

# A.I.D. EVALUATION SUMMARY PART I

(BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS)

IDENTIFICATION DATA

**A. REPORTING A.I.D. UNIT** (Mission or AID/W Office)  
USAID/Morocco  
(ES # 608-86-04)

**B. WAS EVALUATION SCHEDULED IN CURRENT FY ANNUAL EVALUATION PLAN?**  
yes  slipped  ad hoc

**C. EVALUATION TIMING**  
interim  final  ex post  other

**D. ACTIVITY OR ACTIVITIES EVALUATED** (List the following information for project(s) or program (s) evaluated; if not applicable, list title and date of the evaluation report)

Project #	Project/Program Title (or title & date of evaluation report)	First PRGAG or equivalent (FY)	Most recent PRGAG (mo/yr)	Planned LOP Cost ('000)	Amount Obligat. to Est. ('000)
608-0176	Conventional Energy Management and Training	1984	6/88	5000	4000

ACTIONS

**E. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR**

Action(s) Required	Name of officer responsible for Action	Date Action to be Completed
<u>Issue Project Paper Amendment No. 1</u> - Narrow project purpose and revise assumptions. - Reduce total AID contribution from \$5 million to \$4 million (LOP). - Concentrate AID technical assistance inputs on exploration and promotion and increase total TA person-months. - Decrease total participant-months available for academic and technical training.	Robert Kahn ENR Project Manager	September 1986
<u>Issue Project Agreement Amendment No. 1</u> - Confirm narrowed project purpose and revised assumptions with GOM. - Request GOM best effort in providing additional project support staff; passage of new petroleum law; and clear definition of promotion objectives.	Robert Kahn ENR Project Manager	September 1986
<u>Issue Contract Amendment No. 3</u> - Revise WBEC contract to reflect new TA, training, and commodity requirements.	Jim Anderson Regional Contracting Officer	September 1986

APPROVALS

**F. DATE OF MISSION OR AID/W OFFICE REVIEW OF EVALUATION:** mo 06 day 12 year 86 Report Date: mo    DAY    YR   

**G. APPROVALS OF EVALUATION SUMMARY AND ACTION DECISIONS:**

Signature Typed Name Date	Project/Program Officer	Representative of Borrower/Grantor	Evaluation Officer	Mission or AID/W Office Director
<i>[Signature]</i> Robert Kahn 9/22/86	Mohamed Douieb	Randal Thompson	<i>[Signature]</i>	Charles W. Johnson
Stephen Klein, Chief, ENR	<i>[Signature]</i>	Janet Ballantyne	<i>[Signature]</i>	Deputy Director
John Giusti, Acting Program Officer	<i>[Signature]</i>			

H. EVALUATION ABSTRACT (do not exceed the space provided)

The Conventional Energy Management and Training Project was authorized in April 1984. The project's goal is to alleviate economic problems/balance of payment deficits resulting in part from a high oil import bill and to assist Morocco reduce its importation of fossil fuels by increasing the domestic oil and gas contribution to the energy resource mix. The purpose of the project is to strengthen the internal capability of the National Petroleum Exploration and Development Office (ONAREP) to (a) apply cost-effective private sector management principles and techniques; (b) establish ties with private sector partners in petroleum investments; and (c) explore, develop, and produce hydrocarbon resources.

This evaluation (covering the period from 4/84 to 5/86), conducted by TEM Associates, Inc. in conjunction with the USAID/Morocco Office of Energy and Natural Resources (ENR) and ONAREP, is based on a review of project documents and interviews of USAID, ONAREP, and prime contractor personnel. The timing of the evaluation at the project's mid-point was considered necessary to assist USAID assess the implications of the recent drop in world oil prices on project activities and exploration results that showed considerably smaller reserves than expected in the Meskala region. The major findings and conclusions are:

- o Because of changed external conditions, the evaluation recommended the project purpose be narrowed to focus on promotion and exploration activities. Across-the-board institution building was not agreed to be important.
- o The proposed "model project", although consistent with the narrowed project purpose, is unacceptable given ONAREP's current organizational structure.
- o Technical data gathering and reporting systems within ONAREP need to be improved before private sector promotional activities can hope to be successful.
- o ONAREP's apparent difficulties in releasing key staff for lengthy training and a shortage of otherwise qualified candidates for U.S. based training contributed to a significant reduction in training opportunities achieved.

The following "lessons" are noted:

- o Whereas ONAREP profited by the introduction of private sector management techniques and principles initially suggested by AID and World Bank financed studies and consultants during its initial five years of life (1981 - 1985), its ability to continually absorb management advice is limited.
- o Technical advisors are most effective when assigned to roles closely associated with areas of prime interest to the grantee.

ABSTRACT

I. EVALUATION COSTS

1. Evaluation Team

Name	Affiliation	Contract Number OR STY Person Days	Contract Cost OR STY Cost (US\$)	Source of Funds
Dr. Douglas Richardson	TEM Assoc. Inc.	Contract No.:		
Mr. Wayne Bohanon	TEM Assoc. Inc.	ANE-0176-C-00-6035-00	Cost: \$31,000	PIO/T 608- 0176-3-40160 USAID/Morocco

2. Mission/Office Professional Staff Person Days (estimate) 60

3. Recipient/Grantee Professional Staff Person Days (estimate) 60

COSTS

# A.I.D. EVALUATION SUMMARY PART II

## J. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS (Try not to exceed the 3 pages provided) Address the following items:

- o Name of mission or office
- o Purpose of activity (ies) evaluated
- o Purpose of the Evaluation and Methodology Used
- o Findings and Conclusions
- o Recommendations
- o Lessons learned

The subject evaluation was initiated by the USAID/Morocco Office of Energy and Natural Resources and the AID/Asia and Near East Bureau, Technical Resources Division, Office of Energy and Natural Resources (ANE/TR/ENR). The final report dated May 1, 1986, is entitled "Evaluation of the USAID/Morocco Conventional Energy Training and Management Project."

The Project Agreement (608-0176) calls for two external project evaluations during the four year term of the project. TEM Associates, Inc. received a contract to conduct the first of these evaluations, which was scheduled to be performed approximately fourteen months after the arrival in Morocco of the prime contractor, the Williams Brothers Engineering Company, Inc. (WBEC).

The project goals are to alleviate economic/monetary balance of payments problems and assist Morocco to reduce importation of fossil fuels by increasing domestic oil and gas production. The purpose of the project is to build the internal capability of the Office National de Recherches et d'Exploitation Pétrolières (ONAREP), the parastatal organization responsible for oil and gas development. This is to be achieved through (1) transferring cost effective private sector management principles and techniques to ONAREP, (2) strengthening Moroccan ties to potential private sector petroleum development partners, and (3) supporting a program to explore, develop, and produce domestic petroleum resources.

The assumptions upon which the project was based include the following:

- a) exploitable commercial petroleum reserves exist in Morocco;
- b) there will be no major new international oil price fluctuations;
- c) sales prices can be negotiated to allow conversion to domestic fuels;
- d) ONAREP's management and technical capabilities can be enhanced, and the government of Morocco is committed to ONAREP's continued existence.

The purpose of the evaluation was to critically review the roles and responsibilities of the technical assistance contractor (WBEC), the supplemental training contractor, the Institute for International Education (IIE), ONAREP, and USAID/Rabat. This was to be achieved through review of project documents and interviews in the U.S. and Morocco with representatives of the respective cooperating organizations.

Date this summary prepared:

September 18, 1986

SUMMARY

The baseline project assumptions were shaken by recent dramatic drops in the world price of oil and by exploration results that showed considerably smaller reserves than expected in the Meskala region. Staff changes within the WBEC field team, ONAREP, and USAID project management, combined with delays in start-up of several critical elements in the early stages of the project, resulted in an initially weak technical assistance effort. WBEC staff roles evolved from initially being advisory to increasingly becoming operational functions within the ONAREP organization; resulting in some divergence from the perceived goals and appropriate role of AID. Internships and academic (Master's Degree) training programs were found to be somewhat behind schedule, but an ambitious training component plan for 1986 could bring this back to schedule. Project expenditures are below plan, due to adjustments in WBEC overhead and under-runs in training components.

Coordination with related projects funded by the World Bank have declined due to the disappointing finds in Meskala. Technical data gathering and reporting systems need to be improved before private sector promotional activities can be successfully initiated.

The evaluation team recommended minor project refocusing. Oil prices are sure to rise, and ONAREP must have a strong cadre of well trained individuals to coordinate with the private sector and respond to any level of interest in Moroccan petroleum development by the international oil companies. Refocusing should include increased emphasis on promotion, institution building, and reconciliation of diverging goals. The team recommended that USAID re-evaluate and clarify its goals, particularly in light of increased emphasis on privatization, and more strongly assert them while at the same time maintaining the delivery of key operational services which are highly valued by ONAREP. The team proposed development of a "model project" concept around objectives which are common to USAID and ONAREP.

Specific recommendations were made regarding staffing changes for WBEC and supplemental personnel for WBEC and ONAREP; improvements in the training program, particularly related to counterpart on-the-job training and internships; and developing the model project focus.

The project is an interesting experiment in economic development intended to assist the public and private sectors to integrate their interests and capabilities. It runs some risk of establishing a parastatal organization that could potentially compete with the private sector, however, if the three elements of the original project purpose are viewed in relation to each other, the private sector can be seen as a mechanism for assistance and continued exploration and production after the resource base has been proven.

SUMMARY ( continued)

Summary of Recommendations

The evaluation team provided the following summary of recommendations to be taken to improve the project, the agency or agencies (in parentheses) that would seem to have direct responsibility for implementing each recommendation, and reference to the section(s) of the evaluation report which discuss the background.

Project Re-Focus:

- o Develop new focus for the project in response to changing circumstances and first year's experience (all). 4.1, 4.2, 4.3.
- o AID/USAID review and clarify goals; establish consensus on goals among executive and project staff (USAID). 4.1.3, 4.2.
- o Increase visibility of project and participating agencies (all). 3.2, 4.1.
- o Build activity on areas of common interest between ONAREP and AID (ONAREP, USAID). 4.1, 4.2, 4.3.
- o Revitalize relations with World Bank (USAID). 3.6, 4.6.
- o ONAREP acknowledge priorities of finite term project needs and reduce time for decision-making and administrative processing (ONAREP). 3.2.

Model Project Concept:

- o Develop model project focus around joint venture promotion, related to exploration and geophysical activities (all). 4.2, 4.3, 4.5, 3.4.7.
- o Improve data gathering and reporting techniques (ONAREP; WBEC). 3.7, 4.3.

Training:

- o Maintain high priority in English language training (all). 3.4.1.
- o Consider economics/management candidates suggested by Mr. Douieb for academic training; activate remaining Master's degree slot for geological sciences (ONAREP, USAID). 3.4.6, 4.5.3.
- o Revitalize relations with IIE in planning (and possibly implementing) short-term training programs and/or academic program logistical support and/or internships (all). 3.4.5, 4.5.2.
- o Integrate more structure into on-the-job training (WBEC). 3.4.7, 4.2, 4.5.3.
- o Solidify internship arrangements (all). 3.4.4, 4.5.1.

Staffing Changes:

- o Extend Joint Venture Promotion Specialist (Sullivan) to end of project (WBEC, USAID). 3.2.1, 4.4.2
- o Extend Surface Facilities Engineer (Connor) six months (WBEC, USAID). 3.2.1, 4.4.3
- o Specify Geophysicist's (Bhattacharjee) contract end date (USAID)
- o Add two explorationists\*, one to replace Senior Financial and Planning Advisor (Currie) as per his suggestion (WBEC, USAID). 3.2.1, 4.4.3.
- o Review budget and consider adding a short-term surface facilities development inspector (WBEC, USAID). 4.4.3
- o ONAREP add construction supervision personnel (ONAREP). 4.4.4.
- o ONAREP acknowledge USAID's need to broaden operational focus of the project; USAID more effectively assert these goals through the remainder of the project (all). 4.1.2, 4.2, 4.7.

WBEC Home Office Support:

- o Increase activities in provision of internships, through WBEC\*\* or subcontract (WBEC); USAID to closely supervise. 3.4.4, 4.5.1.

Notes:

- \* One explorationist to be added for a 12 month period.
- \*\* WBEC will complete its 1986 training program including internships; subsequent internships to be arranged by IIE.

SUMMARY (continued)

ATTACHMENTS

- K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier)
- 1) Evaluation of the USAID/Morocco Conventional Energy Management and Training Project dated May 1, 1986, prepared by TEM Associates, Inc.
  - 2) USAID letter to TEM Associates, Inc. dated June 24, 1986, requesting additional information on the final report.
  - 3) TEM Associates, Inc. letter to USAID dated July 10, 1986, promising a report supplement.
  - 4) ONAREP letter to USAID dated April 30, 1986, with comments on the draft TEM report.
  - 5) Williams Brothers Engineering Company letter to USAID dated June 3, 1986, with comments on the final TEM report.

MISSION COMMENTS ON FULL REPORT

L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRAVTEE

Upon receipt of the draft evaluation report, USAID prepared detailed comments for TEM Associates Inc. (TEM) consideration in preparing their final report. These comments were largely incorporated into the attached report and rectified several factual errors in the earlier draft. Subsequently, the Mission review committee recommended that TEM be requested to complete a number of elements outlined in the scope of work but not fully covered in either the original draft or the attached report (see USAID - TEM correspondence attached). As of the date of this ES, USAID had not received from TEM the requested supplement to their report, thus leaving a number of questions of both form and substance unanswered. Nonetheless, given the time provided under the contract (two weeks) for data collection and interviews in Morocco, the two-man evaluation team effort was highly satisfactory. The team's approach was pragmatic and, realizing their limitations in time and ability to absorb and fully analyze the complex activity, they focused on sorting out immediate and on-going implementation issues, such as project goal definition and contract staffing. In this regard, the team provided the Mission with a useful set of action recommendations for the remainder of the project which were largely accepted by the Mission.

The team did not expend much effort in assessing the oil and gas industry in Morocco, nor was an attempt made to fix national significance to the activity evaluated or to establish trends since the beginning of the project. The USAID Project Manager agreed that the time available for data collection in Morocco would be better spent on interviewing key project personnel and developing action recommendations than on an in-depth analysis of the petroleum industry in Morocco.

The findings, conclusions, and recommendations of the evaluation team served as the springboard for a number of action decisions made by the Mission especially regarding a project refocus and were largely incorporated into a Project Paper Supplement, signed September 7, 1986, by the USAID/Mission Director. The refocused project purpose, fully stated, is "to strengthen ONAREP's internal capabilities to attract private investment and joint venture partners to explore, develop, and produce petroleum resources in Morocco". For the remainder of the project, technical assistance and training will be centered mainly around exploration and promotion activities under the assumption that the generation and promotion of "saleable" exploration prospect can be effective in helping attract private sector investment to Morocco.

A Project Agreement Amendment is currently being negotiated with the Government of Morocco to confirm the narrowed project purpose and revised assumptions and to outline the extent and direction of proposed USAID financed activities for the remainder of the project. Bearing in mind the refocused project purpose, a contract amendment has been negotiated with the prime contractor (WBEC) to concentrate on promotion and exploration technical assistance through January 1988.

5

24 JUN 1986

Mr. Richard Flood  
TEM Associates, Inc.  
3254 Adeline Street  
Berkeley, California 94704

Subject: Conventional Energy Management  
and Training Evaluation (608-0176)

Reference: Contract ANE 0176-C-00-6035-00

Dear Mr. Flood,

USAID/Morocco has now completed its review of the TEM Associates, Inc. evaluation report on the Conventional Energy Management and Training project (608-0176).

The report corrected most of the factual errors in the draft report and generally responded to the USAID comments dated April 8, 1986 on the "Draft Interim Evaluation Report".

You should be aware that the Mission Review Committee, in comparing the report to the original statement of work, found that the report did not fully address all components of the statement of work. Whereas the committee determined that final payment under the contract should not be withheld, it recommends that TEM Associates be advised of the deficiencies in the report and given the opportunity to respond, at no additional cost to the contract.

Specifically, TEM Associates should again review Sections C.2, C.4 and F.3 of the contract. The Review Committee found the report incomplete in providing an assessment of the continuing validity and appropriateness of the project logical framework (log frame). The specific questions listed in Section C.2.b. regarding the project inputs, outputs, and end of project status (EOPS) were not adequately addressed.

Prior to the TEM evaluation team's departure from Rabat, USAID asked (although we were not precise about context and format) that the specific points laid out in Section C.4 "Scope of Work" be addressed in the report, in an annex if necessary. The resulting Attachment J: "Commentary of Scope of Work Evaluation Points" provides a rough draft assessment of the exploration design and analysis activities and the reservoir and production engineering activities only. Financial and management activities and private financing and joint venture promotion activities are not addressed.

In Section F.3 "Reporting Requirements", the contract calls for a schematic matrix in the final evaluation report of the findings, conclusions, and recommendations. A model of such a matrix was provided to the TEM evaluation team in Morocco along with the "Evaluation Summary Forms and Guidelines" package. "Lessons learned" and "unintended consequences" from project activities were also overlooked by the evaluation team.

In addition to the above listed omissions in the TEM report, a number of errors distracted from the value of the work:

1. The Basic Project Identification Data Sheet needs to be redone to reflect the entire project evaluated.
2. Appendix III "Nature of WBEC Team members work" is sketchy and appears out of context. The relationship between Appendix III and Appendix IV "Achievements of the WBEC Team" and the body of the report is unclear. Is TEM in agreement with WBEC's self-assessment of its achievements as given in Appendix IV? If so, how do these achievements relate to the project's goal, purpose, outputs, and inputs?
3. There are numerous typographical errors in the body of the report and in the appendices.

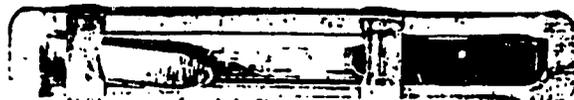
USAID requests your best efforts to incorporate the above comments into a final report at the earliest possible date.

2 JUN 1986  
Robert Kahn  
Project Manager

cc. Dr. Douglas Richardson

ENR:RKahn:so:6/20/86  
Doc. 1521G

Clearances:  
ENR:SKlein \_\_\_\_\_  
PROG:SRhodes \_\_\_\_\_  
RLA:RMeighan \_\_\_\_\_  
DIR:CJohnson \_\_\_\_\_

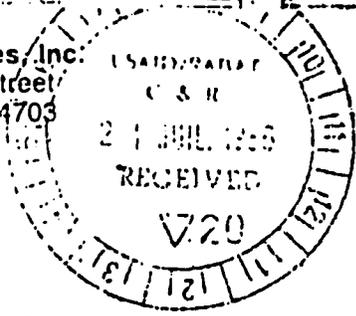


16.18

FO COPY



TEM Associates, Inc.  
3254 Adeline Street  
Berkeley, CA 94703  
415/845-6502



ACTION: ENR

DUE DATE: 07/29

INFO: Dir. PROF-CONT

REC. CHRON. RF

July 10, 1986

Mr. Robert Kahn  
Project Manager  
U.S. Agency for International Development  
B.P. 120  
Rabat, Morocco

608-0176

Re: ANE 608-0176 Conventional Energy Management and Training Evaluation

Dear Mr. Kahn,

Your letter of June 24, 1986 was received at TEM on July 8. We reviewed your comments and would like to make every effort to put the report in a format that is acceptable to you. TEM followed the draft report format submitted by Dr. Richardson and approved before his departure from Morocco. The Draft Final Report was submitted for review by USAID/Rabat and AID/W, and modified based on the comments received and additional information requested.

We feel that each item of section C.4. of the Evaluation Scope of Work can be identified in the Final Report narrative. However, as per your request, TEM will abstract and reformat sections of the Evaluation Report narrative into more concise formats which can be inserted as supplemental appendices for quicker reference. This will include (1) evaluation of the continued validity of the logical framework, (2) input/output summaries and EOPS projections, (3) a matrix of findings, conclusions, and recommendations, (4) lessons learned and unintended consequences, and (5) summary statements on each item of Contract section C.4.

It was our understanding that the evaluation contract was to be the basis for the Basic Project Identification Data Sheet. However, this will be redone to reflect the entire CEMT project.

Outside of the Appendices and Attachments, we have identified very few typographical and punctuation errors in the body of the final report, only one of which affects the meaning of a statement. The second sentence of the last paragraph of the second page of the Executive Summary should read as follows:

"It runs some risk of establishing a parastatal organization which could potentially compete with the private sector. However, if the three goals of the project..."

On the other hand, Appendices III and IV, and all Attachments were reproduced as they had been received from WBEC, AID/USAID, or ONAREP and contained numerous typographical and handwritten

notes. These were working drafts or formal or informal file documents, and we did not feel it was within our purview to edit them or delete notations made by project participants. Comments will be made regarding each item of WBEC's self-assessment (Appendix IV), although we feel the primary items were adequately addressed in the TEM narrative.

Dr. Richardson is currently inaccessible and I need to discuss with him the formatting and reporting requirement agreements made in Morocco. TEM will submit the supplements as soon as possible, probably in about three weeks.

Sincerely,

*Richard Flood*

Richard Flood  
Project Manager

cc: Dr. Richardson  
C. Coleman



المكتب الوطني للأبحاث والاستثمارات النفطية  
OFFICE NATIONAL DE RECHERCHES  
ET D'EXPLOITATIONS PETROLIERES

608-0176

DDRH/N° 86/137

Rabat, le : 30 AVR. 1986 الرباط في

ACTION: ENR

DUE DATE: 05/08

INFO: Dir. Dir. e

CHRON-RF

MONSIEUR LE DIRECTEUR DE L'AGENCE  
USAID - MAROC

137, AVENUE ALLAL BEN ABDELLAH

R A B A T

OBJET : Commentaire du "draft" rapport d'évaluation

Monsieur le Directeur,

Nous avons l'honneur de vous faire part par la présente de nos observations et remarques quant au "draft" rapport d'évaluation.

Elle peuvent être groupées comme suit:

3.2. Membres de l'équipe : On rapporte que:

ACTION TAKEN

Action Necessary

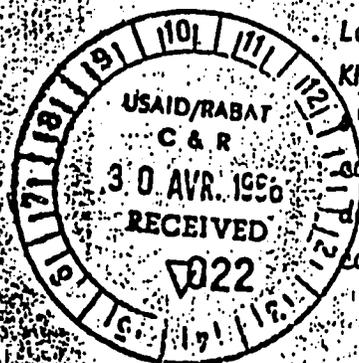
led by:

Initials & Date

9 mois sont perdus en 1985 vu le départ du géologue et du géophysicien sans évoquer les raisons de ce départ qui sont en particulier: découverte d'une fraude relative à l'attestation de niveau de français pour le premier et absentéisme dû à l'état de santé (et surtout l'improductivité du dernier.

Les charges du chef de l'équipe sont transférées de Mr. CURRIE à Mr. KHATIB sans expliquer pourquoi. La raison essentielle c'est qu'il est avéré que Mr. CURRIE passait la majorité de son temps à s'occuper des questions administratives du siège Rabat et ce au profit des tâches essentielles qui lui sont assignées dans le cadre du contrat.

.../...



17 شارع ميشلفن. أكدال الرباط

17, Av. Michlifen, Agdal, Rabat

الهاتف: 705-05 / 721-70 / 721-71

Tel: 705-05 / 721-70 / 721-71

تيليكس: بيروبيت 15-317م

Télex: Burepot 317-15M

- Changement des homologues marocains sans donner la raison de ce changement à savoir nomination ou promotion de ces homologues dans le cadre de la structure et organisation des différents départements concernés.

3.3.- Support du siège Rabat : Le support du siège Tulsa est décrit au point 3.3. Celui du siège Rabat n'a pas été abordé. Cette omission est à notre avis une lacune importante dans ce rapport : Il aurait été intéressant d'analyser son apport et le résultat de ses activités dans le cadre du projet.

3.4.- Formation : On souligne que le budget prévu pour la formation courte durée et longue durée n'est utilisé qu'à une proportion minime sans mettre l'accent sur les raisons de ce sous emploi, en particulier l'handicap de la langue et les besoins de formation longue durée de l'ONAREP inhérents à sa mission = former en priorité des géologues et géophysiciens.

Pour ce qui est de l'apprentissage de la langue anglaise il y a lieu de remarquer que le nombre d'inscrits aux cours réguliers au début Mars sont au nombre de 101 et non 21 et 13 aux cours intensifs et non 3.

3.5.- Dépenses afférentes au projet : Cette partie importante trop résumée sur un tableau reflétant les dépenses prévues et effectuées en 1985 et celles prévues pour 1986 - aurait pu être plus détaillée quant aux rubriques 5, 10, 11 et 12.

4.- Analyse et conclusions : Cette section traite surtout la nécessité de revoir le projet vu le nouveau contexte (reserves réduites de Meskala sans parler du nouveau contexte frappant la partie WBEC (perte de son contrat de supervision des champs pétroliers du gouvernement US à Bakers' Field) et propose dans le but de répondre aux objectifs

initiaux du projet USATD l'institution d'un projet modèle axé sur la promotion, première priorité de l'Office groupant toute l'équipe WBEC.

Cette solution à notre avis est impraticable pour les raisons suivantes :

- 1°) Deux des cinq experts sont affectés à la production = réservoir engineering et installation de surface. Ces domaines sont tout à fait différents de l'exploration et de la promotion.
- 2°) L'expert en planification ne trouverait pas non plus son utilité.
- 3°) La promotion des prospectifs pétroliers auprès de l'industrie pétrolière ne peut se faire qu'à la suite d'un travail de synthèse des données existantes. Que feraient donc les promoteurs pendant cette phase préliminaire d'études?.
- 4°) On ne peut confiner le rôle de promotion à une ou deux zones. Actuellement la promotion constitue un passage obligé de tous les prospectifs avant que leur exploration soit prise en charge par l'ONAREP lui même du fait de la non existence de partenaires intéressés.

Par contre nous sommes d'accord avec les recommandations, suggérées de notre part, contenues aux points 4.4.2 et 3.

Pour ce qui concerne le point 4.5 relatif au programme formation nous reconnaissons aussi qu'il est très ambitieux et risque de ne pas être réalisé en totalité. Pour ce qui est de la formation longue durée nous demandons quatre (4) postes pour candidats à la préparation d'un master en géologie ou géophysique.

Quant à la proposition de charger IIE de la réalisation du programme formation internships nous ne voyons aucun inconvénient, nous sommes même d'accord étant la spécialisation de cet institut dans le domaine, de le charger de la réalisation de tout le reste du programme formatif et ce en liaison directe avec nos services.

Comptant sur votre compréhension et votre précieuse collaboration

Nous vous prions, Monsieur le Directeur, de croire à l'expression de notre haute considération.

Le Chef de la Division Développement  
des Ressources Humaines et P.S



A. DEMNATI



**Williams Brothers**  
Engineering Company

Resource Sciences Park  
6600 South Yale Avenue  
Tulsa, Oklahoma 74136  
Phone (918) 496-5020  
Telex 158112 WBLC UT  
Facsimile (918) 496-5034

INFO COPY

76.18

MOROCCO PROJECT OFFICE  
24, Avenue de France, Suite 1  
Agdal, Rabat  
Phone 772-09  
Telex: WBEC RB1 328441  
Boite Postale 6285 14511111

3 June 1986/6-643

Mr. Robert A. Kahn  
Project Manager, ENR  
USAID  
137, Av. Allal Ben Abdellah  
Rabat

608-0176

ACTION: ENR/NIAH

DUE DATE: 06/13

INFO: D.R. - D.I.R. -

PROG - CHRON - RF

Subject: TEM Evaluation Report  
of USAID Project 608-0176

Dear Mr. Kahn,

Following the evaluation mission by Messrs. Richardson and Bohanan of TEM Associates in March 1986 we have transmitted to you the following letters:

1. Project Evaluation/Direction, 25 March 1986/3-500.
2. ONAREP Project - Assessment of WBEC Team Approach, 19 April 1986/4-575.
3. Achievements of WBEC Team, 9 April, sent from Tulsa to TEM.
4. Enhancing Effectiveness of the USAID/WBEC Technical Assistance to ONAREP, 14 May 1986/5-607.

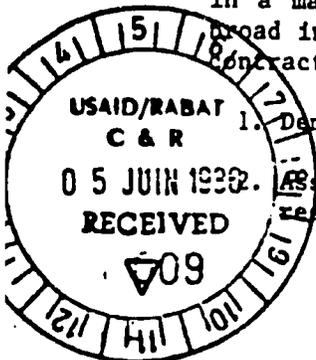
In these we commented on the initial findings of the evaluation team, stated our opinion on the project direction and made some recommendations. Now that we have the Evaluation Report we offer specific observations on it in preparation for the forthcoming 3-party meetings to negotiate contract amendments.

The report has many good and helpful ideas. The points we make here are those to which we take exception.

**PROJECT OBJECTIVE AND ORGANIZATION.**

The report gives much emphasis to the importance of institution-building. However, it recommends reorganizing the project in a manner that will preclude the project team from achieving any broad institutional changes. TEM recommends for the third year of the contract:

1. Demobilizing the planning advisor position.
2. Assignment of the COP role as a secondary activity of one of the resident advisors.



14

In the debriefing session on 17 March Mr. Richardson discussed both of these points with us (Khatib and Currie). Mr. Richardson said he had accepted Mr. Currie's suggestion that he be replaced with an explorationist. We explained that the suggestion was made on the basis that:

- o An explorationist with planning experience would help to enhance the role of the Division Etudes et Planification in ONAREP.
- o Project funding would preclude a straight addition to the present team.

As it appeared the former was not being proposed, and funding was not a constraint, I asked Mr. Richardson to delete this point, apparently to no effect, as it is retained in the TEM report, page 58.

Regarding the downgrading of the COP position, we emphasized:

- o The position is one of project management, not routine administration. We sent TEM a copy of the Appendix to our letter 3-500 of 25 March, listing responsibilities of the COP.
- o The multiple services being provided to ONAREP will continue in volume and diversity through the third year of the USAID/WBEC contract.
- o The efficient design and organization of the various services demand the prime time and attention of a qualified manager.
- o Resolving tensions arising out of conflict between ONAREP needs and contract objectives is another important role of the COP.

We believe the leadership and management role of the COP is vital to the successful implementation of the contract, and relegation of the role to a secondary activity of another advisor would have a serious adverse impact on the quality of services provided to ONAREP.

In their report, page 50, TEM recognized the advantages of administrative (sic) continuity in the COP role, but considered these advantages to be outweighed by the fact that Mr. Khatib's primary technical speciality is not in demand on the project.

Our experience, with both Currie and then Khatib as COP, has shown that management of the project is a demanding, virtually full-time job. It is therefore fortuitous that the present COP is now needed less as a reservoir engineer.

It is unfortunate that in their report TEM took it upon themselves to nominate an individual to pick up the duties of COP in the third year of the contract. They have trespassed on the area of responsibility of WBEC management, as affirmed by the contract (Article B, Section C Amendment No.1), and have created an embarrassing situation for all concerned.

#### RESERVOIR ENGINEER

The statement at the top of p.50 about Khatib's reservoir engineering duties is inaccurate. In our 25 March letter we stated that these duties consume, on average, 18 out of 48 hours per week.

In attachment J under 3, "Enhancement of internal capability to review and conduct reservoir studies", TEM comments that "Apparently only slight improvement has been made during the project".

The evaluation team chose to ignore what we reported in "Achievements of WBEC Team", which they include as Appdx IV. We made available to them the Quarterly Reports and our technical reports which document these achievements. These included six reports by the Reservoir Engineer and his ONAREP counterparts, as summarized in Table 1 attached to this letter. Work on these reports was a vehicle for on-the-job training, especially for M. Ahmed Korachi, who is now rounding up his training in internships and a course in the US.

The reservoir engineering programs we have acquired for the DDP microcomputer now form a comprehensive software library, and ONAREP engineers are capable of conducting their own reservoir studies.

#### ERRORS AND OMISSIONS

For completion, we list in the Appendix a few factual, and mainly minor, errors we have come across in the report.

Attachment J. "Commentary on Scope of Work Evaluation Points" does not include commentary on the work of the Planning and Joint-Venture Promotion Advisors.

Attachment H is the Work Statement that USAID provided to TEM Associates. We marked up copies of this statement with our comments and gave them to Mr. R. Kahn about two weeks before the evaluation mission, and to Mr. D. Richardson in one of our meetings. Mr. Kahn did not feel there was need to make the changes and was waiting for the evaluation team to give their ideas, especially regarding the Project Logical Framework. The evaluation report does not address this point. We believe that our comments, especially those on p.6 and on Annexes B-1 and B-2 are pertinent and should have been taken into account.

Yours sincerely,

WILLIAMS BROTHERS ENGINEERING COMPANY

  
A. Khatib  
Chief of Party

cc. S. Klein/C.Johnson  
J. Duffy, WBEC Tulsa

APPENDIX  
MINOR FACTUAL ERRORS

- Page 9 Fulfillment date for Currie is 12 Jan 88, not 86 (typing error).
- 13 Para 2. Fact that G.A. Currie did not have a full-time counterpart for several months delayed progress in planning work.
- 17 Last para. Department of Development and "Exploitation", not "Exploration" (typing error)
- 18 Para 4. M.A. Hill visited Rabat only once, in Feb. 85. Connor's visit in July 85 was not for "site research for the conceptual design of the Meskala Project" but to participate in a pre-bid conference and site visit with contractors. The conceptual design had been completed in Tulsa in March 85.
- 27 Line 11. Drilling Control "school" should read "internship".
- 37 Para 1. Exxon and Esso are the same company.
- 52 Para 2. "Toukimt Project" should read "calcination pipeline at Youssoufia".
- Appdx II Persons interviewed  
Mr. J. Duffy is listed. There was no meeting, but only telephone conversations.
- Attachment B Short-term Training.  
MM. Mohamed Nahim and Ali Harraj are listed with remark "Non-funded". Their training was funded under our project.

Table 1

RESERVOIR ENGINEERING REPORTS  
in which A. Khatib participated

<u>Date</u>	<u>DDP n°</u>	<u>Title</u>	<u>Authors</u>	<u>Gas in place</u> <u>10<sup>6</sup> Nm<sup>3</sup></u>
16 mai 85.	239/R/85	Estimation des réserves à partir des essais de longue durée à ZEL-101 bis	Khatib Harraj	20,4 - 32,1
juin 85	313/85	Essai de longue durée de OKT-1	Korachi Khatib	8,0
23 juil. 85	343/85	Observations sur la conduite des essais de puits à gaz	Khatib	-
août 85	353/85	Interprétation des essais de longue durée à Oulad Youssef-1	Korachi Khatib	41,3 +
30 dec. 85	582/R/85	Evaluation de reserves en gaz du champ de N'Dark	Khatib	218
10 fév. 86	114/R/86	Mesures de pression de fond de Toukimt	Khatib Harraj Korachi	255-320

Note : Khatib reviewed all reservoir reports by Corelab and Elf/Aquitaine on Meskala and prepared summaries for ONAREP's meetings with the World Bank in Feb. and Sep. 1985.

XD-AAU-301-A  
47203

**EVALUATION REPORT**

**USAID/MOROCCO  
CONVENTIONAL ENERGY MANAGEMENT  
AND TRAINING PROJECT**

**AID PROJECT NO. 608-1076**

**Prepared for:**

**Office of Energy and Natural Resources  
U.S. Agency for International Development  
Rabat, Morocco**

**Prepared by:**

**TEM Associates, Inc.  
3254 Adeline Street  
Berkeley, California, 94703  
(415) 845-6502**

**May 1, 1986**

## TABLE OF CONTENTS

- i.        **Basic Project Identification Data Sheet**
- ii.      **Executive Summary**
- iii.     **Acknowledgements**
- 1.0      **Introduction**
- 2.0      **Method**
- 3.0      **Findings**
  - 3.1    **Project Start-up**
  - 3.2    **Project Staffing**
  - 3.3    **Home Office Support**
  - 3.4    **Training**
  - 3.5    **Project Expenditures**
  - 3.6    **World Bank Activities**
  - 3.7    **Technical Data**
- 4.0      **Analysis and Conclusion**
  - 4.1    **Need for Project Re-focus**
  - 4.2    **Tension Between "Operational" vs. "Advisory" Roles**
  - 4.3    **Suggested Model Project Focus**
  - 4.4    **Project Staffing**
  - 4.5    **Training**
  - 4.6    **Relationship of AID Effort to World Bank Activity**
  - 4.7    **AID Oversight of Project**
- 5.0      **Summary of Recommendations**
- Appendices:
  - I.    **Documents Reviewed**
  - II.   **Individuals Interviewed**
  - III. **Nature of WBEC Team Members' Work**
  - IV.  **Commentary: "Achievements of WBEC Team"**

- Attachments:**
- A. WBEC Telex, re: 1986 Training & Internship Plans
  - B. Status of Short-term Training
  - C. Proposed USA Training Program, 1986
  - D. WBEC Training Program, 1986-87
  - E. IIE - CETP List of Morocco Participants
  - F. WBEC Correspondence, re: ONAREP Supplemental Staffing
  - G. Summary of ONAREP Debriefing Meeting, 14 March 1986
  - H. Evaluation Scope of Work
  - I. Logical Framework
  - J. Commentary: WBEC Comments on Evaluation S.O.W.

**List of Tables:**

- 1. WBEC Project Organization Chart (sec 3.2)
- 2. Project Cost Summary by Category (sec 3.5)
- 3. Project Cost Summary by Fiscal Year (sec 3.5)

**List of Figures:**

- 1. FY 1985 Planned vs. Actual Expenditures (sec 3.5)
- 2. FY 85 Actual and FY 86 Planned Expenditures (sec 3.5)

**BASIC PROJECT IDENTIFICATION DATA**

1. Country: Morocco
2. Project Title: Evaluation of Conventional Energy Management & Training Project
3. Project Number: ANE-0176-C-00-6035-00
4. Project Dates:
  - a. First Project Agreement: 2 April 1986
  - b. Final Obligation: FY 86
  - c. Project Assistance Completion Date: est. 30 March 1986
5. Project Funding:
  - a. A.I.D. Bilateral Funding: \$31,000, PIO/T 608-0176-3440160
  - b. Other Major Donors: n/a
  - c. Host Country Counterpart Funds: n/a

TOTAL: \$31,000
6. Mode of Implementation: A.I.D. direct contract to TEM Associates, Inc., Berkeley, CA.
7. Project Design: ONAREP/Government of Morocco, William Brothers Engineering Corp., USAID/Rabat
8. Responsible Mission Officials:
  - a. Mission Director(s): R. Chase
  - b. Project Officer(s): R. Kahn
9. Previous Evaluation(s): Last - N/A; next scheduled - 2nd quarter FY 87
10. Cost of Present Evaluation:

	Person Days	Dollar Costs
a. Direct Hire:		
1) AID/W TDY:	-	-
2) USAID staff:		
b. Contract:	53	\$31,000 (FFP)
c. Other:	-	-

## EXECUTIVE SUMMARY

### Evaluation of the USAID/Morocco Conventional Energy Training and Management Project

The subject evaluation was initiated by the AID Asia and Near East Bureau, Technical Resources Division, Energy and Natural Resources Department (ANE/TR/ENR). The final report dated May 1, 1986, is entitled "Evaluation of the USAID/Morocco Conventional Energy Training and Management Project".

The Project Agreement (0608-176) calls for two external project evaluations during the four year term of the project. TEM Associates, Inc., received a contract to conduct the first of these evaluations, which was scheduled to be performed approximately fourteen months after the arrival in Morocco of the prime contractor, the Williams Brothers Engineering Company, Inc. (WBEC).

The sector goals of AID are to alleviate economic/monetary balance of payments problems and assist Morocco to reduce importation of fossil fuels by increasing domestic oil and gas production. The purpose of the project is to build the internal capability of the Office National de Recherches et d'Exploitations Pétrolières (ONAREP), the parastatal organization responsible for oil and gas development. This is to be achieved through (1) transferring cost effective private sector management principles and techniques to ONAREP, (2) strengthening Moroccan ties to potential private sector petroleum development partners, and (3) supporting a program to explore, develop, and produce domestic petroleum resources.

The assumptions upon which the project was based include the following:

- a) exploitable commercial petroleum reserves exist in Morocco
- b) there will be no major new international oil price fluctuations
- c) sales prices can be negotiated to allow conversion to domestic fuels
- d) ONAREP's management and technical capabilities can be enhanced, and the government of Morocco is committed to ONAREP's continued existence.

The purpose of the evaluation was to critically review the roles and responsibilities of the technical assistance contractor (WBEC), the supplemental training contractor (Institute for International Education), ONAREP, and USAID/Rabat. This was to be achieved through review of project documents and interviews in the U.S. and Morocco with representatives of the respective cooperating organizations.

The baseline project were shaken by recent dramatic drops in the world price of oil and by exploration results that showed considerably smaller reserves than expected in the Meskala region. Staff changes within the WBEC field team, ONAREP, and USAID project management, combined with delays in start-up of several critical elements in the early stages of the project, resulted in an initially weak technical assistance effort. WBEC staff roles evolved from initially being advisory to increasingly becoming operational functions within the ONAREP organization; resulting in some divergence from the perceived goals and appropriate role of AID. Internships and academic (Master's Degree) training programs were found to be somewhat behind schedule, but an ambitious training component plan for 1986 could bring this back to schedule. Project expenditures are below plan, due to adjustments in WBEC overhead and under-runs in training components.

Coordination with related projects funded by the World Bank have declined due to the disappointing finds in Meskala. Technical data gathering and reporting systems need to be improved before private sector promotional activities can be initiated.

The evaluation team recommended minor project refocusing. Oil prices are sure to rise, and ONAREP must have a strong cadre of well trained individuals to coordinate with the private sector and respond to any level of interest in Moroccan petroleum development by the international oil companies. Refocusing should include increased emphasis on promotion, institution building, and reconciliation of diverging goals. The team recommended that USAID re-evaluate and clarify its goals, particularly in light of increased emphasis on privatization, and more strongly assert them while at the same time maintaining the delivery of key operational services which are highly valued by ONAREP. The team proposed development of a "model project" concept around objectives which are common to USAID and ONAREP.

Specific recommendations were made regarding staffing changes for WBEC and supplemental personnel for WBEC and ONAREP; improvements in the training program, particularly related to counterpart on-the-job training and internships; and developing the model project focus.

The project is an interesting experiment in economic development intended to assist the public and private sectors to integrate their interests and capabilities. It runs some risk of establishing a parastatal organizations could potentially and compete with the private sector, however, if the three goals of the project are viewed in relation to each other, the private sector can be seen as a mechanism for assistance and continued exploration and production after the resource base has been proven.

## **ACKNOWLEDGEMENTS**

The TEM Associates, Inc. evaluation team would like to acknowledge the excellent support provided by the staff of all agencies involved in the project, represented by the following executives:

Mr. R. Chase, Mission Director, U.S. Agency for International Development, Rabat, Morocco

Mr. R. Ichord, Energy and Natural Resources Director, Asia and Near East Bureau, Agency for International Development, Washington, D.C.

Mr. Douieb, Director General, Office National de Reserches et d'Exploitations Petrolieres, Rabat, Morocco

Mr. A. Khatib, Chief of Party, Williams Brothers Engineering Company, Rabat, Morocco

Our appreciation is extended to Ms. C. Coleman, Project Officer, AID/ANE/ENR, and to Mr. R. Kahn, Project Officer, USAID/Rabat, for arranging interview schedules and travel itineraries.

Special thanks is given to Mr. Kahn and to Ms. S. Lewis (USAID/Rabat) for tireless support in assisting the evaluation team members in Morocco to complete their tasks.

## 1.0 INTRODUCTION

The Project Agreement (ProAg) for the USAID/Morocco Conventional Energy Management and Training Project (608-176) calls for two external project evaluations during the four-year term of the project. TEM Associates, Inc., was selected to conduct the first of these evaluations.

The project is designed to strengthen the internal capabilities of the National Petroleum Exploration and Development Office (ONAREP), a parastatal organization of the Moroccan Ministry of Energy and Mines, through technical assistance and training.

The purpose of the evaluation was to determine the extent to which the project's goals and specific purposes as described in the Project Agreement (ProAg), Project Paper (PP), and subsequent approved changes are being met or can be met within the remaining life of the project. The evaluation assessed the continuing validity and appropriateness of the logical framework presented in the Paper Project, performance of the technical assistance contractor and training sub-contractor, and strategic planning and operational relationships between the primary agencies involved.

This initial evaluation was scheduled for February 1986, approximately 14 months after the arrival in Morocco of the prime technical assistance contractor team. The principal contractor

is Williams Brothers Engineering Company, Inc. The evaluation also included review of the training components of the project, being handled in part by the prime contractor and in part by AID through arrangement with the Institute for International Education (IIE).

The evaluation was conducted in compliance with the Scope of Work (AID, December 19, 1985) and the Project Paper logical framework.

## 2.0 METHOD

The Evaluation Team relied on thorough review of file documents and on interviews with project personnel for data collection. Analysis was largely qualitative as quantitative data were limited; however several simple quantitative measurements of progress were possible.

The evaluation team prepared for its Morocco travel assignment by examining official project background documents several weeks before leaving for Morocco. The complete AID/W microfiche file record of project planning, contracts, and official correspondence was reviewed. Additionally, key documents were obtained from Williams Brothers' Engineering Company, including Work Plans for FY 85 and 86, all quarterly reports to date, and resumes of key project personnel. Background information was also obtained on training activities proposed or conducted by the supplemental training subcontractor, the Institute of International Education. Additional documents were reviewed in Morocco, including file reports and correspondence proffered by USAID/Rabat, ONAREP, and the WBEC field office. A listing of the documents reviewed is presented as "Appendix I" of this report.

Two members of the TEM evaluation team, Dr. Douglas Richardson and Project Manager Mr. Richard Flood, along with TEM Associates President, Dr. Berah McSwain, participated in a formal briefing in Washington, D.C. with the AID Asia and Near East

Bureau on February 25, 1986. They also met with World Bank Energy Department officials about the relationship of the AID project to associated efforts funded by the World Bank.

The AID/ANE "Procedural Guidelines for Evaluation" (Nov. 85) was received and used as a reference for the conduct of the evaluation.

TEM evaluation team members Dr. Douglas Richardson and Mr. F. Wayne Bohanon travelled to Morocco to conduct on-site assessments and interviews. Mr. Richard Flood gathered supplemental data and conducted additional personal and telephone interviews in the U.S. with the Williams Brothers' headquarters office (Tulsa, Oklahoma), IIE, AID, and World Bank. A listing of individuals interviewed appears as "Appendix II" of this report.

The evaluation team in Morocco was briefed by USAID Director Mr. Robert C. Chase; Energy Office Director Mr. Stephen Klein; Project Officer Mr. Robert Kahn; and Project Officer Ms. Sydney Lewis. Numerous additional meetings with AID staff, including Evaluation Officer Mr. Randall Thompson, were conducted during the visit.

Extensive individual meetings with ONAREP top management and with each member of the William Brothers' technical assistance staff were undertaken during the team's stay in Morocco. With many key individuals, multiple meetings were held to develop as

complete a picture as possible of the project activities, and to permit follow-up and verification of the evaluation team's working hypotheses during the course of the evaluation. An originally scheduled visit to the Meskala gas production area was cancelled with the concurrence of AID, ONAREP, and WBEC, due to the minimal activity occurring there at the time.

Prior to leaving Morocco, separate formal debriefing sessions were conducted with ONAREP management (see attachment G) and with the USAID Project Review Committee, and a draft Evaluation Report was provided on March 16, 1986 for review and commentary.

Upon return to the U.S., the evaluation team conducted formal debriefing sessions with AID/ANE and the World Bank.

The draft Evaluation Report was edited into this Final Report after receipt of comments from USAID/Rabat and supplemental inputs from WBEC and IIE.

### **3.0 FINDINGS**

#### **3.1. Project Start-up**

The USAID/Morocco Conventional Energy Management and Training Program was implemented on 6 May 1984 and is scheduled to terminate on 30 June 1988.

The effective date of the contract to Williams Brother Engineering Company (WBEC) is 12 November 1984, and the estimated completion date is 12 February 1988.

The WBEC contract called for the Chief of Party and the home office Project Manager to go to Morocco no later than three weeks after the execution of the contract to prepare for the mobilization of resident staff, to hire local staff, and to begin work on the first annual Work Plan and budget. However, a stop-work order was in effect from 20 November - 3 December 1984 due to a protest by one of the bidders to the award of the contract to WBEC.

The Chief of Party arrived in Rabat 12 December 1984, recruited clerical staff the same day, leased an office on 15 December, and began work with his ONAREP counterpart on 17 December 1984. By the end of December 1984 five WBEC technical personnel were in Rabat. Only 3-4 days were needed for each of the team members to find living quarters and begin assigned tasks.

The Regional Geologist and the Geophysicist were at work in the Zone Nord by 20 December 1984; the Reservoir Engineer began work in the ONAREP Production Division on 4 January 1985; and the Joint Ventures Promotion Specialist began promotional activities on 3 January 1985. The Surface Facilities Engineer did not arrive in Rabat for long term assignment until September 11, 1985, although he made a short trip in July. The delay in his arrival was the subject of several meetings between USAID, ONAREP, and WBEC, and was the cause of a formal letter of complaint from ONAREP.

The draft FY 1985 Work Plan of WBEC was presented to USAID on 22 February 1985, and was finalized 17 April 1985.

The following lists the WBEC team members, dates of arrival and dates of departure (in two cases):

POSITION	ARRIVED	DEPARTED
Financial/Management Advisor, G. Currie	12 Dec 84	
Joint Venture Promotion Specialist, D.A. Sullivan	08 Dec 84	
Regional Geologist, J. H. Kenny	16 Dec 84	01 Apr 85
Regional Geologist, S. E. Munro	31 Jul 85	
Geophysicist, P.R. Letourneau	18 Dec 84	18 Sep 85
Geophysicist, S. Bhattacharjee	05 Jan 86	
Reservoir Engineer, A. K. Khatib	31 Dec 84	
Surface Facilities Engineer, T. E. Connor	11 Sep 85	

Approximately 9 person-months of technical assistance were lost in 1985 due to the departures of the original Regional Geologist and the Geophysicist. In each case, replacement took about four months. Geophysicist Letourneau resigned at the request of ONAREP. Regional Geologist Kenny was removed by WBEC.

The WBEC contract amendment dated 20 September 1985 maintained the total level of effort at 198 person-months. However, the job title and description of duties to be performed

by the Senior Planning Advisor were amended at that time. The Chief-of-Party duties were also redefined, and Mr. Khatib was appointed to the COP position in lieu of Mr. Currie.

The person-months of effort to be devoted to the project, according to the contract amendment dated 20 September 1985, are as follows:

<b>Description of Effort</b>	<b>Person-Months</b>
Home Office Technical Support	8
Reservoir Engineer	24
Joint-Venture Promotion Specialist	24
Senior Planning Advisor (title changed)	37
Regional Geologist	32
Geophysicist	35
Surface Facilities Engineer	16
Short Term Specialists	22
	<b>Total 198</b>

Presently it is foreseen that the above-listed person-months of effort will be fulfilled by about the following dates:

<b>Position</b>	<b>Fulfillment Date</b>
Financial/Management Advisor, G. Currie	12 Jan 86
Joint Venture Promotion Specialist, D.A. Sullivan	08 Dec 86
Reservoir Engineer, A. K. Khatib	31 Dec 86

Surface Facilities Engineer, T. E. Connor	11 Jan 87
Regional Geologist, S. E. Munro	15 Dec 87
Geophysicist, S. K. Bhattacharjee	05 Mar 88

The Geophysicist's fulfillment date in this summary extends beyond the WBEC contract completion date because he arrived later than originally foreseen. USAID has yet to issue a contract amendment naming Mr. Bhattacharjee among WBEC's "key personnel", and to specify the total number of person-months of his assignment

In summary, WBEC staff changes made during the first year of the Project were:

1. The resignation of Geophysicist Letourneau; replacement by Mr. Bhattacharjee.
2. The resignation of Regional Geologist Kenny; replacement by Mr. Munro.
3. The duties of Chief of Party were transferred from Mr. Currie to Mr. Khatib on 29 July 1985.
4. The locally-hired Administrator/Training Coordinator, Mrs. P. Johnson, hired 29 July, resigned 9 November; and was replaced 13 January 1986 by Mr. J. Linnard.
5. A locally-hired secretary resigned and was replaced.

In almost all cases reviewed, the reasons for the early WBEC field technical staff changes did not involve the capabilities of the individuals selected, but were more on matters of adjustments

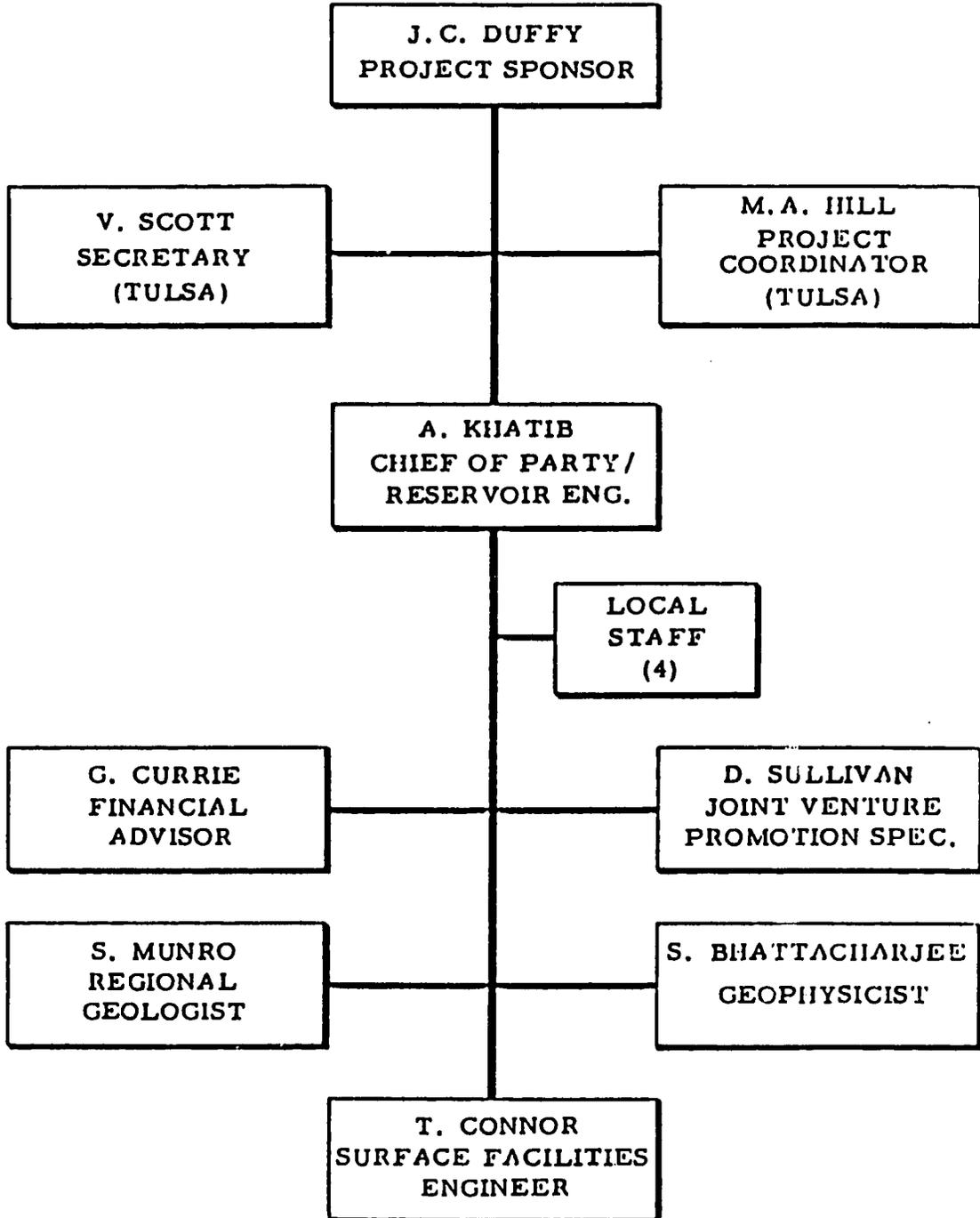
to the goals of ONAREP. ONAREP expected "hands-on" direct operational assistance, not advisory assistance. The administrative/secretarial position changes appear to have been the result of personal dissatisfaction with the working environment.

Table 1 displays the WBEC Organization Chart.

36



ORGANIZATION CHART  
USAID-MOROCCO  
PROJECT# 585500  
CONTRACT# 608-0176-C-00-5003-00  
DATED, NOVEMBER 12, 1984



### 3.2.2. ONAREP

Several changes of ONAREP's counterparts to the WBEC team members also occurred during the first year of the Project:

1. Mr. Debagh, who was originally Mr. Currie's counterpart, became Mr. Sullivan's counterpart.
2. Mr. Isfahoun became Mr. Currie's new counterpart.
3. Mr. Demnati replaced Mr. Rouwane as the counterpart to the two WBEC explorationists.
4. The first ONAREP geological counterpart to the WBEC Regional Geologist left to attend the ENIM petroleum school in September 1985, and was not replaced until late January 1986.

The reasons for these repositionings were organizational changes within ONAREP. They represented departmental shifts rather than changes in program elements and do not reflect questions of staff capabilities. No strongly negative influences were observed by the evaluation team as a result of the ONAREP staffing changes.

USAID and WBEC both commented that administrative matters and decision turnaround time within ONAREP was a very slow

process. Although some improvement has been observed since the inception of the project and possibly due to the increasing "operational" roles of WBEC staff inside ONAREP, ONAREP must verify its commitment to the program by making USAID and WBEC matters a higher priority and responding to them in a more timely manner.

### 3.2.3 USAID

In addition to the WBEC and ONAREP personnel changes, two changes occurred within USAID/Rabat which were significant to the project:

1. Mr. G. Bricker, the USAID Chief of the Office of Energy and Natural Resources, who was also then designated as the Project Officer, was transferred just a few months after project start-up to a new duty station. He was replaced as Chief of ENR by Mr. S. Klein.
2. The designation of Project Officer was assigned to Mr. R. Kahn upon his arrival in Rabat in April, 1985.

To his credit, the new Project Officer has been able to effectively manage the program from a position that is not as high in the USAID hierarchy as was originally intended by planning documents, and his organizational skills continue to improve. Some decisions and influences on program direction may have occurred more quickly had primary project oversight

responsibility been retained at the Chief of ENR level, but the evaluation does not consider this to be of major significance to the project.

The significance of these changes in the WBEC field team, ONAREP, and USAID/Rabat is that, taken together in such a short term, they caused disorganization at the critical start-up stages of the project and extended the time period before effective coordination between the three groups toward their objectives could begin. The discontinuities interrupted the learning curves of the individuals trying to familiarize themselves with the project. As a result, there was less oversight of details and more delays in adaptation to roles than was preferable. The evaluation team noted several primary effects of the staffing changes:

1. Most significantly, the early changes in the project disrupted the Work Plan schedule, and would therefore affect completion of activities. This is a finite program with no extensions intended, and some planned program content may be lost. The evaluation team feels that ONAREP, WBEC and USAID have regrouped since the early turbulence and the difficulties of that period have been largely overcome.
2. WBEC and ONAREP were not able to fully organize training activities early in the project. This is not

fully attributable to staffing disruptions, however, and is addressed more fully in section 3.4 of this report. Staff are now in place to handle training program needs.

3. There was some loss in continuity to the on-the-job training needs of the program due to changes in counterpart assignments (3 changes to the 6 WBEC key personnel slots; 3 changes in field support services positions). The effects of these changes may have been somewhat offset by increased exposure to, and cross-training in, alternate positions; possibly resulting in greater appreciation for the functions and roles of co-workers, and staff depth for each position should additional changes take place.
4. Responsibility for determination of the details of project definition, personnel scope-of-work and task assignments, daily activities, and task schedules gravitated to ONAREP. At this point in the report, this should be viewed as a finding, not a criticism, and the issue is discussed more fully in section 4.1 and 4.2.
5. The early staff changes and transition of WBEC personnel from "advisory" to "operational" roles within ONAREP obviously caused discontinuity and instability in the program. However, it was the evaluation team's observation in Morocco that roles of ONAREP and WBEC

staff have become increasingly well defined and that with few exceptions, work relationships are cordial and productive.

6. There is no strong "visibility" of the U.S. contingent due to the multiple work locations and distribution of the WBEC staff with their counterparts. A stronger "public relations" effort is needed to offset the physical limitations of the program.

### **3.3. Home Office Support**

The evaluation team's scope of work included an investigation of the extent of the WBEC's home office support of the project; of the appropriateness of the existing divisions of labor between the home and field offices; and of the usefulness and cost-effectiveness of the engineering provided by WBEC, particularly on the Meskala gas field project.

The greatest contribution to the project to date by WBEC's Tulsa office has been the conceptual design of the Meskala gas project and preparation of the request for bids. Mr. T. E. Connor, WBEC's Surface Facilities Engineer, and Mr. K. Oudghiri, ONAREP's Chief of the Department of Development and Exploration, worked on this project in Tulsa. (They later returned to Morocco to jointly direct implementation of the Meskala Project.) Bids were also solicited for the Meskala project, based in part on the

work done in the William Brothers' conceptualization study. Contracts for the Meskala Project were let in March, 1985, to Herlicq, a French firm, and UIM, a Moroccan firm.

ONAREP indicated that the WBEC cost estimate for the Project had been found to be far too low, according to the submitted bids (attributed to WBEC's unfamiliarity with costs in Morocco.) This was not considered by ONAREP to be a major problem.

WBEC's Tulsa office is also arranging the short-term training and conference seminars for ONAREP's trainees in the U.S., and also providing specialized short-term advisors to ONAREP in Morocco.

A number of visits have been made to Rabat from Tulsa. Mr. J.C. Duffy, the WBEC Project Sponsor, and Mr. M.A. Hill, the Project Coordinator each made several visits to assure administrative coordination between the home and field offices. Mr. T.B. See, WBEC's Human Resources Advisor visited Rabat 19 Jan - 9 Feb 1985, and initiated a Career Development System in the context of a Personnel Performance Management System. Mr. J. Hyde, an auditor, visited Rabat 14 Oct - 29 Nov 1985 and initiated a well received internal audit program for ONAREP's Office of Audits and Methods. Three WBEC engineers from Tulsa conducted the Project Control Seminar 11-22 Nov. 1985. Mr. M.W. James, Process Engineer, visited Morocco 24 Feb. - 8 March 1985 to advise on the Meskala Project, and Mr. T. E. Connor visited Rabat 9-14 July 1985 (several months before his long-term

assignment began) to do site research for the conceptual design of the Meskala project.

Through 1985 (14 months into the project), 12 1/2 person-months of short-term advisory assistance and 13 person-months of home office technical and management support services had been furnished.

The evaluation team finds that the Tulsa office of WBEC has given adequate technical support to the Rabat WBEC office, with the exceptions of the internship arrangements (see sec 3.4.4). The provision of expert short-term advisors, with specific project objectives, has been particularly successful.

### **3.4 Training**

USAID has several options for administering training program funding: (a) direct funding by USAID/Rabat through the training office, (b) indirect funding through cooperation in a support contract with the Institute for International Education managed by the AID Office of Energy in Washington, or (c) indirect funding through the principal technical assistance contract with WBEC. The Project Plan calls for English language training, conferences/seminars, U.S. short-term training, internships, and U.S. academic training (four Master's degree programs).

A breakdown of training component budget estimates follows:

1. USAID/Rabat direct funding for English language training	\$ 3,000
2. AID/OE indirect funding through training contracts (incl. IIE)	
a. U.S. short-term training	227,000
b. U.S. academic training	186,000
3. WBEC contract indirect funding	
a. English language training	60,000
b. In-country technical seminars	144,400
c. U.S. conferences/workshops	32,800
d. U.S. industry internships	<u>162,400</u>
Maximum	\$ 815,600

It appears there will be a large under-run of spending in Item 2 above, because only about \$60,000 of short-term training and \$80,000 of the IIE funding (Item 2a) has been completed and only one Master's degree (Item 2b) student has been placed to date in a U.S. university (a candidate for a Master in Science in Geology, at the University of South Carolina). This Master's candidate will require about \$47,000, leaving about \$139,000 unspent unless other candidates are sent for academic training. The U.S. industry internships area (Item 3d) also appears to be underutilized and is a potential area of program cost reduction.

A summary of findings and issues for further discussion in each training category follows:

### **3.4.1. English Language Training in Rabat**

#### **a. Regular English Courses:**

The WBEC contract provided for English training for up to 27 ONAREP employees for 18 months through a subcontract with American Language Institute in Rabat. At ONAREP's request the training funds were re-allocated to permit up to 31 employees to attend for 18 months, beginning in October 1985.

**Accomplished:** The number of enrollees increased from nine early in 1985 to twenty-four in October. It appears that ONAREP is making a strong effort to find trainees in the regular classes and that the project objective is being met.

#### **b. Intensive English Classes**

The WBEC contract provides for intensive English classes through ALC for up to 14 trainees for no more than three months each.

**Accomplished:** Mr. Rouwane received 24 hours of intensive listening practice with technical and scientific subject matter. Mr. R. Bouchta received private lessons of 10 hours per week in preparation for a

**3-month course at Harvard.**

**c. English Language Placement Tests and Examinations:**

The WBEC contract provides for such tests for up to 27 ONAREP employees.

**Accomplished:** The trainees were tested by the ALC according to their usual procedures. Two employees were given the ALIGU test of proficiency in preparation for U.S. training.

**d. ALC Academic Tests:**

The WBEC contract provides for up to 8 academic tests such as the GRE and GMAT for ONAREP employees, typically given in time for the candidate's admission to a U.S. university.

**Accomplished:** No tests given. Additional candidates for the Master's degree programs, if nominated and approved, will need to schedule any required tests as soon as possible.

**e. Other English Language Training**

USAID advised that at the time of the evaluation team's visit (March 1986), a total of 147 ONAREP employees were receiving regular English language instruction under USAID

funding assistance. An additional twelve employees were receiving intensive language instruction in preparation for U.S.-based training programs.

**Discussion:** English language books, technical documents, and reference materials were much in evidence at ONAREP during the evaluation team's visit. Conversations are frequently held in English, and the more effective counterpart relationships between WBEC and ONAREP personnel seemed to be those where English was predominant. Indeed, ONAREP acknowledged that English is the "official language" of the world oil industry, and that ONAREP must be prepared to conduct contract negotiations in English. Training in this area should continue to be a high priority for the USAID effort.

#### **3.4.2. Technical Seminars at ONAREP/Rabat**

The WBEC contract provides for six seminars (one in the fall and one in the spring of each of three years) for two weeks conducted by two short-term WBEC advisors.

**Accomplished:** To date (mid-March 1986) four seminars have been given as follows:

- a. "Interpretation of Seismic Data," by IHRDC, 1-9 April 1985.

This seminar was considered unsatisfactory by ONAREP, and was terminated several days early.

- b. "Project Control", by WBEC, 11-22 Nov. 1985. It was highly rated by ONAREP.
- c. "Subsurface Geological Mapping", by Dr. R. Lawson, 28-30 Jan. 1986. It was considered satisfactory by ONAREP.
- d. "Sedimentation and Diagnosis of Carbonate Rocks" by Prof. B.H. Purser, 10-12 March 1985. It was considered satisfactory by ONAREP.

Other seminars are planned for 1986. (see Attachment A, WBEC telex No. 472 to M. Hill). The seminar training now appears to be going quite well with good coordination between WBEC and ONAREP.

**Discussion:** ONAREP is highly product-oriented. Technical seminars must be directly related to task activities and problems being faced by ONAREP in order to receive good ratings. The "discontinuity" issues presented in section 3.2 of this report were the probable cause of inconsistencies on points of view regarding the design and conduct of the early in-country seminars, and again this seems to have been resolved. Training evaluation methods, such as "pre-test and post-test" of the students' knowledge of the assigned topics, could be

strengthened by WBEC to give clearer indications of the effectiveness of seminar instruction and to provide additional guidance to the instructors in preparing and presenting their materials.

### **3.4.3. U.S. Conferences/Seminars**

The contract provides for a maximum of 6 participant months in conferences and seminars in the U.S. About 12 participants are to attend, and must have a minimum 65 ALIGU skill level in English before attending.

**Accomplished:** Three ONAREP employees attended conferences/seminars outside Morocco in 1985: Mr. Nahim attended an IHRDC vibrosis course in Paris 12-15 Feb., and Mr. Rouwane attended the Society of Exploration Geophysicists annual meeting in Washington, DC, 4-10 Oct. 1985. In addition, Mr. Allam, ONAREP's Chief of Documentation visited petroleum data banks in several U.S. cities 22-31 Oct. 1985. Arrangements are being made to send 10 employees to the U.S. conferences/seminars in 1986 (refer to Attachment "B"). Also refer to Attachment "C" which shows ONAREP's desires for 1986-87 training.

**Discussion:** Short-term conferences provide excellent opportunities for ONAREP to broaden their

be fully responsive to evolving needs of ONAREP.

**Accomplished:** As with the conferences/seminars, the short-term training got off to a slow start. Only one internship has been taken: a five week stay by Mr. A. Harraj at the Elk Hills oil field (operated by WBEC) 10 June - 13 July 1985. Mr. R. Bouchta, General Secretary of ONAREP, was attending a three-month management course at Harvard in March 1986, not supported by project funds. Attachment "D" shows current tentative plans to send four participants to a two-month Drilling Control school in 1986 and one to a two-month internship with Apache Oil Co. A possible internship for Mr. Benazzouz with Ashland Oil (parent company of Williams Brothers) is also being discussed.

**Discussion:** Early project organizational issues appear to have caused a "chicken and egg" situation regarding internships: ONAREP seemed to feel that WBEC was not providing enough information on internships available for them (ONAREP) to propose candidates; and WBEC seemed to feel that ONAREP was not providing enough information on candidates so they (WBEC) could place them in appropriate internship positions. ONAREP has displayed a certain reluctance to release employees for medium-term

and long-term training, as it is difficult for them to release key staff from their work assignments. There may also be some fear that ONAREP will lose valuable employees to the private sector after such program experiences. The evaluation team feels that M. Benjelloun's group (ONAREP) is now doing a good job of identifying internship candidates, and that Mr. Linnard (WBEC) is also giving this aspect of the training program much higher visibility. The internship program will need particular attention, however, to make an effective transfer "from paper to practice."

#### **3.4.5. Short-term U.S. Training by IIE**

Short-term training can be conducted by the Institute for International Education (IIE), which receives direct funding from the AID Office of Energy to offer the Conventional Energy Training Program (CETP) to USAID Missions and contractor worldwide. Approximately \$70,000 remains of the original \$150,000 allocated for USAID/Rabat involvements in IIE/CETP.

**Discussion:** The CETP funds have not been used to any extent during the period of the WBEC contract, although approximately 17 ONAREP participants were involved in CETP between August, 1982 and November, 1984 (see Attachment "E"). IIE has not had much input

into the current ONAREP training plan, and has had little contact from USAID/Rabat and WBEC in the past year. The evaluation team recommends that relationships be revitalized, as IIE could take over some training and logistics functions, freeing WBEC to concentrate on other technical and management support issues. CETP offers custom-designed programs as well as scheduled courses, which for 1986 will include Management of National Petroleum Programs; Fundamentals of Petroleum Geology, Geophysics, and Engineering; Electric Utility Engineering; and Energy Management and Policy. ONAREP staff may be adequately versed in these topics, but should consider future needs and new staff development.

#### **3.4.6. Academic Programs**

The WBEC contract provides for up to four two-year Master's degree programs to be initiated during the contract period.

**Accomplished:** M. Hafid began a Master of Science degree program in Geology at the University of South Carolina in January, 1985. His anticipated graduation date is December, 1987.

**Discussion:** ONAREP has recommended candidates for academic training in the geological sciences only. However, the Project Agreement calls for at least two of the four academic candidates to pursue advanced degrees in the fields of petroleum economics, management, or finance. Due to the impasse between ONAREP and USAID and delays in nominating candidates, the time period available for pre-enrollment English language training has subsequently been reduced. Further, the business and management systems of ONAREP are based on French, not U.S. designs. USAID wishes to encourage orientation to the U.S. system of management and to have compatible auditing and accounting systems, but ONAREP must operate within the slightly different French systems, possibly indicating third country (France) training needs. ONAREP feels its capabilities in the management-related activities are at least adequate for the time being, and prefers to emphasize the training in the geological sciences. ONAREP may also be somewhat short of management staff and reluctant to release resources for long-term training programs. Suggestions for resolution of these issues are presented in section 4.5.3.

### **3.4.7. On-The-Job-Training**

Each of the six WBEC field personnel has an ONAREP counterpart, and several of the WBEC team members are working closely with other young ONAREP employees. The employees are receiving informal suggestions and assistance with their work projects. This is considered on-the-job training. The effect of such training is difficult to measure. Interviews indicated that it has been uneven, and also nebulous. By its nature, training by exposure is not highly structured by objective, task, or evaluative measure. Suggestions for improving this activity are contained in Section 4.2 and 4.5.

#### **Training Summary**

ONAREP has ambitious plans for English courses, conferences/seminars, internships and other short-term training for 1986. WBEC appears to be fully aware of ONAREP's desires regarding training. If the 1986 plans are carried out, the training will be back on track generally.

The resources of both WBEC and ONAREP will be stretched to realize the 1986 program, however. Concentrating a great share of the training in one year, rather than spreading it out more evenly over 1985 and 1986, will place strains on ONAREP's capacity to release personnel from work requirements for training purposes.

### **3.5 Project Expenditures**

Table 2 lists the originally proposed contract total by budget category. Table 3 summarizes the planned versus actual expenditures for FY 1985 and planned for FY 86. Figure 1 graphically compares the planned versus actual expenditures for FY 85, and Figure 2 displays estimated total expenditures by the end of FY 86 (by combining FY 85 actual and FY 86 estimated expenditures).

**TABLE 2**

**WBEC TOTAL BUDGET ESTIMATE BY CATEGORY**

	<b>Total Contract</b>
1. English Language	60,000
2. Technical Seminars	144,400
3. U.S. Conferences/Workshops	32,800
4. U.S. Industry Internships	162,400
5. Commodities*	155,000
6. Financial/Management Advice	340,000
7. Exploration/Design Analysis	345,000
8. Reservoir/Production Engineers	231,240
9. Computer Software	40,000
10. Travel & Related Costs	147,000
11. Rental Costs & Allowances	271,300
12. Home Office Management, Rabat Office Short Term Advisors	350,640
13. Total Overhead and G & A	<u>1,462,870</u>
Total Estimated Costs	3,742,950
14. Fixed Fee	260,000
GRAND TOTAL	4,002,950

\*No G & A applied.

57

Table 3

**PROJECT COST SUMMARY BY FISCAL YEAR  
(U.S. DOLLARS)**

	Planned Expenditures	Actual Expenditures	Planned Expenditures
	FY 85	FY 85	FY86
1. English Language Training*	36,000	3,200	24,000
2. Technical Seminars	20,000	14,400	69,500
3. U.S. Conference/Workshops	6,600	6,000	21,350
4. U.S. Industry Internships	27,000	3,700	82,400
5. Commodities*	106,000	67,200	87,500
6. Financial/Management Advice	109,300	108,900	131,300
7. Exploration Advice	94,500	77,800	106,600
8. Reservoir/Production Advice	86,900	67,600	128,900
9. Computer Software	20,000	9,500	24,000
10. Travel and Related Costs	65,000	96,300	31,500
11. Rental Costs and Allowances	91,600	62,500	81,500
12. Home Office Mgt., Rabat			
Short-term Advisors	109,200	140,000	135,000
13. Total Overhead and G & A	<u>459,000</u>	<u>443,800</u>	<u>308,400</u>
Total Estimated Cost	1,227,100	1,100,900	1,231,950
14. Fee	<u>85,200</u>	<u>76,400</u>	<u>106,650</u>
GRAND TOTAL	1,312,200	1,177,300	1,338,700

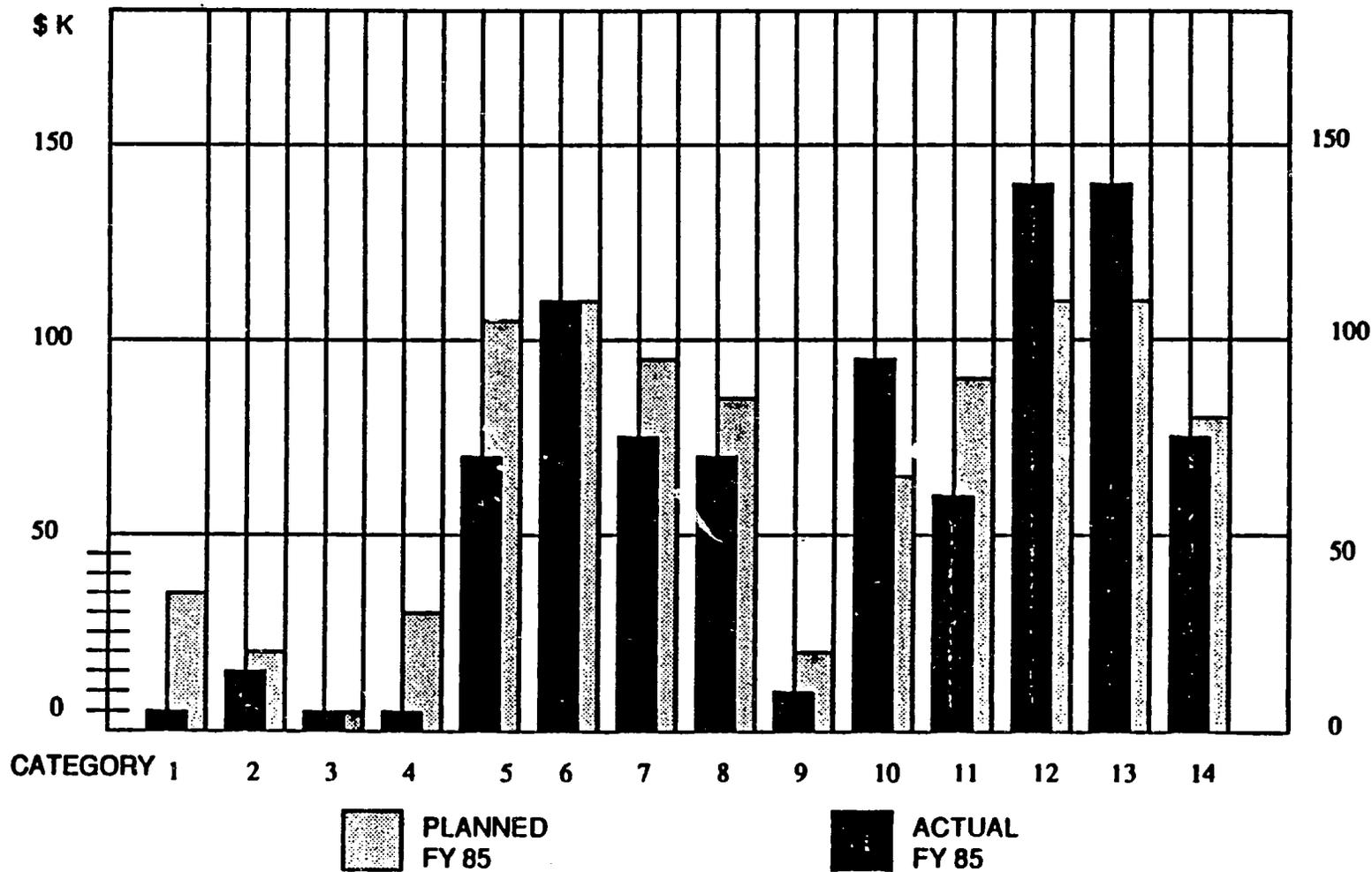
\*No G & A applied

Source: WBEC Work Plans for 1985 and 1986.

58

FIGURE 1

PROJECT COST SUMMARY FISCAL YEAR 1985 PLANNED VS. ACTUAL  
in US DOLLARS (x 1,000)

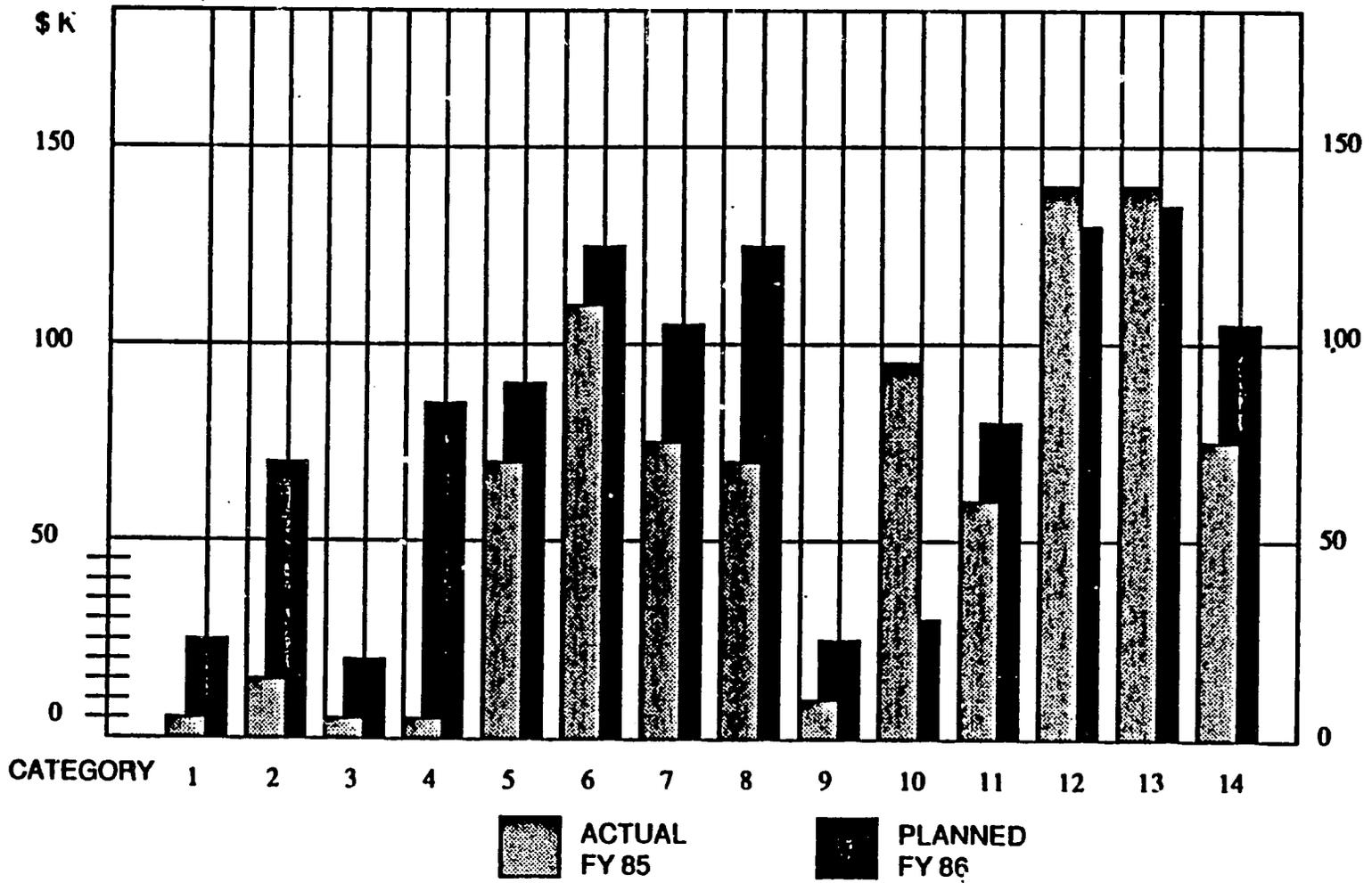


34-A

59

FIGURE 2

PROJECT COST SUMMARY FY 85 ACTUAL VS. FY 86 PLANNED  
In US DOLLARS (x 1,000)



24-B

6/2

**FY 1985 actual total expenditures under-ran the planned expenditures by \$135,000.**

**The FY 1986 Work Plan for WBEC projects total expenditures of \$3,521,350 for the project, versus the contract total of \$4,002,950, or an under-run of about \$482,000. This is largely due to reduced WBEC home office overhead and G & A rates, and should have no effect on delivered services.**

**In addition to the above projected under-run, it appears likely from current trends that there could be substantial under-runs in the funds administered by AID itself, and through IIE in Washington. As of March 1986, it appears that the project under-run expenditures may approach \$1,000,000, or 20% of the planned \$5,000,000 funding. This assumes there will be no accelerated spending or extensions to current contracts.**

**AID's Comprehensive Pipeline Report for the project indicates the following financial status as of March 10, 1986:**

<b>Life of Project Funding:</b>	<b>\$5,000,000</b>
<b>Obligations to Date:</b>	<b>4,000,000</b>
<b>Earmarks to Date:</b>	<b>3,539,240</b>
<b>Commitments to Date:</b>	<b>3,507,440</b>
<b>Expenditures to Date:</b>	<b>1,416,496</b>

### **3.6 World Bank Activities**

The World Bank is involved in coal production and oil/gas exploration support activities in Morocco. The oil/gas projects include appraisal of the Essaouira Basin and possible assistance in the development of the Meskala gas field. The estimated maximum loan support is \$50 million for exploration and \$75 million for promotion and commercialization. The Bank is also involved in the development of management information systems (MIS) and development of legislative measures for energy resource production and conservation incentives. A project for household energy studies is in development in coordination with the UNDP.

The World Bank is clearly the "lender of last resort", and is unlikely to directly support the institution building activities conducted by AID. The Bank's involvements in Moroccan conventional energy development has been justified on the basis of assisting Morocco meet domestic requirements to influence balance of payments.

Although openly supportive of the AID efforts, the World Bank has scaled down coordinative activities and is reducing geologic study and promotion involvements in Meskala due to the recently reported small volume of the reserves.

The Bank will not be providing additional support for any more major exploration activities, feeling that this would not be a good use of limited funds given the current national financial

situation. It should be noted that other bi-lateral groups (France, Canada, U.S.S.R., others) are involved or interested in energy exploration in specific regions of Morocco, and that a number of major oil companies (Exxon, Esso, Shell, AMOCO, Pennzoil, North-South Resources, Petro-Canada) are also active in the region.

World Bank officials feel that the two most important activities of AID of promote with ONAREP are:

- 1) good geological/geophysical data reporting, and
- 2) direct training (i.e. internships) with good oil companies.

### 3.7 Technical Data

The short travel schedule and multitude of interviews and activities did not permit the evaluation team to conduct a thorough review of data-gathering techniques and technical reports. However, the findings of the technical team member are that the existing data on Meskala and other areas has not been fully interpreted, and is not in complete enough form to be used for in-depth promotional efforts. ONAREP is quite evidently seeking funds for additional exploration, but should first (or coincidentally) be concerned with techniques for data gathering, reporting, and presentation. Section 4.3 outlines a model project concept which could help refine ONAREP's skills and a means by

which WBEC could focus their attention to convey their obvious expertise in these areas.

#### **4.0 Analysis and Conclusions**

##### **4.1 Need for Project Re-focus**

###### **4.1.1. Base Level Assumptions**

The AID Conventional Energy Project has as a significant early conceptual focus the development of the institutional capabilities of ONAREP to enable it to manage what appeared to be imminent development of a producing oil and gas field (Meskala), and to assist in promoting the increasing level of interest on the part of the international oil community which was expected to result from this demonstrated new production in Morocco. The disappointment over the apparent limited extent of the Meskala reserves has changed the complexion of oil and gas development activity in Morocco. This, combined with significantly lower international oil prices, has resulted in a search for new directions within ONAREP, and has raised uncertainties regarding the precise role of the USAID technical assistance effort.

Two of the base level assumptions considered at the time of the project design to be critical to the success of the project were (1) the existence of commercial reserves in Morocco, and (2) no major rises or drops in the world oil price. The third major

assumption, (3) that sale prices can be negotiated to allow conversion to domestic fuels, is dependent on the other two. The disappointment over the Meskala reserves and sudden drops in oil prices have shaken the first two assumptions and made ONAREP question its own raison d'etre. Without a clear picture of its own future, the tasks of developing counterpart relations, developing training programs, and other project related tasks can become difficult to concentrate on. The goals of the original AID project design and those of ONAREP staff may begin to diverge. Indeed, ONAREP already sees its role shifting emphasis from production to exploration in order to attract foreign partners.

Despite Meskala and current oil prices, Morocco will still need a strong core of well-trained people to coordinate with the private sector and respond to whatever level of activity occurs within the international oil companies. Although obviously in a somewhat dissipated state interest in Moroccan oil and gas exploration by the oil companies has not completely evaporated. The promotional visits travel to the U.S., led by Mr. Sullivan from 23 February - 13 March 1986, indicated a strong level of continuing interest in exploration of Morocco on the part of the international oil community. The "real world" feedback is still strong, despite oil price drops worldwide.

There are many different projections of where oil prices will be in the next one-to-five years, but they are unlikely to stay at the current low rates for long. A recent AID estimate

anticipates that oil prices will rebound and stabilize in the area between \$22-\$28/bbl.

It is therefore the recommendation of the evaluation team that, even given the present environment, the project should not be cancelled or dramatically changed. Practical difficulties still remain, but circumstances do not warrant major change at this time.

The evaluation team recommends re-focusing the project to include increased emphasis on promotion, institution building, and methods for reconciling seemingly divergent goals. Specific suggestions are contained in sections 4.2, 4.3, and 4.4 of this report.

#### 4.1.2. USAID Guidance to TA

In addition to these external changes which have impacted the direction of the Project, USAID does not appear during the first year of the project to have elected to, or been able to, strongly assert its own long term institution building priorities vis-a-vis ONAREP's short term needs for operational technical assistance during the start-up of the Project. It is possible that other policy or protocol considerations beyond the scope of this evaluation may warrant the deference given to ONAREP in directing the course of the project thus far. Further, instability in the initial fielding of the technical assistance

(TA) team no doubt hindered USAID's efforts.

Nevertheless, it appears that ONAREP's short term needs for operational assistance have largely driven the project to date, and that AID's goals, when such goals have diverged from ONAREP's operational needs, have not been effectively asserted. Not only have functional roles of the WBEC staff been determined almost exclusively by ONAREP, but very significant personnel changes on the project have largely been directed by ONAREP as well. The WBEC staff under these unstable circumstances, now look largely to ONAREP for project definition, rather than to AID. This course has resulted in a more diffuse and short-term operational focus for the Project than appears was originally envisioned by AID (AID, April 1984), so AID's original goals may not be fully met.

Certainly, it is appropriate and desirable to try to design the implementation of the project to meet ONAREP's self defined needs to the extent possible. It is appropriate for ONAREP to provide direction to the TA, but not to control definition of functional roles. In cases where ONAREP's perceived needs diverge from AID project objectives, a means must be established to refocus the project around AID's own policy goals. The evaluation team recommends that AID use the opportunity presented by this evaluation to gently restructure the project in a manner which will introduce a more explicit emphasis on the AID goals of long-term institution building, while at the same time maintaining the delivery of key operational services which are

highly valued by ONAREP.

#### 4.1.3. Goal Redefinition

Interviews with numerous AID officials indicate that a diversity of views are being held on the goals of the project. Goals vary with project staffing changes, AID policy adjustments, and political climate. For example, the emphasis on private sector development is greater than it appeared to be three years ago, and the notion of "institution-building" may be declining in importance. AID Mission Directors have been directed to encourage divestment of state-owned enterprises (privatization of services not of resources) where doing so will likely expand economic development.

The project purpose, as stated in the Project Paper and Project Agreement, is to build the internal capability of ONAREP to: (1) apply cost-effective private sector management principles and techniques, (2) strengthen its ties to potential private sector partners in petroleum activities and investments, and (3) explore, develop, and produce petroleum resources. Seen by itself, the third goal appears to represent the establishment of a parastatal organization which could compete with the private sector. However, all three goals should be viewed in conjunction with each other, and the private sector should be viewed as a mechanism for continued exploration and production after a petroleum resource base has been proven. Only by combining good

business and management principles and techniques with a proven product will private partners be interested in pursuing petroleum activities and investments. What may have originally been seen as an experiment in economic development may now be seen as a project in supporting Moroccan and U.S. commercial goals. The questions of institution building versus establishing commercial enterprise, and local economic development versus international commercial expansion are policy issues beyond the scope of this evaluation, but which should be considered by AID before refocusing elements of this project.

In any case, ONAREP will require the in-house expertise to identify conventional energy resources, promote private sector involvement, identify financing mechanisms, and negotiate contracts for continued exploration, development, and production of petroleum resources.

#### **4.2. Tension Between "Operational" vs. "Advisory" Roles**

A key focus of AID's effort on this project has been to develop institutional capabilities within ONAREP, not simply to provide employees to fill job slots in ONAREP. The extent to which the project is accomplishing a catalytic function, rather than the daily work of ONAREP, is an issue which was raised frequently by AID senior management officials. The ultimate departure of the TA contractor should not leave behind gaps in ONAREP capabilities.

The strongly operational roles of the Williams Brothers exploration and production staff within ONAREP need to be broadened or supplemented. AID is committed to the ongoing process of institution building, not just the product of petroleum development. An explicit focus on those duties relating to the larger AID objectives of institutional development needs to be established if these AID goals are to receive the emphasis stressed by AID senior management officials during our interviews.

Suggested mechanisms include an increased emphasis on model projects or tasks (see section 4.3); structuring on-the-job training around mastery of specific skills to be transferred (see section 4.5); use of formal schedules and testing procedures to determine progress and the effectiveness of on-the-job training activity; working with ONAREP personnel during the performance of specific jobs to emphasize task-level planning and management procedures of specific operational tasks involving WBEC staff; increasing exposure of the Williams Brothers efforts within ONAREP through wider internal peer review activity, departmental briefings, etc.; and the consolidation, where feasible, of dispersed, separate operational roles into team efforts involving model tasks and greater interaction of ONAREP personnel with related disciplines and with WBEC staff.

Although we believe that existing operational roles need to be explicitly broadened or restructured to more effectively

accomplish the institution building goals of AID, we do not believe they should be abandoned altogether. In the context of ONAREP's current pressing needs towards task orientation, we believe that institutional development efforts will take place most effectively when linked directly to specific high visibility projects within ONAREP which have the priority attention of management. Purely advisory roles which are not integrated into the daily project priorities of ONAREP do not seem to have been as effective in impacting the organization thus far.

Thus, by explicitly broadening existing operational roles, and by creating a more focused, high priority, high visibility "model project" context within which the AID effort is carried out, we believe that the operational/advisory definitional distinction can be overcome, and that these roles can be unified to create truly effective institutional development activity within ONAREP which neither the purely advisory nor purely operational role can hope to accomplish.

#### **4.3 Model Project Focus**

As indicated above, changing external circumstances as well as ONAREP's short term needs have resulted in a fairly amorphous project focus for the AID project. Although the services provided by the WBEC are of value to ONAREP, they are generally dispersed throughout the organization in operational roles, and do not have the high profile emphasis on long term institutional development which AID believes should be an earmark of this

project. Section 4.2 of this report makes several suggestions regarding ways to broaden those roles.

In addition to the suggestions contained in Sections 4.2 and 4.5, it is felt that several benefits, in terms of AID goals of institution building and training, could be achieved by focusing some of the efforts of the WBEC technical assistance team around a common objective, or by creating a "model project focus."

In our discussions with ONAREP and AID, one common area which was identified as a top priority by senior management of both groups was the area of private joint venture promotion activity. Mr. Douieb, Director General of ONAREP, stressed this as one of his two main priorities. AID, in its Project Paper, defines its goal for this Project as follows:

"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."  
(AID, April 1984, p.2)

We suggest that a model project be developed around this high priority activity, as a means of better focusing the AID project effort during the remaining period of the grant. The model project could take on as its primary product focus the development of good quality promotional packages for selected regions designated for private sector promotion. This should be defined broadly to include the necessary exploration activity and geophysical work required to develop solid promotional packages. Many of the necessary parts of such a focus exist already on the WBEC staff, but they need to be integrated. The model project should be designed to incorporate the existing dispersed activities of the WBEC staff to the extent possible, but should attempt to tie them together with an emphasis on achieving a more sharply focused team goal. The scale (i.e., number of regions, etc.) of the model project should be defined to coincide to the extent possible with ONAREP's current needs and program and with the portion of each WBEC staff member's time which could be assigned to it. We believe that the existing activity of Mr. Sullivan and of Messrs. Munro and Battacharjee could conveniently be integrated into such an effort, with only slight changes in the focus of their current activities. Mr. Sullivan already plays a central role in joint venture promotion activity for ONAREP, and Messrs. Munro and Battacharjee's activities are largely focused on exploration and data analysis in regions which should be suitable for inclusion in promotional packages which might be developed as part of the model project.

Mr. Sullivan and others have stressed that a successful promotional effort for Morocco will require additional explorationists with experience in seismic interpretation. Mr. Curry has also stressed this need, and suggested the possibility of replacing his own position at some point on the project with an explorationist who also has had planning experience. ONAREP has also been requested to review staffing in these areas by WBEC. We believe that these suggestions, if implemented, would fit well into the model project focus recommended here.

In addition to producing a valuable product for ONAREP (a set of well-done presentation packages), the model project should also explicitly focus on transferring to ONAREP the process by which these may be developed. This requires close coordination with ONAREP and a more formalized on-the-job training (OJT) approach. (see Sec. 3.4.7.)

Explicit attention should be given to documenting the methodology by which the presentation packages are developed. Thus, the project should develop not only model presentation packages, but should itself be managed within ONAREP as a model of the process by which such packages may be developed in the future.

#### **4.4 Projected Project Staffing**

##### **4.4.1 Status of Staffing Presently Planned for Project**

As outlined in section 3.2 above, the contract presently provides for two WBEC personnel (Mr. A. Khatib and Mr. D. Sullivan) to leave in December 1986; for one (Mr. T. Connor) to leave early in 1987; and for the other three (Messrs. Currie, Munro, and Bhattacharjee) to remain through the end of the project. The fulfillment dates listed in section 3.2. will provide the 198 person-months of technical service in Morocco required by the contract.

Several staffing changes are discussed and recommended below.

##### **4.4.2 Chief of Party**

The position of Chief of Party was transferred from Mr. Currie to Mr. Khatib on 29 July 1985. Mr. Khatib is a Reservoir Engineer with 26 years of extensive experience on reservoir studies in many countries. He speaks Arabic, French, and English fluently.

When Project 608-0176 originally was conceived, apparently it was thought that the Meskala gas discovery possibly would prove to be large and that a considerable amount of reservoir engineering work would be needed. However, the discovery has

proved to be much smaller than hoped. Consequently, Mr. Khatib's reservoir duties are not enough to keep him busy (he confirms this), even though his project management activities consume about 60% of his time.

Strong consideration has been given to recommending an extension of Mr. Khatib's services for another year to the end of the contract, so that he might continue the Chief of Party function. However, the advantages of this administrative continuity are outweighed by the fact that Mr. Khatib's primary technical specialty simply is not in demand on the project. Therefore, it is recommended that an alternative Chief of Party be designated after Mr. Khatib's scheduled departure at the end of 1986.

Various options for handling the Chief of Party duties after Mr. Khatib's scheduled departure have been examined, including having Mr. Connor or a new WBEC staff member assume them. However, in light of the recommendation contained in section 4.3, regarding the Model Project focus, the evaluation team believes the best option would be to have the position filled by Mr. Sullivan. He has been in Morocco for several years, is thoroughly familiar with ONAREP and the project, and has experience in both exploration and in project management and administration.

Mr. Sullivan has good access to ONAREP management, and would

be an excellent liaison/conduit between AID, the WBEC teams, and the ONAREP organization. Mr. Sullivan's experience with joint venture promotional activities (including the analysis and presentations of geological data) should place him in an excellent position to make a success of the Model Project approach proposed in section 4.3.

It is recommended that Mr. Sullivan assume Chief of Party duties upon the departure of Mr. Khatib.

#### **4.4.3 Surface Facilities Engineer and Proposed Short-Term Facilities Development Chief Inspector**

The Meskala gas development project is about one year behind schedule, and is due to go on stream several months after the presently-planned departure of the Surface Facilities Engineer, Mr. Connor, in January 1987. Mr. Connor worked on the conceptual design of the gas gathering and separating facilities, and on the request for proposals for the facilities construction, and will be in Morocco during most of the construction phase.

ONAREP desires him to stay on the project until the plant is on stream and operating satisfactorily near mid-1987; WBEC personnel also believe his continuation to be essential for the success of that project. The evaluation team finds this to be advisable, and recommends that Mr. Connor's time on the project be extended six months to a total of 22 person-months (to 11 June

1987). Funding appears to be available within the current contract to provide for this extension. Mr. Connor's surface facilities orientation at Meskala is unique on the WBEC team, and we see little that can be done to integrate his efforts realistically with the joint venture promotion/exploration model project focus suggested in Section 4.3. However, a conscious effort should be made, where feasible, to supplement his operational role with activities suggested in Section 3.2.

Williams Brothers staff recently proposed to ONAREP that a qualified Facilities Development Inspector be assigned to the Meskala project for six to eight months to ensure quality control during the construction phase of this facility. Current experience with the UIM contractor on the Toukimt Project indicates that quality control of construction activity on this project may be a serious problem. This is due primarily to the contractor's lack of familiarity with internationally recognized quality control procedures and standards for pipeline construction.

ONAREP also recognizes this need, and has agreed to the WBEC proposal. The evaluation team believes this to be a valid request and recommends that such assistance be obtained, if possible, via the short-term advisory provision of the WBEC contract. Transfer of quality control procedures and inspection methods during the development of the Meskala oil and gas facilities would have a lasting benefit, not only on the quality of the work done at Meskala, but on future projects as well.

#### **4.4.4 ONAREP Staffing**

WBEC has clearly stated supplemental ONAREP staffing needs in a letter to ONAREP on 10 March 86 (see Attachment "F"). The evaluation team encourages the assignment of the additional construction supervision personnel in accordance with the WBEC letter.

#### **4.5 Training**

As indicated in Section 3.4, the training component of the project got off to a poor start during the first year. At this time, however, good progress is being made by both WBEC and ONAREP to improve this component of the project. A very ambitious training program (see Attachments C and D) has been proposed for 1986. It will be important to monitor the implementation of this plan carefully during the coming year to be sure that it is effectively being transferred from paper to practice. Items requiring additional attention at this time are discussed below.

##### **4.5.1 Internships**

The evaluation team believes that the internship portion of the training program poses the most intractable challenges at this point in time. Actual activity has greatly lagged behind projected activity in this category of training to date, with

only one internship firmly in place (although tentative arrangements exist for 2-3 others). WBEC appears to be having difficulty assembling a portfolio of good solid internship opportunities. This process has also been hampered by some uncertainties regarding the availability of individual ONAREP staff for the program. We recommend that AID carefully monitor the progress of the internship program. If solid improvements are not realized within six months, AID may wish to consider transferring this component of the program to another contractor which is more experienced in the implementation of such programs.

#### **4.5.2. Short-term Training**

WBEC and ONAREP should review the programs of IIE for possible inclusion in upcoming training schedules.

#### **4.5.3. Academic Programs**

Section 3.4 also indicates that three of the four Masters' degree candidacies proposed for the project remain unfilled. During our meetings, ONAREP suggested that possible candidates with good English language fluency are currently being, or have recently been laid off due to reductions-in-force within the Oil Shale Division of ONAREP. These individuals could be candidates for long-term training without drawing off other critical staff. We see no problem with accepting such candidates, provided that (1) the language levels are acceptable, or can be developed to be so within the remaining time available, (2) previous academic and

job performance indicate that those candidates in fact have management potential, and (3) that the areas of study will conform to those originally proposed in the Project Agreement (i.e., two in areas relating to business and management). Ideally, it would be mutually beneficial if (4) ONAREP could guarantee employment positions upon graduation, and candidates would obligate to work for ONAREP for a suitable period after graduation, but these conditions may not be possible at this time.

#### **4.5.3 On-the-Job Training**

On-the-job training currently occurs very informally on the project. If operational roles are to be continued, it is important that they be consciously broadened and supplemented as suggested in Section 3.4.7 and 4.2. One of those suggestions addressed the need for a more explicit, structured approach to on-the-job training. This will require clear definition of operational roles, establishment of goals and objectives for OJT mastery of the tasks and responsibilities of each position, and methods for evaluating the effectiveness of the OJT activities.

#### **4.6 Relationship of the AID Effort to World Bank Effort**

AID officials and AID documents (e.g. AID, April 84, p. 11-12) frequently stress the goal that the AID Conventional Energy Management and Training Project be "complimentary to, and non-

duplicative of, the World Bank program" at ONAREP. The AID/Morocco Grant Project Paper (AID, April 84, p.12) emphasizes an important distinction between the World Bank funded activity and the AID grant in the section "~~Short-term Appraisal versus 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 overall management of ONAREP. AID's funding will complement IBRD (World Bank) policy to encourage ONAREP to develop full partnerships with private oil companies and financial institutions."

It is evident that the existing AID project has a significant operational focus which, while very valuable to ONAREP's current internal operational needs, will need to be tempered with a more explicit focus on broader "long term institutional-building" function if AID wishes to clearly maintain clearly the conceptual distinction described above between its own effort and the World Bank effort. USAID and ONAREP relations with the World Bank need to be revitalized. Coordination should not decline just because of the Meskala reserve reports. Cooperation on the model project and other aspects of ONAREP development are likely.

Suggestions for accomplishing ONAREP's institutional development and the private sector dimension of AID's interests are contained in sections 4.2 and 4.3 of this report.

#### **4.7 AID Oversight of the Project**

AID's oversight of the project is adequate for maintenance of the project on its existing trajectory, and for micro adjustments to that course. AID oversight is now on track and continues to improve. However, if AID wishes to reshape the project significantly, or to actively assert those AID goals which would entail changes in the existing roles of the WBEC staff within ONAREP, then a stronger and more determined project oversight role will be required by AID.

## **5.0 Summary of Recommendations**

The following summary of recommendations concisely states the actions to be taken to improve the project, the agency or agencies (in parentheses) that would seem to have most direct responsibility for implementing each recommendation, and reference to the section(s) of the evaluation report which discuss the background.

### **5.1. Staffing Changes**

- o Extend Sullivan to end of project (WBEC, USAID).  
3.2.1., 4.4.2
- o Extend Connor six months (WBEC, USAID). 3.2.1, 4.4.3.
- o Specify Bhattacharjee's contract end date (USAID)
- o Add two explorationists, one to replace Mr. Curie as per his suggestion (WBEC, USAID). 3.2..1, 4.4.3.
- o Review budget and consider adding a short-term surface facilities development inspector (WBEC, USAID). 4.4.3.
- o ONAREP add construction supervision personnel (ONAREP).  
4.4.4.
- o ONAREP acknowledge USAID's need to broaden operational focus of the project; USAID more effectively assert these goals through the remainder of the project (all). 4.1.2, 4.2, 4.7.

## **5.2. WBEC Home Office Support**

- o Increase activities in provision of internships, through WBEC or subcontractor (WBEC); USAID to closely supervise. 3.4.4, 4.5.1.

## **5.3 Training**

- o Maintain high priority in English language training (all). 3.4.1.
- o Consider economics/management candidates suggested by Mr. Douieb for academic training; activate remaining Master's degree slot for geological sciences (ONAREP, USAID). 3.4.6, 4.5.3.
- o Revitalize relations with IIE in planning (and possibly implementing) short-term training programs and/or academic program logistical support and/or internships (all). 3.4.5, 4.5.2.
- o Integrate more structure into on-the-job training (WBEC). 3.4.7, 4.2, 4.5.3.
- o Solidify internship arrangements (all). 3.4.4, 4.5.1.

## **5.4. Project Re-Focus**

- o Develop new focus for the project in response to changing circumstances and first year's experience (all). 4.1, 4.2, 4.3.

- o AID/USAID review and clarify goals; establish consensus on goals among executive and project staff (USAID). 4.1.3, 4.2.
- o Increase visibility of project and participating agencies (all). 3.2, 4.1.
- o Build activity on areas of common interest between ONAREP and AID (ONAREP, USAID). 4.1, 4.2, 4.3.
- o Revitalize relations with World Bank (USAID). 3.6, 4.6.
- o ONAREP acknowledge priorities of finite term project needs and reduce time for decision-making and administrative processing (ONAREP). 3.2.

#### **5.5. Model Project Concept**

- o Develop model project focus around joint venture promotion, related to exploration and geophysical activities (all). 4.2, 4.3, 4.5, 3.4.7.
- o Improve data gathering and reporting techniques (ONAREP; WBEC assistance). 3.7, 4.3.

**APPENDICES**

## APPENDIX I

### DOCUMENTS REVIEWED

1. Bechtel Corp. 16 May 1983. Report of Team to Evaluate USAID Conventional Energy Technical Assistance.
2. USAID, April 1984. 60-0176, Project Paper, Conventional Energy Management and Training Project.
3. USAID, 16, May 1984. Request for Proposal, Project 608-0176.
4. USAID, May 1984. Energy Planning in Morocco.
5. USAID, 12 Nov. 1984. Project Award/Contract.
6. USAID, 20 Sept. 1984. Contract Amendment No. 1.
7. USAID, 6 Jan. 1986. Contract Amendment No. 2.
8. USAID Morocco, 1984, 1985, 1986. Project Correspondence Files.
9. USAID Morocco, Summary Project Financial Report.
10. USAID Morocco, Project Status Reports File.
11. USAID Evaluation Scope of Work.
12. AID, November 1985. Asia and Near East Bureau Procedural Guidelines for Evaluation.
13. WBEC, 30 July 1984. Technical Proposal.
14. WBEC, 30 July 1984. Business Management and Cost Proposal.
15. WBEC (rev. 4/17/85) Work Plan, FY 1985 and FY 1986 (9/5/83 draft)
16. WBEC 9/5/85 (draft) Work Plan, FY 1986.
17. WBEC Quarterly Reports, 1-5 (12/31/84, 3/31/85, 7/18/85, 6/30/85, 10/10/85, 9/85, 12/31/85, 1/17/86)
18. WBEC Conceptual Design document, Meskala Project.
19. WBEC, Feb 1985. Report of Human Resources Short-Term Advisor, T.B. See.
20. WBEC, 4 Dec. 1985, Report on Advisor Assistance to the Department of Audit and Methods, J. Hyde.
21. WBEC, May 1985. Conceptual Design - Meskala Gas Gathering and Separation Facilities.

22. WBEC, Technical Report File, Rabat office.
23. World Bank, UNDP, January 1986. Activity Completion Report No. 048, 86. Morocco Energy Assessment Status report.
24. SABA & Co., Dec. 1985. Report on Short Term Assignment for Advisory Assistance to the Department of Audit and Methods, ONAREP.

## APPENDIX II

### Persons Interviewed

#### Office National De Recherches Et D'Exploitations Petrolieres (ONAREP), Rabat

- \* M. Douieb, Director General
- \* M. Benjelloun, Chief of Human Resources Division
- \* M. Mouhsine, Assistant Director, Petroleum Participants Division
- M. Isfahoun, Chief of the Studies and Planning Division
- A. Benazzouz, Chief of the Audits and Methods Division
- \* A. Alem, Director of Exploration
- A. Demnati, Chief of the Geophysical Division
- \* M. M. Kenzaoui, Director of Production
- M. Bennis, Chief of Development and Production Division
- A. Harraj, Chief of the Production Department
- K. Oudghiri, Chief of the Development and Exploration Department

#### William Brothers Engineer

- \* A. Khatib, Chief
- \* G. Currie, Final
- S. Munro, Regional
- \* S. Bhattacharjee
- T. Connor, Surface
- \* D. Sullivan, Joint
- J. Linnard, Administration

**William Brothers Engineering Company, Tulsa, OK**

- \* J. Duffy, Petroleum Consulting Division

**Institute for International Education, Washington, DC**

S. Ebbin, Director

- \* R. Gordon, Project Coordinator

**USAID/Morocco, Rabat**

- \* R.C. Chase, Director of Mission
- \* S. Klein, Chief, Energy and Natural Resources Office
- \* R.A. Kahn, Project Officer
- \* S.A. Lewis, Project Officer
- M. Bidaoui, Training Officer
- \* R. Thompson, Project Evaluation Officer
- R. El Alouane, Short-Term Training Officer
- U. Ernst, Economist, Program Division
- D. Tsitos, Regional Housing and Urban Development Office

**AID/Washington, DC**

R. Ichord, Director, Energy Office, Asia and Near East Bureau

S. Schweitzer, Renewable Energy Advisor

- \* C. Coleman, Project Officer, Asia and Near East Bureau
- S. Pines, Project Evaluation Officer, Asia and Near East Bureau

**World Bank/Washington**

- \* I. Zurayk, Project Officer, Energy Department
- S. Rouaix, Geologist, Energy Department
- N. Sherbing, Energy Department

**AMOCO Oil Company, Rabat**

P. L. Vigano, President

NOTE: \* Multiple interviews or meetings conducted

Nature of WBEC Team Members' Work

A study of the WBEC Quarterly Reports and interviews with both ONAREP and WBEC personnel have given a good understanding of the work being performed by the team members.

The Regional Geologist, Mr. Munro, and the Geophysicist Mr. Bhattacharjes, are working as senior explorationists assigned to the Zone Nord in adjoining areas. They are doing conventional exploration work such as planning seismic work, compiling geological and geophysical data, interpreting seismic data, examining well logs, etc.. There are plans for them to work on a draft promotion report for their area of interest, and this will be used by the Participation Division to prepare a final promotion report.

The two explorationists are assisted by two ONAREP employees, a geologist and a geophysicist, and these two personnel are trained through on-the-job instructions and assistance by the WBEC explorationists.

The contacts with their counterparts (formerly Mr. Rouwane and Mr. Demnati) are not as frequent as desirable due to the Team members being in a separate building from their counterpart.

The two explorationists have given some advice on exploration matters, but essentially they are functioning as operational employees of ONAREP/

The Surface Facilities Engineer, Mr. Connor, is also in an operational

mode on a specific project, the Meskala gas project. Technology transfer occurs through on-the-job contacts with his counterpart and other ONAREP engineers.

The Joint Ventures Promotion Specialist, Mr. Sullivan, has well-defined duties -- the preparation of promotional packages and participation in promotional trips. His duties could be described as an effective combination, both advisory and operational. Technology transfer is through on-the-job contacts.

Mr. Khatib, the Chief of Party and Reservoir Engineer, handles the WBEC administration, ~~compilation~~ of quarterly reports and workplans, etc.. His technical work consists of some reservoir <sup>engineering</sup> and some advisory work such as advice on engineering computer programs and help in ordering them.

Mr. ~~C~~urrie, the Senior Planning Advisor, gives advice and does financial analyses on the ONAREP 1986-1990 Development Plan, makes analyses of the annual budget and operating plan, etc.. Mr. ~~C~~urrie's work is probably the most advisory and the least operational of all the team members.

ACHIEVEMENTS OF WBEC TEAM  
USAID TECHNICAL ASSISTANCE CONTRACT TO ONAREP

PLANNING

The preceding technical assistance team developed a useful format for ONAREP's five-year development plan. The WBEC Planning Advisor has been primarily concerned with:

- A) The substance of the plan, insuring it is a meaningful representation of ONAREP's technical and financial capability and,
- B) Development of the planning process as a means of coordination of the various activities of ONAREP.

To these ends, the Planning Advisor directly, and indirectly through his counterpart, has:

1. Analyzed trends in ONAREP performance of geophysical survey and drilling activities.
2. Begun to incorporate historical data in the plan.
3. Secured a comprehensive representation in the plan of exploration activity by partners in concessions.
4. Identified changes in the oil industry environment and recommended change in policy vis-a-vis partners.
5. Secured recognition in the plan of variances in assumptions and of the variance inherent in exploration activity.
6. Implemented the plan through the annual budget.

Improved the coordination of promotion of foreign participation with ONAREP's exploration activity.

8. Designed a system to monitor implementation of the plan through quarterly reports of performance against plan.

#### MANAGEMENT

1. Human Resources. Short-term advisor established a career development system in the context of personnel performance management system, the first of its kind in Morocco: procedures, documentation, matrix of training needs. Pilot project covered professional cadres in Exploration, Production, Promotion of Petroleum Participation, to be extended by ONAREP to all other professional cadres.
2. Internal Audit and Methods. Short-term advisor assisted in defining role of new department, recommended: staffing and training, concentration of activities on operations analysis, development of formal procedures for management of inventories and administration/technical control of contracts with service companies.

#### JOINT-VENTURE PROMOTION

The joint-venture promotion specialist has assisted ONAREP in attracting exploration partners by invitations, presentations, visits and promotion reports. This effort has resulted in contracts/conventions with four companies, viz. BHP Petroleum, Marex, Pennzoil and Esso Petroleum. He also played a large role in preparing the terms of reference in the RFP for the study of the petroleum potential of the South Atlas Basins.

**EXPLORATION**

The Regional Geologist and Geophysicist, working with the Chief of Secteur Nord and two junior ONAREP geologists:

1. Monitored the acquisition and processing of the 1985 Aknoul seismic survey, interpreted the seismic and wrote an exploration report.
2. Designed regional seismic surveys to be run in 1986, following leads identified in 1985.
3. Identified new play concepts in the pre-Rif Rides area.
4. Selected topics and presenters for four three-day geological seminars; three of these already held.
5. Pointed out quality deficiencies in the acquisition and processing of seismic data.
6. Designed a program to test the processing parameters for use by the seismic contractor.
7. Reviewed the seismic data of Tissa-Taza, Aknoul, Guercif and Hauts Plateaux. Currently re-interpreting the Tissa area.
8. Prepared a two-year program for a methodical, detailed study of the Secteur Nord to generate promotion reports and drilling prospects.

1. Development of Meskala project from preparation of conceptual design to current status of contract award and contractor supervision.
2. Contract preparation and construction supervision for extension of existing P/L system to supply gas to new customers. (This work currently in construction phase.)
3. Preparation of conceptual design and project scope of work for development of Oulad Youssef field. (This project currently entering material procurement phase.)

Also assisted in identifying and using different engineering tools for normal department and plant operation. (This is a very slow and continuing process.) These tools include computer simulations, vendor contacts, reference books, and indexed file systems.

#### TEAM EFFORT

The WBEC advisors, working as a team, have:

1. Provided on-the-job training to their ONAREP counterparts and recommended various forms of training for about 35 participants.
2. Challenged the exploration and drilling programs of ONAREP so that these major items of expenditure are properly justified.
3. Proposed the formation of an interdisciplinary ONAREP/WBEC team to conduct risk analysis (both geologic and economic) studies to rank the attractiveness of various drilling prospects.

1. Development of Meskala project from preparation of conceptual design to current status of contract award and contractor supervision.
2. Contract preparation and construction supervision for extension of existing P/L system to supply gas to new customers. (This work currently in construction phase.)
3. Preparation of conceptual design and project scope of work for development of Oulad Youssef field. (This project currently entering material procurement phase.)

Also assisted in identifying and using different engineering tools for normal department and plant operation. (This is a very slow and continuing process.) These tools include computer simulations, vendor contacts, reference books, and indexed file systems.

#### TEAM EFFORT

The WBEC advisors, working as a team, have:

1. Provided on-the-job training to their ONAREP counterparts and recommended various forms of training for about 35 participants.
2. Challenged the exploration and drilling programs of ONAREP so that these major items of expenditure are properly justified.
3. Proposed the formation of an interdisciplinary ONAREP/WBEC team to conduct risk analysis (both geologic and economic) studies to rank the attractiveness of various drilling prospects.

4. Contributed to ONAREP's technical library and acquired computer software and office equipment.

AKK:bw

April 11, 1986

**ATTACHMENTS**

GA 497493-T VACA FEB 17 1966  
WVEC TUL

Attachment A

TELEX NO 472

17 FEBRUARY 1966

TO : M. HILL  
FROM : JOHN LINHARD/A. KHATIB

RE. YR TLX NO 221 PLS ARRANGE THE FOLLOWING TRAINING COURSES/  
INTERNSHIPS:

NAME	DATES	COURSE/INTERN.	PRICE DLR	PLACE
ISFAOUM	APRIL/MAY	APACHE OIL		
TOTO	MAY 12-15	STRATIGRAPHIC INTER- PRETATION OF SEISMIC DATA (AAPG)	1120	SAN DIEGO
TAIB	MAY 12-15	PROSPECT EVALUATION (AAPG)	900	SAN DIEGO
ABIBI	JUNE/JULY (2 MONTHS)	DRILLING CONTROL		TDS, OKC
BOUHADDIQUI	"	" "		" "
DEBBAGH	JUNE 16- JULY 11	NEGOTIATING INTER- NATIONAL PETROLEUM AGREEMENTS (I.L.I.)	1000 DEPOSIT PLS ADVISE FULL PRICE	WASHING TON
MME BENHAMMOU	"	" "	"	"
BEIBOUZIANE	AUG. 18-23	STRUCTURAL GEOLOGY (IED)	1125	GREAT FALLS MT
MME HAFFAN	SEPT 13-19	MODERN CLASTIC DEPO- SITIONAL ENVIRONMENT CARBONATES (AAPG)	1085	SOUTH CAROLINA
	SEPT 21-28	FLORIDA-BAHAIAS MODERN CARBONATES (AAPG)	1800	MIAMI
MME OUALCH	SAME AS MME HAFFAN			
BENADVELLAI	SEPT 29- OCT 2	OIL AND GAS LAW CONTRACTS (IED)	605	DENVER
MME BOUIMOUCH	OCT 27-31	EXPLORATION MANAGEMENT, RISK ANALYSIS AND PROS- PECT EVALUATION (UGCI)	975	HAIDENHEAD UK
AZIANI	OCT/NOV (2 MONTHS)	DRILLING CONTROL		TDS
ATHANI	"	" "		"

MESSAGE ENDS

102

STATUS OF SHORT-TERM TRAINING UNDER PROJECT 0176

			<u>Person Months</u>
<u>1. EL MORABET Abdelhak</u> Head of the Prospects Analysis Department, ONAREP	UNITAR Conf. (Small Oil&Gas resources) Norman, Oklahoma July 24-August 6, 84	Completed Non-funded PIO/P (IIE)	0.5 p
<u>2. BENNIS Mohamed</u> Chief, Production Division, ONAREP	-	-	0.5 p
<u>3. BENJELLOUN Mohamed</u> Deputy Chief, Administrative Div. ONAREP	Asst Petroleum MNGT August 19-Nov. 30, 84	Completed Non-funded PIO/P (IIE)	3.5 p
<u>4. ALAMI MECHICHE</u> Chief, Contracts MNGT Department ONAREP.	IDLI Seminar Feb 10-23, 85	0176-1-40039 Completed	0.5 p
<u>5. BENABDELLAH</u> Deputy Administrator, ONAREP	-	-	0.5 p
<u>6. EL KERDOUDI Jaafar</u> Engineer, in charge of Promotion ONAREP	Denver Colorado "Promoting investment" May 1-July 26, 85	Non-Funded PIO/P 0176-1-40068 (IIE)	3.0 p

7. Nouredine CHRAIBI  
Chief, General MNGT Department  
ONAREP

Development MNGT Seminar 0176-1-40015  
Pittsburgh University Completed  
June 17-August 19,85

8. Mohamed ISMAILI  
Chief, Public Relations Division  
ONAREP

9. NAHIM Mohamed  
Geophysicist  
ONAREP

Vibroseis Exploration 0176-1-40052  
(IHRDC) (WBS) Non-funded  
Paris, France Feb. 13-15 Completed

10. Ali HARRAJ  
Chief, Production Department  
ONAREP

US Industry Internship 0176-1-40094  
WBS Engineering Co (WBS) Non-funded  
June 8-July 16, 1985 Completed

11. ZENASNI Mohamed  
Chief, MNGT Department  
ONAREP

Development MNGT Seminar 0176-1-40164  
Pittsburgh University In process  
June-August 1986

12. BENZAÏOU A.  
Chief, Accounting Department  
ONAREP

13. LAHLOU M. Najib

Chief, Purchase Department

ONAREP

14. HASSOUNI A.

Chief, Personnel MNGT Depart.

ONAREP

15. MANQACH

Engineer, ONE

Utility & Industry Ener- CETP (IIE)

gy conservation May 1-

June 27, 86

105

PROPOSED TRAINING PROGRAM  
IN USA - 1986

*Selected by  
ONAREP*

---

1.0 INTERNSHIPS

1.1 Exploration

Internship of 4-6 department or sector chiefs with exploration divisions of US oil companies in the US or other countries, for a period of about three months. Internship to follow (or be in conjunction with) participation in relevant AAPG seminar(s).

The program should ideally include:

- How to prepare exploration plan and budget, implement and follow.
- How to manage exploration teams (human resources).
- How to prepare exploration programs and results of such programs.
- Special orientation for each participant to complement his experience in geophysics, subsurface methods and basin analysis.

If the company has an in-house integrated program in exploration or exploration management, it may be suitable for some participants.

These internships, requested by ONAREP, may prove to be the most difficult to arrange, as oil companies are generally reluctant to share with outsiders proprietary exploration information. Companies that may agree are those with exploration programs in Morocco. We have started by contacting Amoco and Esso.

Demnati

Boudda

1.2 Drilling Control

Internship of six drilling engineers and geologists with Technical Drilling Services (TDS) in Oklahoma City, for a period of about two months. The program will consist of practical training in pre-well planning, drilling and completion operations and post-well analysis. Details are given in our letter of 2 November to Mr. Morabet.

TDS have proposed to analyze the records of several ONAREP wells and to use the reports they generate from them for pre-well planning to drill wells efficiently and with a minimum of problems. As ONAREP's well records are in French, the assignment of the first participant(s) will be to work with TDS to extract the information they need. We have proposed to TDS the following program sequence, which they have agreed to (telex dated 14 November).

- ONAREP send a drilling engineer and a geologist to TDS for training and to [translate well records.]

← job for translator

- TDS analyze ONAREP well records and give seminar on well control in Rabat.

- ONAREP send four more engineers to TDS, two at a time.

MM. Atmani\* and Azmany\* have been proposed to go first. Both need fairly intensive English classes to attain the required level (ALIGU 65).  
Abibi\* Bouhadouh\*

1.3 Project Control

Internship of two engineers with WBEC, Tulsa for about 6 weeks. Both field and office work is envisaged. These possible assignments are the result of interest expressed during the Project Control Seminar going on now.

~~1987 analysis, Selami~~

2.0 COURSES AND SEMINARS

All five WBEC resident advisors have discussed the training needs of the divisions where they work, with their counterparts, divisional chiefs, etc. The following courses and seminars are proposed as a results of these discussions.

2.1 Direction Production

2.1.1 M. Kenzaoui\*

possible IV quarter

- o English language training (at least 6 hrs per week).
- o 2-week visit to U.S. oil companies to observe coordination between head office and field, contract supervision, and other aspects of industry management.

2.1.2 M. Bennis\*

- o Seminar of 3-6 weeks in a suitable management seminar, to be selected by MM. Bennis, Benjelloun and Currie. None of courses we have description of appear very relevant.

2.1.3 A. Harraj\*

- o Working assignment in reservoir simulation, 6-8 weeks with a \*1987 firm specializing in reservoir simulation studies.

- o Possible management course, or M.S. Program in business administration in 1987.

AA-

2.1.4 O. Chhaibi

- o M. Chhaibi is attending the reservoir engineering module of the ENSPM in Rueil-Malmaison, France, in Sept-Dec 1985\*.

\* Arranged directly by ONAREP.

← AT ONAREP expense?

- o English language training (at least 6 hrs per week).
- o Internship in the United States in well testing, workovers, completion and reservoir engineering in late 1986 or early 1987.

2.1.5 A. Korachi\*

Internship in well-test analysis, possibly with AMOCO, plus\*  
one of the following courses:

- o Well Testing. HK Van Poolen.  
1 week. (HKV 123, p.154).
- o Well Testing. Scientific Software, Denver, Colo.  
1 week. (SS1 202, p; 196)

o Well Test Interpretation in Practice.\*  
Scientific Software, Denver, Colo.  
1 week. (SS1 210, p.196).

2.1.6 K. Oudghiri\*

- o Project control internship with WBEC, Tulsa for six weeks.\*1987
- o Possible management course, or M.S. program in business administration in 1987. ←

2.1.7 H. Sellami\*

- o Mr. Sellami will attend a 3-week course in pipeline operation and construction in France\*.)
- o Project control internship with WBEC, Tulsa for six weeks.\*1987

2.1.8 B. Ouardi

- o In 1986 (6 oct-12 Dec) M. Ouardi will attend the production module of the ENSPM in Pau, France. Any additional training under USAID/WBEC contract (e.g. internship in well-testing and completion) will thus be postponed until 1987.

2.1.9 M. Ben Slimane\*

- o English language training.
- o Internship with Elf-Aquitaine in gas-plant and pipeline operation in France, to be arranged directly by ONAREP.\*.)
- o Possible US training in 1987.\*

\* Arranged directly by ONAREP.

## 2 2 DIRECTION EXPLORATION

## 2.3 DIRECTION DES PARTICIPATIONS PETROLIERES

### 2.3.1 M. Mouhsine

One of following:

- o Seminar "International Petroleum Agreement Negotiation".  
International Law Institute.  
3 weeks, June 1986.
- o Promoting Investment in Indigenous Oil Exploration and  
Development.  
Oil and Gas Consultants, International.  
12 weeks, Summer 1986 in Denver, Colorado.

### 2.3.2 A. Mechiche

One of following:

- o Negotiating, Managing and Controlling Joint Interest Ventures  
for Offshore Operations.  
College of Petroleum Studies, Oxford, England (CPS 121,  
p.123).
- o Contracts Used in Oil and Gas Operations.  
Institute for Energy Development.  
March 17-20, 1984 Houston; Sept 29-Oct 2, 1986 Denver.

### 2.3.3 M. Benabdellah

- o English language training.
- o Oil and Gas Law. Contracts used in Oil and Gas Operations,  
Institute for Energy Development (IED).
- o Principles of the Oil and Gas Lease (IED 144, 145, 146,  
p.161).

### 2.3.4 M. El Kerdoudi

- o On-the-job training by D.A. Sulli
- o Exploration Management, Risk analysis and Prospect Evaluation.  
Oil and Gas Consultants International.  
1 week (OGC 209, p. 174).

If about the same time as one of the following:

- o Seminar on Negotiating International Petroleum Agreements.  
International Law Institute, June 1986.
- o Promoting Investment in Indigenous Oil Exploration and  
Development.  
12 weeks. Summer, 1986.

2.3.5 M. Taieb

MTO  
Direct

- o Conventional Energy Training Project Course in Applied Petroleum Exploration and Production Technology. May 7-August 29, 1986.

Or two courses of following:

- o AAPG Petroleum Exploration Course. Tulsa University. May 12-21.
- o AAPG Stratigraphic Interpretation of Seismic Data (with application to hydrocarbon case histories). 1 week. Or similar course conducted by Geoquest.
- o Seismic Interpretation. Institute for Energy Development. 1 week. March 17-21 Houston; June 9-13, 1986; Nov 10-14 New Orleans.
- o AAPG Prospect Evaluation. 1 week.

2.3.5 M. Debbagh\*

- Seminar on Negotiating International Petroleum Agreements. Int. Law Inst. 3 weeks, June 1986.\*

2.4 DIVISION PLANIFICATION

2.4.1 M. Isfahoun

- o Internship Apr/May 1986 in the planning division of a major exploration company. WBEC, Tulsa is in the process of arranging this.

One of the following courses:

- o Economic Evaluation and Investment Decision Methods. Colorado School of Mines. Dec 1-15, 1985 (CSM 101, p. 123).
- o Evaluating, Financing and Managing Large Capital Projects in the Oil and Gas Industry. College of Petroleum Studies, Oxford, England (CPS 203, p 146).

2.5 DIVISION D'AUDIT ET METHODES

2.5.1 M. Ben Azzouz

- o Intensive English language training (20 hours per week) in two months preceding internship.

o Internship, May 1986, with a major oil American company, to observe the internal audit systems used with a view to applying them at ONAREP.  
Estimated duration: 6 weeks.

o Internship, May 1986, with a major oil American company, to observe the internal audit systems used with a view to applying them at ONAREP.  
Estimated duration: 6 weeks.

W.B.E.C. TRAINING PROGRAM 1986 - 1987

*Candidates pre-accepted by ONAREP*

NAME	DIVISION	WBEC TEAM	C/I S	TITLE	COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS
ALEM	Exploration	SEM/SUB	C	Special training course for senior petroleum executives from developing countries	OPEC	12 weeks Summer 1986	?		CANCELLED
MOHAMED	"	"	"	"	"		ASST TECH		1) See GAC's Memorandum 2) " SUB'S "
TO-0	Exploration	SEM/SUB	S	Stratigraphic Interpretation of Seismic Data	AAPG	1 week. The Bahia San Diego 12-16 May.	ASST TECH		⇒ English
KAROICHA	Exploration	SEM/SUB	C	Applications of Microcomputers to the Petroleum Industry.	IMBDC	July 27-25 Calgary.	INT 1		Refer to Karachi Attachment D
BENBOUZIANIE	Exploration	SEM/SUB	S	Structural Geology (including 2-day field trip)	Institute for Energy Development	August 12-23 Great Falls MT	INT 5		⇒ English
114 Mue HAFIAN (1)	Exploration	SEM/SUB	S	Modern Clastic Depositional & Oil Reserves	AAPG	Sept 12-19 South Carolina	INT 5		⇒ English

W.B.E.C. TRAINING PROGRAM 1986 - 1987

NAME	DIVISION	WBEC TEAM	C/I S	TITLE	COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS
HAFFAN (2)	Exploration	SEM/SUB	S	Florida - Bahamas Modern Carbonates	AAPG	September 21-28 Miami	AVI 3		⇒ Enrich
UMALECH (1)	Exploration	SEM/SUB	S	Modern Clastic Depositional Environment Carbonates	AAPG	September 13-19 South Carolina	AVI 4		⇒ Enrich
UMALECH (2)	Exploration	SEM/SUB	S	Florida - Bahamas Modern Carbonates	AAPG	September 21-28 Miami	AVI 4		⇒ Enrich
ANY	Exploration	SEM/SUB	I	Drilling Control	TDS	2 months	AVI 2		September - December
I	Exploration	SEM/SUB	I	Drilling Control	TDS	2 months	AVI 2		May - July?
DOU	Exploration	SEM/SUB	I	Drilling Control	TDS	2 months	AVI 2		May - July?

1986 - 1987

COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS	COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS
TDS	September/December	ALSO	TEST	English?	WSEC-TULSA	6 weeks 1987			TEC: 1.2A? 1987
	2 months			1) See GAC's recommendations P.M.T.C. -G.C.T.		6-8 weeks 1987			Specialist Company 1987
	2 months	ALSO	TEST	2) See GAC's recommendations P.M.T.C. -G.C.T.		1987			1987
gas and wells	3 weeks June/July	ALSO	TEST	English will be allowed in 1987	WSEC TULSA	First Quarter 1987			TEC: See recommendations 1987
between head office and local supervision; agreement	2 weeks	ALSO	TEST	visit with check w/ Kohn E. see how Training See also to J.P.		1986	ALSO TEST		US Training with oil company
	3-6 weeks			Recommendations? P.M.T.C.		3 weeks June 16 -> July 17			English? P.M.T.C.
				negotiating letter and agreement	Institute Low Institute				

116

W.B.E.C. TRAINING PROGRAM 1986 - 1987

NAME	DIVISION	WBEC TEAM	C/I S	TITLE	COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS
MECHICHE	DPP	DAS	S	Negotiating, managing and controlling joint interest ventures for offshore operations	College of Petroleum Studies				Review from last trip
BENADJELLAH	DPP	DAS	S	Oil and Gas Law Contracts used in oil and gas operations. Principles of oil-gas lease	Institute for Energy Development				March 17 - 20 1986 Sept 25 - Oct 2 1986
TAIB	DPP	DAS	C S	Petroleum Exploration Course Prospect Evaluation	AAPG Tulsa University San Diego	May 12 - 21 May 12 - 15			English? Zurich
Mme. BENHAMMOU	DPP	DAS	S	International Petroleum Agreements Negotiation	International Law Institute	June 16 - July 11 Washington			English?
Mme. BENHAMMOU	DPP	DAS	S	Exploration Management, Risk Analysis and Prospect Evaluation	OCCI				July 14 - 18 1986 OCCO
ISFAOUN	Etudes/ m.c.	GAC	I			April / May 1986			May 1986 Time at D/S

5

E.C. TRAINING PROGRAM 1986 - 1987

TITLE	COMPANY	DATES	ENG. LEV.	+ HRS.	REMARKS
International Audit Systems		May 6 weeks	INT 3		Major oil company Militant?
Theoretical Aspects of Migration User-oriented Aspects of Migration	Gequest Gequest	Houston July 7-9 Houston July 14-16	REG 3		To be combined w/ Western migration.
Applied <sup>Scenic</sup> Stratigraphic Interpretation	Gequest	Denver July 21-25			

Page No. 1  
02/26/86

## LIST OF CETF PARTICIPANTS FROM MOROCCO

NAME	EMPLOYER	TRAINING SITE	NOMINATION	CALL FORWARD	GRADUATE
** COUNTRY MOROCCO					
ACHNIN, HADDOU	ONAREP	IFCS	/ /	10/02/83	/ /
ALEM, BACHIR		UNKNOWN	/ /	/ /	/ /
AZAM, MOHAMMED		UNKNOWN	/ /	/ /	/ /
BELARBI, MOSTAFA	ONAREP	IFCS	/ /	10/02/83	/ /
BENJELLOUN, MOHAMED	ONAREP	ADL	/ /	08/20/84	11/30/84
BENNIS, MOHAMED AZDINE	ONAREP	UNITAR	/ /	07/25/84	08/06/84
BOUHADDI, MOHAMMED	ONAREP	U. ALABAMA	/ /	09/24/82	02/10/83
BOUZIANE, ABDESHEM	ONAREP	IFCS	/ /	10/02/83	/ /
CHARRAT, FATIMA	ONAREP	IFCS	/ /	04/10/83	08/27/83
CHHAIBI, OMAR	ONAREP	IFCS	/ /	10/02/83	/ /
DABBI, RACHID		UNKNOWN	/ /	/ /	/ /
DAKKI, MOHAMED	ONAREP	IFCS	/ /	10/02/83	/ /
EL MORABET, ABDELKHALEK	ONAREP	UNITAR	/ /	07/25/84	08/06/84
ELAMEL, LAHDEN	ONAREP	IFCS	/ /	10/02/83	/ /
ELKOULAI, JAAFAR	ONAREP	OGCI	01/11/85	04/13/85	07/27/85
HAFID, MOHAMAD	ONAREP	U. SOUTH CAROLINA	/ /	01/06/85	01/05/87
HAFID, MOHAMED	ONAREP	IFCS	/ /	04/10/83	08/27/83
HARRAJ, ALI	ONAREP	IFCS	/ /	10/02/83	/ /
IBENBRAHIM, ADMAR		U.T.E.P.	/ /	12/28/82	02/16/85
IDRISSI, MOHAMED	ONAREP	IFCS	/ /	04/22/84	09/14/84
IRAGUI, ABDERRAHIM		IFCS	01/14/84	/ /	/ /
JABOUR, HADDOU	ONAREP	IFCS	/ /	04/10/83	08/27/83
JABOUR, HADDOU	S.R.P.M.	U. S. CAROLINA	/ /	09/01/83	06/14/85
KORACHI-ALAOUI, AHMED	ONAREP	U. ALABAMA	/ /	08/24/82	12/22/84
MARSIL, AHMED	ONAREP	ADL	/ /	08/15/82	12/17/82
MOHAMED, IMAKOR	ONAREP	TVA/TM	/ /	07/20/83	09/18/83
MOUATASSIN, MOHAMED	ONAREP	IFCS	/ /	10/02/83	/ /
MOHSINE, M'BAKEL ALI	ONAREP	ADL	/ /	08/15/82	12/17/82
OUARDI, BOUZEKRI	ONAREP	IFCS	/ /	04/22/84	09/14/84
OUUGHIRI, KHALID	ONAREP	OGCI	/ /	04/30/85	/ /
SELLAMI, HAMMADI	ONAREP (DIR.PRODUCTION DIV)	IFCS	/ /	04/22/84	09/14/84
TAIB, MAHMOUD		IFCS	/ /	/ /	/ /
TOTO, EL ARBI	ONAREP	IFCS	/ /	04/10/83	08/27/83
YAHYA, ABDEL HAMID	ONAREP/BRPM	IFCS	/ /	07/25/82	02/09/83
ZEBDI, SAID	SAMIR	ADL	/ /	/ /	/ /
ZIZI, MAHMOUD	ONAREP/BRPM	IFCS	/ /	04/10/83	08/27/83

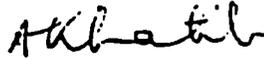
In the area of construction supervision, MM. Benslimane and Guendili are almost fully occupied with field supervision of UIM. In spite of their good work, control of construction quality is a serious problem. This is due primarily to the contractor's lack of familiarity with internationally recognized procedures and quality standards for pipeline construction. The problem of construction supervision will probably increase with the start of plant construction and installation of high pressure flowlines.

With your agreement and USAID's approval, Williams Brothers will try to arrange for a French-speaking, short term (~ 6-8 months) construction advisor to assist in field management during execution of the main Meskala contract. In the meantime, ONAREP should investigate other possible sources of experienced construction supervision assistance and obtain additional personnel to work with the Williams Brothers advisor or to fill the position of Chief Inspector in the event that Williams Brothers cannot locate a suitable French-speaking candidate.

We believe that the above staff adjustments are necessary if the Department of Development and Exploitation is to fulfill its near term responsibilities. They are also necessary if ONAREP is to achieve the effective on-the-job training needed for its long-term gas production and processing operations.

Yours Sincerely,

WILLIAMS BROTHERS ENGINEERING COMPANY



A. K. Khatib  
Chief of Party

*Kingdom*  
740-86

TEC : AKK:fi

cc. MM. Bennis/Oudghiri  
Douieb/Benjelloun

R. Kahn, USAID  
M. Hill, WBEC, Tulsa

DISCUSSION POINTS

- The Evaluation is still in progress. Draft report due on 3-17-86. Final Report due mid to late April. Points presented below are tentative and will be subject to further analysis and possible change.
- Overall, the project has contributed positively to ONAREP. The points made below are to be viewed in the light of a generally successful project.
- During the first year, special problem areas included staff turnover and training.
- These problems have been addressed and largely overcome.
  - WBEC staff now functioning near full capacity; staff changes recommended by ONAREP largely implemented.
  - Plans are in place for ambitious training program for 1986; it is important that the plan be realized.
- External factors impacting the project include:
  - Meskala disappointment
  - Oil Price Change
- Tension between operation roles vrs long-term institution building functions exists.
- We have identified suggestions for ways for resolving the different emphasis between AID and ONAREP:
  - Tried to meet needs of both organizations
  - Broaden existing operational roles (do not abandon them)
  - Develop model project focus around joint venture promotion and related exploration and geophysical activity.
- Staffing changes to accomplish above
  - Extend Sullivan to end of project.
  - Add two explorationists (one to replace Mr. Currie, per his suggestion)
- Other Staff Changes
  - Extend Connor 6 months
  - Consider adding short term surface facilities development inspector.
- ONAREP acknowledge AID's need to broaden operational focus of the project; AID more actively assert these goals during remainder of the project.

ONAREP Debriefing Meeting

A one-hour meeting was held at the office of Mr. Douieb, General Director of ONAREP, on the afternoon of 14 March 1986. In attendance were the following:

ONAREP

M. Douieb, General Director  
M. Mouhsine, Adjoint Director, Petroleum Participation Division  
A. Alem, Director of Exploration Division  
M. Kenzaoui, Director of Production Division  
M. Benjelloun, Chief of Human Resources Division

USAID

D. Richardson  
F.W. Bohanan

After Mr. Douieb's welcoming remarks, Mr. Richardson thanked the ONAREP for the time and insight contributed for the evaluation program, and made a 15 minute introductory presentation following the outline of the attached Discussion Points, and then summarized the tentative conclusions of the Evaluation Team. During the following question and answer discussion, Mr. Douieb made the following points:

1. The planned 1986 training program is very ambitious, and it may be

122

difficult to fulfill both inside and outside Morocco due to the pressure of current work,

Regarding the need to nominate master's degree candidates, Mr. Douieb mentioned the ONAREP Oil Shale Division is being cut back very significantly, and that some staff from that program with good English capability may be available for University (Masters degree) training programs.

2. He considers the balance between institutional building and operational needs to be no major problem: both are being met through "field" work; ONAREP's greatest need is for good drilling prospects -- a big bottleneck; he feels ONAREP's fieldwork is contributing to institutional building.
3. Concerning the MOdel Project concept suggested by Mr. Richardson, ONAREP is open to reshaping their way of working and welcome detailed suggestions. However, under their present organization the Exploration Division works up projects and the Petroleum Participation Division promotes them.
4. Agreeable to the suggested extensions of Sullivan and Connore, to the addition of two explorationists (needed immediately), and to the short-term assistance of a construction inspector (needed in about six months for a six-month period).

Some time was devoted to discussing the roles of Mr. Currie, of Mr. Khatieb, and to the Chief of WBEC Party duties. Mr. Richardson pointed out that Mr. Currie could be replaced only in the context of the Model Project, and that Mr. Khatieb's time ends at the end of 1986. Mr. Douieb agreed that Mr. Sullivan appears to be the logical choice

of Chief of Party after the departure of Mr. Khatieb.

5. Mr. Douieb mentioned the financing of joint venture promotional trips and Mr. Richardson said <sup>Practically...</sup> this was ~~for~~ <sup>the context of</sup> the Model Project.
6. Mr. Douieb agrees that short-term advisory ~~as~~ assistance appears to be very effective.

ANE-0176-C-00-6035-00  
Page 4 of 28

SECTION C

WORK STATEMENT

C.1. ACTIVITY TO BE EVALUATED

(a) The evaluation required under this contract is to cover the Morocco Conventional Energy Management and Training Project (608-0176) only. The Project Agreement (ProAg) was signed 4/16/84 with USAID funding for \$5,000,000. The Moroccan Government contribution is \$1,689,000. The PACD is 6/30/88. No previous evaluations have been conducted on the current project, although the 5/83 evaluation of the predecessor project (936-5724) may be relevant.

(b) The project is designed to strengthen the internal capabilities of the National Petroleum Exploration and Development Office (ONAREP), a parastatal organization of the Moroccan Ministry of Energy and Mines, through technical assistance and training.

(c) The project is being implemented under two contracts. The principal technical assistance (TA) contractor is Williams Brothers Engineering Company (planned total cost: \$4,002,950). The training component of the project is provided for, in part, through a co-funded arrangement under an AID/W (S&T/EY) contract to the Institute of International Education (IIE) for the Conventional Energy Training Program ([936-9997] - planned total cost: \$416,000).

C.2. PURPOSE OF THE EVALUATION

(a) The initial evaluation is scheduled for February 1986, approximately 14 months after the arrival of the prime technical assistance contractor in November/December 1984. This is the first of two planned external evaluations.

(b) The purpose of the evaluation is to determine the extent to which the project's goal and specific purpose as described in the Project Agreement and the Project Paper are being or can be met within the remaining life of the project (LOP). The evaluation will assess the continuing validity and appropriateness of the logical framework (see Exhibit 1 of this contract) presented in Annex B-1 of the Project Paper, and specifically respond to the following questions:

(1) Were inputs delivered on time and in the right amounts by all parties?

(2) What specific outputs have been generated to date?

126

(3) What is the probability that the End of Project Status (EOPS) will be achieved and, hence, the project purpose?

(4) Were the original logical framework assumptions valid and complete? If not, should the project design be altered?

(5) What has happened or will happen to the target beneficiaries?

### C.3 BACKGROUND

(a) In April 1984, the ProAg for the Conventional Energy Management and Training Project was signed. The purpose of the project is to strengthen the internal capabilities of the National Petroleum Exploration and Development Office (ONAREP) to (a) apply cost-effective private sector management principles and techniques; (b) establish ties with private sector partners in petroleum investments; and (c) explore, develop, and produce hydrocarbon resources. This four-year project has a life-of-project funding of \$5,000,000.

(b) The project provides technical advisors who, in collaboration with ONAREP's senior management, are to undertake activities in three broad areas: (a) financial and management issues; (b) exploration design and analysis; and (c) reservoir and production engineering. Training for ONAREP personnel includes graduate study, short courses and seminars, conferences, industry internships, and specialized on-the-job training.

(c) The principal TA contractor is Williams Brothers Engineering Company. Five resident advisors (Senior Planner, Joint Venture Promotion Specialist, Regional Geologist, Geophysicist, and Reservoir Engineer) arrived on schedule on or before December 1, 1984. The Surface Facility Engineer arrived in August 1985. The contract team has experienced turnover in the positions of Regional Geologist and Geophysicist. In addition, the duties of Chief-of-Party were transferred from the Senior Planner to the Reservoir Engineer in July 1985.

(d) Along with changes in key resident advisory personnel, each of the resident advisory positions has undergone some transformations in scope. Residents have been called upon by ONAREP to assume operational functions in addition to their advisory roles. Such alterations in the original intent of the project were agreed to by USAID at the request of ONAREP. As a result of these changes, each resident is charged with the task of performing in both an advisory and an operational mode. USAID and ONAREP are in agreement, however, that no

resident is permitted to function in isolation without an ONAREP counterpart to assure a direct transfer of skills and techniques.

(e) Project monitoring has proceeded on schedule with regular monthly administrative meetings, quarterly steering committee review meetings, and annual work plan reviews at the steering committee level.

(f) The training component of the project is handled in part by the principal TA contractor and in part by USAID under a co-funded arrangement with the S&T/EY contractor, Institute for International Education (IIE). One candidate is currently enrolled in a Master's degree program in the U.S. Two in-country seminars have been conducted, one in a technical field (geological science) and one in a management field (project control). One ONAREP engineer participated in a U.S. industry internship program. Opportunities to attend short courses and conferences in the U.S. have been moderately utilized by ONAREP personnel. English language training is ongoing at the American Language Center. Two or three members of the senior management have been enrolled in intensive English courses; several others at various levels in the organization are enrolled in the regular (3-6 hours/week) courses.

(g) Two short-term advisors have provided technical assistance to ONAREP management, one in training and human resource development, and another in internal audit procedures and techniques.

(h) The involvement of the World Bank in the project, while on-going, has not been as significant as originally envisioned due to a diminished World Bank involvement in the Meskala gas project. Project activities shall be appraised in this light and recommendations for future project focus should take this into consideration.

#### C.4. SCOPE OF WORK

(a) In order to assess the progress to date in meeting the project's goal and purpose as described in the Project Agreement and to critically review the roles and responsibilities of the TA contractor, the training contractor, ONAREP, and USAID, the Contractor, for the consideration set forth in Section B of this contract, shall provide a team which shall evaluate and address the following items:

(1) Financial and Management Activities

(A) Improvements in ONAREP's operational procedures, planning and organization since the start of the project that reflect the efforts of the Senior Financial Management/Planning Advisor.

(B) Establishment of an internal audit capability responsive to Ministry of Energy and Mines (MEM) and Ministry of Finance (MOF) needs.

(C) Review of procedures that will increase an exchange of management information with ONAREP.

(D) Design and implementation of a career development system/performance management system for ONAREP professional personnel.

(E) Institution of techniques of economic analysis which will help to espouse development projects with satisfactory economic rates of return and to identify efficient price structures.

(F) Progress towards the institution of a monitoring program to quantify performance in the field on a cost-per-unit of production basis.

(G) Examination of cost/benefits of moving to contract drilling based on competitive bids on cost and time per meter drilled.

(2) Private Financing and Joint Venture Promotion Activities

(A) ONAREP's record during the project period in attracting private-sector partners to invest and/or participate in oil and gas exploration in Morocco.

(B) Role of project-funded activities or personnel in aiding that effort.

(C) Institution of measures designed to promote a favorable investment climate, including the enhancement of a legal and contractual framework conducive to private investment and the establishment of procedures for working with active concessionaires.

(D) Expansion of geological data and its ready availability to potential partners.

129

(E) Improvement of promotion activities including the preparation of terms of reference and the preparation and presentation of technical promotion reports.

(3) Exploration Design and Analysis Activities

(A) Integration of standard risk analysis techniques into ONAREP's exploration and appraisal proposals.

(B) Development of autonomous exploration teams responsible for assessing hydrocarbon potential of a given region.

(C) Improvement of technical skill levels of ONAREP geologists and geophysicists in the Exploration Directorate to compile and analyze existing geological maps and seismic profiles, magnetic and gravity data, geochemical surveys, core analysis, and well logging where drilling has occurred.

(D) Establishment of computerized drilling progress reporting system based upon data delivered from the drilling sites.

(E) Assessment of data quality and implementation of methods to improve future data acquisition and processing.

(4) Reservoir and Production Engineering Activities

(A) Status and evolution of ONAREP's estimation of recoverable gas reserves since the project's outset.

(B) Identification of the investment decisions for gas production, distribution, and pricing ONAREP has taken during the project period.

(C) Enhancement of internal capability to review and conduct reservoir studies and estimate reservoir size, and role of project and counterpart personnel and activities in this effort.

(D) Improvement of technical skill levels of professional personnel in the Development and Production Division.

(E) Preparation of guidelines for performance of well tests in a cost effective manner.

(F) Preparation of conceptual design and cost estimates of gas/condensate separation facilities and pipeline for the proposed development of Meskala and neighboring gas fields.

(G) Development of a capacity within ONAREP to order and stock perishable drilling supplies.

(5) Delivery of Technical Services

(A) Extent of the principal TA contractor's home office support of the project. Appropriateness of existing division of labor between home and field offices in providing technical, administrative, and financial services.

(B) Usefulness and cost-effectiveness of the engineering assistance provided by the TA contractor, particularly the work performed on the Meskala gas project conceptualization study and the RFP.

(6) Training

(A) Number of project-trained professionals currently at work in ONAREP. Use of training received. Impact of new knowledge and skills gained through training on ONAREP's effectiveness, technical strength and overall progress. Improvements or changes that should be made in either the subjects or the length of training.

(B) Effectiveness of the principal contractor in meeting ONAREP's training needs, including on-the-job training. Effectiveness of the co-funded training contractor in meeting ONAREP's training needs.

(C) Coordination of training with opportunities provided by other donors and joint venture partners.

(b) The evaluation team will address a number of factors regarding the oil and gas industry in Morocco in the background section of their report to help set the context for the evaluation. These factors will be discussed to fix national significance to the project effort and to establish trends since the beginning of the project. The principal factors for consideration are as follows:

(1) ONAREP's production and distribution of oil and/or gas;

(2) ONAREP's production-based revenues;

(3) The proportion of ONAREP-produced energy to total energy consumed in Morocco; and

(4) Morocco's expenditure levels for imported oil and coal.

#### C.5. METHODS AND PROCEDURES

##### (a) Duration

(1) The evaluation shall be conducted in three parts, as follows:

(A) Part One (three days) will be conducted in the U.S. and will include a pre-departure literature review (PP, ProAg, contracts, Work Plan), discussions with the World Bank, AID/W, and the home office staff of Williams Brothers Engineering Company.

(B) Part Two (two weeks) will be conducted in Morocco and will include discussions with USAID, ONAREP's senior management and staff, and the contract resident advisors, and will include a site visit to the Meskala gas field.

(C) Part Three (three days) will be conducted in the U.S. and will include report writing and debriefing with AID/W and the World Bank.

(2) Travel to the Meskala gas project site will be by car provided by ONAREP. The trip takes approximately 5-6 hours from Rabat each way over good roads.

(3) The in-country component of the evaluation will be conducted during approximately the last two weeks of February 1986.

##### (b) Language

(1) Although most of ONAREP's senior management speak and read English, documents available in Morocco such as ONAREP's five year Development Plan and training matrix are in French. In addition, all local newspaper and magazine accounts of ONAREP activities are in French. Translators are available locally should the evaluation team require assistance in gleaning important data from reports.

(c) Secretarial/Word Processing/Office Space

(1) The preparation of the draft and final evaluation report is the responsibility of the evaluation team. Local secretarial assistance is available through the Embassy Cooperative Association, but must be requested in advance. Bilingual secretarial assistance is less readily available.

(2) USAID/Rabat will make available electric typewriters and office space. Use of word processing equipment (WANG) during working hours cannot be assumed although after hours access to this equipment can be arranged.

(d) Method

(1) The team will rely on review of file documents and on interviews with project personnel for data collection. Analysis will be largely qualitative as quantitative data are limited, though some simple quantitative measurements of progress will be possible. Analyses of technical, economic, and financial aspects will be essential and will be based largely on TA contractor and ONAREP supplied technical documents.

the ONAREP participant would assist the evaluation team to gain access to relevant information, set up schedules for meetings, and accompany the team on the field visit to the Meskala gas project.

(d) The USAID/Rabat Project Manager will participate in the evaluation to provide advice/guidance to the team regarding the USAID experience and concerns to date with conventional energy project activities in Morocco. The USAID/Rabat representative will participate, along with the ONAREP representative, in meetings with ONAREP senior staff, the TA contractor's resident staff, and Government of Morocco officials, and will participate in the review/comment process on the draft report.

**C.7. REPORTING REQUIREMENTS**

Reporting requirements are set forth in Section F of this contract.

CONVENTIONAL ENERGY MANAGEMENT AND TRAINING 608-0176

ANE:0176-C-00.6035-00

Exhibit 1

Page 1 of 2

## 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"> <li>a) Alleviate economic/monetary BOP problems</li> <li>b) Provide greater domestic contribution to energy resource mix</li> </ul>	<p><u>Measures of Goal Achievement:</u></p> <ul style="list-style-type: none"> <li>a) BOP accounts</li> <li>b) Partial displacement of imported fuels with local fuels</li> </ul>
<p><u>Project Purpose</u></p> <p>Build internal capability of ONAREP</p> <ul style="list-style-type: none"> <li>1) to transfer cost-effective private sector management principles and techniques</li> <li>2) to strengthen ties to potential private sector partners,</li> <li>3) to explore, develop, produce petroleum resources.</li> </ul>	<p><u>End of Project Status</u></p> <ul style="list-style-type: none"> <li>1) more cost-effective operation, professional incentives</li> <li>2) more joint ventures, joint venture drilling or divestiture of drilling operations, private sector consumer contracts, "downstream" private services</li> <li>3) ONAREP staff designing exploration programs, managing development and marketing gas (oil)</li> </ul>
<p><u>Outputs:</u></p> <ul style="list-style-type: none"> <li>a) Accelerated appraisal and development of known basins</li> <li>b) Accelerated exploration program</li> <li>c) more cost-effective management system</li> <li>d) greater reliance on private market</li> </ul>	<p><u>Magnitude of Outputs:</u></p> <ul style="list-style-type: none"> <li>a) Minimum 1-3 months acceleration in appraisal activities</li> <li>b) Doukkala basin ready for exploratory drilling</li> <li>c) lower overhead costs per exploration, development of production unit</li> <li>d) joint ventures and contract drilling</li> </ul>
<p><u>Inputs:</u></p> <ul style="list-style-type: none"> <li>a) \$5.0 million of U.S.T.A./training</li> <li>b) \$1.7 million of GOM T.A.</li> </ul>	<p><u>Implementation Target:</u></p> <p>over 370. p-m in T.A.; confirmation reservoir studies. Four masters; over 120 participant-months.</p>

135

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

APPENDIX: COMMENTARY ON SCOPE OF WORK EVALUATION POINTS (WBEC)

A

The Evaluation Scope of Work states that the Evaluation Team will address a number of items. Comments on those items listed under Exploration Design and Analysis Activities and Reservoir and Production Engineering Activities follows:

Exploration Design and Analysis Activities

1. Integration of standard risk ~~and~~ analysis techniques into ONAREP's exploration and appraisal proposals.

Comment:

Progress is being made on this. In January and February 1986, WBEC proposed that a peer review by other explorationists, a geological risk analysis, and a economic risk analysis be made on all drilling prospects. The proposal was for an inter-disciplinary team from Planning, Exploration, and Production be formed to formulate and execute a technique for risk analysis. This team has not yet been formed due to the absence of the proposed Exploration member, Mr. Morabet, who <sup>was</sup> ~~is~~ on a promotion trip.

The Evaluation Team found the Production Division of ONAREP to be enthusiastic about the proposal. The Exploration Division was more reserved, due to the high-risk nature of most of their prospects.

It appears that WBEC's proposal has a good chance of being accepted.

2. Development of autonomous exploration teams responsible for assessing hydrocarbon potential of a given region.

Comment:

The two WBEC explorationists constitute such a team and are giving on-the-job training to one ONAREP geologist and one geophysicist. This is contributing to the future creation of such teams, but more than a few years are necessary to thoroughly train exploration personnel.

By the end of the project, no autonomous ONAREP exploration team capable of doing independent modern exploration work will have been created (considered to be an unrealistic expectation by the Evaluation Team).

**3. Improvement of skill levels of ONAREP geologists and geophysicists---**

**Comment:**

This is occurring through daily work. The amount of such technology transfer could be increased by:

- a. Having more communication and contacts between WBEC explorationists and their counterpart;
- b. Having one or two additional young ONAREP personnel assigned to work with the WBEC explorations; and
- c. Having a formal, work/achievement plan outlines and followed when possible. This is rather difficult to achieve, of course, when there are day-to-day work pressures.

**4. Establishment of computerized drilling progress reporting systems based upon data delivered from the drilling site.**

**Comment:**

WBEC's Work Plan provides for 3 person-months of short-term advisory service to do this in the April-June 1986 period. Anchor Management Systems from Oklahoma City is expected to be the advisor on this. WBEC believes the April-June 1986 estimated date to be realistic.

**5. Assessment of data quality and implementation of methods to improve future**

data acquisition and processing.

Comments:

Good progress has been made on data acquisition. A portable, dynamite seismic crew, recommended by the WBEC explorationists, has been contracted for a difficult area in the Zone Nord.

The WBEC geophysicist has been in Rabat only about 2 1/4 months, and relatively little processing had been done. Improvement can be obtained only by close supervision and guidance of the local processing companies during the course of the work. The WBEC geophysicist must be allowed to visit the processing center, preferably with his counterpart and the ONAREP geophysical trainee, to give advice and guidance to the processing contractor. Little improvement is likely to be made unless such supervisory trips are made.

Reservoir and Production Engineering Activities

1. Status and evolution of ONAREP's estimation of recoverable gas reserves since the project's outset.

Comment:

The estimated reserves were calculated by an Elf/Aquitaine Team that worked with ONAREP before the arrival of WBEC, and have not been affected by the WBEC project due to no on-going development drilling program. The present estimated total recoverable

reserves are about  $2 \times 10^{12}$  ~~MM<sup>3</sup>~~ (about 70 billion cubic feet).

2. Identification of the investment decisions for gas production, distribution and pricing ONAREP has taken during the project period.

Comment:

The Meskala gas project has continued and will be completed during the period of the project. However, the Evaluation Team did not have the time to examine pricing. ONAREP's net revenue from its own production of oil and gas as well as its part of the net revenues of sales in collaboration with APEX and SCP is projected to total 1012 million dirhams in the 1986-1990 period. This sum is about 22 1/2% of the projected 4482 million dirhams necessary for ONAREP's operations in the 1986-1990 period (based on an assumed inflation rate of 10% per year).

3. Enhancement of internal capability to review and conduct reservoir studies.

Comment:

Apparently only slight improvement has been made due to the limited amount of such work that has been done during the project and no seminars have been held to date on this subject. Mr. Khatib can give help with this item by preparing and giving lectures and/or short courses.

4. Improvement of technical skill levels of professional personnel in the Development and Production Department.

Comment:

This item is not quantifiable, but undoubtedly some improvement has been made through on-the-job contacts with Messrs. Khatib and Connor.

5. Preparation of guidelines for performance of well tests in a cost effective manner.

Comment:

This was done by Mr. Khatib in 1985.

6. Preparation of conceptual design and cost estimates (Meskala) ---

Comment:

This has been done and the plant is expected to be on stream near the end of the first<sup>quarter</sup> of 1987.

7. Development of a capacity within ONAREP to order and stock perishable drilling supplies.

Comment:

ONAREP buys drilling supplies through international tenders, a time-consuming procedure that entails much paper work. It takes ~~so~~<sup>as</sup> much as four months to obtain the supplies, so ONAREP has to foresee their needs for as much as 6 months ahead in order to have an adequate stock on hand.

The supplies are stocked at the Base in Rabat, and the storage space is cramped. ONAREP plans to obtain a larger storage area outside of Rabat to alleviate the storage problem.

This item could be dropped from the final Evaluation Team's