and expertise, principally through outside contracting funded via the World Bank. His work and that of his counterparts in the Exploration Division will be critical to decision-making for ONAREP's drilling program.

The senior geologist should have adequate academic background in petroleum geology and substantial experience in petroleum exploration. The national exploration advisor would be assigned to ONAREP for two years.

(5) Regional Geologist: A second geologist on the resident team will focus on the investigation of new geological prospects such as those in the Doukkala Basin, a specific region of Morocco where the geological structures appear promising for hydrocarbons but where exploration has been very limited up to now.

New focus on this region is appropriate in light of the World Bank's emphasis on the Essaouira region and more specifically on the Meskala structure within that region. After Essaouira, Doukkala appears to be one of Morocco's most promising areas, making it the possible next choice for intensive exploration.

The regional geologist should have educational qualifications similar to the senior geologist's, although his work experience is expected to be primarily at the technical level (as opposed to the technical/managerial combination expected of the more senior geologist), and his length of previous service may be slightly less. He will work within the ONAREP's Exploration Division for 22 months.

(6) Geophysicist: Given the early stage of exploration outside the Meskala structure and especially outside the Essaouira basin, ONAREP requires full-time assistance from a geophysicist thoroughly familiar with state-of-the art techniques in aerial, seismic, magnetic and gravity studies and their interpretation through advanced techniques, including computer enhancement. His qualifications will include a degree in geophysics and several years' experience in geophysical exploration. He will join the Exploration Division for 20 months.

Production Technology Advisory Group:

(7) Reservoir Engineer: Once drilling has been undertaken and hydrocarbons have been confirmed, petroleum reserve estimation and calculation of recovery factors and prospective flow rates become urgent critical tasks. Thus, the need for a reservoir engineering expert becomes vital. This is especially important in the case of Morocco, where little prior experience in reservoir engineering and reserve estimation exists, and where exploration contracts up to the present have been strictly for contract drilling, not comprehensive concession agreements.

To build ONAREP's capability in reservoir engineering and reserve estimation, one person specializing in this area will be provided as part of the technology advisory group. The reservoir engineer's major tasks include: volumetric calculations of reservoir size including estimates of recovery factors; interpretation of pressure build-up/drawdown test data; estimation of reserves and preparation of production graphs; determination of open-flow gas well potential; and development and analysis of reservoir modelling data.

Qualifications for the post include a degree in petroleum engineering and extensive experience specifically in reservoir engineering. The person selected will work with ONAREP's Exploration Division and Production Division for 20 months.

(8) Subsurface Production Engineer: This person will assist in the design of subsurface equipment and tubular goods required for well completion, stimulation and production. The subsurface engineer will assist in the following activities:

- planning completions, remedial work and recompletions so as to establish, maintain or increase production, reduce lifting cost and thereby increase profitability of operation;
- selection of equipment and detailed planning for installations where required;
- handling problems on well completion and workover operations that will result in efficiency and economy through the use of proven procedures and techniques, including the selection of completion fluids, design of cementing methods, stimulation treatments and well workover procedures.

The qualified candidate will have a petroleum or mechanical engineering degree with several years' experience as a subsurface production engineer. He will be assigned to ONAREP's Production Division for 12 months.

(9) Surface Facility Engineer: This specialist will focus his efforts on the design and costing of such facilities as gas treatment and condensate separation plants, pipelines and other gas distribution systems and equipment and (if appropriate) oil-related facilities. He will also be involved in discussions with potential consumers to determine the nature and extent of the demand and the facilities required to serve the prospective customer. He will be a mechanical or petroleum engineer with appropriate experience in the oil and gas industry. The surface facility engineer will be assigned for 12 months.

B. Contractor's Home Office Personnel:

To be proposed by offerers.

C. Reservoir Engineering Computer Services - \$116,000:

To be set aside in the contract subject to change when firm data are available.

D. Short-Term Advisors (12 person-months total):

ONAREP has diverse needs for technical assistance in specific areas, many of which cannot be determined far in advance and will not require sustained long-term efforts. To meet these needs, the contract will include an allocation of funds to pay for short-term specialists. The level-of-effort allocated to this project element is 12 person-months, divided evenly between special assignments in Morocco and work in the United States, with the latter occurring when tasks at hand require data, facilities or large-scale staff expertise available only in the United States, making it more cost-effective to work there than in Morocco. Short-term work under the project will generally encompass special studies and analysis, although in some instances it may also mean technical field work. It is desirable to

maintain flexibility in this component of the project in order to provide a quick-response capability attuned to changing needs. Nonetheless, it is useful to describe some illustrative areas for short-term work in order to indicate the range of possible services and areas where U.S. capabilities will be tapped. Possible tasks include:

- long-term resident technical assistance component (e.g., corporate planning and management; special economic studies; market analysis; geological and geophysical work; reservoir analysis and reserve estimation; and production engineering);
- assistance to ONAREP's new Human Resources Division aimed at development of a comprehensive manpower needs assessment and plan for training and recruitment of the necessary staff;
- assessment of specific technologies that may be appropriate to ONAREP's and Morocco's needs;
- expertise in the areas of environment and safety;
- help with preparation of requests for proposals,
- evaluation of bids received;
- review and evaluation of work of outside consultants and experts;
- negotiation assistance for pending contracts or concession agreements with private oil companies.

E. Participant Training:

The contractor will be charged with conducting an in-country and U.S.-based training program.

- In-Country Program

1. Regular English language classes for up to 27 ONAREP employees for 18 months (Proposers are advised that English language training services locally available via the American Language Center of Rabat. AID would accept a sub-agreement with them for these services).

Intensive English language classes for up to 14 training candidates for no more than 3 months each.

The Contractor will be in charge of arranging and funding English language placement tests, identification cards for students, periodic examinations for up to 27 ONAREP employees identified by ONAREP management as directly involved in Project 608-0176. Instruction would begin 9/84 and end 4/86.

2. A technical seminar in the fall, winter, spring (6 in all) for two-weeks conducted by 2 TDYers (subjects to be selected by ONAREP).

The in-country training program will require the Contractor to deliver primarily in French with occasional English explanations 6 seminars on managerial and technical topics within the petroleum industry. The Contractor will be called upon to develop these courses at its home offices for delivery at ONAREP. About 20-40 junior and mid-level engineers largely from ONAREP will attend the in-country training seminars. Slides, overlays, hand-outs, and ring-binder formatted course book for each participant will be provided. The contractor will also use geological samples, light weight laboratory or field equipment to demonstrate points as required. ONAREP will provide a conference room for the seminars.

- U.S. Program

1. ONAREP employee attendance at conferences/seminars in U.S.; a maximum of 6 participant-months

Between 9/84 and 8/86 the Contractor will be called upon with ONAREP and USAID concurrence to arrange and fund the attendance of about 12 ONAREP participants at petroleum-related seminars/conferences in the United States. Each meeting is expected to last two weeks for a total of about 6 participant-months. Contractor will identify/suggest potential events helpful to the Project's training needs.

In this connection, Contractor will arrange/fund the required English proficiency test for the candidate and any English language training necessary to reach a minimum 65 average ALIGU skill level. The Contractor will arrange/fund any conference/entrance fees, per diem while in U.S., small cash advance upon departure and domestic U.S. air tickets to reach the conference site. (ONAREP will provide a RT air ticket from Morocco to U.S. port of entry).

2. The contractor will fund/arrange for subsequent private industry internships of about 3 months in duration for ONAREP staff.

During each of the two years of the contract, USAID/Morocco will arrange/fund outside the contract the short-term training of about 14 ONAREP professionals. Once this three- to five-month training opportunity has been completed, USAID and ONAREP will select the most successful trainees who will stay approximately 3 months or more to receive private

industry internships in petroleum management/finance, exploration, and production. The Contractor will be responsible for identifying, arranging and funding these internships. There will be approximately 2 interns in the late spring and 2 in the early fall each year for a total of 8 interns and 24 participant-months. The Contractor will arrange/provide air tickets to the participants from their point of direct AID training to their internship site. During the internship the intern will be provided per diem by the contractor and will receive an air ticket at the conclusion of his internship to New York/JFK. At New York the intern will be provided air travel to Morocco by ONAREP.

The Contractor will monitor and report on each participant's internship to USAID/Morocco and ONAREP. Prior to the intern's departure, the Contractor will telex USAID and ONAREP his departure flight and arrival time in Morocco.

It is useful to keep the training component highly flexible at the outset so that the Contractor may be fully responsive to evolving needs. It is useful to provide illustrative areas in which training appears to be especially needed. Selection of specific candidates and programs will follow regular AID procedures as applied by USAID's training office.

Illustrative short-term and industrial training needs follow:

i. PETROLEUM MANAGEMENT

- Management for Petroleum Supervisors;
- Effective Management and Supervision;
- Project Management Skills;
- Concession Agreement Negotiation;
- Petroleum Tax Laws and Regulations.

ii. PROPERTY EVALUATION AND ECONOMICS

- Economic Analysis of Petroleum Ventures;
- Decision Methods in Petroleum Exploration and Risk Analysis;
- Geologic Evaluation of Petroleum Investment Opportunities
PIO.

iii. EXPLORATION

- Sedimentology;
- Structural Geology and Tectonics;
- Stratigraphy;
- Geochemistry, Gravity and Magnetic;
- Seismic Interpretation;
- Seismic Data Processing;
- Logging Fundamentals and Interpretation.

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iv. PETROLEUM ENGINEERING

- Petroleum Technology for non-technical Staff;
- Drilling Engineering and Rock Mechanics;
- Well Completion and Stimulation;
- Reservoir Engineering and Reserves Estimates;
- Pressure Buildup and Drawdown Analysis;
- Surface Facilities: Equipment and Design;
- Gas Well Testing Analysis;
- Natural Gas Technology;
- Reservoir Modelling.

F. Commodity Procurement: (est. cost is \$19,000)

A portion of the technical assistance and training contract will include commodity procurement to equip the contractor's field office and to provide needed equipment in the offices set aside within ONAREP for the contractors. This equipment with spare parts will be ordered by the contractor in the U.S. promptly after contract execution following normal AID regulations so that its delivery will coincide with the arrival of the field staff who will arrange for local installation. Operation, maintenance, and repair of the equipment will be the responsibility of the contractor until definitive departure from Morocco. Contractor will also ship an adequate amount of associated perishable office supplies and arrange for local training on items such as micro-computers, word processors, and printers. An indicative procurement list is provided.

1.1. Micro-computer:

Screen
Printer
Hard-disk storage

1.2. French software

1.3. Perishable supplies

2.1. Wordprocessor

3.1. Five electric typewriters

G. Contractor will fund the logistic and administrative support related to the contract.

H. Reporting

- The T.A. and training contractor will submit to AID quarterly reports in French and English describing progress in attaining goals or targets set by the annual work plan. Issues, proposed resolutions, and budget status will also be discussed. Upon receipt of the quarterly report USAID and ONAREP will convene

a Steering Committee meeting chaired by the AID Director and the ONAREP General-Director or their respective designee. The resident contractor's Chief of Party and two other resident advisors of his choice will also attend. In addition to reviewing progress and issues, the Steering Committee will be used as a forum to approve or modify scopes of work which the contractor is to undertake. In that spirit, the contractor will submit for AID and ONAREP approval draft SOWs and budgets for special tasks to be undertaken during the following 3 months.

I. Mobilization of Field Staff and Funding

- No later than three weeks after successfully executing a contract, the contractor will send its resident chief-of-party and home office project director to Morocco to prepare for mobilization of resident staff, to hire local secretaries and administrative assistants, and to finalize to USAID's satisfaction the detailed work plan for the first twelve months of resident technical assistance and training consistent with the SOW and budget negotiated the month before.

Once the first year's work plan is approved, the entire resident staff would be authorized to be fielded. The second annual funding increment will be based on an independent AID evaluation and the contractor's submission of a work plan and budget responsive to that evaluation.

DRAFT

PROJECT GRANT AGREEMENT (608-0176)
AMPLIFIED PROJECT DESCRIPTION

Except as specifically provided herein, and within the limits of the definition of the Project set forth in Section 2.1., elements of this Amplified Project Description may be changed by written agreement of the authorized representative of the Parties named in Section 8.2. without formal amendment of this Agreement.

ARTICLE I: GENERAL PROJECT DESCRIPTION

A. Summary:

The Project's goal is to contribute to the alleviation of current economic problems in Morocco by accelerating the efficient development of the country's indigenous hydrocarbon resources and strengthening the long-term capacity of the GOM for exploration, development, and production of those resources in partnership with the private sector.

The specific purposes of the Project are to strengthen the internal capabilities of ONAREP (1) to apply cost-effective private sector management principles and techniques; (2) to establish ties with private sector partners in petroleum investments; and (3) to explore, develop, and produce hydrocarbon resources. The Project will assist ONAREP (1) to undertake management reform, (2) to strengthen its ability to attract private financing, and (3) to accelerate its exploration/appraisal programs.

B. Project Activities:

The activities funded under the Project will focus on three broad areas: (1) financial and management issues, (2) exploration design and analysis, and (3) reservoir and production engineering. Each of these areas has specific sub-topics which the Project will address. These specific activities are noted below:

1.0. Financial and Management Topics:

- 1.1. To institute a monitoring program to quantify performance in the field on a cost-per-unit of production basis,
- 1.2. To establish an internal audit capability responsive to MEM and MOF needs,
- 1.3. To propose a salary and bonus structure which rewards outstanding professional performance,
- 1.4. To institute techniques of economic analysis which will help to espouse development projects with high rates of return and market-clearing price structures,
- 1.5. To advise ONAREP how to maximize its use of joint venture concessionaires,

- 1.6. To advise ONAREP on the comparative costs/benefits of placing as much of the downstream activities as possible under the control of local private interests, especially transmission, distribution, refining, and bottling,
 - 1.7. To advise ONAREP on the costs/benefits of moving to contract drilling based on competitive bids on cost and time per meter drilled,
 - 1.8. To propose a new organizational hierarchy which will delegate greater technical and financial authority/discretion to line professionals consistent with an enhanced recruitment program to fill critical professional positions,
 - 1.9. To propose procedures which will increase an exchange of management information within ONAREP,
 - 1.10. To advise ONAREP how it may revise its organizational structure/behavior to that common to small petroleum companies,
- 2.0. Exploration Design and Analysis: Topics:
- 2.1. To integrate standard risk analysis techniques into its exploration and appraisal proposals,
 - 2.2. To develop autonomous exploration teams responsible for assessing the hydrocarbon potential of a given region,
 - 2.3. To provide on-the-job training to ONAREP geologists/geophysicists in the accumulation and interpretation of petroleum exploration data,
 - 2.4. To propose an approach so that the "drilling contractor" will have time and quality incentives vis-à-vis its client, ONAREP (this may involve ONAREP divesting of its drilling operations or relinquishing direct responsibility).
 - 2.5. To establish a computerized drilling progress reporting system updated over various periods.
- 3.0. Reservoir and Production Engineering Topics:
- 3.1. To initiate within ONAREP its own dedicated, computerized petroleum reservoir estimating service,
 - 3.2. To provide to ONAREP full-time on-the-job training on supervising the design, installation, commissioning, operation, maintenance, and repair of petroleum transmission facilities (from well-head to separator plant through pipelines to industrial consumers),
 - 3.3. To develop a capacity within ONAREP to order and stock perishable drilling supplies and to develop cost-effective options to in-house drilling mud production services,
 - 3.4. To establish a physical inventory/accounting system for perishable supplies and durable equipment.

The Project will be implemented over a four-year period (1984-88) at an estimated total cost of \$6.7 million. A.I.D. will provide an estimated \$5.0 million. The financial contribution of the Government of Morocco (the Grantee) will total an estimated dirham equivalent of \$1.7 million.

C. Project Components

1.0. Resident Advisors

A.I.D. will provide six resident advisors for approximately 174 work-months.

All six advisors will be integrated into the ONAREP administration and will work with full-time ONAREP counterparts in an "on-the-job" training mode not as an isolated team of experts.

Management/Finance Advisors

(1) Senior Petroleum Management and Financial Advisor (Chief-of-Party)

This person, who will directly advise the Chief of ONAREP's Studies and Planning Division, will also be the Chief-of-Party for the U.S. contractor. He will also be available to advise the Director General of ONAREP.

This person will also aid ONAREP in improving its financial management procedures and practices, budgeting, internal auditing and control, and automated financial record-keeping. In his financial capacity, he will work with ONAREP's budget and finance office as well as with the Planning and Studies Division.

He will work at ONAREP for a three-year residency period.

(2) Joint Venture Promotion Specialist

The primary responsibility of this person will be to help ONAREP's top management levels, as well as the Promotion Division, attract oil companies (both independents and majors), drilling companies and financial institutions to participate in oil and gas exploration and development in Morocco.

The participation specialist will be in residence for two years.

Petroleum Exploration Advisors:

(3) Regional Geologist:

The Regional Geologist will focus on the investigation of new geological prospects such as specific basins of Morocco where the geological structures appear promising for hydrocarbons but where exploration has been very limited up to now.

He will assist his counterpart to direct the compilation and analysis of existing geological maps and seismic profiles, magnetic and gravity data, geochemical surveys, core analysis and well logging where drilling has occurred. He will work within the ONAREP's Exploration Division for 36 months.

(4) Geophysicist:

Given the early institutional development of ONAREP, a senior geophysicist will be provided to ONAREP's Exploration Division to instruct counterparts how

- to design exploration programs,
- to program assess the relative quality of accumulated data,
- to develop three-dimensional models of the sub-surface structural geology and plate tectonics of promising regions,
- to establish and catalogue a technical library for petroleum exploration,
- to integrate exploration and appraisal data and in consultation with geologists and petroleum engineers thereby determine where it seems best to initiate a drilling program for hydrocarbons.

He will join the Exploration Division for 36 months to plan for and program geophysical activities conducted via ONAREP's contracts.

Reservoir Production Engineering Advisors:(5) Reservoir Engineer

To build ONAREP's capability in reservoir engineering and reserve estimation, a resident reservoir engineer will advise ONAREP counterparts on: volumetric calculations of reservoir size including estimates of recovery factors; interpretation of pressure build-up/drawdown test data; estimation of reserves and preparation of production graphs; determination of open-flow gas well potential; and development and analysis of reservoir modelling data. The engineer will also develop for ONAREP a technical paper on how to establish ONAREP's own dedicated computerized reservoir engineering service.

He will work with ONAREP's Exploration Division and Production Division for 24 months.

(6) Surface Facility Production Engineer

This specialist will advise ONAREP counterparts on the design and costing of such facilities as gas treatment and condensate separation plants, pipelines and other gas distribution systems and equipment and (if appropriate) oil-related facilities. He will also be involved in discussions with potential consumers to determine the nature and extent of the demand and the facilities required to serve the prospective customer. The surface facility engineer will be assigned for 18 months.

2.0. Short-Term Advisors

A.I.D. will also provide approximately 9 work-months of short-term technical assistance (most of which will be in Morocco on financial/mangement concerns with about 3 work-months in the United States on technical matters).

Possible tasks for short-term advisors include:

- assistance to ONAREP's new Human Resources Division aimed at development of a comprehensive manpower needs assessment and plan for training and recruitment of the necessary staff,
- support to residential advisors in pursuit of contract goals: corporate planning and management, special economic studies, market analysis, geological and geophysical work, reservoir analysis and reserve estimation, and production engineering,
- negotiation assistance for pending contracts or concession agreements with private oil companies.

3.0. Training:

The Project will devote early and substantial effort to a comprehensive assessment of ONAREP's future manpower needs and to the development of a comprehensive long-term training plan, with priority rankings, schedules and budgets designed to respond to the assessment's specific findings. In that way, decisions under the Project about specific training to be offered can follow logically from a rational and thorough appraisal that will assure that training funds are spent cost-effectively.

The project will emphasize specialized, highly practical short-term and on-the-job training both in Morocco and in the U.S. The training offered under the Project will be provided either (1) directly by A.I.D. relying on existing training arrangements or (2) by the technical assistance contractor who will develop, finance, and conduct courses of training specific to this Project.

3.1. A.I.D. Direct Training under the Project

- regular English Language classes in Morocco for up to 27 ONAREP employees until the T.A. contractor assumes this responsibility;
- occasional intensive English language classes in Morocco for training up to 6 candidates until the T.A. contractor assumes this responsibility;
- short-term classroom technical training in the U.S. for up to 14 participants for three- to five months (topics petroleum economics and petroleum engineering);
- an academic training program at U.S. universities for up to four Masters candidates of which at least two candidates shall be in petroleum economics, management, or finance and no more than two in scientific/technical specialities related to the petroleum industry.

3.2. Training Arranged via T.A. Contract

3.2.1. Contractor Training Program in Morocco

- 1) Regular English language classes for up to 27 ONAREP employees for up to 18 months.

- 2) Intensive English language classes for up to 14 training candidates for no more than 3 months each.
- 3) Six technical seminars (one in the fall and one in the spring each year) for two-weeks conducted by 2 short-term technical advisors.

The in-country training program will require the contractor to deliver 6 seminars of ONAREP's choice on managerial and technical topics within the petroleum industry. The contractor will develop these courses at its home offices for delivery at ONAREP. About 20-40 junior and mid-level engineers largely from ONAREP will attend the in-country seminars.

3.2.2. Contractor Training Program in the U.S.

- 1) ONAREP employee attendance at conferences/seminars in U.S. The contractor will arrange and fund the attendance of about 12 ONAREP participants at petroleum-related seminars/conferences in the United States. Each meeting is expected to last two weeks for a total of about 6 participant-months. Contractor will identify/suggest potential conferences/seminars helpful to the Project's training needs.
- 2) The contractor will arrange for private industry internships of about 3 months in duration for ONAREP staff. In most cases, the petroleum industry internships in petroleum management/finance, exploration, and production will take place promptly after ONAREP employees have completed related classroom training in the U.S. The contractor will identify these internships opportunities for approximately 8 interns and a total of about 24 intern-months.

4.0. Computer Services for Petroleum Reservoir Estimations

To assist ONAREP develop in-house skills in petroleum reservoir estimating the T.A. contractor via its home office will provide up to \$140,000 of computerized reservoir engineering support. The studies will be designed to maximize on-the-job training and technology transfer for ONAREP's currently limited reservoir engineering staff. The resident advisor in reservoir engineering and his ONAREP counterpart will use these services during the advisor's 24-month residency in Morocco.

5.0. Commodities

A small portion of the technical assistance contract will include commodity procurement to equip the Project's field offices with items such as a micro-computer, perishable office/computer supplies, a wordprocessor, and electric typewriters. This equipment with spare parts will be ordered so that its delivery will coincide with the arrival of the resident advisors who will arrange for local installation. Operation, maintenance, and repair of the equipment will be the responsibility of the contractor until departure from Morocco. Contractor will also arrange for local training on these items.

ARTICLE II: CONTRIBUTION OF THE PARTIES

In order to achieve the purpose and objectives of the Project, the Parties will make inputs to the Project as described below.

A. GOVERNMENT OF THE UNITED STATES (\$5,000,000)

1. A.I.D. (\$5,000,000)

This section describes A.I.D.'s anticipated inputs to the Project. Funding levels indicated are the anticipated life-of-project funding. Funding indicated in excess of that actually obligated under this Agreement will be provided under future increments, subject to the conditions set forth in Section 2.2. of this Agreement.

The funding furnished by A.I.D. will be administered in three different ways: (1) by A.I.D. itself via USAID/Morocco (\$387,000); by A.I.D. itself via already existing training contracts managed by A.I.D.'s Office of Energy in Washington (\$413,000); and (3) by a Technical Assistance and Training Contractor (\$4,200,000). Funding for the general categories will be as follows:

(1) A.I.D. VIA USAID/MOROCCO:

a. English Language Training \$3,000

About six months until contractor arrival.

b. Evaluations (\$174,000)

Three major evaluations.

c. Contingency (\$210,000)

(2) A.I.D. VIA TRAINING CONTRACTS MANAGED BY ITS OFFICE OF ENERGY:

a. Short-Term Training (\$227,000)

Energy Economics and Petroleum Industry
(About 58 participant-months)

b. Academic Training (\$186,000)

Four Masters
(About 96 participant-months)

(3) TECHNICAL ASSISTANCE AND TRAINING CONTRACTOR:

a. Six Resident Advisors (\$3,481,000)

(As described in Article I of this Annex; estimate includes travel, rental/allowances, benefits/overhead, and fee).

b. Short-Term Advisors (\$270,000)

About 9 work-months (as described in Article I of this Annex; estimate includes contract management, office operations, and miscellaneous expenses).

- c. Training
(As described in Article I of this Annex)
 - c.1. English Language Training (\$15,000)
 - c.2. Six Technical Seminars (\$146,000)
 - c.3. U.S. Conference/Seminar Attendance (\$17,000)
 - c.4. Private Industry Internships (\$111,000)
- d. Computer Services for Petroleum Reservoir Estimations (\$140,000)
(As described in Article I of this Annex)
- e. Commodities (\$20,000)
(As described in Article I of this Annex)

B. GOVERNMENT OF MOROCCO (GRANTEE) (13,174,000 DH equivalent to \$1,689,000)

In addition to its general obligation under Section 3.2. of this Agreement to provide funds and resources needed for the Project, the Grantee will make the following inputs to the Project:

TRAINING

- a) English Language Training (897,000 DH equivalent to \$115,000)
Salary of participants.
- b) Short-Term Training in U.S. (577,000 DH equivalent to \$74,000)
Salary of participants at A.I.D.-arranged petroleum economics and technical course work.
- c) Six Technical Seminars in Morocco (398,000 DH equivalent to \$51,000)
Participant salaries and lecture hall.
- d) Conferences/Seminars in U.S. (195,000 DH equivalent to \$25,000)
Participant salaries.
- e) Private Industry Internships in U.S. (242,000 DH equivalent to \$31,000)
Participant salaries.
- f) Academic Training in U.S. (998,000 DH equivalent to \$128,000)
Salary and maintenance for four Masters candidates.

PROFESSIONAL STAFF AND RELATED EXPENSES

- g) Counterparts to Resident and Short-Term Advisors
(7,246,000 DH equivalent to \$929,000)

Salaries, benefits, overhead,
Office operations, rental/allowances,
and miscellaneous expenses.

h) Travel and Related Expenses (2,621,000 DH equivalent to \$336,000)

Moroccan and International travel and per diem expenses for ONAREP counterparts, all participants, and contract advisors.

ARTICLE III: IMPLEMENTATION

A. General Administration

The Grantee's Office National de Recherches et d'Exploitations Pétrolières (ONAREP) is the implementing agency for the Project with technical oversight provided by its Ministry of Energy and Mines (MEM). Within ONAREP the General Directorate and the Division for Planning and Studies will have the main project responsibilities with the Budget and Finance Division, the Exploration Directorate and the Production Division playing supportive roles.

USAID/Morocco will assist in Project implementation with short-term training, academic training, evaluations, and selection and management of the T.A. and training contract.

The Grantee's Ministry of Finance will assure timely provision of GOM budgetary allocations to the Project.

B. Project Steering Committee

A.I.D. and the Grantee will establish a Project Steering Committee which will meet quarterly and be chaired by the ONAREP Director-General and the USAID/Morocco Director or their respective designees. A representative from the MEM's Energy Directorate will attend these quarterly meetings. The resident contractor's Chief-of-Party and two other resident advisors of his choice will also attend.

In addition to reviewing Project progress and issues, the Steering Committee will be used as a forum to approve or modify discrete elements of the work plan which the contractor is to undertake. In that spirit, the contractor will submit for the approval of the USAID/ONAREP Steering Committee descriptions of task orders and sub-budgets for special tasks proposed to be undertaken during the 3 months following the meeting.

The first quarterly Steering Committee meeting will take place January, 1985. Minutes of the Steering Committee meetings will be kept by ONAREP and distributed to all attendees including the contractor's Project Director in the U.S.

C. Procurement of Goods and Services

C.1. AID Direct Training

Upon execution of this Project Agreement, USAID and ONAREP will proceed with technical and academic participant training in those areas where AID's Office of Energy has already negotiated training contracts.

C.2. Technical Assistance and Training Contract

All technical assistance, all other training and all commodities will be provided under one contract between USAID and a United States company. The contract will be awarded on the basis of full competition following AID procurement regulations. ONAREP will assist USAID in the selection process by clearing on the PIO/T and sitting as an observer on the selection committee.

In addition to providing the technical assistance and training discussed above the contractor will select/purchase/deliver all commodities which will be purchased in the U.S. and shipped within the first two-months of the contract.

The contractor will present to the Steering Committee an annual work plan which will detail the short-term technical assistance, training and procurement activities for the year. This plan must be approved by the Steering Committee before the contractor proceeds.

D. Monitoring

The Project will be monitored by the USAID Technical Projects Office and ONAREP's Administrative Affairs Office whose representatives will meet monthly to review Project progress with the contractor's Chief-of-Party. Technical and academic trainees directly funded by AID will be monitored by energy training contractors who will report to USAID and ONAREP via AID's Office of Energy.

The major monitoring device will be submission by the contractor of quarterly reports describing progress in attaining goals or targets set by the annual work plan. Issues, proposed resolutions, and budget status will also be discussed.

E. Participant Training

E.1. English Language Proficiency

An ALIGU average score of 70 will be the minimum for participants receiving short-term technical training. However, higher scores may be required by specific training programs. Prior to placement at a U.S. university most long-term participants will be required to take the Test of English as a Foreign Language (TOEFL). If a U.S. university requires a TOEFL score, a participant may only proceed to that university after a satisfactory TOEFL score is achieved. Most U.S. universities require a minimum TOEFL of 500, and some require higher scores.

E.2. Required Tests for Academic Training

The Graduate Record Examination (GRE), given four times a year in Rabat or the Graduate Management Admission Test (GMAT), given once a year only in Rabat may be required by certain universities. If the tests are given in time for admission to a U.S. university, these tests will be taken in Rabat; otherwise, the T.A. contractor will fund invitational travel for participants to take these tests in neighboring countries.

12/1

E.3. Training Regulations

The Parties of this Agreement and the contractor will follow AID's Training Procedures and Regulations as outlined in AID Handbook 10.

F. Implementation Schedule

The four-year Conventional Energy Mangement and Training Project will be conducted pursuant to annual work plans approved by USAID/Morocco and ONAREP. These work plans developed by the T.A. and training contractor will include a time-phased and budgeted plan to address the project activities mentioned in Section I. B. above. USAID/Morocco and ONAREP will provide an annual supplement to the work plan on those topics immediately their responsibility: manpower planning, selected short-term training, academic training, and evaluations.

A Summary Project Implementation Schedule follows:

PROJECT 608-0176SUMMARY PROJECT IMPLEMENTATION SCHEDULE

<u>DATE</u> <u>1984</u>	<u>RESPONSIBLE PARTY</u>	<u>ACTION</u>
1/84	USAID	Submits PP to Mission Review Committee
3/84	USAID	Authorizes Project
1/84	USAID	Initiates English language training for up to 30 ONAREP staff under 608-0178
Late 3/84	ONAREP, MEM, USAID, MOF	Sign Project Agreement, submit PIO/T to RCO
4/84	RCO	Issues RFP
4-5/84	Proposers	Prepare proposals/budgets
6/84	USAID	Selects highest ranked proposer
Mid-6/84	USAID	Invites proposers to negotiate
7/84	USAID/Proposer	Negotiate contract in Rabat
Mid 8/84	USAID/Controller	Issues direct Letter of Commitment
Mid 8/84	Contractor	Ships to Rabat office Commodities
9/84	Contractor	Makes admin reconnaissance visit and submits detailed work plan for USAID approval
9/84	Contractor	Hires admin. assistants and secretaries
9/84	Contractor	Ships personal household effects/appliances of residents or buys locally
Mid-9/84	USAID	Requests Contractor field resident staff
Late 9/84	Contractor	Resident Advisors Arrive
8/84	USAID	Sponsors 2 masters candidates
Late 9/84	Contractor	Receives shipment
Early 10/84	Contractor	Arranges for installation
9/84	USAID	Transfers English language training & some short-term training responsibilities to contractor

<u>DATE</u>	<u>RESPONSIBLE PARTY</u>	<u>ACTION</u>
12/84	Contractor	Issues first quarterly report
<u>1985</u>		
5/85	USAID/ONAREP	Evaluate Project and contractor performance
6/85	Contractor	Submits work plan/budget for USAID approval
6/85	USAID, Controller	Amends L/COM for second annual tranche
8/85	USAID	Sponsors 2 masters candidates
<u>1986</u>		
2/86	Product-Engineer	Departs
4/86	USAID/ONAREP	Evaluate Project and contractor performance
6/86	2 masters	Return to Project
6/86	USAID/Controller	Issues 3rd L/COM
8/86	Contractor	Ends English Language Training
9/86	Jt. Venture Pro- motion Specialist and Reservoir Engineer	Depart
5/87	USAID/ONAREP	Evaluate Project and contractor performance
9/87	Two Masters	Return to Project
9/87	Mgt. Advisor, Geologist and Geophysicist	Depart
9/87	Contractor	Issues last quarterly report
<u>1988</u>		
6/88	--	PACD

ARTICLE IV: EVALUATION

The Project will undergo comprehensive evaluation three times: in May, 1985, April, 1986, and May, 1987. The evaluations will review ONAREP's effort to realign its management to conform with private market incentives and its attempts to conduct its development and production program in a more cost-effective fashion. The GOM's efforts to determine an equitable and reasonable rate structure for natural gas will also be reviewed.

Multi-disciplinary teams will conduct these independent evaluations of the Project. Each team will be led by a corporate manager experienced in the petroleum industry. It will also include an expert familiar with petroleum finance and accounting and an expert in one of the technical areas represented by the current mix of resident advisors.

The following general questions will be addressed in each evaluation, though USAID and ONAREP will develop specific scopes of work for each evaluation:

- 1) Are there improvements in ONAREP's operational procedures, planning and organization since the start of the Project that reflect the efforts of the senior advisor?
- 2) What has been ONAREP's record during the project period in attracting private-sector partners to invest and/or participate in oil and gas exploration in Morocco, and what has been the role of Project-funded activities or personnel in aiding that effort?
- 3) What is the status of ONAREP's estimation of recoverable gas reserves, and how has it evolved since the project's outset? Have the efforts of the exploration geologist and the reservoir engineer contributed measurably to progress in this area?
- 4) What investment decisions for gas production, distribution and pricing has ONAREP taken during the Project period, and how have Project personnel contributed to those decisions?
- 5) Are there measurable improvements since the beginning of the Project in any of the following indices: a) ONAREP's production and distribution of oil and/or gas; b) ONAREP's production-based revenues; c) the proportion of ONAREP-produced energy to total energy consumed in Morocco; or d) Morocco's expenditure levels for imported oil?
- 6) How many Project-trained professionals are currently at work in ONAREP? How are they using their training, and what differences have their new knowledge and skills made to ONAREP's effectiveness, technical strength and overall progress?
- 7) Has ONAREP progressed towards encouraging private sector investment and has it developed a private enterprise management style?

Evaluation Schedule:

<u>Timing</u>	<u>Type</u>
May, 1985	mid-term
April, 1986	mid-term
May, 1987	final

ARTICLE V: ILLUSTRATIVE FINANCIAL PLAN

The Illustrative Financial Plan, Attachment 1 to this Annex, sets forth the planned contributions of the Parties. Changes may be made to the Plan by written agreement of the representatives of the Parties identified in Section 8.2. without formal amendment of the Agreement, provided such changes do not cause (1) AID's Grant contribution to exceed the amount set forth under Section 3.1. or (2) the Government's contribution to be less than the amount set forth under Section 3.2.

12/1

memorandum

Stacy Rhodes, Program Officer WJS

Issues Paper: Conventional Energy Management and Training PP (608-0176)

USAID/Morocco Project Review Committee

A Mission Review of the subject Project Paper will be held at 9:30 am, Friday, January 27, 1984 in the Mission Director's Office. The purpose of the proposed project is to strengthen the capabilities of the National Petroleum Exploration and Development Agency (ONAREP) to (1) explore, develop and produce Morocco's hydrocarbon resources, (2) strengthen its ties to potential private sector partners, and (3) apply cost-effective private sector management principles and methods. It is an institution-building project that relies principally upon a strong, large team of resident technical advisers and modest levels of training over a three year period to upgrade substantially ONAREP's current capability to discover and exploit Morocco's oil and gas resources in partnership with private companies.

The U.S. contribution over the life-of-project is a \$5 million grant to the GOM of ESF funds, approximately \$4.5 million of which will be committed to a single contract for TA and training services. The GOM's contribution of \$1.7 million (25% of total project costs) consists principally of salaries and other support costs of numerous counterpart personnel, office support (eg. secretarial) and logistical (eg. domestic transportation) support. The GOM will also pay the salaries and international travel costs of all participants trained under the project. These combined inputs are expected to result in project outputs including: (a) a more efficient and productive management structure in ONAREP (including greater financial autonomy and budgetary authority); (b) greater, more knowledgeable private investor interest in developing Morocco's hydrocarbon resources with ONAREP; (c) accelerated utilization by ONAREP of the IBRD loan to appraise Essaouira discovery; (d) full establishment and staffing of an operational planning and studies unit in ONAREP, and (e) more highly trained and effective cadre of management/technical personnel making-decisions.

The Mission Review Committee will discuss the following issues:

1. Project Funding Level and Mechanism: The GOM has been previously informed (Fall 1983) that the Mission's entire FY84 allocation of \$7 million ESF funds would be utilized to finance "the ONAREP project" through a grant to the GOM, with the possibility of a sub-loan of this amount to ONAREP. This was based on the NEAC review of the final evaluation of the centrally-funded predecessor project and the subsequent guidance cable received by the Mission. Since that time, other high priority projects (eg. Weather Modification) competing for scarce ESF funds and additional information obtained on the practicality of a "sub-loan" from the GOM Ministry of Finance to ONAREP have led the Mission to reconsider both

the amount of funding for the project and the proposed "two-step" arrangement. The Mission Review Committee will discuss (a) the basis for the \$2 million reduction of funding levels initially discussed with the GOM, and the manner in which the GOM should be apprised of it and (b) the mechanism by which the grant should be made available to ONAREP. With respect to the latter issue, the Bricker "Technical Memorandum" of 12/5/83 (distributed to the Project Review Committee with the PP) will serve as a basis for consideration of the various options for an appropriate funding mechanism.

2. GOM Contribution: The fiscal austerity program undertaken by the GOM and the requirements of the IMF stand-by agreement have resulted in partial hiring freezes and budget reductions across the GOM. As a result, the GOM is no longer able to meet the counterpart requirements of many of its existing development projects, let alone undertake major, new public investments. The Review Committee will discuss nature and size of the GOM contribution to this project and the likelihood that the GOM will actually be able to provide it over the three-year LOP, given the likelihood that the current economic crisis will remain (or even worsen) during that period.

3. Relationship of USAID Project to Parallel IBRD Project: The IBRD has provided two successive loans to ONAREP over the past four years totaling \$125 million, both of which contained substantial technical assistance and training components. The Review Committee will discuss the extent to which the relatively small AID-financed effort is seriously needed by ONAREP in light of the much larger IBRD efforts. The Review Committee will also discuss the complementarity of these projects, and the measures which have been taken to avoid duplication of effort.

4. "Private Sectorization" of ONAREP: The evaluation of the centrally-funded predecessor project recommended that the Mission's follow-on project assist ONAREP to streamline its management structure to function more like a private company, to form joint-venture drilling company and to otherwise strengthen ties to private oil companies. The PP states that strengthening these ties and the application of private sector management principles/techniques are two of the (three) principal purposes of the project. Yet discussion of the specific measures to be taken through the project to "streamline" ONAREP's management structure (to make it more like a private company's) and to establish new ties with private firms (including the establishment of a joint venture or contract drilling operation) is slender. The Review Committee will discuss the extent to which the GOM has committed itself to the achievement of these major project objectives and will be induced to do so under the project by the proposed AID-financed inputs (e.g. long term technical advisers).

5. Economic Justification of the Project: The Economic and Administrative Analysis in the PP notes the substantial inefficiencies in ONAREP's current operations, and the fact that its current annual generation of revenue is about one-sixteenth of its drilling and exploration losses. The PP appears to assume that the technical and managerial inefficiencies cited will be remedied in large part through the inputs to be provided by the project, and that the potential hydrocarbon reserves in Morocco are great enough to justify the project investments to shorten the time until the resources are made available and revenue generation

increases substantially. The case is concededly made largely on conjectural information. The Mission Review Committee will discuss the adequacy of existing information to justify the assumptions made in this regard, and whether any further attempt to estimate the probable return of the project's investment should be made.

6. Project Authorization: This project is relatively small, straightforward and traditional ("institutional development") in nature, and well within the authority of the Mission Director to authorize in the field. However, it is also somewhat controversial (given AID's limited involvement world-wide in conventional energy production) and technical in nature. The Review Committee will discuss the options with respect to the need for further review of the PP and the preferred locus of project authorization.

Best Available Document

UNITED STATES GOVERNMENT

memorandum

DATE March 9, 1984

REPLY TO
ATTN: Gary W. Bricker, Projects Manager, OTP - USAID/MoroccoSUBJECT Mission Review of Conventional Energy Management and Training,
Project 608-0176: Discussion and Resolution of Issues

TO: Mission Review Committee, USAID/Morocco

- (A) Issues Paper dated 1/27/84
- (B) 83 State 2900 94

1. Subject project paper, a technical memorandum on financing options, and program office issues paper were reviewed January 27, 1984 by the Committee Office of Technical Projects representatives and NE/PD environmental representative. Para 2-7 below summarize issues discussed and resolutions determined by MRC.

2. Project Funding Level

GOM and USAID have recently agreed to utilize a portion of FY'84 ESF allocation to initiate high priority weather modification project (608-0190). Given GOM and USAID's strong desire to use entire allocation of FY'85 ESF for program/BOP assistance, issue raised was funding plan for 0176 and 0190 projects.

Discussion/Conclusion: Although analysis of expenditure requirements for each project indicates \$7 million is adequate to fund both into FY 1986, mission strongly prefers to fully fund these ESF projects at outset. Therefore it is seeking an additional amount of ESF for FY 1984 (\$4-5 million) in order to do so. Should additional ESF not be forthcoming, mission intends to fund 0176 with \$4 million of FY 84 ESF and obligate remaining \$3 million to 0190. Further increments of ESF would then be obligated to complete funding of 0176 and 0190 in FY 1985 and/or 1986.

3. GOM Contribution

The fiscal austerity program undertaken by the GOM and the requirements of the IMF stand-by agreement have resulted in partial hiring freezes and budget reductions across the GOM. Issue raised was the nature and size of the GOM contribution to this project and the likelihood that the GOM will actually be able to provide it over the three-year LOP, given the odds that the current economic crisis will remain (or even worsen) during that period.

- Discussion/Conclusion: The GOM's estimated contribution over the LOP is constituted primarily of operating costs, including salary support of counterparts, salaries and international travel for participants, local travel for



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U.S. advisers and counterparts, and a portion of in-country training costs. The lion's share of GOM budget reductions in the Ministry of Energy and Mines (as in most others) has been in the investment (development) budget rather than in the operating budget. Further, latest budget data show that ONAREP is receiving almost half of the entire budget of the Ministry of Energy and Mines, and ONAREP's contribution to project 0176 is less than 1% of its total budget allocations during the period in which the project will be implemented. Given the priority accorded to ONAREP's activities, it is virtually certain that ONAREP will be able to meet its counterpart requirements.

4. Relationship of USAID Project to Parallel IBRD Project

The IBRD has provided two successive loans to ONAREP over the past four years totaling \$125 million, both of which contained substantial technical assistance and training components. Issue raised was the extent to which the relatively small AID-financed effort is seriously needed by ONAREP in light of the much larger IBRD efforts, and what impact it would have. Also, the MRC discussed the complementarity of these projects, and the measures which have been taken to avoid any duplication of effort. This issue was also raised by and is thoroughly discussed in the project paper.

- Discussion/Conclusion: In general, the IBRD loans emphasize physical appraisal and development of a specific zone, the Essaouira Basin, while the AID project focuses on overall managerial and technical guidance to ONAREP's senior management personnel. The IBRD's technical assistance effort is limited to the Essaouira Basin task force and associated drilling. ONAREP is consciously using limited IBRD funds to train its staff in Europe (mainly at the highly theoretical Institut Français de Pétrole). Under the AID project, substantial amounts of U.S. training will be provided to train field-oriented, mid-level professionals via S&T/EY's conventional energy training programs. Project 0176 will greatly expand ONAREP's access to U.S. petroleum development and management techniques. In other words, the difference between the World Bank training program and AID's is similar to the difference between their T.A. programs: virtually all IBRD training is in technological/engineering fields, while over half of AID's trainees are studying petroleum management/finance.

This difference in emphasis reflects the fact that ONAREP has requested AID's assistance under 0176 to help it focus on mid-term and long-term management issues not emphasized by the IBRD project, including manpower development, private market incentive schemes, control/ownership of downstream operations, development of prototype concession and drilling contracts. In any case, it is apparent that IBRD and AID both recognize that even their combined support can not meet ONAREP's total needs for technical assistance and training. IBRD and ONAREP officials have independently expressed satisfaction with the current centrally-funded AID support because it accelerates and renders more efficient ONAREP's usage of IBRD funding without duplicating it. IBRD and AID officials will assure that their future programs with ONAREP remain well-coordinated and complementary via frequent contact both here and in Washington.

5. Appropriate Project Funding Mechanism (Grant/Loan)

Reftel stated: "Given ONAREP's status as a "Productive Enterprise", and in order to emphasize to the GOM the importance of encouraging a private sector philosophy for development of oil and gas by ONAREP, NEAC requested that USAID provide financing for the follow-on conventional energy project as a grant to GOM and that GOM, in turn, loan the funds to ONAREP at the going official GOM interest rates".

- Discussion/Conclusion: The PP development team, consisting of representatives of the Mission, NE/TECH and S&T/EY prepared a "technical memorandum" for the MRC. It examined the full range of financing options, including that recommended reftel. A summary of the PP team's conclusions on this point follows.

ONAREP currently receives about 60% of its funding from GOM budgetary appropriations (equity) and 30% from IBRD (debt). The balance of ONAREP's funding is derived from the internal generation of revenues from a few very small gas fields and contract drilling of water wells.

ONAREP's financial posture is that of a new, small petroleum company: massive exploration costs, negligible income generation, heavy reliance on equity and debt to fund high risk operations. ONAREP's currently generates only 1% of its expenditures. Half of its investments are absorbed by one gas appraisal program which is modest in size by industry standards. Thus, ONAREP is not a "Productive enterprise". Were the GOM Ministry of Finance to loan funds to ONAREP, ONAREP probably would have to ask the Ministry of Finance for a higher budgetary appropriation so it could pay its debt back. Since the GOM owns most of ONAREP's equity and all of its debt, there is no real penalty which could be imposed on ONAREP for defaulting on a GOM loan. Note: in recognition of ONAREP's current high loss financial posture and the normal risks associated with petroleum appraisal investments, the GOM has guaranteed ONAREP's IBRD loans. Furthermore, NEAC's suggested loan arrangement would be completely unique to the Ministry of Finance's relationships with GOM parastatals, and there is every reason to expect strong GOM resistance to the concept. Precedent throughout the AID program supports grant financing for technical assistance and training projects, even for this type of effort. For example, the Pakistan energy planning and development project is an ESF-funded grant which will provide \$30 million in technical assistance, training and geological exploration to determine the feasibility of developing a major coal industry in Pakistan.

Therefore, the consensus of the MRC members concerning financing options in the present case was that a \$5 million loan swept up in a complicated \$350 million effort is not only too small to make the point raised in reftel, but would also entail the imposition of an unprecedented arrangement which USAID would have little, if any, ability to enforce. Rather the MRC concluded that \$125 million of IBRD debt financing is a more appropriately sized instrument and has already influenced ONAREP management to assess spending priorities realistically. Secondly, MRC members unanimously felt that ONAREP would be averse to borrowing for management and financial counsel and training, as offered by the project. Rather, it was felt that the project's efforts to instill a private sector philosophy and modus operandi within ONAREP can best be achieved through other "Privatization" measures, which the TA team is prepared to assist ONAREP to implement, and which ONAREP appears ready to carry out.

6. Economic Justification of the Project

The economic and administrative analyses in the PP note substantial inefficiencies in ONAREP's current operations, and the fact that its current annual generation of revenue is about one-sixteenth of its drilling and exploration losses. The PP appears to assume that the technical and managerial inefficiencies cited will be remedied in large part through project inputs, and that the hydrocarbon reserves in Morocco are great enough to justify the project's investment in reducing the time until these resources are made available and revenue generation increases substantially.

- Discussion/Conclusion: Inherent technical uncertainties surrounding petroleum discovery and development here (as elsewhere) frustrate attempts at solid economic and financial analysis. While the Meskala discovery has raised expectation in Morocco, neither the World Bank project nor the AID project provide quantitative analysis fully justifying the size of GOM investments in its exploitation. In fact, the IBRD executive summary indicates that an estimation of the rate of return is "not applicable".

Detailed analyses show a possible 14 - 41% rate of return based on March, 1983 estimates of retrievable reserves in Meskala. However, since the publication of the IBRD loan papers, it appears that the margin of error on estimating Meskala reserves has broadened substantially both upward and downward. Speaking plainly, ONAREP is simply not sure of the extent of the reserves discovered in Morocco to date. To gain this knowledge is the purpose of the IBRD appraisal program. AID will assist ONAREP to hasten the appraisal process, to improve its managerial capacity to handle enlarged operations when appropriate, and to interest private companies in investing. In this spirit, the AID project may meet its intent even if ONAREP ultimately decided to abandon its largest find to date (Meskala). Nevertheless, the projects' working hypothesis is that Meskala will remain at least marginally attractive and will be developed adequately to substitute for a significant portion of current imports. Even in this minimal scenario, ONAREP will face major challenges to its current managerial, financial, and technical capabilities.

To mount a modest development effort involving 30-40 wells, gas field surface facilities and transmission lines will require the GOM to borrow in international markets. If this scenario develops, the USAID technical assistance would become cost effective. It is in preparation for this potential scenario that AID will supply, over a three-plus year period, resident advisors experienced in establishing and managing small petroleum companies. This type of assistance and institution building role reflects the management audit of ONAREP carried out by Arthur D. Little, Inc. and conforms to AID's traditional role. The AID assistance in and of itself is not amenable to a detailed economic/financial analysis as it is not directly intended to generate a cash flow.

7. Privatization of ONAREP

The July, 1983 evaluation of the centrally-funded predecessor project recommended that the mission's follow-on project assist ONAREP to streamline its management structure to function more like a private company, to form a joint-venture drilling company, and to otherwise strengthen ties to private oil companies. The PP states that strengthening such ties and applying of private sector management principles/techniques are two of the (three) principal project purposes. The MRC discussed in detail the extent to which

the GOM has committed itself to the achievement of these major project purposes and how the proposed AID-financed inputs will induce such changes.

- Discussion/Conclusion: Surface and sub-surface mineral wealth are by law government property in Morocco. Realistically speaking, everyone expects that ultimate ownership/control of hydrocarbon resources will remain with the GOM. Because of this, and for several other reasons, USAID believes there will continue to be a state-owned petroleum exploration and development company in Morocco. Nevertheless, the project will be able to make certain significant inroads which foster private market principles and efficiency in ONAREP. The extensive managerial training under the project will be based on private market principles, and the RFP for the technical assistance contract will specifically include a statement of objectives, of which the following are illustrative:

- (A) To divest, or at least distance itself from drilling operations so that the "drilling contractor(s)" will have time and quality incentives in a client relationship with ONAREP;
- (B) To provide for the establishment within ONAREP of a salary and bonus structure which rewards outstanding professional performances;
- (C) To institute a monitoring program to quantify well performance in the field on a cost-per-unit of production basis;
- (D) To develop techniques of economic analysis which will permit ONAREP to select and undertake projects with high rates of return;
- (E) To maximize the use of joint venture concessionnaires;
- (F) To assure that most or all "downstream activities" are under the control of local private interests, especially transmission, distribution, refining, and bottling (this goal assumes a viable appraisal outcome); and
- (G) To revise ONAREP's organizational structure/behavior from that of a state mining company (reflecting its heritage) to that of a small petroleum company.

The above goals for "privatization" of ONAREP and enhanced management efficiency are feasible, assuming the GOM retains its commitment to developing its resources at least cost during a time of austerity and retrenchment. Other, more specific objectives also exist and will be considered for inclusion in the scope of work for the TA contract. The MRC agreed that USAID will monitor the degree to which ONAREP relies on private sector partners and principles to carry out its program. Quarterly steering committee meetings will also review this point and discuss the extent to which ONAREP is achieving the management goals of the project.

8. Summary:

The MRC found this project to be relatively small, straight-forward and a traditional "institutional development" effort in approach, and well within the authority of the mission director to authorize in the field. It therefore

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recommended a number of relatively minor changes be made in the PP (reflecting the above described discussion), and that the USAID/Morocco mission director authorize the project. It was also agreed that after the authorization, USAID would proceed to negotiate a project agreement with the GOM, with an obligation target date of March 30, 1984. PIO/T for the TA contract will also be issued at that time.

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