

PD-006-036

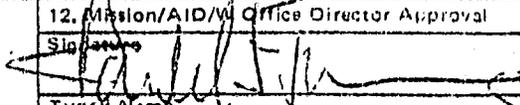
PROJECT EVALUATION SUMMARY (PES) - PART I

1. PROJECT TITLE  Dryland Farming			2. PROJECT NUMBER 608-0131	3. MISSION/AID/W OFFICE USAID/Morocco
5. KEY PROJECT IMPLEMENTATION DATES			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) <u>80-3</u> Terminal <input checked="" type="checkbox"/> REGIONAL EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	
A. First PRO-AG or Equivalent FY <u>76</u>	B. Final Obligation Expected FY _____	C. Final Input Delivery FY <u>78</u>	6. ESTIMATED PROJECT FUNDING A. Total \$ _____ B. U.S. \$ <u>226,000</u>	
			7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>June 1976</u> To (month/yr.) <u>June 1979</u> Date of Evaluation Review <u>June 1980</u>	

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

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., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS			10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT		
<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____	A. <input type="checkbox"/> Continue Project Without Change		
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	_____	B. <input type="checkbox"/> Change Project Design and/or		
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Change Implementation Plan		
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P	_____	C. <input checked="" type="checkbox"/> Discontinue Project		

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)  Marion Ford		12. Mission/AID/W Office Director Approval Signature  Typed Name <u>Harold S. Fleming</u> Date <u>7/18/80</u>	
---	--	---	--

## TERMINAL REPORT

### DRYLAND FARMING (608-0131)

#### Summary:

It is well known that since independence the Government of Morocco has placed high emphasis on the development of irrigated and mechanized farming. However, since the establishment of "Operation Engrais" in 1966 more attention has been given to improvement of agriculture in rainfed areas which include some seven million hectares of arable land and about twelve million hectares of rangeland. Almost all of the cereals and food legumes which constitute the staple diet of the population as well as of the sheep and goats, the major source of meat, are produced in these areas.

Because of this new emphasis, USAID decided that much more specific and in-depth information was needed in order to determine development priorities. It was, therefore, the main objective of this project to provide the analytical data necessary for possible further efforts in three areas:

- a. Drylands Applied Research
- b. Range Management
- c. Agricultural Extension

#### Outputs:

I. A detailed study of the drylands areas was carried out in January 1977 by the MidAmerica International Agriculture Consortium (MIAC) under PIO/T No. 60014, Contract No. AID/NE-1284. The study was conducted by a team composed of:

- Dr. Rex R. Campbell, Professor and Chairman, Department of Rural Sociology, University of Missouri; also farm owner and manager.
- Dr. R. Hunter Follett, Associate Professor, Department of Agronomy (Soils), Kansas State University.
- Prof. Herbert B. Howell, Professor, Department of Agricultural Economics, Iowa State University.
- Mr. Richard Riddle, Ph.D. candidate, Department of Sociology, University of Missouri.
- Dr. James T. Stubbendieck, Assistant Professor, Department of Agronomy (Range Science), University of Nebraska.
- Dr. Donald G. Hanway (Team Leader), Professor, Department of Agronomy, University of Nebraska.

The report was presented to USAID in January, 1977. Following are the conclusions and recommendations of the study:

Conclusions and Recommendations:

1. The team concluded that the yield potential of the small dryland farms of the 200-400 mm rainfall area is much higher than present yields.
2. The development of a continuing applied agronomic research capability is highly desirable because very little information is now available for guiding the important production and infrastructure development programs that will be necessary in development of this dryland farming area.
3. Achieving increased production from the small farmers and improving their standard of living depends on general changes in the cultural, social and economic organization through the provinces. Applied research into the socio-economic situation is essential to guide decisions on development of extension and other essential government programs. It is necessary that information on new technologies be effectively presented to the small farmers and that the necessary infrastructure be developed that can provide the materials for the technological changes and handle the increased marketing requirements. Thus the farmer will realize benefit and be motivated to adopt the new technologies.
4. Present tillage and planting implements are very inadequate. High priority must be given to developing suitable animal-drawn tillage implements and drills for seeding and fertilizer application and getting such implements into general use by farmers.
5. Morocco does not have personnel with the special training and experience required to develop and implement the comprehensive applied research program needed in crop production in this region. Therefore, major emphasis in the proposed program in the first five years is given to the training of Moroccan staff to M.S. and Ph.D. levels in United States universities. Major development of the applied research program in the eight provinces defined as the project area will occur during the last half of a ten-year program when the Moroccan participants have returned from training.
6. A U.S. university contract team was proposed to guide development of the applied research program. Since their role is to assist the Moroccans in developing the program, a small team not to exceed three scientists on long-term assignments is proposed. This is to be supplemented by a larger number of specialists who will be involved in repeated short-term assignments.
7. If the GOM will commit the necessary personnel for training and provide the support required to implement the proposed program, Morocco will have the applied research capability at the end of ten years to make its low rainfall, dryland farming area much more productive in the national interest. Morocco will also have a sound base for improving the standard of living of the millions of people in this area who now live at the subsistence level.

II. A report on the technical and economic feasibility of establishing forage crop seed nurseries to support range perimeter development and extension/education activities was prepared in August, 1977. This report was done by a team from Washington State University (WSU) under Contract No. AID/NE-6-1336, PIO/T 60015. The study team was composed of the following members:

Mr. John L. Schwendiman, Agronomist and USDA SCS Plant Material Specialist, Pullman, Washington.

Dr. Arthur W. Peterson, Consultant, Agricultural Economics, Formerly Professor of Agricultural Economics, Washington State University, Pullman, Washington.

Dr. Grant Harris, Team Leader, Professor and Chairman, Department of Forestry and Range Management, Washington State University, Pullman, Washington.

#### Conclusions and Recommendations:

A phased strategy of five steps was proposed to implement needed range improvement programs. In some instances, parts of later phases may have to be implemented concurrently with earlier phases or at different times on different perimeters.

#### Phase I. Revitalization of GOM commitments to range management programs.

a) A new office in the Ministry of Agriculture at the "Direction" level is essential. Range land and the range livestock industry are too important to the nation for the administration not to receive special and adequate attention.

b) New programs in range extension education, range management teaching, and range research are also required. Personnel presently in range management positions and those returning from education missions abroad should be assigned to work in the new and revitalized programs. Others who have been educated in range management abroad and later left GOM should be brought back. Additional high quality candidates should be sent abroad for M.S. and Ph.D. level training in range management. Their positions must be made challenging by giving them budgets and authority to achieve the goals of the programs. Their salaries must be competitive with those in the private sector.

c) Foreign assistance should be sought, possibly through USAID and Title XII, to provide professional experts, scholarships and other needed professional-level aid. Foreign experts should be phased out as Moroccans are prepared to take full responsibility.

d) Seed production on a pilot basis should be established immediately under the direction of the new range research program. Foreign support should be sought if necessary.

e) Species adaptation, production and management trials should be established at each planned perimeter as soon as possible.

f) Livestock efficiency trials should be established on Perimeter A arid seedings to demonstrate the increased value of the new grasses.

Phase II. Develop confidence among local stockmen for GOM assistance in range management programs.

a) Initiate livestock health programs on the perimeters. Information for control of livestock parasites is already available without further research. Trained veterinarians are available at the perimeters to conduct livestock health programs which should save many lambs and thus increase both meat production and income to the stockmen. Health programs could also increase communication between the Livestock Service and the stockmen for programs in later phases.

b) Conduct tours of the grass seeding success at Perimeter A arid to stockmen from other perimeters and to key government officials. Use other communication techniques.

Phase III. Bring stocking rates on perimeters into closer agreement with range grazing capacities.

a) Provide stockmen with demonstrations of increased income from fewer animals and better nutrition.

b) Demonstrate the advantages of selling lambs and dry ewes at the end of the green feed season by weight to improve income and to reduce stocking rates.

c) Develop a sheep-feeding industry to provide a better market for range lambs.

d) Enforce the royal decrees limiting grazing use to those with legal rights.

e) Demonstrate, through land use studies, the advantages of producing grass forage on submarginal cropland.

f) Increase alfalfa hay production on irrigated lands as a supplement to range forage.

Phase IV. Increase range forage production through range management, including large-scale seedings.

a) Using information gained from species adaptation trials in Phase I, proceed with development of perimeter seedings.

b) Provide supplementary feed, as necessary, to adjust for range areas removed from grazing during rehabilitation.

Phase V. Correlate factors of modern range management to optimize production.

- a) develop efficient transhumance patterns.
- b) Spread the perimeter range management practices to outside communal and private range lands.
- c) Assist stockmen to improve sheep breeds and sheep breeding practices.

III. An evaluation report on the effectiveness of the agricultural extension methodology being used in Morocco was prepared in May, 1978. This study was prepared by a three-person team from Washington State University under Contract No. AID/NE-c-1498, PIO/T 60028. The team was made up of the following members:

Dr. Kenneth J. Morrison, Professor and Extension Agronomist,  
Washington State University, Pullman,  
Washington 99164.

Mr. Robert A. Wesselman, Consultant, Agricultural Development and  
Communication. Formerly Senior Ag Advisor,  
Agency for International Development  
Washington, D.C.

Dr. Wayne Bath, Team Leader, Professor and Associate Director,  
Cooperative Extension Service, Washington State  
University, Pullman, Washington 99164

The objective of this study was to review, evaluate and analyze the Division of Agricultural Extension (DVA) within the Ministry of Agriculture, its organization and methodologies in technology transfer and training while developing recommendations and assisting DVA in a study of its effectiveness.

The report carried recommendations for a phased set of activities including further study by WSU in conjunction with intensive orientation of Moroccan officials and study tours to the United States. The main purpose of this continued study and orientation would be to gain additional perspectives and assist the GOM in analyzing and more clearly defining the roles of agriculture extension.

#### IV. Participant Training:

The following Moroccan participants have received training under this project:

a. Mr. Belmahdi Abdellatif, PIO/P 608-0131-1-60027. He was a prior recipient of a B.S. degree in Agriculture from the American University in Beirut, Lebanon (September, 1974) and was working for the Crop Production Division of the Ministry of Agriculture. Under this project he attended Oregon State University (OSU) as a graduate student in agronomic crop service. He received his M.S. degree in June, 1978. Upon his return to Morocco, he was assigned to teach in the National Agriculture School in Meknes.

b. The following three people were sent to take part in the International Symposium on Rainfed Agriculture during April 1977. The symposium was held at Riverside, California and was sponsored by Oregon State Univ. and the University of California.

1. Faraj Houcine, Director of the Agricultural Development Bureau, Ministry of Agriculture
2. Berrada Abdelfatah, Chief of the Agronomy Department, Division of Agriculture Research
3. Sqalli Adaoui Abdelatif, Chief of Dryland Farming Service, Division of Agriculture Research

All three participants returned to Morocco to their previous positions.

c. Dr. Paul Pascon, PIO/P 608-0131-1-70013. He attended a special program for research training in dryland farming at Columbia, Missouri. This 11-week course was completed in October 1977. Dr. Pascon is the head of the Department of Rural Sociology at the Agriculture Institute (IAV) and is responsible for doing the socio-economic studies financed under the Dryland Applied Research project (608-0136).

d. Mr. Addelah Hammoudi attended the special research training program at Columbia, Missouri in October 1977 in conjunction with visits to the San Joaquine and Imperial Valleys, the USDA date palm station at Indio, California and interviews with various rural sociologists at Berkeley, Columbia and Princeton Universities.

e. Mr. Berrada Abdelfatah, Deputy Chief of the Dryland Farming Service is, at the present time, being processed for admittance to a U.S. university for Ph.D. studies in dryland farming. This training will be financed under PIO/P 80012 for a two-year period. It is expected that Mr. Berrada will return to Morocco upon completion of his training and resume his job in the Division of Agriculture Research.

Conclusions:

The total expenditures under this project as of April 1979 are \$196,334. Additionally, \$30,000 has been obligated under PIO/P 80012 for the Ph.D. training of Mr. Berrada Addelfatak. All remaining funds were deobligated as of March 31, 1979. Therefore, the project may be considered as completed.

As authorized above, there were four outputs achieved under this project as follows:

1. The study of Dryland Agriculture Applied Research by the MidAmerica International Agricultural Consortium (MIAC);
2. The study of Range Management Improvement by Washington State University (WSU);
3. The evaluation of Morocco's Agricultural Extension Service by Washington State University;
4. The long-term training of two participants and the short-term training of five participants.

The Dryland Farming project is considered to have successfully achieved its objectives by providing analytical data which was used in the preparation and design of Project No. 0136 which was authorized in April 1978.

The study of Range Management Improvement is considered a high quality evaluation of the potential of range improvement. At the present time it is being used as resource material in the preparation of documentation for a range management improvement project to be designed in FY 1979/80.

The evaluation of Morocco's agricultural extension service was considered somewhat less successful insofar as it did not provide definitive recommendations for AID action. However, it achieved the important accomplishment of pulling together much important material under one cover.

All participant training was successfully accomplished and all participants have returned to their prior positions.