

PROJECT PAPER
AMENDMENT NO. 1
Project 608-0145

RANGE MANAGEMENT IMPROVEMENT

Morocco

August 1984

PD 0110 438

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input checked="" type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number One	DOCUMENT CODE 3
2. COUNTRY/ENTITY Morocco	5. PROJECT NUMBER 608 0145		
4. BUREAU/OFFICE Near East	5. PROJECT TITLE (maximum 40 characters) Range Management Improvement		
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 01 18 86	7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY <u>86</u> B. Quarter <u>4</u> C. Final FY <u>86</u>		

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

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	800	---	800			
(Grant)	(800)	(---)	(800)	(5,075)	(---)	(5,075)
(Loan)	(---)	(---)	(---)	(---)	(---)	(---)
Other U.S.						
1.						
2.						
Host Country		1,300	1,300	---	3,858	3,858
Other Donor(s)						
TOTALS	800	1,300	2,100	5,075	3,858	8,933

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) FN	100	095	--	4,200	--	--	--	5,075	--
(2)									
(3)									
(4)									
TOTALS				4,200	--	--	--	5,075	--

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

11. SECONDARY PURPOSE CODE

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

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To strengthen the institutional capability of the GOM Ministry of Agriculture (MARA), Livestock Department (DE), Range Management Service (DE/SP) to plan, and implement DE/SP applied research, extension, and rangeland development programs.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY

01 84 01 86

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

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

This Amendment updates the project description of the beneficiaries, the project zone, the project's institutional objectives for each of the projects 4 major implementation components, as well as the project's implementation and management strategy. The project's inputs and outputs are clarified. The PACD is extended to August 30, 1986. This Amendment's financial plan, implementation plan, and evaluation plan replaces these plans as stated in the original project paper. The revised log frame replaces the original PP log frame.

17. APPROVED BY	Signature: <i>Robert C. Chase</i> Title: Robert C. Chase Mission Director	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION Date Signed: MM DD YY 08 10 84 MM DD YY 08 13 84
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AID 1350-4 (8-79) USAID/Morocco Controller's approval of Proposed Methods of Implementation and Financing.

Mark Matthews Mark Matthews

July 27, 1984

ACTION MEMORANDUM FOR THE DIRECTOR

From: Malcolm Purvis, FAO and Stacy Rhodes, PROG
Subject: Range Management Improvement Project (608-0145)

Action Requested: Approval of Project Paper Amendment No. 1

Background:

In January 1984, the third year of the Range Management Improvement Project, an evaluation identified problems in its initial design that were serious impediments to the achievement of the project's goal and purpose. This evaluation also noted several strengths and highlighted the positive potential offered by this project. As a result, the evaluation recommended that the project be redesigned to resolve the weaknesses identified and build upon the lessons learned from past implementation experience.

This Project Paper Amendment is the result of this redesign effort. The redesign was completed by the DE and USU staff associated with the project. The redesign especially addresses three design-related weaknesses of the project: 1) the excessively narrow approach taken by the project towards resolving range management problems in Morocco, 2) failure to ensure adequate coordination of project activities, and 3) the absence of an explicit project strategy to ensure that the project's institutional development objectives would be met. This PP Amendment presents a revised description which covers project beneficiaries, project inputs, project outputs, the project management strategy, range development strategy, and institutional development priorities. It also contains a detailed description of the four revised project components, i.e. an applied range/livestock research program, an extension program development effort, long and short-term training, and the Plant Material Center development program.

This PP amendment replaces in its entirety the original project paper description (pages 1-17); the financial plan (pages 18-20); the implementation plan (pages 21-24); the evaluation plan (page 25); Annex 4, the Project Checklist (page 1-8); and Annex 5, the Project Logframe.

The PP amendment updates but does not replace the discussions of project goal, purpose, and life of project funding level, as stated in the original Project Paper. It updates the Administrative Analysis (pages 69-80) of the original PP. It does not affect the other original project specific analyses, i.e. the Economic Analysis (pages 26-38); Social Analysis (pages 39-55); Technical Analysis (pages 56-68); Environmental Concerns (pages 80-82); Conditions Precedent, Covenants, and Negotiating Status (page 82); Annex 1, the Detailed Commodity List; Annex 2, the NEAC Reporting Cable of August 7, 1979; Annex 3, the GOM Project Request Letter; Annex 6, Sheep and Goat

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Marketing in Morocco, pages 1-17; and the Memorandum by Mr. Fleming, DIR/USAID/Rabat to Mr. White, AA/NE/AID/W, dated June 9, 1980, responding to the NEAC Reporting Cable on the Project Paper Review, held on March 27, 1980.

Recommendations: That the Range Management Improvement Project 608-0145 Project Paper Amendment Number One be approved, and that the Project Assistance Completion Date (PACD) be extended to August 30, 1986.

Attachments: Project Paper Amendment No.1

APPROVAL Robert C Chase
Robert C. Chase
Mission Director

Date 8/10/84

USAID PROJECT COMMITTEE

DORAL WATTS	PROJECT OFFICER
MALCOLM PURVIS	FOOD & AGRICULTURE OFFICER
PAUL CRAWFORD	AGRICULTURAL ECONOMIST
STACY RHODES	PROGRAM OFFICER
JOHN GUISTI	EVALUATION OFFICER
HARRY PETREQUIN	DEPUTY DIRECTOR
MARK MATTHEWS	CONTROLLER

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SUMMARY OF ABBREVIATIONS

AID	- Agency for International Development
DE	- Direction de l'Elevage (Livestock Department)
DP/SP	- Service de l'Aménagement et Mise en Valeur des Terrains de Parcours (Range Management Service)
DPA	- Direction Provinciale de l'Agriculture (Provincial Agriculture Department)
ENA	- Ecole Nationale d'Agriculture (National Agricultural School, Meknes, Morocco)
EOP	- End-of-Project
GTZ	- German Technical Assistance Organization
GOM	- Government of Morocco
IBRD	- International Bank for Reconstruction and Development
INRA	- Institut National de la Recherche Agronomique (National Agronomic Research Institute)
INAV	- Institut National Agronomique et Veterinaire Hassan II (National Agronomic and Veterinary Institute-Hassan II)
LOP	- Life-of-Project
MARA	- Ministere de l'Agriculture et de la Reforme Agraire (Ministry of Agriculture and Agrarian Reform)
ORMVA	- Office Regional de Mise en Valeur Agricole (Regional Office of Irrigation and Rural Development)
PACD	- Project Assistance Completion Date
PIO/C	- Project Implementation Order/Commodity Procurement
PIO/P	- Project Implementation Order/Participant Training
PIO/T	- Project Implementation Order/Technical Services
PMC	- Plant Material Center, Khemis M'Touh, Morocco
SONACOS	- Societe Nationale de Commercialisation des Semences (National Seed Marketing Company)
SNDE	- Societe Nationale de Developpement de l'Elevage (National Livestock Development Society)
SR-CRSP	- Small Ruminant Collaborative Research Support Program (Project No. 931-1328)
USAID	- United States Agency for International Development
USU	- Utah State University, Logan, Utah

I. Summary and Recommendations:

A. Grantee: The Government of Morocco (GOM).

B. Implementing Agency: The Direction de L'Elevage (Livestock Department) of the Ministry of Agriculture and Agrarian Reform (MARA).

C. Amount: The Amendment does not change the USAID U.S. dollar project funding level from the previously authorized LOP funding level of \$ 5,075,000.

D. Total Project Costs: The total project cost, measured in terms of dollars, has decreased due to the unforeseen devaluation of the Moroccan dirham, relative to the U.S. dollar. Taking into account the devaluation of the dirham, total project costs by source, foreign exchange, and local currency, are estimated as follows:

<u>Source</u>	<u>FX</u>	<u>LC</u>	<u>TOTAL</u>
AID Grant	\$ 5,075,000	- 0 -	\$ 5,075,000
GOM	- 0 -	\$ 3,858,000	\$ 3,858,000
Total	\$ 5,075,000	\$ 3,858,000	\$ 8,933,000

E. GOM Contribution: The GOM contribution, as measured in dirhams, remains the same. Because of the devaluation of the dirham, however, the dollar value of this contribution has decreased.

F. Project Purpose: To strengthen the institutional capability of the Service de l'Aménagement et Mise en Valeur des Terrains de Parcours (DE/SP) to plan and implement DE/SP applied research, extension, and rangeland development programs.

G. Project Description: The Range Management Improvement Project (608-0145) is an institution building project which was originally designed to be implemented over a five year period by a U.S. Title XII institution under a host country contract with the Direction de l'Elevage (DE) of the GOM Ministry of Agriculture and Agrarian Affaires (MARA). The Project Paper and GOM-USG Project Agreement were approved in 1980. A host country contract between DE and Utah State University (USU) was approved in March 1981, and the technical assistance team arrived in country in August 1981. Under this DE-USU host country contract, USU was to provide long and short-term technical assistance, coordinate long and short-term participant training, procure project commodities, and manage the project implementation in coordination with DE. Peace Corps Volunteers also collaborated in this developmental effort.

In January 1984, the third year of the project, an evaluation identified problems in the initial project design that were serious impediments to the achievement of the project's goal and purpose. This evaluation also noted several strengths and highlighted the positive potential offered by this project. The evaluation recommended that the project be redesigned to resolve the weaknesses identified and build upon the lessons learned from past implementation experience.

This Project Paper Amendment is the result of this redesign effort. The redesign was completed by DE and USU staff associated with the project. The redesign especially addresses three design-related weaknesses of the project: 1) the excessively narrow approach taken by the project towards resolving range management problems in Morocco, 2) failure to ensure adequate coordination of project activities, and 3) the absence of an explicit project strategy to ensure that the project's institutional development objectives would be met. This PP Amendment presents a revised description which covers project beneficiaries, project inputs, project outputs, the project management strategy, range development strategy, and institutional development priorities. It also contains a detailed description of the four revised project components, i.e. an applied range/livestock research program, an extension program development effort, long and short-term training, and the Plant Material Center development program.

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H. Recommendations: That the Range Management Improvement Project 608-0145, Project Paper Amendment Number One, be approved, and that the Project Assistance Completion Date (PACD) be extended to August 30, 1986.

II. Amended Project Rationale and Description

A. Introduction

The Range Management Improvement Project (508-0145) began in 1981. It is being implemented by Utah State University (USU), under a host country contract with the Direction de l'Elevage (DE) of the GOM Ministry of Agriculture and Agrarian Reform (HARA). The purpose of the project is to strengthen the institutional capability of the Service de l'Amenagement et de la Mise en Valeur des Terrains de Parcours (DE/SP) to plan and implement its applied research, extension, and range management programs. The project goal is to improve livestock productivity and the incomes of Moroccan livestock producers.

This project was evaluated in January 1984 and various strengths and weaknesses were noted. The evaluation team, optimistic about the potential offered by the project, recommended that it be redesigned to overcome certain identified weaknesses and to build upon the implementation experience gained to date. The primary purpose of this Project Paper Amendment is to present the redesigned project description. It represents a program for project implementation in the remaining two years of the life of the project.

The January 1984 evaluation identified the following design-related problems as serious impediments to project success:

- The approach outlined in the original design, i.e. an emphasis on extension activities centered on range management perimeters, was too narrow. Further, the project failed, during its first three years of implementation, to adapt to changes which were taking place in the environment in which the project operated (specifically the cropping and ultimately the privatization of collective rangelands);
- The design did not adequately provide mechanisms or a strategy to ensure that project activities on each of the perimeters would be coordinated. Further, the design did not ensure that the efforts of the project would be coordinated with those of related projects sponsored by USAID, or other donors.

A Mission Review of the draft redesigned project identified a third concern:

- No explicit strategy had been developed to ensure that the institution-building objectives of the project were fully realized. The necessary linkages between project supported research and extension activities and the project's training and institutional development needs were not adequately defined.

To address these problems, the redesigned project incorporates a number of modifications to the original project paper. The project strategy has been modified and more broadly defined, in order to more effectively achieve project objectives. The project management structure has been reorganized to ensure improved coordination. The revised project description also presents a more concrete strategy for ensuring that institution building objectives are met.

B. Purpose of this Project Paper Amendment

This Project Paper Amendment modifies the description of the Range Management Improvement Project (608-0145) in order to respond to recommendations made by the mid-project evaluation. However, the project's goal, purpose, life of project funding level, and beneficiaries remain unchanged. The Project Activity Completion Date (PACD) is being extended by two months to permit the return of the last two degree participants in August, 1986.

The Project Paper Amendment replaces the project description contained in the original Project Paper. The new project description includes a review of AID's assistance in range management in Morocco, including the experience to date of the current project. The Amendment presents data on project area and beneficiaries to update that given in the original project paper. It restates the project's goal and purpose and presents an overview of the project's inputs and outputs. The failure of the original project paper to discuss in detail the inputs and outputs of the project caused serious confusion in the first three years of project implementation.

Included in the new project description is a discussion of the project's implementation strategy. This section focuses on how the project will address the three weaknesses in project implementation mentioned above (the narrow focus, lack of coordination, and insufficient attention to institution building objectives). It then presents an outline of the major components of the project. These are applied research, extension, long- and short-term participant training, and the Plant Materials Center. This discussion focuses on the current status, future activity, and planned end-of-project status of each of these components.

The Amendment discusses the continuing roles and responsibilities of USAID, the contractor, and the Direction de l'Elevage. It includes a review of contractor and DE/SP staffing plans for the final two years of the project. It also provides information on DE/SP's continuing support for the project.

The Project Paper Amendment also replaces the financial plan and budget for the project and presents updated implementation and evaluation plans. A new annex is included which discusses the organization and operation of DE/SP. A project logframe is annexed, together with detailed implementation plans for the four project components covering the final two years of the project. In this Amendment it has not been necessary to repeat the economic, social, technical, or environmental analyses conducted as part of the original Project Paper.

C. Background

1. The Range Livestock Sector in Morocco

Rangelands comprise an important segment of Morocco's renewable resource base. Over half of the 70 million total hectares in Morocco are used for grazing purposes.

Production of meat and wool in Morocco is relatively low. This is the

result of generally low levels of animal nutrition, inadequate husbandry practices, and insufficient application of disease and parasite control programs. The poor nutrition is due to over-stocking and the consequent depletion of the range. The loss of vegetative cover has, in turn, led to land degradation, accelerated erosion, and downstream siltation. This situation has been aggravated by the expansion of cereal production into lands previously devoted to range/livestock production. The frontier of cropland development has already been pushed onto lands that are marginal, if not totally unsuitable, for cultivation. As a result, an estimated fifty percent of the land planted to cereals produces only ten percent of total cereal output in Morocco.

The Moroccan livestock production sector has, by all indications, surpassed the biological limits of sustained yield under the present system. Drought conditions, such as those experienced over the past several years, have only served to worsen the situation. The negative long-term effect of this problem is increasingly being recognized as a critical factor in the development of range management programs and policies.

The GOM is attempting to address this issue. However, progress has been slow. There is a need for applied research to find solutions, and for strong extension programs to present these solutions to livestock and crop producers. Recent contacts with local administrators and producers indicate an increasing awareness of the need for, and increasing receptivity to, technical assistance. The GOM is doing its best to develop and fund programs and provide this assistance.

A strong programmatic effort is necessary to develop a Moroccan institution capable of conducting applied range research and extension. Continued AID support is necessary for training, equipment, and advisory personnel to develop the institutional capability needed in Morocco, if the Moroccan range livestock industry is to be sustained and to realize its potential.

2. The Former Range Management Project

In 1966, the Government of Morocco, faced with the problems of overgrazing on collective lands and a lack of technically qualified personnel, requested USAID support to develop range management perimeters. A project was initiated in 1968, with International Voluntary Services (IVS) Volunteers providing technical assistance. The original plan was to develop twelve range management perimeters covering an area of 325,000 has. over a period of three years. Shortly after it was begun, however, the project was reduced in scope to four perimeters totalling about 95,000 hectares. It was gradually reduced even further, to two areas covering 70,000 hectares (perimeters Plaine de l'Aarid and Tafrata). Moreover, the thrust of the project was changed from rapid development of the entire area of each perimeter to some research on relatively small areas in each. By the completion of the project, in 1974, one half million dollars had been expended.

The primary problem with this original range management project was its failure to obtain the understanding, consensus, and participation of local livestock producers and their leaders at the provincial level. The local people became suspicious of government intent and effectively resisted the program. For example, one year after the project started, the Governor at

Beni Mellal requested that the program planned for Ait Rbaa be canceled because of opposition by the local people. This was complicated by the failure of the GOM to provide adequate logistic and budgetary support. These problems continued to plague the project even after its scope was reduced. Four of the five IVS volunteers resigned before their contracts were completed.

Nevertheless, the project did achieve several important results. Six Moroccans were sent to the U.S. for five months of training and one was sent for an MS degree. Project personnel assisted the GOM in formulating a Royal Proclamation (Dahir No. 1-69-171), which was passed in 1969. This law provided for the local establishment of grazing organizations on range improvement perimeters, and thus gave a legal basis for the management and development of the country's communal grazing land. In the Midelt area, the project demonstrated the feasibility of reseeding and deferred grazing. It also convinced the GOM of the need for range management. As a result, the Service des Parcours et l'Alimentation (the forerunner of DE/SP) was created within the Direction de l'Elevage.

3. Implementation History of the Current Range Management Project

In October, 1975, the GOM again requested USAID assistance in implementing a range management project. USAID fielded a contract team from Washington State University which completed a feasibility study for a forage seed production project in August, 1977. The proposal was subsequently modified by both USAID and the GOM and approved in PID form by AID/W in August, 1979. In October, 1979, a project design team was fielded by the Consortium for International Development (CID). The design team outlined a project focusing on range extension and long- and short-term training. This second study served as the basis for the authorized Project Paper, which was produced in July, 1980.

A LOP AID contribution to the project of \$5,075,000 million was approved, and the GOM promised to contribute another \$6,770,000. The U.S. contribution covered technical assistance (resident and TDY), participant training (long- and short-term), and limited commodity support. The purpose of the project was to strengthen the technical and administrative capability of the Service de Parcours to conduct research in range management and to implement its range management program. The original project completion date, August 31, 1985, was extended by USAID/Morocco to June 4, 1986.

Utah State University (USU) was chosen to implement the project and, in March, 1981, they signed a host country contract with DE. A four person team was fielded by USU in August 1981. It consisted of three range management specialists and a social anthropologist. The three range management specialists were assigned to work in Oujda (Ain Beni Mathar perimeter), Beni Mellal (Ait Rbaa perimeter) and Meknes (Tmahdite perimeter). Subsequently, the USU range management specialist at Oujda was transferred to Midelt (Plaine de l'Aarid perimeter). The range management specialist at Meknes was to serve as in-country Project Coordinator. The sociologist, who was to provide technical assistance to all of the perimeters, was also assigned to Meknes. In October, 1982, a fifth team member, a seed production specialist, was assigned to provide technical assistance to the Plant Materials Center (PMC). These individuals were supported by seven Peace Corps volunteers, four of which were range management specialists and three of which were sociologists. The PCVs arrived at their respective sites in December, 1982.

Implementation of the project during its first three years was plagued by interpersonal conflicts among the USU staff. Part of the problem was the failure of USU administration to provide the in-country Project Coordinator at Meknes with authority to serve as the project's Chief of Party. This weakness was not rectified until the third year of the project. Nevertheless, in the course of replacing some of its original personnel, USU has greatly strengthened both the experience and technical expertise of its in-country team.

Under the project, 11 Moroccan participants have been studying towards MS degrees at various U.S. universities. In addition, nine Moroccans received short-term training in the U.S. in range extension under a program developed by USU, another six attended a short-course for administrators given the U.S., and four Moroccan project staff members have attended, along with USU staff, professional meetings outside of Morocco. Further, during the first three years of the project, \$415,000 worth of commodities were obtained, including equipment for the Plant Materials Center and the various perimeters.

The evaluation of the project, undertaken in January 1984, identified a number of design and implementation problems that needed to be corrected. USU and DE staff immediately began implementing many of the changes called for in the evaluation. However, some of the changes necessitated more thorough review and analysis, culminating in the redesign of the project, itself.

D. The Project Area

The original project design called for project activities at five range extension perimeters and a Plant Materials Center. The perimeters were Ain Beni Mathar (Oujda); Ouch Laghrab (Missour); Plaine de l'Aarid (Midelt); Timahdite (Azrou/Meknes); and Ait Rbaa (Beni Mellal). The PMC is located at Khemis M'Touh, in El Jadida Province. Prior to the initiation of project implementation the Ouch Laghrab perimeter was dropped. The original USU team members were located at Ain Beni Mathar, Timahdite, and Ait Rbaa, with the Ait Rbaa technician handling Plaine de l'Aarid, as well. The range management specialist at Ain Beni Mathar subsequently transferred to Plaine de l'Aarid. Consequently, project involvement at Oujda has been confined to the activities of two Peace Corps Volunteers at the Ain Beni Mathar perimeter.

Under the redesigned project, project staff will continue to work in these four range management areas (Oujda, Midelt, Azrou, and Beni Mellal). Rather than the narrow focus on perimeters, however, the scope of the project will be broadened to encompass the livestock production system in these areas, as a whole.

The areas selected for the project's range management activity represent a wide spectrum of rangeland situations in the semi-arid regions of Morocco:

- Oujda, on the eastern steppe, represents a dry, shrub-dominated range ecosystem. The rangeland near Oujda is used year-round, with relatively little reliance on crop aftermath and supplemental feeding in the local production system.

- Midelt is a wetter (more mesic) environment, due to higher precipitation levels and its higher altitude. The Midelt area range is also dominated by shrub species. Livestock owners at Midelt are more dependent on crop aftermath than at Oujda, but less so than either Timahdite or Beni Mellal.
- Timahdite, because of its higher altitude and greater precipitation levels, is the most mesic (wettest) project area. It was historically a summer rangeland, with a grass/shrub forage base. At Timahdite, the range forage is now supplemented by the extensive use of crop residues as feed, along with the use of imported forages and forages produced on local cultivated lands.
- Beni Mellal, a relatively mesic region, has a range comprised of herbaceous grasses. At Beni Mellal the rangeland makes up the smallest part of the feed budget. The rangeland around Beni Mellal is primarily used during the winter months, to complement the major forage supply, which comes from croplands.

A concern has been expressed that, in continuing to work in four range management areas, project resources will be thinly spread. DE/SP and the USU technical assistance team feel, however, that much can be gained by continuing project activities in as wide a variety of ecological regions and livestock production systems as possible. Therefore, project staff are attempting to address the problem by structuring the project to most efficiently use the personnel resources available.

E. Beneficiaries

Nearly 600,000 families in Morocco are dependant to some degree on sheep and goat production. These livestock producers represent the ultimate beneficiaries of the project. They can be divided into three groups. The largest is composed of sedentary cereal farmers. Their herds tend to be relatively small (less than 30 animals). The flocks are scavengers utilizing crop aftermath, fallow, and taking advantage of any communal grazing rights that the producer may possess. The next largest group are semi-migratory producers, having private land devoted to cereal production and communal grazing rights. Migratory producers form the third and smallest group. They move among the cropland, rangeland and forest lands as seasons and conditions warrant. Each group utilizes croplands in some manner to produce livestock, and it is a common practice to supplement flocks with barley, corn, hay, or straw when forage availability is low. However, the natural vegetation produced on Moroccan rangelands is generally a primary source of animal forage.

While these livestock owners represent the ultimate beneficiaries of the project, the immediate beneficiaries will be the staff of DE/SP, who will receive training in range management and related disciplines, and those livestock owners within the immediate project areas who participate in project-related activities and receive technical assistance from DE/SP staff, USU advisors, and Peace Corps volunteers.

F. Project Purpose and Goal

The Purpose and Goal of this project remain the same as in the original project design. The wording of the Purpose and Goal statements in the logframe has, however, been more sharply focused and clarified (see Annex 1: Revised Project Logframe). The Project's Goal is "to increase livestock productivity and production efficiency for low income Moroccan livestock owners." The revised Project Purpose is to develop the institutional capability of the Service de l'Aménagement et Mise en Valeur des Terrains de Parcours of the Direction de l'Élevage (DE/SP) to plan and implement its applied research, extension, and rangeland development programs.

G. Project Outputs

As listed in the Revised Project Logframe (Annex 1) the outputs of the project include:

- The training of DE/SP personnel to the MS level in range science and other related disciplines. Two Moroccans have already returned and nine are currently studying in the U.S.
- The training of DE/SP personnel in range management through short-courses carried out in the U.S. These short-courses emphasize the practical aspects of range management. Eighty person-months of short-term training will be provided to DE/SP staff by the end of the project. Over fifty person-months of short-term training have already been given to DE/SP personnel.
- The development of applied research and extension programs in range management. The emphasis is on developing, within DE/SP staff, the capability to plan and conduct such programs in the future.
- The establishment of a Plant Materials Center to serve as a national center for research and development of forage and conservation species adapted to low rainfall areas of Morocco. Construction of the facilities is nearing completion. Efforts are continuing to train the staff in the operation of the Center.

H. Project Inputs

Project inputs include:

- Long-term technical assistance in range management research and extension, anthropology/sociology, and seed production. During the first three years of the project, this assistance was provided by five senior-level personnel. During its final two years, four senior level specialists and up to six junior-level technicians will be provided. This effort has been supplemented by the participation of eight Peace Corps Volunteers in the project, beginning in Year 2.
- Short-term technical assistance in the fields of sheep and wool production, range/livestock production, plant materials, range

research, rural sociology/anthropology, range economics, extension methods, and other disciplines, as needed.

- Long-term training at various universities in the U.S. for eleven participants. Short-term training in the U.S. in range management for at least 24 participants.
- Commodities to support the Plant Materials Center, the resident technical staff, and DE/SP research and extension activities. The life-of-project commodity contribution is \$807,284.

The total U.S. life-of-project contribution is \$5,075,000. The total life-of-project contribution by the Government of Morocco is 25,050,000 dh (originally calculated at \$6,770,000 at the 1980 exchange rate).

I. Changes in Project Strategy

1. Evaluation Recommendations

The Project Paper Amendment specifically addresses three weaknesses in the project design that have been identified as impediments to attaining project objectives. These weaknesses, identified above in the introduction, are (1) an excessively narrow approach taken by the project towards addressing the problems of range management in Morocco, (2) the failure of the design to ensure adequate coordination of activities, and (3) the absence of an explicit strategy to ensure that the project's institution-building objectives would be met.

2. Broadening the Project Focus

During the first three years of project implementation, project activities centered around perimeter development and collective lands. Based on experience to date, it is obvious that the project must take a broader perspective and focus on livestock/crop production zones and systems, in order for it to achieve its goals. Focusing on livestock production systems in the project areas will entail consideration of all land resources where forage is produced and utilized by livestock. These land resources include private land, collective land, and (in three of the four production zones - Timahdite, Beni Mellal, and Midelt) forest land. Though collective land still fulfills a role in the annual feed budget of animals, it is only a part of the system. Its importance as a component of the livestock production system varies from area to area and from season to season. In Beni Mellal, for instance, a principal forage source is crop aftermath. The use of collective rangelands occurs primarily during the winter season, when the crops are growing. In addition, some livestock producers are allowed seasonal use of the forage resources on forest land.

By considering only a part of the total system, project activities may ignore critical constraints to increased production and productivity. In rural Morocco, for instance, livestock production is often a secondary enterprise, determined and overshadowed by crop production activities. Recommendations made by the project which do not take into account crop production needs may be neither appropriate nor practical.

In order to overcome this limitation, the redesigned project focuses on livestock/crop production systems. This broader focus will include a review of the constraints associated with collective land use. It also includes an examination of the availability of resources (land, labor, and capital) to livestock producers; animal production and management practices (health, breeding, nutrition, marketing); the relative importance of crop and animal production in the system; socio-economic constraints; and policies and laws affecting livestock production.

One advantage of a broader focus is that it provides easier access to livestock owners. For example, in recent months project staff at Beni Mellal have used animal health programs as a springboard for establishing contact and credibility with livestock owners. They have begun providing herd management advice to livestock producers, including advice on which animals to cull because of reproductive, disease, or soundness problems. The ability of livestock owners to see immediate benefits from such assistance makes them much more open to those recommendations by project staff which address longer-term needs and problems.

3. Increasing Project Coordination

a. Past Coordination Problems

The 1984 Evaluation identified a lack of coordination of project activities as a serious constraint to project implementation. There were a number of causes for this difficulty, many of which can be traced to the original project design. First, the project has been operating in five widely separated locations (Oujda, Midelt, Timahdite, Beni Mellal, and El Jadida) and the distances between these sites have limited contact among project personnel. In addition, the original project design required the in-country coordinator to reside in Meknes and gave him technical responsibility for project activities in the Timahdite area. In fulfilling his administrative duties he was forced to spend a great deal of time travelling on project business. This decreased the amount of time that he was able to spend in actually carrying out his technical responsibilities. In addition, the time spent fulfilling both administrative and site-specific technical tasks further reduced the amount of time available to coordinate the overall program.

The original project design did not adequately specify how either the socio-economic component of the project or the Plant Materials Center would be integrated with the project's range management activities. Nor was it explained how activities on the individual perimeters would relate to one another. No specific direction, or coordinated and unified approach to problem solving, was provided in the design. In the end, project efforts evolved into disparate individual activities, often addressing problems of limited, and sometimes tangential, importance. At the same time, problems critical to overall project success were not addressed.

b. Resolving Coordination Problems

The project redesign proposes a number of measures to overcome the coordination problems experienced in the first years of the project. The GOM has requested that the project continue, and if possible expand, its activities in each of the project sites. In order to accomplish this task

and, at the same time, ensure adequate coordination, it has been necessary to propose a change in the organizational structure of the project.

Three senior-level range specialists will be needed for the duration of the project. They will include a range economist, a range scientist, and a range management/extension specialist. The range economist, who will also serve as Chief of Party, will be responsible for economic research in each project zone. The range scientist will be responsible for design, implementation, and coordination of an applied research program in forage and livestock production in each project area. The range management/extension specialist will coordinate all range extension activities in each project area. By establishing specialist areas of responsibility across all perimeters, a coordinated, programmatic approach can be developed. This will also help ensure that project objectives are clear, and that the same pertinent questions are addressed on all project areas.

These senior range management specialists will be based in Rabat (the range management specialists presently in Midelt and Beni Mellal will relocate). Bringing these individuals together will establish a central focus for planning, coordination, communications, administration, and operation. Using Rabat as a base, the senior specialists will travel to each of the project areas to work with project staff (DE/SP, USU technicians, and Peace Corps Volunteers) in the field.

In order to maintain a presence in the field and ensure continuity of activity, USU is proposing to hire up to six junior-level field technicians. Peace Corps Volunteers who have been affiliated with the project for the past two years will be recruited for these positions. These individuals, who are currently scheduled to complete their tours in August 1984, would bring needed language skills, in-country experience, and technical expertise to the project. Four junior-level range management technicians, one for each project area, and a junior-level sociologist technician are being sought. The junior-level sociologist, who will help direct project socioeconomic research at all four sites, will be based in Rabat. This person will be strongly supported by experienced TDY assistance. Finally, a junior-level farm mechanic/agronomist technician is being sought for the Plant Materials Center. If complete staffing of the range technician positions is not possible, a second sociologist will be recruited. To date, four of the current PCVs (two sociologists and two range management specialists) have expressed strong interest in continuing to work under the project as junior-level technicians.

In addition a new group of Peace Corps volunteers is scheduled to be assigned in September 1984. This group will consist of five sociologists and three range management specialists. Steps have also been taken to transfer to the project a Peace Corps volunteer already in country to fill the fourth range management PCV position. The junior-level technicians will provide experience and leadership to permit these new PCVs to be more rapidly assimilated into the project.

The placement of junior-level technicians and PCVs in the field to work with DE staff, will help ensure that project planning and implementation are coordinated and integrated. The senior specialists will work with the technicians, PCVs, and DE staff in each area to plan, implement, and evaluate the program. The objective will be to develop project activities that are

integrated into a coherent overall program.

The project will increase its use of short-term technical assistance in all areas of research methods and design, extension techniques, and plant and animal production technology. TDY assistance will be especially important for the socioeconomic component of the project. This short-term assistance will be designed to assist project staff on a project-wide basis.

The senior-level seed production specialist will remain at the Plant Materials Center, near El Jadida. In order to ensure the integration of the PMC with the rest of project, the redesign has more clearly defined the role of the PMC with respect to overall project objectives. In the redesigned project the PMC role will be shifted from the production of foundation seed to support of the project through seed and plant material multiplication. In addition, the facility will support project efforts in the area of research and development of native plant materials. The PMC will also supply forage seed and shrub stock for project use, as well as forage and crop residues (straw) to support the project extension program.

c. Increasing Collaboration with Other Organizations and Programs

Under the original project design, little was accomplished in developing close working relations with allied projects and organizations, as a means of increasing the effectiveness of the project. Over the past few months positive steps have been taken by the project staff to establish the close ties needed with these related programs and institutions. Under the redesigned project, cooperation with other projects and GOM programs will be strongly encouraged. A number of related projects are of particular note.

The INRA/GTZ (German Technical Assistance) Project is conducting research on forage species for higher rainfall zones (at least 300 mm of precipitation) as well as working on medic and forage shrubs for the lower precipitation zones (in areas climatically similar to Beni Mellal). Consequently, the INRA/GTZ staff can provide valuable insights into range improvement and forage seed production. The INEA/GTZ staff are interested in utilizing the facilities of, and sharing technology with, the PMC, while the staff at the PMC in turn, can draw upon INRA/GTZ expertise in medic seed production techniques.

Opportunities for joint activities and for cooperation with SR-CRSP researchers have been identified. Under the SR-CRSP, a professor at the Ecole Nationale d'Agriculture (ENA) is conducting research on nutrient quality and animal production using range forages. Also under the SR-CRSP, a professor at the National Agronomic and Veterinary Institute (INAV) and an American graduate student are conducting research to estimate forage production under the Agdel system, a traditional form of management involving seasonal deferment of collective lands. A third SR-CRSP researcher is studying the effects of stocking levels on plant communities. He is working at the Plaine de l'Aarid perimeter and plans to have a student working on medic and forage production at the Ait Rbaa perimeter. The SR-CRSP is also supporting a sheep breeding research project undertaken at Tadia Farm, near Beni Mellal. These individuals and groups can serve as resources for the project in the areas of analysis of soil and forage samples, plant identification and the ecology of arid zones, and the assessment of animal production parameters.

Links are being established with other USAID-funded projects, as well. For instance, project objectives are being furthered by having senior USU staff serving on graduate committees of students under the Agronomic Institute Project. In addition, the USAID-funded MIAC/INRA Aridoculture Center will have economics, rural sociology, and forage research components which represent areas of interest for the Range Management Project. In particular, mutual interest in forage legumes represents an opportunity for inter-project cooperation. USAID is also supporting efforts by the DPAE to collect data on livestock production and marketing. Close collaboration with these and other relevant programs and activities will increase the progress made by the Range Management Project towards achieving its objectives.

4. Institution Building

a. Institution Building as a Project Objective

The project's purpose is to strengthen the institutional capacity of the Service des Parcours in the Direction de l'Elevage (DE/SP) to plan and implement its applied research, extension, and rangeland development programs. The institution building aspects of this project include:

- 1) Providing long- and short-term participant training opportunities to DE staff, as a means of improving their management and technical skills;
- 2) Providing in-service training to DE staff in technical areas; and,
- 3) Providing DE staff with hands-on experience in the planning, implementation, and evaluation of applied research, extension, and rangeland development programs.

The purpose of this project is not to identify and introduce improved range management techniques and forage varieties. It is not to produce needed seed materials. It is not to develop research and extension programs, nor to provide services to livestock owners. Rather, its purpose is to develop the capacity of DE/SP to perform these tasks. If, when the project's technical assistance team leaves, the ability of DE/SP staff to carry out these functions has not improved, the project will not have been a success. Institution building is a complex, long-term endeavor. However, the remaining two years in the life of this project should be enough to demonstrate measurable improvement in DE/SP's performance as an institution.

b. Institution Building Needs of DE/SP

DE/SP is a very young organization (it was created in 1981), and many of its staff are young and relatively inexperienced. In both Rabat and the field, DE/SP staff are generally highly motivated and enthusiastic. Morale within the organization appears to be high, and there has been very little staff turnover. Both DE and DE/SP are run by professionals who are truly concerned with achieving the objectives of the project. DE/SP is, however, undergoing some growing pains. It has inadequate staff to cover all of the regions where assistance in range management is needed. Consequently, it has had to strike a delicate balance between focusing its resources and establishing an institutional presence throughout the country. For DE/SP, the availability of financial resources to carry out its programs is less of a

constraint than the ability of its staff to develop credible programs and projects to justify greater budgetary support.

Consequently, DE/SP's most pressing institutional needs are to improve the technical competence of its staff in range management and related disciplines, and to increase their planning, management, and evaluative skills. In order for an institution to function effectively, it is necessary for its personnel to adequately plan and organize the time and resources at their disposal, to set objectives, develop programs to achieve these objectives, and select criteria for measuring progress and evaluating performance. One objective of the Range Management Improvement Project will be to provide this training.

The project will also help DE/SP staff develop a greater "extension" or "public service" orientation. DE/SP staff must see their roles in the broader terms of advising and assisting livestock owners to improve their management practices and herd quality, rather than simply performing narrow tasks, such as vaccinating animals or carrying out forage variety trials. The project will encourage DE/SP staff to spend more of their time in the field. By providing additional vehicles, the project has been able to provide greater mobility to DE/SP field staff. However, increasing their technical expertise, experience, and confidence, improved planning, and a clearer delineation of responsibilities will also help develop greater field-work orientation.

Finally, the project will aid in the institutional development of DE/SP by assisting senior DE staff in developing a comprehensive program and strategies to address the serious problems facing Moroccan livestock owners. By encouraging a greater focus on "accomplishment", rather than "presence", as an institutional objective, the project will help DE/SP conserve its limited and valuable resources (in both personnel and materiel) and increase their productivity. The project will support DE/SP in its efforts to more thoroughly evaluate its policies and programs, and encourage greater attention by DE/SP towards seeking positive economic returns from its investments in programs and activities.

c. Achieving Institution Building Objectives

Often in project implementation there is a tradeoff between institution building and production objectives. Building capacity in an institution entails an investment of time and resources in project implementation. It is usually quicker, more efficient, and safer for those who are already able to perform a function to do so, rather than to train others to carry out the task. Similarly, in the short term, it will be faster for project staff to undertake activities using traditional or familiar methods, rather than to take the time to learn new, more efficient approaches. Thus, fulfilling a set of short-term project production objectives (such as numbers of agronomic research trials completed, tons of forage seed produced, or miles of road built) may be more rapidly accomplished in the short-term if institution building objectives are shunted aside.

The results of institution building are long-term, diffuse, and hard to measure. In comparison, the methodology for assessing the quantity and quality of physical outputs is familiar to both implementors and evaluators

alike. As a consequence, in evaluating the performance of project staff, the achievement of concrete output objectives (which can be measured) usually receives greater emphasis than the achievement of institution-building objectives (which are substantially more difficult to measure). The incentive of staff interested in favorable evaluations, therefore, will be to focus on achieving these more measurable goals, even at the expense of falling short of the non-measurable goals. Consequently, while considerable commitment to institution building may be evident in the rhetoric of the project, the project staff may focus almost exclusively on reaching concrete output goals.

The senior-level USU staff recognize, and will stress throughout the implementation of the project, that research, extension, and production activities are simply the means to attaining the project's institution building objectives. They are not ends in-and-of themselves. Steps will be taken to ensure that local DE/SP staff are involved in all phases of project implementation and that excessive reliance on USU staff and Peace Corps Volunteers to carry out project-related tasks is avoided. Given that institution building involves a learning process, the project will emphasize the gradual improvement of research, extension, and production performance over time, rather than focusing on the successful and timely completion of each action undertaken.

In addition, criteria will be developed by the USU senior staff to measure improvement in individual and institutional capacity over time. These criteria will then be explicitly incorporated into the implementation and evaluation processes. For example, when senior staff visit a project area, they will set, together with DE/SP and USU field staff, an agenda of activities to be carried out prior to their next visit. At that time, the senior-level USU advisors will provide any technical assistance needed and will explain and demonstrate techniques and procedures for carrying out the activities. In the follow up visit the senior USU advisors will, together with DE/SP and USU field staff, evaluate performance and identify problems encountered during the previous period. At the same time, they will schedule activities for the upcoming time period. The senior USU advisors will maintain a record detailing the objectives set at the beginning of each period, evaluating field-level performance, identifying difficulties encountered in meeting the objectives, and discussing approaches to overcoming these difficulties. The purpose of this exercise will not be to rate field-level performance. Rather, it will be to permit senior USU staff to evaluate their institution building efforts and to redirect them, if necessary. In addition, documenting these efforts will aid future project evaluators in assessing the institution building thrust of the project.

d. The Role of Senior USU Advisors

Given limited resources, an ambitious program, and the need to continue project activities in all four range management sites, there is a danger that project resources, especially senior-level USU staff time, will be thinly spread. Avoiding this danger will require changes in the role that senior-level USU advisors play in the project. Specifically, they will have to become trainers and mobilizers, rather than implementors of project activities. Basing senior-level staff in Rabat, necessary to ensure improved coordination and to cover all four range management sites, will facilitate this change in roles. Without a senior-level USU advisor at each site, the

burden for carrying out the project's research and extension activities will fall upon the shoulders of local DE/SP staff (aided by junior-level technicians and PCVs). This will increase the self-reliance of DE/SP personnel, supporting the institution building objectives of the project during its final two years.

The four senior-level USU staff members will form a planning, implementation, and coordination focus of the project. They will divide their time among the following responsibilities:

- Project Wide Program Planning. This will involve the identification of technical information needs and elaboration of strategies for the project as a whole. It will include the preparation of scopes of work for TDY personnel; the coordination of activities with allied projects and organizations; and the scheduling of extension and research activities; and the scheduling of short-term and in-service training. Much of this work will, of necessity, take place in Rabat.
- Location-Specific Program Planning. This will include identifying needs, scheduling, designing, and setting objectives for individual research and extension programs at each project site. This location-specific planning will be done together with local project personnel in the field. Short term technical assistance needs will be identified through consultation with the local offices.
- Project-Wide Program Coordination. This will involve the coordination the overall project program, in order to ensure that the output schedule outlined in the design is met, and to make sure that field activities fall within the scope of a comprehensive overall program. To accomplish these tasks, substantial interaction among the USU senior staff, themselves, will be required. In addition, activities with other organizations and projects, short-term TDY assistance, field tours, and in-service training will have to be coordinated. Finally, overall coordination will entail close communication with TDY, DE, and USAID personnel. Much of the project-wide coordination will take place in Rabat.
- Technical Consultation and Field Assistance. This will be the most time consuming task for the senior-level staff. It will include the in-service training of field staff, and the monitoring and evaluation of local research, extension, and production activities.
- Location-Specific Coordination. This will include coordinating field activities, short-term technical assistance efforts, in-service training, and field tours at the local level. It will entail coordination with the DPA and the other MARA services, the Ministry of Interior, local public officials, and livestock owners.
- Data Analysis and Interpretation. The primary responsibility for data collection and analysis will rest with field personnel. However, the ultimate synthesis of the data, on a project-wide basis, will probably take place in Rabat.

- Reporting and Project Progress Documentation. The reporting of local research, extension, and production efforts will be the responsibility of field personnel. However, senior USU personnel will be responsible for fulfilling the requirements set by USAID for project reporting. To do this, the senior USU staff will synthesize the information generated locally. The preparation of these project reports will take place in Rabat.
- Project Administration. This will involve financial management and reporting, communication with USU administration, recruitment of TDY personnel, external relations, commodity procurement and clearance, basic record keeping and property control, supervision of the Rabat office, and personnel management. Most of these activities are the responsibility of the Chief of Party and will take place in Rabat.

J. The Project

The project, as redesigned, has four components: applied research, extension, long- and short-term training, and the development of the Plant Materials Center.

1. Applied Research

a. Objective

Applied research is needed to answer biological, sociological, and economic questions important for identifying feasible and appropriate range management and livestock production practices. The applied research undertaken under this project will focus on:

- Defining and evaluating currently applied production systems;
- Identifying production problems and constraints within the context of the systems involved;
- Identifying viable production alternatives; and,
- Determining methods and approaches to information transfer that will assure acceptance of superior alternatives.

It is necessary for DE/SP to undertake these research tasks in order to develop credible extension and range management programs. More important, however, from the point of view of the project, is to develop the capacity of DE/SP's staff to systematically conduct the research by themselves.

b. Current Status and Accomplishments

A number of problems have been identified with respect to the project's previous applied research activities. These problems have been addressed in the redesign effort. First, the original project design underestimated the research needs of the project. Its emphasis was on extension, rather than research. The project field team, faced with inadequate technical information on which to base their extension program, did conduct more research than was originally envisaged in the project design. However, that research was initiated on an individual basis, with little regard to overall program needs. The failure to jointly set research priorities and establish an overall research program contributed to the lack of overall project

direction. It also exacerbated serious design weaknesses, such as the inadequate integration of social research and the failure to plan for substantive economic research. Finally, the decision to limit the focus of the project to perimeters, rather than to livestock production systems, meant that information needs that were important for achieving the project's goal were not addressed.

In spite of past problems, valuable information has been generated by the project. Data on forage resources on the perimeters and in project zones has been collected. Some forage production data is available for Plaine de l'Aarid. Forage production research was initiated at Ait Rbaa in December of 1983. In addition, in the spring of 1984 a USU senior staff member began supervising forage production research by range management PCVs in the Ain Beni Mathar and Timahdite areas. Some animal production data has been collected by project personnel at Plaine de l'Aarid. Finally, valuable socio-economic data has been collected and is currently being analyzed for the Timahdite and Ain Beni Mathar areas. Preliminary socioeconomic data collection activities were initiated in 1984 for Ait Rbaa and El Falja (Midelt) areas. The participation of returned short-term training participants has been instrumental in initiating research programs on each perimeter.

c. Future Actions

The applied research activities in the redesigned project will follow a programmatic and systematic approach to supplying information needs. The objective of the research undertaken will be to train DE staff in the collection and analysis of forage production, livestock production, and socio-economic data. This data is required for immediate use in project decision making and in designing extension programs. It will be necessary to initiate this effort as soon as possible by setting research priorities, selecting research methods, and providing training in research techniques for project staff. Short-term TDY assistance will be heavily utilized in this effort.

Although socio-economic research was treated as a discrete component in the original project design, it is not considered as an independent activity in the redesign. This is because the socio-economic research must be an integral part of the entire research and extension effort. The sociological component will be directed towards obtaining and synthesizing information for timely use in project decision making and in the development of the extension program. The results of the socio-economic research will help guide the biological research component and identify opportunities and constraints to technology transfer.

Annex 2, Tables 1-4, outline the various components of the research program. Information needs have been identified for each of these project components. They fall under four categories (a more detailed outline is presented in Annex 2, Table 5):

- Forage Production Estimates. This involves identifying the sources of livestock feed and forage and assessing their seasonal availability. These sources would include natural vegetation, fallow, crop residues, supplemental forages and feeds, and any

potential alternatives. Alternatives would include the seeding of marginal cropland and selected range sites to improved forage species, soil surface manipulation to reduce precipitation runoff, and grazing management (e.g. timing, intensity, frequency, and duration of grazing). The research would involve estimating the quantity (kg/ha) and quality (nutrient content) of the forage and feed produced or available.

- **Animal Production Estimates.** This would involve a description of existing and alternative animal production systems. The information needs include production parameters by level of management (e.g. flock size and composition; management practices employed, and the land, labor, and capital resources used). This would involve estimating total livestock production and production efficiency (production per animal per hectare) by level of management. Alternative management practices of interest include focusing on nutrition requirements, culling inferior or unsound animals, selection of quality breeding stock, and synchronization and timing of lambing.
- **Economic Information Requirements.** These would include current and alternative animal/crop production system costs, forage and nutrient costs, marketing and transportation costs, and the costs of alternative herd management practices (herding, breeding, marketing, health, sanitation). An ultimate objective would be to determine total production costs/unit in order to compare alternative management approaches and technologies. Estimating the returns to current and alternative animal/crop production systems would also be necessary in order to evaluate the alternatives.
- **Social Information Requirements.** These would include producer perceptions of issues, needs, constraints, solutions, and expectations; resource availability (land, labor, and investment and operating capital); and producer perceptions of the current production system (what is done, how it is done, and why it is done that way). It would include an identification of social and cultural influences on production and acceptance of technology, and producer receptivity towards specific technology (reasons, degree of receptiveness, and alternative strategies for increasing receptivity). It would also involve identifying specific programs which encourage or discourage technological change and, in a limited way, the overall effect of political and legal systems (e.g. land tenure) on social and technological change.

d. Planned End-of-Project Status

The research undertaken by the project during the next two years will allow the development of a functional extension program and should lay the base for significant achievement in increasing livestock productivity and economic viability of the livestock production sector in Morocco. Well before the end of this phase of the project adequate information will exist to model current livestock production systems for each production zone. In addition, information will have been developed to assess the appropriateness of interventions and technologies within current and alternative livestock production systems.

By actively involving DE/SP project staff in all phases of project research, this project will demonstrate the need to develop a good information base for project planning, and the value of a planned, systematic approach to research. The project will strengthen the ability of DE/SP staff to evaluate biologically and economically sound, as well as socially acceptable, practices which increase livestock production and assure livestock producer participation. Finally, the project will demonstrate the importance of multidisciplinary collaboration in conducting research, especially the need to incorporate socioeconomic factors into the analyses.

2. Extension Program Development

a. Objective

An objective of this project is to assist DE/SP in initiating and implementing an extension program based on viable production alternatives. The ultimate objective of such a program will be to help livestock producers increase their incomes.

b. Current Status and Accomplishments

Problems have been experienced by the project's extension program due to a lack of basic information on livestock production and producers' needs. For example, the costs of recommended practices and technologies and the magnitude of realistic returns were never adequately quantified. As a result, research results were never integrated by project staff into a package of recommendations that was both complete and appropriate within the context in which livestock producers operate. Without solid data on which to base their recommendations, the project staff was not able to demonstrate clearly visible short-term results. Rather, the benefits offered were broad, nebulous, and long-term in nature (such as erosion control) and of limited immediate importance to livestock owners.

Valuable information does exist on certain aspects of the livestock production system in the various project areas (such as data on native range forage and preliminary animal production estimates at Plaine de l'Aarid). Nevertheless, the impact of extension efforts based on this information will not be fully realized until the information is presented within the context of the total livestock production system in each zone. The receptivity of livestock producers to current extension efforts is promising, however. For instance, there has been a great deal of livestock producer interest, at both Plaine de l'Aarid and Timahdite, in seeding improved perennial forage species on marginal cropland. Numerous seedings on private land have been attempted, and the livestock cooperator response has been favorable. In addition, at Beni Mellal remarkable progress has been made at gaining the confidence and cooperation of livestock owners through the involvement of project staff in the ongoing DE animal health program.

c. Future Actions

Future extension activities include the expansion of ongoing efforts and the initiation of research and demonstration programs. A comprehensive description of the extension program development plan, focusing on the production systems operating in each zone, is contained in Annex 3. The approach to be followed will begin with the summation and synthesis of

social, economic, and biological information. Based on this information, the extension effort will involve the following steps:

- The development of audience profiles or, synonymously, the stratification of the producer population into audiences;
- An assessment of the production and profitability of current production systems by audience;
- An assessment of the production and profitability of alternative practices;
- The identification of opportunities for intervention and acceptance of alternative strategies;
- The development of extension materials relevant to the identified audiences;
- The development of an extension program based on those materials;
- The actual presentation of extension materials;
- An evaluation of audience response; and,
- The continual refinement of the program, materials, and/or presentation.

d. Planned End-of-Project Status

By the end of the project, a planned extension program will be in place for each project area that will address the most critical needs first. Extension materials will have been developed that are appropriate for the livestock production systems involved and will be based on information obtained through the applied research aspects of this and other allied projects and programs.

In terms of strengthening DE/SP institutional capability, the project will have proved, by the end of the project, the value of a planned and programmatic approach to extension. DE/SP staff will also see the importance of producer participation in assessing new technologies, and will have gained experience in the use of various extension methods and materials.

3. Long- and Short-Term Training

a. Objective

Long- and short-term training is an essential component of the Range Management Improvement Project's institution building efforts. These training activities will provide DE/SP with greater technical depth, as well as increase the number of qualified personnel available to the institution. For its part, the project is providing both advanced degree and short-term non-degree training as a means of increasing the technical skills of DE/SP staff.

b. Current Status and Accomplishments

Eleven degree participants have been studying towards MS degrees at various universities in the U.S. Two of these are in rural sociology and extension programs, one individual is following a program related to seed production, and eight individuals are receiving training in range management and extension. They are all performing well in their studies and, with few exceptions, are on schedule. Two of these participants have already returned and two more are expected to receive their degrees and return to Morocco in 1984. Four are expected to return in 1985, and three should return in 1986.

DE/SP recognizes the value of having returned participants work closely with the USU in-country staff, and has stated its intention to do everything possible to accomplish this. Of the two returned participants, one has taken up the vacant senior-level, project-related DE/SP post at Meknes. The second is being assigned to the central DE/SP offices in Rabat. His responsibilities will include monitoring, evaluating, and documenting DE/SP activities in the field. Consequently, this individual will closely coordinate his efforts with senior USU technicians, in order to benefit from their experience and expertise.

Nine DE/SP staff members (45 person months) have received short term technical/practical training in range management, through the range management short-course offered by USU. This training involves classroom work, hands-on work experience on sheep ranches in the Western U.S., visits to experiment and research stations, and work with U.S. range extension agents. Four DE administrators (4.5 person months) participated in a short-term training course designed to introduce these administrators to the principles of range management. Finally, four DE/SP staff members have attended professional meetings (3 person months) outside of Morocco.

c. Future Actions

Over the next two years continued support will be given to the individuals currently in MS degree programs. No new degree programs will be initiated. At least an additional twenty-seven person months of short-term technical and practical training is proposed. This training will be in range management, plant materials facility operation and management, and seed production technology. Based on participant evaluations, the duration of the short-course will be reduced to three to four months. This will also allow a larger number of DE/SP staff to benefit from this training. A minimum of two in-service training sessions will be held to improve the technical skills and performance of project staff. One of these training sessions will focus on socio-economic issues. Another will concern the collection of plant materials.

d. Planned End-of-Project Status

By the end of the project, eleven individuals will have received MS degrees and DE/SP staff will have benefitted from at least 80 person months of short-term technical and practical training. This training effort will have greatly strengthened the technical and administrative skills of DE/SP staff and will have provided a solid base upon which further institutional development can take place.

4. The Plant Materials Center

a. Objective

The Plant Materials Center (PMC) is a support facility for the project. It is an institution which can ultimately be developed into a national center for research and development of forage and conservation species, both native and exotic, that are adapted to low rainfall areas of Morocco.

b. Current Status and Accomplishments

The main Plant Materials Center complex is scheduled to be completed in July, 1984. It will include administrative offices, a seed laboratory, seed cleaning facilities, seed storage facilities, a shop/equipment hangar, and four houses for DE personnel.

The January Evaluation noted some confusion as to the ultimate objective of the PMC. During the redesign, its role was carefully evaluated (see PMC logframe, Annex 4, Table 1) and the relationship between the PMC and the rest of the project has been more clearly defined. The objective of the PMC in the initial design was primarily to produce foundation seed (basic seed). This long range goal proved to be too narrow to meet the immediate needs of project activities in the other project areas. Under the redesigned project, the PMC will focus more on seed multiplication and the development of other plant materials needed for project research and extension activities, rather than on the development of foundation seed.

The concern was also raised in the evaluation that the PMC, because of its location in a mild climatic zone, might not be able to conduct research on, and produce, cool season forage varieties. This was because cool season varieties often require periods of cool weather in order to vernalize. So far, however, the vernalization problem has not been serious.

The status of current PMC activities is as follows:

- Seed Production. Twenty-five range forage species are established on 63 hectares to assess seed yield potential. Production consists of both annual and perennial legumes and grass cultivars. The first harvest was in June 1984.
- Shrub Production. Five shrub species have been produced, totaling 59,000 plants, for distribution to the DE/SP range management perimeters throughout the country, as well as for establishment of a seed production nursery. This activity has been carried out in conjunction with the L'Eaux et Forets facility at Boulaouane.
- Demonstration Trials for Seed Yield Potential. Perennial grass species, representing both cool and warm season varieties, have been established in replicated trials to evaluate seed production capabilities.
- Adaptability Trial Coordination. Seed and inoculum are being distributed at the beginning of each planting season to the project perimeters for establishment and evaluation. Trial results then form the basis for large scale seed multiplication at the PMC.

c. Future Actions

In terms of seed production, the principal activities planned for the PMC in the coming two years (see Annex 4, Table 2, for a detailed PMC Implementation Plan) are:

- Expanding seed production for those range forage species for which there is immediate demand on the project perimeters. Adjusting management techniques to increase yields and decrease production costs.
- Developing a shrub seed production nursery and increasing shrub production in containers for use at the perimeters.
- Producing certified seed for the National Seed Marketing Company (SONACOS) to generate revenue for use by DE/SP, and to introduce the PMC to the certification system.
- Utilizing and distributing seed production by-products, such as baled crop residues, to support project extension activities and indemnity programs. Also, additional forage production will be produced on cropland not currently in seed production.
- Establishing a program for estimating production costs and returns. DE/SP has assigned a full-time bookkeeper/accountant to the PMC. He will maintain the records on which these estimates will ultimately be based.

The capacity of the seed cleaning equipment originally identified in the project design far exceeded that which was needed. Consequently, none of this seed cleaning equipment has been procured. Careful consideration is being given to ensuring that any equipment procured for this facility reflects realistic needs. The seeds produced on the PMC will be cleaned using equipment suited to the task in terms of volume and level of purity. Any future procurement for seed cleaning will be limited to what is essential.

Greater emphasis will be placed by the PMC on research and development of native and exotic species. This will involve:

- Establishing nursery plots for collected native species. Evaluating, developing, and propagating these species for increased forage and seed production characteristics.
- Establishing pilot production capability for breeder seed (pre-basic seed) for economically important native cultivars.
- Presenting a course to train range technicians in collection techniques for native plants and developing a collection program for all areas within Morocco.

An objective of the PMC is to encourage private industry to eventually produce improved forage seed for the market. In order to do this the PMC plans to undertake an extension program to educate potential growers on the cultural practices and management techniques needed for these specialized

crops. It will also involve the provision of technical assistance and the preparation of extension materials (e.g. instructions and management guidelines) for improved forage varieties.

The PMC is also involved in coordinating with forage seed consuming agencies (e.g. the INRA Aridoculture Center, INRA/GTZ, SONACOS, SNDE, and l'Eaux et Forêts) in forage seed utilization and certification. This will involve the estimation of future seed production requirements and establishment of quality standards.

The operation of the PMC after the eventual departure of the senior-level USU technician will require a well-trained PMC staff. To ensure that the needed personnel are available, the senior USU advisor at the PMC is providing hands-on training, principally in farm management and seed production techniques.

In addition, the project is providing specialized short-term training in the U.S. for DE personnel working at the PMC. These training courses have been developed by the project staff, with the assistance of the California Agriculture Institute. They include PMC operation and management (for the director of the PMC); basic farm management (for a farm manager); and irrigation systems management (for an irrigation engineer). These programs will provide DE personnel with intensive training in critical areas of farm operation and management. Short-term, U.S.-based training for the director of the PMC in plant materials center operation and management is tentatively scheduled to begin in August 1984.

d. Planned End-of-Project Status

By the end of this two-year period a Plant Materials Center, which is capable of identifying and producing plant materials needed in Morocco, will be up and running. The facility will be capable of producing plant materials and crop residues for use in Moroccan range and conservation programs. The PMC will also be capable of assisting the GOM in assessing its native forage species, as well as exotic species, for their possible economic value. The PMC will be capable of bringing into production new cultivars of species identified as needed plant materials. Finally, it will be capable of contributing leadership and technical expertise for the development of plant material quality standards in Morocco.

III. Financial Plan

A. Life-of-Project Budget

This project will be completed within the total authorized U.S. dollar budget. The project is currently in the second quarter of Project Year 4. Year 5 is a 15 month period.

The LOP funding for the project is \$5,075,000. The USU-DE host country contract covers U.S.-funded services equalling \$4,975,000. The difference, \$100,000 represents funds available to cover costs incurred in project implementation by USAID outside of the host country contract. Expenditures from this fund have included: a PIO/C for \$57,284 to purchase project

vehicles prior to the signing of the USU/DE contract; \$6,542 for initial participant training efforts (PIO/Ps); \$3,632 to cover invitational travel costs incurred prior to the signing of the host country contract; local Peace Corps Volunteer project-related travel at \$1,250, and PIO/Ts for \$26,797 to cover the costs of non-USAID contractors for the January 1984 evaluation. Consequently, \$4,495 is available to provide additional support for Peace Corps official travel expenses and cover contingency costs. An estimated \$48,000 will be needed to pay for a final project evaluation in early 1986. This will be requested from Project Development and Support (PD&S) funds.

The budgetary requirements for the U.S. contribution to the project (based, in part, on the USU/DE contract) are presented in Table 1. Summaries of the revised and original LOP U.S. dollar budgets are presented in Tables 2 and 3. Comparing the original and revised USU/DE budgets demonstrates that there are only slight changes in the breakdown of major line items (technical assistance, training, commodities, and other costs). Under the new budget, expenditures for technical assistance decrease by \$17,551 (0.5 percent). Expenditures for participant training increase by \$10,000 (1.5 percent). Expenditures for commodities increase by \$6,097 (1 percent), and those for Other Costs increase by \$1,454 (0.3 percent).

The original project design seriously overestimated (by \$752,073 or more than 100 percent) the amount of funds that could be expended under the contract in the project's first year. As a result, by the end of Year 3 the project had only expended 78 percent of the amount originally budgetted (\$727,921 in unexpended funds). This underexpenditure in the initial three years of the project has permitted an increase in the level of activity in its final two years (a 27 month period).

The budget includes three major input categories, technical assistance, participant training, and commodities. No separate line item for inflation is included in the revised budget. The figures for Years 1 to 3 represent actual expenditures. Those for Year 4 are planned expenditures. Only Year 5 expenditures are projections. Annual adjustments to account for inflation have been built into the appropriate line items, such as technical assistance salaries. The revised budget does not include a separate line item for contingencies. If unforeseen costs arise in the final two years of the project, funds will be reallocated among line items based on implementation priorities. The following sections present detailed information on how various line items have been calculated within the host country contract budget.

B. Technical Assistance Costs

Long-term Technical Assistance Costs for resident contractor personnel are projected to be \$311,200 in Year 4 (1984-85, a 12 month period) and \$372,600 in Year 5 (1985-86, a 15 month period). These figures include both technician salaries, benefits, and a differential. Fringe benefits amount to 30 percent of the salaries of contractor professional employees and 15.5 percent of the salaries of support personnel (e.g. secretaries). The differential for senior contractor staff in Morocco is 20 percent. The TA cost estimates are based upon specialist salaries and benefits averaging \$5000 per month for 113 person months, and technician salaries and benefits projected to average \$1100 per month for 108 person months.

TABLE 2: SUMMARY OF REVISED LIFE OF PROJECT U.S. DOLLAR BUDGET

	<u>Actual Year 1</u>	<u>Actual Year 2</u>	<u>Actual Year 3</u>	<u>Planned Year 4</u>	<u>Projected Year 5</u>	<u>Total</u>
Technical Assistance	440,281	451,086	624,102	725,577	811,468	3,052,514
Participant Training	13,204	178,328	204,306	141,784	179,784	717,406
Commodities	163,483	238,567	119,153	206,081	80,000	807,284
Other Costs	<u>88,273</u>	<u>77,829</u>	<u>71,931</u>	<u>127,371</u>	<u>132,387</u>	<u>497,796</u>
<u>Total</u>	705,246	945,810	1,019,492	1,200,813	1,203,639	5,075,000

TABLE 3: SUMMARY OF ORIGINAL LIFE OF PROJECT U.S. DOLLAR BUDGET

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Total</u>
HOST COUNTRY CONTRACT						
Technical Assistance	562,167	585,394	705,424	550,107	640,176	3,043,268
Participant Training	70,200	161,303	182,914	166,294	120,153	700,864
Commodities	650,044	60,133	9,324	11,170	13,232	743,903
Other Costs	<u>107,450</u>	<u>91,752</u>	<u>115,359</u>	<u>83,912</u>	<u>88,492</u>	<u>486,965</u>
Subtotal	1,389,861	898,582	1,013,021	811,483	862,053	4,975,000
USAID INITIATIVES ¹						<u>100,000</u>
GRAND TOTAL						5,075,000

¹ "USAID Initiatives" refers to funds set aside to cover expenditures incurred outside of the host country contract. They include contingency funds plus funds for an external evaluation of the project.

TABLE 1: SUMMARY OF LIFE OF PROJECT U.S. DOLLAR BUDGET 1

	<u>Actual Year 1</u>	<u>Actual Year 2</u>	<u>Actual Year 3</u>	<u>Planned Year 4</u>	<u>Projected Year 5</u>	<u>Total</u>
HOST COUNTRY CONTRACT						
<u>Technical Assistance</u>						
Long Term Technical Assistance	166,925	245,380	296,746	311,200	372,600	1,396,851
Team Travel and Transportation	93,858	34,033	75,529	129,000	129,000	461,420
Team U.S and Other Trips	-	8,121	16,396	13,000	13,000	50,517
IDY Personnel	47,202	18,302	6,000	46,000	46,000	163,504
IDY Travel and Transportation	5,921	-	-	17,000	17,000	39,921
On-Campus Support	44,589	41,605	83,856	69,600	87,000	326,650
On-Campus Travel	7,447	10,637	3,483	7,000	7,000	35,567
International Range Seminar	-	-	-	15,000	-	15,000
Indirect Costs	64,804	87,608	115,295	117,777	139,868	525,352
Precontract Costs	9,535	1,400	-	-	-	10,935
Subtotal	440,281	451,086	597,305	725,577	811,468	3,025,717
<u>Participant Training</u>	6,662	178,328	204,306	141,784	179,784	710,864
<u>Commodities</u>	106,199	238,567	119,153	206,081	80,000	750,000
<u>Other Costs</u>	84,646	76,579	70,431	125,771	130,992	488,419
<u>Subtotal</u>	637,788	944,560	991,195	1,199,213	1,202,244	4,975,000
USAID INITIATIVES 2						
<u>Technical Assistance</u>	-	-	26,797	-	-	26,797
<u>Participant Training</u>	6,542	-	-	-	-	6,542
<u>Commodities</u>	57,284	-	-	-	-	57,284
<u>Other Costs</u>	3,632	1,250	1,500	1,600	1,395	9,377
<u>Subtotal</u>	67,458	1,250	28,297	1,600	1,395	100,000
<u>Grand Total</u>	705,246	945,810	1,019,492	1,200,813	1,203,639	5,075,000

1/ Years 1-3 include charges from March 20, 1981 to March 19, 1984. Year 4 covers planned expenditures from March 20, 1984 to March 19, 1985 (12 months). Year 5 includes projected expenditures from March 20, 1985 to June 26, 1986 (15 months).

2/ "USAID Initiatives" refers to funds set aside to cover expenditures incurred outside of the host country contract. They include contingency funds plus funds for an external evaluation of the project.

Team Travel and Transportation Costs are projected to be \$129,000 in both Years 4 and 5 of the project. This figure represents placement of contractor personnel and their personal effects in Morocco and the eventual return of these personnel and their effects to their place of origin. The average placement or return cost is estimated at \$30,000 for senior staff (four in each of Years 4 and 5) and at \$1,500 for technicians (six in each of Years 4 and 5).

Team U.S. and Other Trip Costs are estimated to be \$13,000 in both Years 4 and 5. This reflects travel and transportation costs for four trips in the next two years (for administrative purposes and for planned attendance by senior staff at professional meetings).

TDY Personnel Costs are projected at \$46,000 per year in Years 4 and 5. This amount is based on four two-month visits each year at an estimated cost of \$10,000 per visit (excluding travel and transportation costs) and subcontractor costs of \$6,000 per year.

TDY Travel and Transportation Costs are projected to be \$17,000 per year. This is based on an estimate of \$4,250 per visit. Travel and transportation under the subcontract is covered under the terms of the subcontract agreement.

On-Campus Support Costs are projected to be \$69,600 in Year 4 and \$87,000 in Year 5. These estimates are based on an average monthly cost projection of \$5,800 per month for salaries and personal services and are thought to be adequate to provide for one full-time equivalent (FTE) position (campus coordinator) and necessary support, such as bookkeeping, secretarial help, and other required services.

On-Campus Travel Costs are projected to be \$7,000 in Years 4 and 5. These are transportation and travel costs incurred within the U.S. by project personnel, as well as transportation and travel costs incurred by campus personnel in travelling to Morocco.

International Range Seminar Costs are \$15,000 in Year 4. This covers the costs incurred by DE personnel who presented papers at the Second International Rangeland Congress in Australia (May 1984).

Indirect Costs are estimated to be \$117,777 in Year 4 and \$139,868 in Year 5. These cover university charges for the use of administrative services, equipment, and space. They are based on a rate of 30 percent of off-campus base salaries and 60 percent of on-campus base salaries and TDY base salaries. Base salaries exclude fringe benefits and differentials. Indirect costs over the life of the project are projected to be \$525,352.

No additional Pre-contract Costs will be incurred.

C. Participant Training Costs

Participant Training Costs for the eleven MS degree participants currently in the U.S. are expected to be \$141,784 in Year 4 and \$179,784 in Year 5. This is based on an average participant cost of \$16,000 per year. Short-term training costs are expected to be \$12,000 in Year 4 and \$98,000 in Year 5. Short-term costs were based on an average of \$4,000 per person month

(27.5 person months of training). A minimum of two in-service training sessions are planned (one in Year 4 and one in Year 5). These are budgeted at \$1,784 each.

D. Commodity Costs

Commodity Costs are projected to total \$206,081 in Year 4 and \$80,000 in Year 5. These costs will be incurred as needed project equipment is identified. Projected equipment needs include additional vehicles, additional supplies and equipment for office and field work, as well as specialized equipment for seed processing, seed and plant materials production, and research activities at the PMC.

E. Other Costs

Other Costs are projected to be \$125,771 in Year 4 and \$130,992 in Year 5. These are project operational costs and include the costs of administrative assistance, secretarial, and other services in Morocco; housing and office rentals; utilities; repairs and maintenance; travel in Morocco by expatriate staff; supplies and materials; French and Arabic language training; and educational allowances. These costs reflect projected increases in travel costs and the need to support a larger technical assistance staff in Morocco.

IV. Project Management Plan

A. USAID Responsibilities

USAID will continue to monitor the implementation of the project, schedule and arrange for planned evaluations, and assist in the resolution of major problems that may arise to threaten the success of the project.

B. Utah State University Responsibilities and Staffing

This project will continue to operate under a host country contract. Upon the signing of the Project Agreement by USAID and the GOM, the existing USU/DE contract will be amended to reflect the changes in project implementation outlined in the revised Project Agreement. USU will continue to provide all necessary administrative and logistical support services, including commodity procurement and the processing of participants. USU will report annually in writing, to USAID and the GOM on project activities.

Table 4 outlines the staffing plan for the U.S. technical assistance team (actual and projected).

1. Long Term USU Technical Assistance Staff

The USU project office will be in Rabat, rather than Meknes, to reduce logistical problems and improve communications between the USU Campus, USAID, and DE/SP. Mutual reinforcement and coordination among team members is essential to develop and implement a unified program. A certain "critical mass" of personnel is necessary to create the synergism needed for maximum

Table 4: STAFFING PATTERN FOR THE U.S. RANGE MANAGEMENT TEAM

	<u>Project Year *</u>					<u>Person Years</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Three Senior Range Specialists	x	x	x	x	x	15
One Senior Forage Seed Specialist		x	x	x	x	4
One Senior Social Anthropologist	x	x	x			3
One Junior-level Sociologist Technician				x	x	1.5
Four Junior-level Range Technicians				x	x	6
One Junior-level Farm Mechanic/Agronomist				x	x	1.5
Four Range Peace Corps Volunteers		x	x	x	x	16
Sociology Peace Corps Volunteers **		x	x	x	x	15

* Years 1-3 are actual figures, Year 4 is planned and Year 5 is projected.

** Three sociologist PCVs in in Year 2, two in Year 3, and five in Years 4 and 5.

output and team spirit. Therefore, with the exception of the Forage Seed Production Specialist, the senior USU technical assistance staff will be based at the Rabat office.

Aside from project administration, four areas of expertise will be required from USU for the duration of the contract period: range economics, applied range research, range management/extension, and forage seed production.

The Chief of Party is a range economist. His primary responsibility is project administration, including the coordination of efforts with DE/Rabat, USAID, and the USU campus. However, he will also be responsible for coordinating the range economics aspects of the applied research and extension programs. He will also take the lead in coordinating participant training and short-term technical assistance.

The Range Scientist will assume the lead role in training DE/SP staff in the design and implementation of an applied research program in forage and livestock production. This will be done in concert with other USU team members, TDY personnel, DE staff, and professionals from other institutions. The Range Scientist will coordinate the collection of data, supervise its analysis, and present the results in project reports. This individual will also support the range extension and participant training program. A replacement will be sought for the current range scientist, who will be leaving the project in January, 1985.

The Range Management/Extension Specialist will coordinate all range extension activities. These will include the evaluation of research results, the development and distribution of extension materials, the conduct of extension and training activities (including field days, short courses, seminars, and in-service training programs), and the evaluation of extension activities. The range extension specialist will also coordinate project-supported range improvement activities on the perimeters, on forest land and on private land. He will also assist in the range research and participant training aspects of the project.

The Forage Seed Specialist will be primarily responsible for the development and operation of the Plant Materials Center (PMC). The function of the PMC is to support the range improvement effort. The Seed Production Specialist's duties will be to provide technical assistance in the production of forage seeds and plant materials. He will also assist the PMC in identifying income generating opportunities, such as forage production and residue utilization for perimeter programs and the production of certified seed for SONACOS. This specialist will supervise the collection, development, and evaluation of native forage species, the development of uniform procedures for adaptability trials, and the design and implementation of forage seed utilization and certification programs.

2. Rabat Office Support

An increase in the support staff for the Rabat office will be necessary, as the level of activity and reporting from that office will markedly increase. Two full time positions for the duration of the contract period will be required (at present there is only a single half-time position). An administrative assistant to handle the routine project support duties, and an

office manager/secretary/translator will be necessary. These positions will be local hire. They will supplement secretarial services at project field offices.

3. USU Field Staff

In order to maintain local presence and continuity, junior-level technicians will be sought for each project field office, i.e. Ain Beni Mathar (Oujda), Azrou (Meknes), Midelt, Beni Mellal, and the PMC (El Jadida). To serve as junior-level technical staff, USU is seeking four range management technicians, one for each project field office; a range sociologist technician to serve all project field offices; and a farm implement/agronomist technician for the PMC. If a range management position cannot be filled, a second junior-level sociologist technician will be hired. These junior-level staff will be required for an eighteen month period beginning in September 1984. USU will employ former project-affiliated Peace Corps volunteers to fill these positions. To date, two of the Peace Corps sociologists and two range management PCVs have expressed interest in continuing with the project.

The junior-level range technicians, working with GOM field office staff, will share responsibility for on-site implementation of research and extension projects, the collection of data, and the evaluation of programs. The range sociologist technician will assist in implementing sociologically-based extension programs. A junior-level technician is being sought for the PMC to assist the Seed Production Specialist in all phases of PMC activities.

4. Peace Corps Volunteers

There will be one range management volunteer and one sociologist volunteer at each of the four perimeter field offices listed above. Their duties will closely parallel those of the USU range technicians. Initially, their contribution will be limited by language difficulties and their lack of familiarity with Morocco and the project. However, under the guidance of the junior-level technicians, these Peace Corps volunteers will ultimately contribute significantly to carrying out project activities and achieving project objectives. They are scheduled to begin their assignments in September 1984, and will remain with the project for two years.

5. Short-term Technical Assistance

There are seven major technical areas requiring short-term technical assistance. These are range/livestock production, plant materials production and evaluation, rural sociology/anthropology, range economics, range research, extension program development and evaluation, and project administration. All TDY personnel will have a detailed scope-of-work that will include specific goals and responsibilities. Short-term technicians will be involved in seminars, in-service training programs, and field days, whenever possible. All opportunities for using local resources and institutions to provide short-term technical assistance will be explored, in order to maximize its cost-effectiveness and to expose project staff to new ideas.

The following short-term technical assistance is planned:

- A range/livestock production specialist will be needed in the fall of 1984 to assist in the design and implementation of the animal production research and extension program.
- A plant materials specialist will be needed to develop procedures and train personnel in collecting and evaluating native forage species.
- A rural sociologist/anthropologist will be needed as soon as possible to assist the project staff in developing a socio-economic program that will assess current livestock production systems, and that will identify points of intervention and appropriate techniques of intervention. This will become the basis of the extension program.
- A range economist will be needed to help design the economic component of the socio-economic research program.
- A range research specialist will be needed in 1984 to assist in the design and implementation the range research program.
- An extension methods specialist will be needed in the Spring of 1985 to train project personnel in extension methods, program planning, development, and evaluation, and to assist with the integration of the research and extension programs.
- There will be a need for an assessment of project performance by USU administrators in the fall of 1985.

6. USU Campus Support Staff

In order to provide logistical support for the project and staff in Morocco and to coordinate participant training programs in the U.S., an office will continue to be maintained on the Utah State University campus in Logan, Utah. This office will be staffed by a campus coordinator (one full-time equivalent professional position) with access to bookkeeping, secretarial, and other services as appropriate and adequate to provide necessary logistical support for project activities. Dr. B. E. Norton was appointed campus coordinator in March 1984 and made an orientation visit to each project area in April 1984.

C. GOM Responsibilities and Staffing

Overall, GOM support of the project during the first three years has been good, especially in light of national budgetary difficulties. Counterparts provided by DE have generally been found to be well motivated and qualified. DE/SP personnel having project responsibilities are listed in Table 5.

Table 6 provides a summary of the actual and estimated budgetary contribution to the project by the GOM. Apart from personnel costs, these figures represent allocations to project-related activities from the DE

Table 5: GOM Staffing

<u>Name</u>	<u>Grade</u>	<u>Place Assigned</u>	<u>Period of Assignment</u>
Atiqui ^a	MS Level	Meknes	1981-84 (transferred)
El Gharbaoui ^{a,c}	MS level	Rabat	1978-present
Laraisse ^c	MS level	Oujda	1978-present
Tazi ^c	MS level	El Jadida	1980-present
Harkousse ^c	MS level	Beni Mellal	1982-present
Chergaoui ^c	MS level	Meknes	1984-present (temporary)
Fagouri ^a	BS level	Midelt	1971-present
El Yamani	BS level	Rabat	1980-present
Aissi ^{a,b}	BS level	Oujda	1981-83 (MS participant)
Boutouba	BS level	Rabat	1983-present
Dhassi	BS level	Meknes	1982-present
Derouich	BS level	Beni Mellal	1982-present
Azougagh	BS level	Midelt	1983-present
Chabik	BS level	Rabat	1983-present
Khouriri ^{a,b}	BS level	Beni Mellal	1981-82 (MS participant)
Mesbah	BS level	El Jadida	1982-present
Baala ^a	Adj. Tech.	Timahdite	1983-present
Chouki ^a	Adj. Tech.	Midelt	1983-present
Boulahoual ^a	Adj. Tech.	Azrou	1983-present
Nourdine ^a	Adj. Tech.	Beni Mellal	1983-present
Kabdi ^a	Adj. Tech.	Ain Beni Mathar	1982-present
Dehoughi ^a	Adj. Tech.	-	1982
Amimar ^a	Adj. Tech.	-	1982
Mejrabi ^a	Adj. Tech.	-	1982
Somoui ^a	Adj. Tech.	Beni Mellal	1982

^a Short-term training recipient - Range Management Improvement Project

^b Long-term training recipient - Range Management Improvement Project

^c Long-term training recipient - University of Minnesota Project

Table 6: ESTIMATED GOM CONTRIBUTION TO THE RANGE MANAGEMENT IMPROVEMENT PROJECT (dirhams) ¹

<u>Category</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total</u>
Personnel ²	420,000	604,800	748,800	775,000	810,000	637,500	3,996,100
Operating Costs ³	1,035,000	605,000	1,545,000	1,331,500	697,400	465,000	5,678,900
Vehicles	395,000	-	-	40,000	-	-	435,000
Agri. Equip. and Other Costs ⁴	<u>3,700,000</u>	<u>5,470,000</u>	<u>3,820,000</u>	<u>1,950,000</u>	<u>-</u>	<u>-</u>	<u>14,940,000</u>
Total	5,550,000	6,679,800	6,113,800	4,096,500	1,507,400	1,102,500	25,050,000 ⁵

1/ Figures for 1981, 1982, and 1983 are calculated based on data provided by the GOM available. Figures for 1984 - 1986 are projections. Personnel cost figures for 1985 and 1986 include an inflation factor of 5 percent. 1986 is an 8 month period (January 1 - August 30).

2/ Includes salaries of in-country MS and BS degree level staff and an estimate of the salaries paid by DE to participants studying in the U.S. It does not include salaries paid to the adjoint techniques who work on project activities.

3/ This line item includes gasoline, local labor and miscellaneous expenditures.

4/ In addition to agricultural equipment, this line item includes other costs, such as fencing, reseeding, and the construction of water sources, pumping facilities, and shelters on range perimeters.

5/ Given annual exchange rates of 5.17 in 1981, 6.15 in 1982, 7.25 in 1983, 8.73 in 1984, 9.0 in 1985 and 9.0 in 1986, the dollar equivalent is approximately \$3,858,000, or over 43 percent of total project costs.

investment budget. The original Project Agreement called for a GOM contribution of 25,050,000 dh (\$6,770,000 at the 1980 exchange rate).

The GOM commitment includes that for personnel, estimated over the life of the project and support for the DE/SP operating budget. The operating budget includes perimeter development and project support costs, such as the construction of the Plant Materials Center, the construction of other needed facilities and improvements (shelters, fences, roads, etc.), materials for project and program use, such as seed and other products (and by-products) of the Plant Materials Center, and payment of indemnities for deferred grazing.

During the life of the project, some difficulties have arisen in certain project field offices due to shortages of vehicles and inadequate vehicle operation/maintenance budgets. However, within the constraints of the national budget, DE/SP is attempting to alleviate these problems. If maximum achievement of project objectives is to be realized, it is important that the program budgets of DE/SP remain intact. To this end, USAID began, in 1984, supporting DE's investment budget with local currency generated through PL-480 Title I sales.

With the increased level of project activity proposed for the future, it will, of course, be necessary for DE to continue its commitment to the success of the project. The major constraint on increases in the DE/SP investment budget is the absence of technical expertise to implement projects, rather than a lack of financial resources. The head of DE/SP is confident that, as local DE/SP staff develop worthwhile programs to effectively utilize additional funding, the needed financial resources will become available.

Where DE/SP staff currently assigned to the project have other duties that limit their involvement in project activities, or where current levels of staffing are inadequate, additional staffing will be necessary to deal with the increased work load. USU and DE/SP will investigate the possibility of having interested local DE staff assigned to project activities to replace those who are no longer active in the project.

Placement of returning long and short-term participants into positions of responsibility within the project is necessary in order to ensure the attainment of project objectives. The involvement of returned participants in ongoing project activities will provide an opportunity for them to practice what they have learned, thereby maximizing the benefit of the overseas training given. DE/SP has assured USU that it will do everything possible to ensure that project-trained staff work with USU senior staff upon their return. Both of the two participants that have recently returned have filled key vacancies in the DE/SP project staff. One will become the head of DE/SP in Meknes, with responsibility for the Timahdite project area. The other will be located in Rabat and will have specific responsibility for monitoring and evaluating DE/SP programs in the field. Both will work very closely with USU senior staff. A list of the degree participants and expected dates of return is presented in Table 7.

Table 7. RANGE MANAGEMENT IMPROVEMENT PROJECT DEGREE PARTICIPANTS

<u>Name</u>	<u>Discipline</u>	<u>University</u>	<u>Expected Return Date</u>
Oulahboub	Range Mgt./Extension	Univ. of Arizona	June 1984
Bourass	Range Mgt./Extension	Texas Tech	June 1984
Abbassi	Range Mgt./Extension	Montana State	July 1984
Kouriri	Range Mgt./Extension	Humbolt State	Dec. 1984
Laadnani	Range Mgt./Extension	Univ. of Wyoming	Aug. 1985
El Kabbach	Range Mgt./Extension	Oregon State	Aug. 1985
Adila	Range Mgt./Extension	Utah State	Aug. 1985
Ait Hroch	Seed Prod./Range Mgt.	Washington State	Aug. 1985
El Manfalouti	Range Mgt./Extension	Univ. of Nevada/Reno	Dec. 1985
Assal	Rural Sociology	Colorado State	Aug. 1986
Aissi	Rural Soc./Agri. Ext.	Univ. of Missouri	Aug. 1986

V. Implementation Plan

The Project Activity Completion Date (PACD) for this project is being extended from June 4, 1986 to August 30, 1986 in order to permit the final two MS degree participants to complete their studies. (In March 1981 the original PACD, August 31, 1985, was extended under Project Implementation Letter No. 4 by roughly 10 months.) The project is now in the second quarter of Project Year 4. Project Year 5 encompasses a fifteen month period. The following is a chronological summary of project implementation to date, together with an implementation plan for the final two years of the project.

A. Completed Actions

Project Paper Approved	July 1980
Project Agreement Signed	February 1981
USU/DE Contract Signed	March 1981
USU Technical Assistance Team Arrived in Morocco	August 1981
TDY- Extension Methods (1.5 person months)	August-September 1981
TDY- Plant Materials Center Development	August-September 1981
TDY- Seed Production	January 1982
Project Staff (Atiqi and Aro) Attended Society for Range Management Annual Meetings-Canada	February 1982
1st Range Management Shortcourse Held (5 individuals)	March-October 1982
Plant Materials Center Conditions Precedent Met (PMC site selected, construction plans completed)	May 1982
1st Group of MS Candidates Arrived in U.S. (4 individuals)	June 1982
Seed Specialist Hired	July 1982
First Administrative Shortcourse Held (6 individuals)	August 1982
Project Staff (Kouriri and Goebel) Attended American and Canadian Society of Animal Science Annual Meeting - Guelph, Ontario	August 1982
PMC Farm Equipment Commodities Arrived from U.S.	September 1982
Seed Specialist Arrived in Morocco	October 1982
Peace Corps Volunteers Begin Work	December 1982
New Chief of Party (Banner) Hired	January 1983
Project Staff (Fagouri and Gray) Attended Society for Range Management Annual Meeting - New Mexico	February 1983
PMC Farm Equipment Contribution Received from GOM	February 1983
TDY - New Chief of Party	March-April 1983
TDY - Plant Materials Center Development	April 1983
2nd Range Management Shortcourse Held (4 individuals)	May-October 1983
Beni Mellal Range Management Advisor (Goebel) Departed	May 1983
New Range Management Specialist (Gay) Hired	May 1983
Project Staff (Del Castillo and Aissi) Attended American Academy for Advancement of Science Meetings in Michigan	June 1983
2nd Group of MS Candidates Arrived in U.S. (4 individuals)	August-September 1983
New Chief of Party Arrived in Morocco	October 1983
New Range Management Specialist Arrived	October 1983
USU Administrative Review of Project (Box and Dwyer)	November 1983
Team Leader/Range Management Specialist (Aro) Departed	November 1983
3rd Group of MS Candidates Arrived in U.S. (3 individuals)	January 1984

Midterm Project Evaluation Undertaken	January 1984
Long Term Participants in U.S. Attended Society for Range Management Annual Meeting- Rapid City, SD	February 1984
New Campus Coordinator Appointed (Norton)	March 1984
TDY - Plant Materials Center Development	April 1984
TDY - New Campus Coordinator Orientation	April 1984
Project Evaluation Summary Completed	April 1984
USU and DE Staff (Karmouni, El Gharbaoui, Fagouri, Gray) Attended 2nd International Rangeland Conference in Australia	May 1984
B. <u>Planned Actions</u>	
Project Redesign Completed	June 1984
Three MS Degree Recipients Return	June-July 1984
Revised Project Paper Amendment Approved	July 1984
Project Amendment Signed	August 1984
Short-term U.S. Training for PMC Director	August-November 1984
Social Scientist Departs	August 1984
Five Person Months of TDY Assistance (Sociology, Range Research, Range Livestock Production, Sheep and Wool Production, Range Economics)	August-September 1984
USU/DE Host Country Contract Revised	September 1984
Plant Materials Center Construction Completed	September 1984
Junior Level Technicians Begin Work	September 1984
2nd Group of Peace Corps Volunteers Begin Work	September 1984
Annual Workplan Completed	September 1984
One MS Degree Recipient Returns	December 1984
Trimester Progress and Planning Report Completed	December 1984
Range Management Specialist (Gray) Departs	January 1985
Range Management Replacement Arrives	January 1985
Trimester Progress and Planning Report Completed	April 1985
Short-term Participants Depart for U.S. (two PMC staff and three range management specialists)	May 1985
Two Person Months of TDY Assistance (Plant Materials, and Extension Methods)	May 1985
Annual Report Completed	June 1985
Four MS Degree Recipients Return	July 1985
Trimester Progress and Planning Report Completed	August 1985
Annual Workplan Completed	September 1985
Trimester Progress and Planning Report Completed	December 1985
One MS Degree Recipient Returns	December 1985
Final Project Evaluation	February 1986
Junior Level Technicians Depart	March 1986
Trimester Progress and Planning Report Completed	April 1986
Annual Report Completed	June 1986
USU Senior Technical Assistance Team Departs	June 1986
Final Two MS Degree Recipients Return	August 1986
Project Activity Completion Date (PACD)	August 1986

VI. Evaluation Plan

This project has already undergone a comprehensive mid-term evaluation. It will be evaluated again in its final year to determine progress towards the achievement of its objectives and to assess the advisability of further USAID efforts in this sector.

The project will be internally monitored by the project team, and they will keep both USAID and DE informed of the project's progress and of problems encountered in project implementation.

VII. Project Planning and Reporting

Effective project planning and reporting is necessary to ensure that the institution building objectives of the project are attained. This project will have the following planning and reporting requirements.

A. Annual Workplan and Review

An Annual Workplan will be prepared in September of each year. In preparing this workplan semi-formal meetings of project staff at various levels and assistance from TDY personnel may be required. Though formal responsibility for preparing this Workplan will rest with USU senior staff, the institution building objectives of the project dictate that DE/Rabat and field staff be heavily involved in its preparation.

The Annual Workplan will cover the project as a whole. It will discuss, by project area, each activity underway or planned (the tables in the Project Paper Amendment can be used as a starting point). The objectives/targets of those activities will be specified, and justification will be given for each activity to be undertaken (why it is necessary, where it relates to the overall project, what its priority is, and so forth).

The Annual Workplan will outline the steps involved in reaching the objectives or in completing each activity, and will specify what needs to be carried out in the coming year. This will involve estimating the time, resource levels (manpower and equipment), and support necessary to carry out each step. The Workplan will identify who has primary responsibility for carrying out each activity. It will also discuss the current status of project activities already underway. This entire exercise will be undertaken in conjunction with local project staff.

The Annual Workplan should also outline a specific institution-building program to be carried out within the framework of the project. This program should identify institution-building objectives, specify activities that would be undertaken to achieve those objectives, and develop benchmarks for measuring progress during the year. Examples of institution building activities include explicit efforts to increase communication with other agencies, the creation of job descriptions, TDY assistance in organizational development, and so forth. The participation of DE/SP staff in the preparation of the Annual Workplan will be one of the project's explicit institution-building activities.

Once a draft of the Annual Workplan has been produced, senior DE, DE/SP, USU and USAID staff will meet and review it. An issues paper, outlining the major issues for discussion, will be prepared beforehand, to provide the agenda for this review. Recommendations from the Workplan Review will be incorporated into the final Annual Workplan, which will be produced in both English and French and disseminated to project staff and appropriate U.S. and Moroccan officials.

B. Site Visit Reports

A site visit report will be completed by each senior staff member or sociologist technician during each site visit. The primary purpose of these reports is to help USU senior staff plan and evaluate progress towards the institution building and output objectives of the project. During each site visit, senior staff will review past performance with the field staff. They will then jointly set objectives and specify activities to be carried out prior to the next visit by a senior USU staff member. The site visit reports will record this planning and evaluation activity. In addition, they will (1) document progress towards institution building objectives, as a basis on which the project can ultimately be evaluated; and (2) provide a vehicle by which USAID can stay informed of the project's progress towards institution building and output objectives.

The preparation of the Site Visit Reports will, thus, entail:

Evaluating Accomplishment during the Preceding Period - Reviewing the activities and objectives from the previous visit, assessing the status of these activities (e.g. level of completion), and identifying who carried out the activities.

Drawing Implications from Assessment - Identifying areas of concern and obstacles to carrying out the planned actions during the previous period. Attributing these obstacles to various causes/factors (such as poor performance by an individual, lack of cooperation from other agencies, etc.). Deciding whether the identified obstacles can be overcome and determining what actions are needed to do so and thus improve institutional performance. Assessing the implications of performance during the period for the achievement of overall program objectives.

Setting an Agenda for the Next Visit - Setting priorities and identifying immediate benchmarks for the upcoming period. Outlining actions (steps) to be taken by the project staff towards completing the activity prior to the next visit. Assigning responsibilities.

C. Trimester Progress and Planning Reports

To more closely correspond with the livestock/crop production cycle trimester, rather than quarterly, Progress and Planning Reports will be prepared. The purpose of these Progress and Planning Reports will be to:

- Document the results of program planning at the local level.
- Document progress in carrying out project activities, and to ensure that USU, DE, and USAID are informed of the level of progress.

- Demonstrate to DE/SP staff the value of well prepared periodic reports both for internal reasons and to justify their program to administrators and funding sources (e.g. well prepared reports can serve as a basis for obtaining additional resources).
- Train DE/SP staff in proper report preparation.

A Trimester "Field" Report will be prepared by the field staff of each project site. It will include a summary of project activities in each area during the previous trimester, and will discuss objectives, accomplishments, and current and planned activities. This report should be in French and directed at DE/Rabat, the USU project office, and the heads of the local Service de l'Elevage Office and the local DPA.

Senior USU project staff will review these Trimester Field Reports with the field staff. They will use them to develop a Trimester "Project" Report that will include a synthesis of the Visit Reports written by the USU senior staff. Trimester Project Reports will be completed in December, April, and August, and will be produced in both English and French.

D. Annual Reports

The Annual Report will be a synthesis of the Trimester Project Reports. Its major purpose is to document progress to date in institution building and output activities. It will summarize the progress of the project as a whole towards its objectives. Preparation of the Annual Report will be the responsibility of the USU senior staff and the staff of DE/SP Rabat. It will be produced in both English and French.

ANNEX 1: RANGE MANAGEMENT IMPROVEMENT PROJECT REVISED LOGFRAME

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program Goal: To increase livestock productivity and production efficiency by Morocco's low income livestock owners.</p>	<p>Measures of Goal Achievement: Increased meat and wool production from dryland and range resources without increasing the degradation of these resources.</p>	<p>1) Abattoir slaughter statistics; 2) Interviews with project beneficiaries and staff.</p>	<p>1) Weather conditions in Morocco do not worsen. 2) No major changes in GOM policy which adversely affect the livestock sector.</p>
<p>Project Purpose: To strengthen the institutional capability of the Service de l'Amenagement et Mise en Valeur des Terrains de Parcours (DE/SP) to plan and implement its applied research, extension, and rangeland development programs.</p>	<p>End-of-Project Status: 1) Working structure and organization of DE/SP in place at regional level in four provinces. 2) Technical and administrative competence of DE/SP staff visibly improved. 3) New technology and management practices developed and successfully extended to livestock owners and small farmers. 4) Understanding within DE of the need for, and means of achieving, community participation in new programs.</p>	<p>1) Evaluation of organizational competence of DE/SP. 2) Evaluation of applied research data and pilot extension/implementation projects - including economic analysis. 3) Verification of existence of plans and evaluation of plan validity. 4) Evaluation of DE understanding and of DE efforts to gain community participation.</p>	<p>1) No major changes in GOM policy which adversely affect the ability of DE/SP to carry out its functions.</p>
<p>Outputs: 1) Personnel of DE/SP trained in range science and other related disciplines to the MS level. 2) Personnel of DE/SP trained in range management through short-courses. 3) An applied research program in range management in place and functioning. 4) Range extension programs being implemented. 5) Functioning Plant Materials Center established.</p>	<p>Magnitude of Outputs: 1) 11 Moroccans receive MS degrees. 2) 80 person months of short-term training in the U.S. received by Moroccan staff. 3) Two technical in-service training sessions held in Morocco (1984-86). 4) Trials and/or demonstrations conducted of at least 3 range improvement practices at each of the 4 integrated grazing zones developed during the last year of the project. 5) Annual program plans for the 4 integrated grazing zones developed during the last year of the project. 6) Capability of PMC to produce 10 tons of forage seed per year and manage a seed and forage evaluation program</p>	<p>1) Project reporting (including Annual report). 2) Site visits. 3) Evaluation of program plans and implementation experience.</p>	<p>1) GOM provides DE with overall recurrent and capital budget support at levels consistent with recent experience.</p>
<p>Inputs: 1) Long- and short-term technical assistance. 2) Commodities 3) Participant training in the U.S. and Morocco 4) DE/SP provides counterparts and physical resources.</p>	<p>Implementation Target (Years 4 and 5): 1) 18.42 person years of long-term TA and 17 person months of short term TA; 2) \$286,081 in commodities for PMC, support of long term TA, and support of DE/SP research and extension (LOP commodity contribution is \$807,248). 3) 12.75 person years of long term degree training (LOP is 22 person years); 27.5 person months of short-term training (LOP is 80 person-months). (Total LOP training cost is \$717,406.) 4) Total U.S. LOP contribution is \$5,075,000. Total GOM LOP contribution is 20,050,000 dirhams.</p>		

ANNEX 2. TABLE 1. PROGRAM OF APPLIED RESEARCH - FORAGE PRODUCTION

ACTIVITY	PROJECT AREAS	CURRENT STATUS	END-OF-SEASON STATUS (1984-85)	END-OF-PROJECT STATUS
<u>Identification of major forage sources.</u>	All project areas.	Most currently available sources identified.	Sources identified	
<u>Forage/crop production estimation.</u>				
a. Native range				
1) Annual range sites	Ait Ebaa	One season of data collected, summarized, and reported. Paper being written for presentation at 1985 Annual Meeting of SRM.	Two seasons of data collected, summarized and reported. Study expanded to measure effects of stubble height (level of grazing use) on subsequent forage production.	Three years of data collected, summarized, reported, and submitted for publication.
2) Range sites in Middle Atlas	Timahdite	Research design process in progress. Enclosures constructed. Review of available information in progress. Initiation in 1984.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.
3) Range sites in Upper Moulouya Basin	Plaine de l'Aarid	Project in progress. Review of available information in progress.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.
4) Range sites in Eastern Morocco	Ain Beni Mathar	Project in progress. Review of available information in progress.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.
b. Cultivated Lands				
1) Crops and aftermath	All project areas	Project design in progress. Review of available information in progress. Data collection to begin as soon as possible.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.

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ACTIVITY	PROJECT AREAS	CURRENT STATUS	END-OF-SEASON STATUS (1984-85)	END-OF-PROJECT STATUS
2) Fallow	All project areas.	Project design in progress. Review of available information in progress. Data collection to begin as soon as possible.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized and reported.
c. Forage Production Alternatives				
1) Wheatgrass seeding (Upper Moulouya Basin)	Plaine de l'Aarid	Project completed, summarized, and reported. Design in process to expand the data base.	One additional season of data collected, summarized and reported.	Two additional seasons of data collected, summarized, and reported.
2) Interseeding of legumes in wheat-grass seeding.	Plaine de l'Aarid	Project in progress. One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.	Three seasons of data collected summarized, and reported.
3) Fertilization of cool season perennial grasses	Plaine de l'Aarid	Project in progress. One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.	Three seasons of data collected, summarized, and reported.
4) Seeding techniques for establishing wheatgrasses - land preparation and drill comparisons.	Plaine de l'Aarid and El Faija	Project in progress. One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.	Three seasons of data collected, summarized, and reported.
5) Land treatments (ripping, terracing) effects on native vegetation and improved forage species production (shrubs and herbs)	Ait Rbaa	Collaborative project between DE and Eauz et Forets. Project design in progress. Treatments planned for summer 1984.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.
6) Land treatment effects on native vegetation and improved forage species production (shrubs and herbs).	Ain Beni Mathar	Project design in progress. Exclosure completed. Treatments planned for 1984.	One season of data collected, summarized and reported.	Two seasons of data collected, summarized, and reported.
7) Planting of perennial forage species in <i>Zizyphus</i> clumps on degraded range.	Ait Rbaa	Project design in progress. Exclosure complete. Initiation of study in 1984.	One season of data collected, summarized, and reported.	Two seasons of data collected, summarized, and reported.

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ACTIVITY	PROJECT AREAS	CURRENT STATUS	END-OF-SEASON STATUS (1984-85)	END-OF-PROJECT STATUS
8) Forage plant adaptability trials.	All project areas and the PMC	Two seasons of data collected and reported for all project areas except Ain Beni Mathar. Initiation of trials in 1984.	Three seasons of data collected, summarized, and reported except at Ain Beni Mathar (one season).	Four seasons of data collected, summarized, and reported except at Ain Beni Mathar (two seasons).
9) Plant materials collection and increase.	All project areas (collection), and PMC (collection in Morocco).	Planning in progress.	Initial collections planted for increase at PMC.	Additional collections planted for increase at PMC. Plant materials (seed and stock) planted on project areas.
10) Grass and legume phenology and production.	Ait Rbaa	Design complete. Collaborative project with INAV personnel. Initiation in Fall, 1984.	One season of data collected, summarized and reported.	Two seasons of data collected, summarized and reported.
3. <u>Forage Quality Estimation</u>	All project areas	Plan for determining crude protein, metabolizable energy, calcium and phosphorus levels in selected forages in place through collaboration with Dr. Hamid Narjisse (ENA). Samples collected from Ait Rbaa. Review of available information.	Information available for forages from Ait Rbaa and other project areas.	Information available on major forage species involved in livestock production.

ANNEX 2, TABLE 2. PROGRAM OF APPLIED RESEARCH - ANIMAL PRODUCTION

ACTIVITY	PROJECT AREA	CURRENT STATUS	END of 1984-85 SEASON STATUS	END OF PROJECT STATUS
<p>1. <u>Current Livestock Production (Current level of technology)</u> a. estimate of x and variation in production efficiency (kg/unit) b. estimate of x and variation in total production (kg/unit area)</p>	All project areas (a and b)	Project design in progress. Initiating data collection 1984. Review of existing information in progress. Cooperative study with SR-CRSP.	Data for 1983 and 1984 production collected, summarized, and reported.	Data for 1983 through 1985 collected, summarized and reported. Reasonable estimates available.
<p>2. <u>Alternative Livestock Production (increased level of nutrition, parasite and disease control, culling and breeding systems, range improvements).</u> a. estimate of x and variation in production efficiency (kg/unit) b. estimate of x and variation in total production (kg/unit area).</p>	<p>All project areas (a and b)</p> <p>Plaine de l'Aarid (a and b)</p>	<p>Project design in progress. Initiation of data collection in 1984. Cooperation with ANOC and SR-CRSP.</p> <p>Projects in progress on improved rangeland. Preliminary results reported.</p>	<p>Preliminary data for various levels of management collected, summarized and reported.</p> <p>Data on animal production from improved rangeland collected, summarized, and reported.</p>	<p>Data for various levels of management collected, summarized and reported. Reasonable estimates available production contribution by practice.</p>
<p>3. <u>Development of Annual Feed Budgets</u></p>	All project areas	Project design in progress. To draw from Forage Production Research and Socio-Economic Research.	Preliminary budgets	Improved budgets developed.

ANNEX 2, TABLE 3. PROGRAM OF APPLIED RESEARCH - ECONOMICS

Activity	Current Status	1984-85 end of Season	End of project status
Estimation of Current production costs: a) forage b) herd management c) opportunity cost	Limited Information exists at Ain Beni Mathar. Design in progress.	Estimates based on one year of data and historical records analyzed and implications integrated into program and production models.	Estimates on two years of data and historical records analyzed and implications drawn and integrated into program/production models.
Estimation of Alternative Production Costs: a) forage b) herd management c) opportunity costs	Limited information on seeding costs exists at Plaine de l'Aarid. Design in progress.	Estimates for identified alternatives available and integrated into production models.	Estimates for all identified alternatives reported and integrated into production models.
Estimation of current production returns: a) animal product prices and returns b) forage and crop prices and returns	Limited information on returns exists at Plaine de l'Aarid. Design in Progress.	Estimates for all zones available and integrated into program and production models.	Estimates for all zones reported and integrated.
Estimation of alternative production returns: a) animal product prices and returns b) forage and crop prices and returns	Limited information on animal returns available at Plaine de l'Aarid. Design in progress.	Estimates for identified alternatives available and integrated into production models.	Estimates for all zones identified. Alternatives reported and integrated.

ANNEX 2, TABLE 4. PROGRAM OF APPLIED RESEARCH - SOCIOLOGY

ACTIVITY (ALL PROJECT AREAS)	CURRENT STATUS	INITIAL ACTIONS	JUNE 1985 END OF SEASON STATUS	JUNE 1986 END OF PROJECT STATUS
1. Assessment of producer perception of needs, issues, opportunities, limitations.	Although certain of this information may have been collected to date, limited information is available for integration into the project programs.	Setting research priorities with TDY assistance - jointly determined by sociology and range management staff.	Preliminary assessments available and integrated into production system models and extension programs. Information available for planning of research and extension programs.	Assessments integrally utilized in production systems models and extension programs. EOPS Report.
2. Assessment of producer expectation (environmental and production parameters).		Selection of appropriate socio-economic research methods by TDY, sociologist technician, and economist/ODP.		
3. Assessment of producer resource sets.		In-service training of USU and DE technicians, including PCV's.		
4. Assessment of producer perceptions (description and explanation) of current production systems.		Analysis and reporting of existing information, both that collected by project staff to date and from outside sources.		
5. Assessment of social and cultural influences on livestock/crop production and acceptance of new technology.				

ANNEX 3. PROGRAM OF RANGE EXTENSION

Activity	Location	Current Status	1984-85 End-of-Season Status	End-of-Project Status
Summary of information and development into livestock production system models for identification of intervention opportunities.	All project areas	Insufficient information exists for identification of production system models. Applied research component initiation of data collection necessary to define systems.	Available information integrated and developed into production system models.	Improved livestock production system models identified and available for extension program planning.
Development of extension materials and presentation: a. Perennial forage plantations on private land (Marginal Cropland).	a. Plaine de l'Aarid. b. Timhadite. c. Ait Rbaa. d. Ain Beni Mathar. e. Plant Materials Center.	a. 5 producers seeded 12 hectares to cool season grasses. 17 additional producers have requested assistance for fall 1984 (50 Ha). b. 17 producers seeded 24 hectares to cool season grasses. c. Private producers identified in the perimeter survey are being contacted to program 1984 reseeding. d. Private producers are being contacted for 1984 shrub plantations. e. Support of perimeter programs with expertise and plant materials	Follow-up program to measure success of seeding and to provide management information to producers. Seed materials available for all interested producers. Expansion of activities on all perimeters. Evaluation of success and impact integrated into livestock production systems models.	Complete integrated program of seeding, management, and utilization developed and on-going between DE and private sector. Focused on the production systems. EOP Report.
b. Developing extension program to teach range management principles to livestock producers and others.	Plaine de l'Aarid.	Pilot program is being developed for presentation to perimeter users during summer 1984.	Evaluation of program relative to impact by sociological and range team. Revisions for future expansion to other perimeters.	Evaluation of program. EOP report. On going program part of DE activity.
c. Field days to teach revegetation techniques.	All project areas.	Pilot programs under development to utilize range reseeding to teach proper techniques.	As above. As above.	As above. As above.
d. Field days to teach annual husbandry techniques.	All project areas.	A collaborative program with INAV, ENA, and the SR-CRSP utilizing the DE sanitation program to institute the activity. Program outline developed.	As above.	As above.

ANNEX 3, (cont.)

Activity	Location	Current Status	1984-85 End-of-Season Status	End of Project Status
<p>a. Developing extension range and range/livestock management materials based on appropriate opportunities for intervention of improved technologies into the existing livestock production systems.</p>	<p>All project areas.</p>	<p>Preliminary materials developed:</p> <ul style="list-style-type: none"> a. A 20 minute slide tape presentation "For a Better Tomorrow" prepared. b. Written materials to be used as hand-outs treating individual range management practices to be used with extension presentations. English versions have been prepared. c. Slide/tape presentations to accompany written materials are being organized for all audiences. 	<ul style="list-style-type: none"> a. Improved materials developed into video tape presentation for national audience. b. French and Arabic versions prepared and integrated into program. Evaluation of materials initiated. c. Appropriate presentations available for trial in English, French, and Arabic. 	<p>EOP report complete with evaluation of impact, receptivity, demand by audiences.</p>

ANNEX 4, TABLE 1. ABRIDGED LOGFRAME FOR PLANT MATERIALS CENTER

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Program Goal:</u> To provide plant materials needed for the GOM's expanding range improvement and conservation programs in low rainfall areas of Morocco.</p>	<p><u>Measures of Goal Achievement:</u> 1) Plant materials provided by the PMC are actually used in GOM range improvement and conservation programs. 2) Availability of needed plant materials is not a constraint to future GOM range improvement and conservation programs. 3) Greater reliance by the GOM on domestically produced, rather than imported, forage seed.</p>	<p>1) Range improvement and conservation program reports. 2) Importation and use records.</p>	<p>A continuing commitment by the GOM to range improvement and livestock sector support.</p>
<p><u>Project Subgoal:</u> To provide seed, plant materials, and crop residues to the Range Management Improvement Project.</p>	<p><u>Measures of Subgoal Achievement:</u> Needed plant materials and crop residues are available to the Range Improvement Project.</p>		
<p><u>Project Purpose:</u> To establish a viable plant materials center with an active program for the development, production, and distribution of range forage plants and conservation species.</p>	<p><u>End-of-Project Status:</u> Plant materials facility operational (facilities constructed, equipment purchased and installed, fields producing seed, research program collecting plant materials and selecting desirable varieties for multiplication).</p>		
<p><u>Outputs:</u></p> <ol style="list-style-type: none"> 1) Facilities constructed, equipped, and in production. 2) Forage seed produced, cleaned, stored and distributed in an efficient and effective manner. This will include: <ol style="list-style-type: none"> a. Shrub production nursery established and shrub seed or stock produced for use on perimeters; b. Field production of forage seeds (grasses and legumes); c. Certified seed produced for cereals and forage crops (activity to serve training and income-producing purposes). 3) Uniform procedures for adaptability trials (in project areas) established. 4) Certification standards for new forage species established. 5) Procedures and program established for evaluation of native forage species. 6) PMC by-products used in project programs. 7) PMC personnel training (in-service and short-term participants). 			
<p><u>Inputs:</u></p> <ol style="list-style-type: none"> 1) Technical assistance. 2) Equipment and materials. 3) DE staff assigned. 4) Support for construction costs. 			

ANNEX 4, TABLE 2: IMPLEMENTATION PLAN FOR THE PLANT MATERIALS CENTER - EL JADIDA

ACTIVITY	CURRENT STATUS	FALL 1984 STATUS	SPRING 1985 STATUS	END-OF-PROJECT STATUS
Seed production of range forage species: a) for reseeding the perimeters, b) for reseeding submarginal cropland of cooperating producers.	63 hectares planted with 25 forage species. 18 has. harvested to date. 53,000 pots of five shrub species produced. 50,000 pots distributed to perimeters.	Expansion of production of proven varieties based on demand, including both seed and plant materials. Modified seed cleaning facility and irrigation system in place.	Seed cleaning equipment in place. Harvest of expanded production and distribution of plant materials in progress. Irrigation system in place.	PMC operation complete including needed equipment, production process, cleaning, storage, and dissemination of seed and plant materials standard procedure. PMC supporting range extension activities.
Income producing activities for PMC operation. a) Forage production for support of perimeter activities. b) Certified seed production of cereals and forage crops. c) Crop residue utilization.	(a) 50 has. being developed for hay production to be used as indemnity payments to producers for deferred grazing land. (b) Agreement with SONACOS to produce certified seed of cereals and forage species under contract. (c) Conservation of crop residue for project use.	(a) 50 has. for hay in in production. (b) 25 has. in production of certified seed. (c) Seed production aftermath forage available for project use.	(a) First production of alfalfa hay arriving at project areas. (b) Sales of seed in progress, as harvest proceeds. (c) Continued support of project programs with by-products.	(a) hay for support of project activities part of normal PMC operation. (b) Continued production of certified seed based on demand. (c) Crop residue use by project part of normal PMC operation.
Research and development of native forage species of economic value.	Species previously collected are in process of plantation for evaluation. Evaluation nursery established at PMC - Spring 1984.	Native forage evaluation trials in place.	One season of data. Results presented in Annual Report and integrated into project program.	EOP Report of evaluation trials. Pre-basic seed of selected species available for production.
Collection of native forage species for evaluation.	Collaborative program with INRA and GTZ to use IDY personnel to train DE/USU staff on germ plasm collection and preparation. New collection initiated - Summer 1984.	Training phase of staff completed. Collection of native plant material in process.	New collections added to evaluation trials already in place.	Operation of collection, evaluation, selection, and production part of normal PMC procedures.
Forage seed utilization and certification programs.	DE planning organizational meeting with all agencies involved to quantify demands and standards for range forage species.	Documentation of standards and procedures being developed. Current demand for range forage species seed identified.	Program exists. Standards and procedures operational. Range forage seed demand integrated into production program.	Certification process part of normal PMC activity. Demand estimates evaluated for planning purposes.
Development of uniform procedures for adaptability trial establishment and evaluation.	DE planning organizational meeting with all agencies testing, producing, or utilizing forage species to develop standards.	Standards developed. New trials established on four project perimeters.	One season of data. New selections from native collections to be phased into perimeter trials in Fall 1985.	Operation of trial expansion and evaluation on perimeters part of the normal procedure. EOP Report of Findings.
Participant training programs for PMC personnel.	Collaborative program with California Agriculture Institute to train (a) PMC Manager in farm operation and management; (b) 2 farm managers in farm management; (c) a seed technologist, and (d) an irrigation specialist.	(a) Training of PMC director completed. (b) Special programs developed by CAI for farm managers, and seed and irrigation specialists.	Two participants in U.S. for short-term training.	First two participants returned and in place at PMC.

Annex 5. Institutional Analysis of DE/SP

The Organizational Structure of the Direction de l'Elevage

The Direction de l'Elevage is one of ten departments of the Ministère de l'Agriculture et de la Réforme Agraire (MARA). These divisions are listed in Table 1, below, along with their total investment budgets for 1984. As can be seen, the Direction de l'Elevage receives 12.5 percent of the MARA investment budget.

The Direction de l'Elevage is currently headed by Dr. Abbes Marsile. It is divided into three divisions (see Figure 1, Organizational Chart):

Animal Health Division (Santé Animale);
Horse Division (Haras); and,
Animal Production Division (Production Animale).

The Animal Production Division, currently headed by M. Abdelouahab Karmouni, is, in turn, divided into four Services:

Service de l'Amélioration Génétique;
Service de l'Orientation de la Production Animale;
Service de l'Alimentation du Bétail; and,
Service de l'Aménagement et de la Mise en Valeur des Terrains de
Parcours (the Service des Parcours).

The Service des Parcours is currently headed by a Minnesota-trained range management specialist, Mr. Abdelouahad El Gharbaoui. Until 1981, the functions of the Service des Parcours and Service de l'Alimentation were combined into a single entity (the Service des Parcours et l'Alimentation). These were separated because, under the combined service, the majority of attention was being given to supplementary feeding programs, at the expense of range improvement.

The Service des Parcours is informally divided into two bureaus. One bureau (Projets et Etudes) covers the Moyen Atlas and other World Bank-financed projects. The other bureau (Travaux de l'Aménagement des Parcours) includes the USAID-funded Range Management Improvement Project (roughly 80 percent of bureau funding) and range improvements undertaken in non-project areas (roughly 20 percent of funding). The investment budget for Travaux d'Aménagement des Parcours in 1984 was 7,421,440 dh.

Historically, the eradication of animal diseases and increasing milk production were national priorities. Therefore, the lion's share of DE's resources has traditionally gone to animal health and genetic improvement activities. Since the drought in 1981, greater attention has been given to improving rangeland resources. However, the lack of technical expertise to implement projects is currently a more serious constraint to greater efforts in range management than a lack of budgetary resources. Indeed, one of DE/SP's two investment line items (that for Etudes General) has no funding because personnel were not available to carry out the activities it was to finance. The head of DE/SP has received assurance that, as DE/SP develops worthwhile programs to effectively utilize additional funding, the needed financial resources will be made available.

Table 1: Investment Budget of the Ministère de l'Agriculture et de la Réforme Agraire

Directions

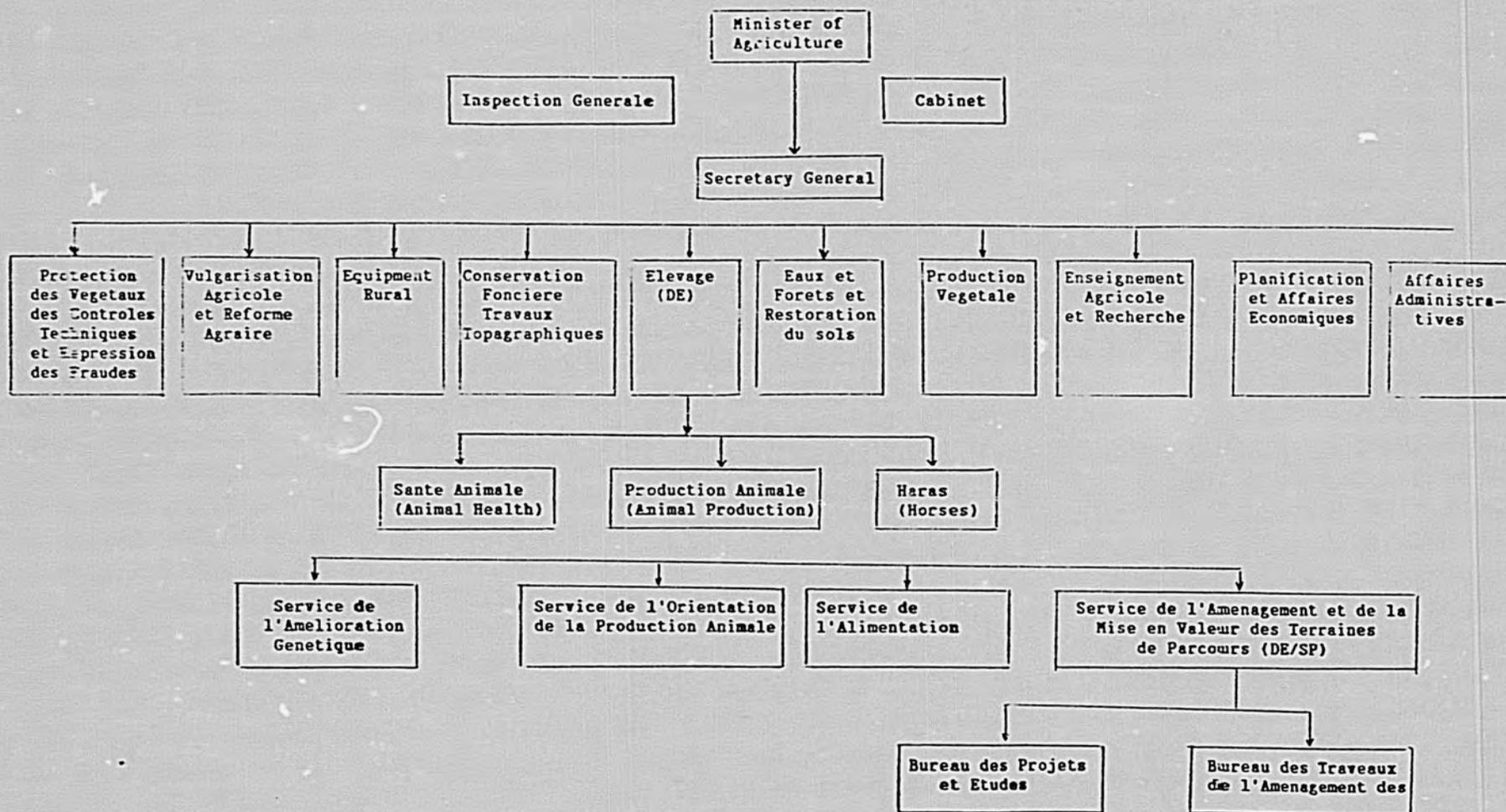
Direction des Eaux et Forêts et de la Conservation de Sols	208,833,000
Direction de l'Élevage	177,438,440
Direction de l'Équipement Rural	140,656,000
Direction de Production Végétale	140,297,800
Direction de la Vulgarisation Agricole et de la Réforme Agraire	69,911,200
Direction de la Protection des Végétaux des Contrôles Techniques et de la Répression des Fraudes	32,921,400
Direction de la l'Enseignement Agricole et de la Recherche	24,231,000
Direction de la Planification et des Affaires Économiques	20,695,800
Direction de la Conservation Foncière des Travaux Topographiques	-
Direction des Affaires Administratives	-

Other Departments

Offices Régionaux de Mise en Valeur Agricole	568,081,000
Institute National de la Recherche Agronomique	<u>33,245,000</u>

TOTAL- Ministère de l'Agriculture et de la Réforme Agraire 1,416,310,640 dh

FIGURE 1: POSITION OF DE/SP WITHIN THE MINISTRY OF AGRICULTURE AND AGRARIAN REFORM



At the local level, all agricultural activities are coordinated by either the Direction Provinciale de l'Agriculture (DPA) or an Office Regional de Mise en Valeur Agricole (ORMVA). ORMVAs, which generally cover irrigated zones, have greater autonomy than DPAs. The project has been working exclusively in zones under DPA authority. The DPA director maintains budgetary control over agricultural activities in the province.

Livestock improvement services in the field are performed by a local Service de l'Elevage office, whose structure parallels that at the national level. A Service de l'Elevage will be subdivided into two bureau's (the Bureau de Sanitaire Animale and the Bureau des Production Animale). In larger regional offices, a Bureau des Parcours will be divorced from the Bureau des Production Animale. It is generally the head of a local Bureau des Parcours that serves as a counterpart to senior U.S. project staff. These counterparts either have MS. degrees (Laraisse, Harkousse, or Bourass) or extensive experience in range management (Fagouri).

The Director of DE has full authority over DE personnel in the field. In coordinating field activities, however, DE/Rabat works with and through the local DPA. The director of DE/SP in Rabat reviews and approves plans which are developed at the local level, and provides funding from the investment budget. He has no direct authority over DE/SP staff in the field, but, when necessary, can rely on the authority of the Director of DE.

Apart from the project areas, DE/SP has staff in approximately a dozen DPAs and ORMVAs. Usually, however, its presence at other areas is limited. DE/SP's ultimate goal is to staff each of these areas with someone having an MS degree.

Institution-Building Needs of DE/SP

In improving institutional capacity, it is useful to distinguish among three interrelated arenas of action: (1) the individuals within an organization, (2) the internal structure of the organization, and (3) the system in which the organization operates. The performance of an organization or institution is a function of its effectiveness and efficiency in each of these three arenas.

Distinguishing among these arenas of action is important because improving institutional capacity may require interventions to address problems at each level. Efforts to train individuals within an organization, however, may have a minimal impact if the organizational structures or internal procedures of the organization provide no incentives for individuals to improve their performance. Similarly, attempts to improve the internal organization of an institution may fail, if factors outside of the organization's control, such as a shortage of resources or lack of cooperation by other agencies, are at the root of the institution's weak performance. Finally, changing the system may not increase overall performance if there is a lack of capacity among the individuals and organizations which make up the system.

Needs at the Individual Level

The institutional strengths and weaknesses of DE/SP can be categorized according to these three levels. At the individual level, the project needs

to accomplish three tasks

- To develop the technical skills of DE/SP staff in range management and related disciplines. Since DE/SP is a very young organization, many of its staff are young and relatively inexperienced. Though in many cases they have the academic knowledge of the technical skills and methodologies of their profession (such as conducting variety trials, estimating production, and reseeding techniques), they require additional practical experience at actually implementing them.
- To improve the planning skills of DE/SP staff. In order for an institution to function effectively, it is necessary for its staff to plan and organize the time and resources at their disposal, to set objectives, develop programs to achieve these objectives, and select criteria for measuring progress.
- To develop the evaluation skills of DE/SP staff. Greater attention needs to be given towards following through on activities which have been initiated. Further, the effective evaluation of activities which have been carried out is necessary to ensure that successes are recognized and that mistakes are not repeated.

Needs at the Organizational Level

The Project must also address institutional weaknesses at the organizational level. Most of these constraints stem from the fact that Morocco has only recently begun to address the problem of its degrading rangelands. Therefore, Morocco has relatively little experience in range management improvement on which to base its policies and to develop its strategies. In turn, the agencies charged with responsibility for range management, DE and DE/SP, are still defining their roles within the bureaucratic system and within the government's agricultural development strategy.

Lack of Extension Orientation

There is a need to develop within DE, including DE/SP, a greater "extension" orientation. DE personnel should see their roles as generally to advise and assist livestock owners to improve their management practices and herd quality. Historically, DE staff have seen their roles in much more limited terms, as involving narrowly defined actions, such as inoculating animals or conducting agronomic research. For example, through DE's vaccination programs its staff members have substantial contact with livestock owners and their animals. This would be an ideal time to talk to the producer about the quality of his animals and how he should take care of them. Unfortunately, DE staff rarely take full advantage of this opportunity. They tend to focus on the limited task of inoculating the animals. Though some animals might be crippled, old, wool blind, infertile, or diseased, DE staff will not always point out these deficiencies and suggest remedies to the producer. The problem does not appear to stem from a lack of receptivity on the part of livestock owners. Indeed, the beneficiaries are open to talking about their animals and what problems they have had. Rather, the problem seems to have its roots in the traditional orientation of the service. DE is currently trying to more effectively link

its animal health and herd management assistance to its vaccination campaigns. This change should be encouraged by the project.

Office versus Field Time

Currently, DE staff spend roughly 80 percent of their time in the office and only 20 percent of their time in the field. A more reasonable ratio would be half of the time in the office and half in the field. Part of the reason has traditionally been the limited availability of transportation. By providing additional vehicles, the project has been able to relax this constraint for DE/SP, at least in project areas. However, the inadequate amount of time in the field is also due to the lack of technical training, experience, and confidence of the staff. Better planning, a clearer delineation of responsibilities, and development of a field-work orientation among the staff is also needed.

Lack of Clear Orientation

First, the role and purpose of DE/SP as an institution is still evolving. To date, DE/SP has relied on the project, to which its existence is heavily tied, for direction. Except among its senior staff, the purpose of DE/SP is understood only in nebulous terms. The problem, the degradation of the range resources, is recognized. However, strategies for addressing this problem are still developing.

Traditionally, the emphasis has been on the protection, rather than utilization, of the range, a focus that was reflected in the original project design. By regulating the numbers of animals on the perimeters, DE/SP hoped to demonstrate to livestock owners the value of reduced grazing pressure on the range. Ultimately, it was believed, the livestock owners, themselves, would form grazing associations to manage (restrict the grazing on) the collective lands at their disposal. This goal proved elusive. As fewer animals were grazed within the perimeters, grazing pressure on the surrounding land increased. Further, on collective land it was impossible for the individual to capture the benefits of any deferral of grazing.

Moreover, protection of the range for its own sake is neither necessary, nor desirable. Grazing is required to maintain the forage value of the range. Parts of the Plaine de l'Aarid perimeter, however, are actually being underutilized, to the long-term detriment of the resource. This underutilization is due to the lack of water for livestock in parts of the perimeter and other physical and social constraints. Recently, DE/SP has begun to shift away from its focus on protecting the range, towards a focus on more effectively managing the range resources available. The project must continue to encourage this change in direction.

DE/SP has also been in the process of broadening its strategy. In the past, it has centered its activities on range perimeters and collective lands. However, experience has shown that this may limit DE/SP's access to their clients, the livestock owners. In some areas the range perimeters represent only a small, but important, part of the overall picture, and decisions about their use depend on other factors in the system. Further, the seasonal nature of collective rangeland usage meant that DE/SP, for all practical purposes, lost contact with its clients for part of the year.

Faced with these problems, DE/SP has begun to change directions, and is expanding its focus beyond simply the creation and management of range management perimeters. The project has played an instrumental role in bringing about this redirection. One new thrust has been to try to increase the range resources available, rather than to decrease their use. In particular, greater attention being given towards assisting private producers in reseeded marginal cropland back into forage. DE/SP is assisting these farmers, both by providing seed and by providing technical assistance in planting and managing the new forage stands. Unfortunately, this is a recent phenomenon, and its potential is not yet known. An important question is whether farmers who reseed their land into forage crops will be able to retain control of it over time. If not, this land may revert to marginal cereals production.

Failure of DE/SP to Focus its Resources

Because it is a relatively young, expanding organization, DE/SP has been forced to spread its personnel resources thinly, in order to establish its presence throughout the country. However, when this happens, staff may find themselves isolated, without materiel support and transportation, and generally without a well-defined program to carry out. As a result, they are easily diverted to other DE activities, whether or not they have anything to do with range management.

Needs at the System Level

Finally, DE/SP needs to clarify its position within the bureaucratic system, as a whole. DE/SP must operate through the local DPA, which has authority over budgets and expenditures at the regional level. DE/SP's financing comes from the investment budget. The budget for operating expenditures is managed by the local DPA. The amount of independence DE/SP has at the local level varies from project area to project area, and is dependent upon personalities, proximity, and the length of time DE/SP senior staff have been in a given location. This means that DE/SP must develop close working relationships with senior DPA officials. In addition, the ability of DE/SP to demonstrate concrete achievements through the implementation of effective programs will bring about greater recognition by these officials.

In addition, as DE/SP broadens its strategy to encompass the livestock production system, rather than just collective rangelands, it will have to define more clearly its relationships with other agencies within the Ministry of Agriculture. These would include l'Eaux et Forêts, which has authority of forest land, a major source of forage for Morocco's livestock population. In addition, since livestock and crop production are so closely intertwined, increased coordination will be necessary with the Direction de Production Vegetale (DPV), the National Institute of Agronomic Research (INRA), the Direction de Vulgarisation et Reforme Agraire, and so forth. Finally, a close working relationship with the Ministry of Interior and local level officials will be necessary to carry forth DE/SP's program. The project, by encouraging the establishment of formal and informal relationships with allied Moroccan agencies, will strengthen DE/SP as an institution.

ANNEX SIX

RANGE MANAGEMENT IMPROVEMENT

PROJECT 608-0145

PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECTMission Response1. FY 1982 Appropriation Act
Sec. 523; FAA Sec. 634A;
Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;

(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

1(a) The Appropriations Committee will be notified in accordance with normal agency procedures.

(b) Yes

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

- (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
- 2 (a) Yes
- (b) Yes
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?
- 3 No further legislative action required.
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501 If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)
- 4 N/A
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?
- 5 N/A
-

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not executed? Information and conclusion whether assistance will encourage regional development programs.
- 6 N/A
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- 7(a) N/A
- (b) The project provides technical assistance that will upgrade an institution that will generate new technology that will flow out to private livestock owners, thus encouraging private initiative and competition.
- (c) The project will encourage development of livestock and range cooperatives
- (d) Yes
- (e) Yes
- (f) N/A
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- 8 A US Land Grant University will manage the project to provide technical assistance, training, and procure commodities having their source in the US (unless otherwise waived). This project will serve to introduce US commodities and knowhow into the Moroccan society and more specifically the livestock/range producers.
-

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

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

13 (b) N/A

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

14 N/A

B FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

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

1A(a) The project will upgrade an institution that will generate appropriate technology useful to the lower income livestock producers. Project involvement with these herders will stimulate their investment in the livestock sector as benefits from more efficient projection generate additional income. Small livestock herds are labor intensive, thus increasing their productivity could stimulate additional employment opportunities.

(b) The Project will assist in the development of cooperatives that group local producers to increase access to effective new technology and marketing.

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

(c) Yes

(d) Yes

(e) The Project encourages linkages with countries of this region, such as Tunisia, that have similar ecologies and social settings that support improved livestock production.

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

B Yes

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

C The project emphasizes adoption of appropriate technology.

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

D Morocco is funding more than 25% of the costs of this project.

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

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

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development and supports civil education and training in skills required for effective participation in

the governmental processes essential to self-government.

F The Project will upgrade an institution that the GOM has charged with the responsibility to develop rangeland and livestock production to result in self-sustaining increases in income generation at the local level.

G The Project upgrading of institutional capacity will challenge Morocco's intellectual resources to better to manage, assess, plan, and implement improved extension livestock production programs at the local level.

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? 1 Yes
 2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? 2 Yes
 3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? 3 Yes
 4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be 4 Yes
-

financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

5. FAA Sec. 604(q). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one or these areas? 5 N/A
6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates? 6 The Contract will not exclude compliance with the requirements in Section 901(b) of the Merchant Marine Act of 1936, as amended.
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other 7 (a) Yes
-

Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

7 (b) N/A

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

8 The Contract will so provide.

9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

9 The Contract will so provide.

B. Construction

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used?

1 N/A

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

2 N/A

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)? 3 N/A

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? 1 N/A
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? 2 N/A
3. FAA Sec. 620(b). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? 3 Yes
4. Will arrangements preclude use of financing:
- a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family 4 (a) Yes
-

- planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?
- 4a 2 Yes
- 4a 3 Yes
- 4a 4 Yes
- b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?
- 4b Yes
- c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?
- 4c Yes
- d. FAA Sec. 662. For CIA activities?
- 4d Yes
- e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?
- 4e Yes
- f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or
- 4f Yes
-

adjusted service
compensation for military
personnel?

g. FY 1982 Appropriation
Act, Sec. 505. To pay
U.N. assessments,
arrearages or dues? 4g Yes

h. FY 1982 Appropriation
Act, Sec. 506. To carry
out provisions of FAA
section 209(d) (Transfer
of FAA funds to
multilateral
organizations for
lending)? 4h Yes

i. FY 1982 Appropriation
Act, Sec. 510. To
finance the export of
nuclear equipment, fuel,
or technology or to train
foreign nationals in
nuclear fields? 4i Yes

j. FY 1982 Appropriation
Act, Sec. 511. Will
assistance be provided
for the purpose of aiding
the efforts of the
government of such
country to repress the
legitimate rights of the
population of such
country contrary to the
Universal Declaration of
Human Rights? 4j Yes

k. FY 1982 Appropriation
Act, Sec. 515. To be
used for publicity or
propaganda purposes
within U.S. not
authorized by Congress? 4k Yes