

PD-A1 - 44

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CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) - PART I

Report S, model 1.4

1. PROJECT TITLE Minerals Development			2. PROJECT NUMBER 278-0202	3. MISSION AID/W OFFICE USAID/Jordan
4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 81-4 Terminal			5. <input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	
6. PROJECT IMPLEMENTATION DATES			7. PERIOD COVERED BY EVALUATION	
A. Start PROJ. AG. or FY 78	B. Final Obligation Expected FY 81	C. Final Input Delivery FY 81	From (month/yr.) 09/78 To (month/yr.) 09/81 Date of Evaluation Review 9/16/81	
8. ESTIMATED PROJECT FUNDING			9. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR	
A. Total \$ 2,250,000 P. U.S. \$ 1,500,000			A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., telegram, SPAR, PIO, which will present detailed request.) None	
			B. NAME OF OFFICER RESPONSIBLE FOR ACTION	
			C. DATE ACTION TO BE COMPLETED	

10. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- | | | |
|--|--|--|
| <input type="checkbox"/> Project Paper | <input type="checkbox"/> Implementation Plan e.g., CPI Network | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Financial Plan | <input type="checkbox"/> PIO/T | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Logical Framework | <input type="checkbox"/> PIO/C | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Project Agreement | <input type="checkbox"/> PIO/P | <input type="checkbox"/> Other (Specify) _____ |

11. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☐ Change Project Design and/or ☐ Change Implementation Plan
- C. ☐ Discontinue Project

12. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Name and Title)

Stanley A. Stalla
Capital Development Officer

Muhammad Abu Ajamieh
Director of Geological Survey & Bureau of Mines, JRA

13. Mission/AID/W Office Director Approval

Signature: *Walter G. Hollinger*
Type, Name: Walter G. Hollinger
Date: SEPTEMBER 22, 1981

13. Summary

The Project Grant Agreement supporting this project was executed on September 20, 1978, and the First Amendment was signed on February 28, 1978. AID planned a total contribution of \$1.5 million, which has been fully disbursed, to a project estimated to cost \$2.25 million; the difference has been financed by the Government of Jordan (GOJ). The implementing agency for the GOJ was the Natural Resources Authority (NRA), which assigned as project manager Mr. Mohammad Abu Ajamieh, Director of the Geological Survey and Bureau of Mines.

The GOJ and USAID planned that successful completion of this project would lead to the discovery of potentially exploitable minerals and to recommendations of a course of action for a national minerals exploration program. This was to be achieved by conducting country-wide airborne geophysical surveys covering approximately 72,000 line kilometers, which were to lead to reports providing the necessary guidance to the NRA to focus on specific areas for follow-on activities.

In February, 1979, a PASA was signed with the U.S. Geological Survey (USGS) to provide a geophysicist to assist the NRA and USAID in preparing bid packages to conduct the airborne magnetic/radiation (mag/rad) and electromagnetic (AEM) surveys. USGS geophysicist Gordon Andreasen was selected as advisor to the NRA, a position he filled intermittently throughout most of the project. Mr. Andreasen wrote the scopes of work for the surveys, participated in the pre-proposal conference, helped oversee the performance of the contractors in Jordan, participated in the analysis of data collected during the surveys, reviewed the contractors' final reports and provided a list, including proposed implementation schedules and budgets for some, of proposed follow-on activities to be undertaken as a result of the successful completion of the project. Although most of Mr. Andreasen's contributions took place during TDYs in Amman, his work during the data analysis phase of the project took place in the U.S.

Contractor selection was based on a technical evaluation of all proposals received, followed by price negotiations with the firm submitting the best technical proposal. A pre-proposal conference for the mag/rad survey was held in Amman in May, 1979. Participating were representatives from the NRA, the Royal Jordanian Air Force, the Directorate of Civil Aviation, the Department of Customs, the National Planning Council, the USGS, AID/W, USAID, and ten different firms. Two major issues were raised--the provision of adequate aviation gasoline (avgas) for the survey contractor (up to 80,000 liters of high octane fuel would be required, an amount exceeding normal supply in Jordan) and the question of whether survey photos could be developed outside the country (this was a security problem which the NRA was responsible for solving through coordination with the concerned GOJ agencies). The NRA received the necessary assurances regarding avgas from the local refinery and regarding the photos from the Department of Military

The success of this complex project can be attributed to careful planning during project design and to a general spirit of cooperation between various U.S. and Jordanian governmental agencies during project implementation. Of utmost importance were the clearances required from the Departments of Military Security and Customs, which enabled the expeditious entry and operation of very expensive aircraft. Also crucial was the cooperation by the Department of Civil Aviation in providing avgas. Of equal importance was the readiness of AID/W and the USGS to provide the required legal/contractual and technical expertise for the preproposal conference, and during the evaluation of proposals and contract negotiations.

As the implementing agency responsible for ensuring the project's success, the NRA played a major role in providing in-country support to U.S. government and contractor personnel, and in coordinating the actions of all concerned Jordanian governmental agencies.

14. Evaluation Methodology

This document presents the findings of the terminal evaluation of the project, as conducted by the USAID staff and with contributions from Mr. Andreasen of the USGS and Messrs. Abu Ajamieh and Kaysi of the NRA. As recommended in the project paper, the first evaluation of the project was an interim report written by Mr. Andreasen upon completion of the aerial surveys. In his capacity as advisor to the NRA, USGS geophysicist Gordon Andreasen continuously monitored the progress of the airborne survey contractors, both during their flights in Jordan and at their home offices during their analysis and interpretation of the data. He also reviewed the final reports, including all maps and other attachments, submitted by the contractors to the NRA. As a result of these reports, Mr. Andreasen and other USGS scientists have already recommended a number of follow-on activities, some of which are now being undertaken. These will be discussed below in the "Purpose" Section.

In evaluating this project, USAID has discussed the project, and particularly the final report and recommended follow-on activities, with Messrs. Andreasen and Abu Ajamieh. Both contractors' reports have been reviewed with particular interest in recommended follow-on activities.

15. External Factors

External factors have had little impact on project activities and no impact on the project's success. Pilots were instructed to fly no closer than eight kilometers from the border. Although accurate maps were not available for some of the border areas, it is felt that no significant anomalies were overlooked because of this restriction.

16. Inputs

The availability of funds from AID and the GOS made possible the pre-contract technical assistance and contract supervision, the travel to the U.S. of the two NRA geologists who participated in data analysis and interpretation and the financing of the two airborne geophysical contracts. The timely availability of these inputs contributed to the project's success.

17. Outputs

The primary outputs of this project were the final reports submitted by the two airborne survey contractors, Phoenix Corporation and Geoterrex, Ltd. These reports, which include a narrative, tables and maps, were reviewed and approved by Messrs. Andreasen and Abu Ajamieh. Mr. Kaysi and Mr. Abu Ajamieh of the NRA participated in the interpretation and analysis of the survey data at the contractors' offices during preparation of the final reports.

18. Purpose

As stated in the project paper, the project purpose is "to determine whether the target area contains zones of potentially exploitable minerals; identify and prioritize the most promising zones; and, recommend a course of action for a national exploration program." At the writing of this evaluation, five months after NRA's receipt of the two contractor's final reports, it appears that the project purpose has been fully realized. Analysis and interpretation of the surveys' data have resulted in the identification of a number of geophysical anomalies previously unknown to NRA. The contractors' prioritization of these anomalies is enabling NRA to focus on areas of potential mineral value which might have otherwise taken years to identify and analyze.

In its report, Geoterrex, Ltd. has prioritized for follow-on activity the more electromagnetically conductive anomalies detected during the AEM survey. Each anomaly is described by its electromagnetic character, its geological setting and its probable source. Of the approximately 245 zones investigated during the AEM survey, follow-on activity was recommended in 33 zones. The Phoenix report outlined a suggested follow-on program to the mag/rad survey to include mineral studies, geothermal studies, and oil and gas studies, the results of which may lead to a potentially significant impact on the Jordanian economy.

An indicator of the project's success is NRA's willingness and intent to pursue many of the activities recommended for follow-on. Two of the recommended programs currently being considered are the establishment of a microseismic network to monitor the earthquake activity in selected areas and an exploratory program to determine the potential of geothermal energy in the Jarqa-Main hot springs area. Potential economic gains from

these programs would include the exploitation of a renewable energy source, and the savings of capital and lives associated with proper earthquake planning in construction activities, including such large projects as the construction of pipelines and dams. The designs of these two programs are being partially financed by A.I.D. NRA is independently investigating other anomalies indicated by the surveys to test their mineral content.

19. Goal/Subgoal

The Government of Jordan has assigned a high priority to increasing export earnings through minerals resources exploitation, as evidenced by the size of investments in the phosphate and potash production industries. The successful completion of this project contributes to the GOJ's development goals and is consistent with USAID's developmental assistance strategy at the inception of the project, which expressed, in part, "the need for providing technical and/or capital assistance to selected agricultural, industrial, and minerals extraction projects that have a high revenue or export earnings potential." The further development of Jordan's mining sector will result in increased foreign exchange earnings which, in turn, will reduce Jordan's dependence on other countries for budgetary support.

20. Beneficiaries

Success of this project is not to be measured by its direct socio-economic impact on any segment of the Jordanian population. There are no direct beneficiaries under the project, except for the NRA employees who received some training in data analysis in the U.S. However, as a vital step in Jordan's minerals exploration program, the successful completion of the project is expected to lead to further exploration and follow-on activities which have the potential of indirectly benefiting a large percentage of the country's population, particularly in such areas as increased energy production (geothermal, oil and gas) and in the export earnings resulting from minerals development.

21. Unplanned Effects

The project has not had any unexpected results or impact on any sector of Jordanian life. The completion of the project occurred after NRA's review and acceptance of the two contractors' reports, which were the final product anticipated at the outset of the project.

22. Lessons Learned

We consider this project successful in that it was implemented in a timely manner, the data obtained during the surveys was of good quality and well presented in the contractor's reports, and that the NRA

is already engaged in follow-on activities to this project. As discussed above, critical contractual, legal and technical inputs were provided from several Jordanian and U.S. governmental agencies during the pre-proposal, contract negotiation, and contract performance phases of project implementation, which enabled the project to run smoothly. Thus, lessons learned can be summed up as follows: careful planning in project design and a detailed attention to project implementation by all agencies involved can ensure the coordinated effort required for a successful project.