

PD 611 534

FINAL EVALUATION

RANGE MANAGEMENT IMPROVEMENT PROJECT

PROJECT 608-0145

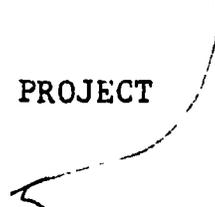
MOROCCO

AGENCY FOR INTERNATIONAL DEVELOPMENT

WASHINGTON, DC 20523

NOVEMBER 1985

File



A.I.D. EVALUATION SUMMARY PART

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

A. REPORTING A I.D. UNIT (Mission or AID/W Office) B. WAS EVALUATION SCHEDULED IN CURRENT FY ANNUAL EVALUATION PLAN? C. EVALUATION TIMING

(ES # 608-86-01) yes slipped ad hoc in-train final ex post other

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

Project #	Project/Program Title (or title & date of evaluation report)	First PRGAG or equivalent (FY)	Most recent PACD (mo/yr)	Planned LOP Cost ('000)	Amount Obligated to Date ('000)
608-0145	Range Management Improvement Project	80	8/86	\$5,075	\$5,07

IDENTIFICATION DATA

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

Action(s) Required

1. USAID will complete the Range Management Improvement Project as scheduled in the revised Project Paper.
2. Within the context of the development of its revised CDSS, USAID will consider the future of AID development assistance to the extensive livestock sector in Morocco.
3. USAID will request in writing that DE examine the appropriateness of upgrading DE/SP from the status of a Service, to that of a Division, and to inform USAID of the basis and results of its determination.
4. USAID will request in writing that DE examine, within the framework of current project activity, its "long-term development strategy" and the findings of the evaluation in this regard. USAID will discuss the findings of DE in the context of CDSS preparation.
5. USAID will request in writing that DE develop a plan and time frame for transferring control of the Plant Materials Center to the private sector. USAID will support this planning effort within the framework and remaining lifetime of the Range Management Improvement Project. USAID will consider including this activity as a PL 480 Self Help Measure in FY 86.
6. USAID will share its concern with DE at the finding of the evaluation that U.S. technical assistance is not adequately integrated into DE/SP and request that DE develop and provide to USAID an immediate plan, in collaboration with the consultants, to remedy this situation.

Name of officer responsible for Action

Date Action to be Completed

Purvis	8/30/86
Purvis	2/01/85
Purvis	1/15/86

CONTINUATION

F. DATE OF MISSION OR AID/W OFFICE REVIEW OF EVALUATION:

mo 11 day 4 year 85

Report Date:

mo 11 DAY 5 YR 85

G. APPROVALS OF EVALUATION SUMMARY AND ACTION DECISIONS:

Signature
Typed Name
Date

Project/Program Officer

DWatts
Doral Watts
11/13/85

Representative of Borrower/Grantee

Evaluation Officer

J. Justi
J. Justi
11/13/85

Mission or AID/W Office Director

RChase

RChase
11/29/85

CONTINUATION

Moroccan livestock depends upon extensive rangelands for a significant portion of its forage needs. The purpose of the Range Management Improvement Project (RMIP) in Morocco was to strengthen the capability of the Range Management Service (DE/SP), a division of the GOM's Livestock Directorate (DE), to plan and implement its applied research, extension, and rangeland development programs. Technical assistance was provided by Utah State University (USU). The project began in 1981 and the PACD is August 30, 1986.

Serious implementation problems resulted in a major redesign of the project in mid-1984. This final evaluation was conducted in October 1985, by a team of independent consultants. It particularly focused on the project's implementation performance in the 15 months since the redesign. The evaluation team concluded that AID and USU had made an important contribution to creating a range management capability within the GOM, and that the decision to redesign the project in 1984 and to continue with the USU involvement was a sound one. It noted, however, that achievements during the last two years of the project were limited by the time and resource limitations inherent in the redesign (e.g. no provision for additional funding or a significant extension of the PACD). The assessment of the full extent of institutional capacity achieved and its future payoff must be seen within this context.

The evaluation pointed to long- and short-term training and the development of the Plant Materials Center as major successes. Problem areas identified included: a lack of full integration of the sociological research and the range management and extension efforts, and limited economic research and extension; interpersonal and bureaucratic relationships among GOM staff which hindered project-related activities at some sites; and a technical assistance structure which was not adequately integrated into the host institution. Since range management does not have adequate bureaucratic priority within the GOM, the evaluation team recommended that DE/SP be upgraded from a service to a division level.

The evaluation team also felt that DE/SP should concentrate on addressing land use and range management questions, leaving research and extension activities to other agencies. It expressed concern that DE/SP was spreading its resources too thinly, in an effort to establish a presence throughout the country. Finally, the team also pointed out that inadequate attention was being given to creating institutional capacity at the local level, through the promotion of local beneficiary organizations. The evaluation team recommended that the RMIP be terminated as planned, but that AID continue its involvement in the extensive livestock sector, with DE/SP as a lead agency. It also recommended that the Plant Materials Center be "privatized".

ABSTRACT

I. EVALUATION COSTS

1. Evaluation Team

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Name	Affiliation	Contract Number OR 20X Person Days	Contract Cost OR 20X Cost (US\$)	Source of Funds
Instit. Bldg. Spec.		27		
Program Eval. Spec.	Development	27	\$58,324	PD&S
Range Devel. Spec.	Alternatives, Inc.	27		
Range Extension Spec.		27		

2. Mission/Office Professional Staff Person Days (estimate) 15

3. Borrower/Grantee Professional Staff Person-Days (estimate) 13

COPY

A.I.D. EVALUATION SUMMARY PART

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

- Purpose of activity or activities evaluated
- Purpose of/reason for this evaluation
- Key issues or questions addressed
- Types and quality of evidence used to assess short-term effects, trends and/or potential for impact.
- Findings
- Conclusions
- Principal recommendations
- Lessons learned

1. This is the summary of the final evaluation of the Range Management Improvement Project (RMIP) in Morocco. The project is scheduled to end in August of 1986. The purpose of the RMIP is to strengthen the capability of a GOM institution, the Range Management Service (DE/SP), to plan and implement its applied research, extension, and rangeland development programs. The RMIP, implementation of which began in 1981, originally focused on range extension and long- and short-term training. Utah State University (USU) fielded a five person team to implement the project.

2. A mid-term evaluation of the project conducted January of 1984, while identifying several serious implementation problems that needed urgent attention, was optimistic concerning the Project's potential. Following upon their recommendations, the project underwent a major redesign, involving changes in personnel and TA structure and the adoption of a more explicit focus on an institution building objective for the project. Given the very serious problems encountered in the first three years of implementation, AID decided against obligating additional funds to the project or significantly extending the life-of-project. Consequently, the project had only two years in which to carry out the program outlined in the redesign. Many of the more serious implementation problems identified in the final evaluation stem directly from the time and resource limitations inherent in the redesign.

3. In assessing the role and function of DE/SP and its performance to date, the evaluation team examined the following project-related activities:

Applied Forage and Animal Production Research. This research included: forage adaptation trials; grass and legume seeding, shrub plantings; the collection of production data; contouring and water catchments to increase water infiltration on rangelands; fertilization to increase forage production; research into livestock production; livestock health activities; and ram sterilization. Though problems were encountered in carrying out this research program, the evaluation team felt that it was appropriately conceived, and should be continued.

Sociology Research. The evaluation team felt that the sociological research under the project was not adequately focused in that it was not explicitly directed at answering questions posed by range managers. The evaluation team felt that much of the information gathered from the project's Agro-Pastoral Systems Study could have been obtained more easily through a more extensive literature search and through better use of Moroccan staff. In addition, the analysis and application of data collected to extension programs was inadequate. While the capabilities of the lower level DE/SP staff to collect sociological field data were increased, little attention was given to training them in data analysis and application of the results. The social science component still has not been well integrated into the RMIP and local administrative staff often do not understand why the sociological data is being collected. The evaluation team was concerned that sociological efforts by DE/SP staff would cease after completion of the project, unless those Moroccans returning from the U.S. with training in sociology were given an opportunity to redesign this component.

Date this summary prepared: 11/12/85

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11X

Economic Research. Progress in meeting the project's economic analysis objectives has been limited. This is because the responsibility for directing the economic research program has rested with the project's chief of party (COP), whose managerial responsibilities have precluded sustained effort in this area.

Extension Activities. Extension-oriented technical assistance has been somewhat limited as the team has concentrated its efforts on obtaining data for future extension applications. Extension efforts have included: seeding of perennial forages; extension programs for users of perimeters; cooperative formation; and field days. Though identifying operational problems, the evaluation team felt that the seeding of forage on private land was a promising approach which could provide a basis for greatly expanded activity by DE/SP in the future.

Training. By the PACD 11 Moroccans will have received MS degree training in the United States (9 in range management and 2 in rural sociology). Also by the PACD, 80 person months of short-term training will have been completed and a large number of DE/SP field staff will have benefitted from in-country training activities. The evaluation team concluded that the training component of the RMIP was both an essential and a successful effort, with little doubt that DE/SP capability has been greatly enhanced. The evaluation team suggested that the training component should not be neglected in future activities developed in Morocco, though emphasis might be shifted from short-term training in the U.S. towards assisting Moroccan educational institutions to provide it.

The Plant Materials Center (PMC). Establishing the PMC as a viable institution has been one of the major achievements of the RMIP--a combination of resource availability, training, the calibre of the Moroccan staff, and intensive, experienced TA on a one-to-one basis. The process of developing the PMC reflects a very coordinated effort between the GOM and the RMIP. Planning, design and construction have been well organized and were completed in a timely manner. The evaluation team recommended that the GOM consider "privatizing" that facility.

4. The evaluation team was generally impressed by the enthusiasm and professionalism of DE/SP personnel assigned to the project. The evaluation team noted, however, that those sites with the most active programs were those with the most experienced senior staff and at which DE/SP has been working the longest. The quality of interpersonal and working relationships between DE/SP project managers and their immediate superiors was a significant determinant of the success of project activities at the various sites.

5. After the mid-term evaluation, the majority of the TA team was relocated to Rabat. This was done in order to better coordinate the project, ensure a common program of activities across the sites, and make the differing technical expertise available to all sites. It was hoped that the TA staff would become mobile technicians visiting sites on a regular basis to assist with planning and monitoring, provide technical assistance, and to resolve any problems that arose. To supplement the efforts of the senior TA staff and to ensure continuity of effort in the field, several PCVs whose tours were ending were employed to serve as junior technicians. As a consequence, the amount of time per month that TA staff were able to spend at any given field site was limited. While the visits from Rabat were appreciated, Moroccan personnel felt they were too brief and left little time for serious discussion of the problems and issues that had arisen since the previous visit. In addition, the centralization of the TA, combined with the lack of available space in MARA, led to the creation of a separate project office in Rabat. This has not served the long-term interest of creating institutional capacity in DE/SP.

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6. The evaluation team noted that the problems of extensive livestock production in the lower rainfall areas of the country do not receive adequate priority from the GOM. In part, this is because of the position of DE/SP within MARA. DE/SP is the youngest service within the DE and its mandate, improving degraded rangelands, is a departure from DE's traditional orientation towards animal health, genetic improvement, the augmentation of milk production in ORMVAs, etc. Historically, the lion's share of DE's resources has gone to these latter activities. The upgrading of DE/SP to the division level would provide those responsible for range management with improved budgeting, additional staff, and a louder voice in policy decisions that affect Morocco's rangelands.

7. Under the auspices of the RMIP, DE/SP is currently engaged in both research and extension. This was due to the lack of functioning of rangeland research and extension in Morocco. The evaluation concluded that the proper role of DE/SP should be limited to land use and range management. The burden of research and extension activities should be passed to the appropriate specialized agencies.

8. As a relatively new institution, DE/SP is concerned with establishing a presence in those parts of the country where it can make a contribution to rangeland development. As DE/SP spreads itself thin, however, it becomes less effective, given limited personnel and resources. The evaluation team suggested that DE/SP re-evaluate the degree to which it wants to concentrate or disperse its resources and personnel, as well as whether it should transfer personnel and resources to more promising sites and from those where there has been little progress to date.

9. DE/SP's strategy is focused on the creation of range management perimeters, with DE/SP playing the role of both manager and policeman. Inadequate attention has been given, however, to creating institutional capacity at the local level, through local beneficiary organizations. Such organizations, however, can promote sustainable and replicable development, especially by marshaling local resources and mobilizing beneficiaries. The evaluation team argued that DE/SP cannot do rangeland management and development in a vacuum and that it is in DE/SP's self interest to support beneficiary groups.

10. The goal of the RMIP is "to increase livestock productivity and production efficiency by Morocco's low income livestock producers." At present, this goal has not been met, as a result of climatic, temporal, political, and social factors. In addition, given the start up problems of the RMIP, the complexity of the issues faced, and the long-term nature of the project's institution-building purpose, it was unrealistic to expect this goal to have been achieved during the life of the project.

11. The major recommendations of the evaluation team included:
- o The completion of the RMIP as planned;
 - o AID continue its involvement in the extensive livestock sector (with DE/SP as the lead agency);
 - o AID promote the upgrading of DE/SP from the status of a Service to that of a Division; and
 - o The privatization of the Plant Materials Center.

AID actions on these and other recommendations are presented in Section E of the face sheet.

12. The evaluation team concluded that USU had made an important contribution to the long-term American commitment to create a range management capability within DE, and that both USU and AID should take pride in having contributed to this process. The decision to redesign the project in 1984 and continue with the USU involvement was a rational one. Failure to do so would have set back and perhaps permanently impaired the creation of this range management capability in Morocco.

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K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; Always attach copy of full evaluation report, even if one was submitted earlier)

1. Gow, D., D. Burzlaff, B. Duggan, and R. Martin, "The Range Management Improvement Project in Morocco: An Evaluation", Rabat, October 28, 1985.
2. Gow, D., B. Duggan, D. Burzlaff, and R. Martin, "Opportunities for AID in the Extensive Livestock Sector of Morocco", Rabat, October 28, 1985.
3. Gay, C., Letter to Dr. Malcolm Purvis, FAO, USAID, concerning the Final Evaluation of the Range Management Improvement Project, October 31, 1985.
4. Chase, R., Letter to Dr. Abbes Marsile, Director of the Direction de l'Elevage concerning the action decisions of this evaluation.

L. COMMENTS BY MISSION, AID/W OFFICE AND BOROGR/GRANTEE

1. Mission notes that the evaluation team, in addition to preparing its evaluation report, examined for USAID the extensive livestock sector in Morocco as a whole. To this end, they prepared a second document, entitled "Opportunities for AID in the Extensive Livestock Sector of Morocco". This Opportunities Paper provides additional information with respect to the development of the extensive livestock sector and the context in which the project operated. This information will be utilized by USAID in the development of its revised CDSS in early FY 86.

2. USAID notes that the evaluation did not offer recommendations or reach firm conclusions concerning a number of issues. These include the importance of dealing with common property rights in rangeland development projects and of alternative measures for addressing the classic tragedy of the commons problem, and measures to more effectively incorporate sociological concerns in rangeland development efforts. USAID will, however, further examine these issues in deciding whether or not to provide further development assistance to the extensive livestock sector.

3. USAID concluded that the responsibility for acting upon recommendation No. 4 in the evaluation, dealing with the scope and nature of Peace Corps involvement after the termination of the RMIP, rests with the Peace Corps. Therefore, it is not included among the Action Decisions. Nevertheless, the Peace Corps will receive a copy of the evaluation report and of this summary.

4. A clarification and elaboration of Action Decision No. 4, that DE "examine, within the framework of current project activity, its long-term development strategy and the findings of the evaluation in this regard" is necessary. To this end, a copy of a letter from USAID to the Director of the GOM's Livestock Service is attached to this Evaluation Summary.

5. USAID notes that the evaluation team did not explicitly identify "lessons learned" from the project. The following "lessons" have been suggested by USAID personnel, however:

- The administrative responsibilities incumbent upon a Chief of Party (COP) of a large or complex project will severely limit the amount of time that he can dedicate to fulfilling a technical role. In such cases, technical responsibilities that are critical to project success should not be borne by the COP.

- A major redesign may turn a "problem project" around. However, if such an effort comes late in the project's life, it should not be expected that the project can make up for all of the time that has been lost.

L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRANTEE (cont.)

- Peace Corps volunteers with professional background in range management and sociology were assigned to this project. Upon the completion of their Peace Corps tours, several of these individuals were hired by USU to serve as junior-level technicians on the project. The continued participation of these individuals, given their in-country experience and language fluency, was crucial to maintaining the project's momentum during its redesign. This was an innovative and very cost effective effort. It should be noted, however, that host country staff who had worked with these individuals as PCVs found it difficult to view them as performing new and more responsible functions in their new incarnation.

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Dr. Abbès Marsile, Director
Direction de l'Elevage
Ministère de l'Agriculture et de la Reforme Agraire
Rabat

NOV 29 1985

Dear Dr. Marsile,

Attached is a copy of the October 1985 Evaluation of the Range Management Improvement Project, prepared by an independent evaluation team, and an Evaluation Summary prepared by USAID. USAID is pleased by the evaluation team's major conclusion that the efforts carried out under the project significantly strengthened the range management capability of Direction de l'Elevage (DE). The evaluation identified a number of significant achievements of the Project, particularly the success of the training component and the development of the Plant Materials Center as an important national resource for Morocco. The evaluation team was also very complimentary of the enthusiasm and professionalism of your staff.

You will note that, although the evaluation recommended that the Range Management Improvement Project be terminated in August 1986, as currently scheduled, it also recommended that AID continue its assistance to the extensive livestock sector of Morocco. In addition, USAID views the following evaluation recommendations to be of particular importance.

1. The evaluation team recommended that the Direction de l'Elevage (DE) examine the appropriateness of upgrading the Service des Parcours (DE/SP) from the status of a Service, to that of a Division. They suggested that this would provide DE/SP with a more appropriate place in policy matters and help DE/SP to become more effective at the DPA level. We would be interested in having your views on this matter.
2. The evaluation team recommended that DE develop a plan and time frame for transferring control of the Plant Materials Center (PMC) to the private sector. Privatizing the PMC may be the best method of ensuring that it becomes financially self-sustaining. USAID supports the recommendation that DE initiate such a planning effort and requests that you communicate your findings to USAID prior to the departure from Morocco of Mr. John Harding.

3. The evaluation team recommended that DE examine its long-term development strategy for the extensive livestock sector. USAID strongly endorses this recommendation. The evaluation team identified a number of issues which should be addressed by such a long range plan, including the following:

- Budget allocations by DE appear to be largely directed at intensive animal production needs (particularly animal health and genetic improvement) rather than range management and the improvement of range resources. The evaluation team expressed concern that DE's efforts to improve the nation's range resources will not succeed unless DE/SP is provided with increased resources.

- The evaluation team suggested that the development strategy of DE/SP define its proper role and functions. It recommended that, as a relatively new and small division, DE/SP limit its principal role to land use and range management. It recommended that responsibility for carrying out research and extension activities per se be placed upon the specialized institutions and agencies equipped to do so. DE/SP's role in research could then focus on the development of research hypotheses and scopes of work for contracts (based on its knowledge of the needs of livestock owners), and it could contract for the actual research with bona fide Moroccan research institutions like INRA/Settat and INAV. With respect to extension, the DE/SP role could be to work with the Division de Vulgarisation, the DPAs and the ORMVAs to develop training curricula and programs for existing extension agents.

- The evaluation team also suggested that, as part of DE/SP's development strategy, it must avoid spreading itself too thin geographically. The team recommended that DE/SP shift its resources away from those areas where local conditions have frustrated efforts to improve management of common lands and reallocate them to those sites which show real potential for the use of grazing controls, reseeding and/or other productive rangeland management techniques. Clear-cut criteria should be developed by DE/SP for the identification and evaluation of unforeseen opportunities, as is currently being done in Midelt/El Faija.

- Finally, the evaluation team recommended that DE/SP's development strategy come to grips with the need for grazing controls to prevent further degradation and loss of communal lands. There is a need to identify institutional, organizational and legal approaches appropriate to the local conditions of each perimeter which would reduce overgrazing and permit the regeneration and/or reseeding of communal lands. The evaluation team recommended that greater attention be focused on the creation of effective local organizations as vehicles for rangeland improvement, and that DE actively encourage and support efforts by local communities to better manage their common land. Other approaches to dealing with overstocking (e.g. limits on livestock numbers through taxation, land sale programs, etc.) were also suggested for examination.

4. USAID notes with some alarm the evaluation team's finding that the two parallel organizational structures have developed, one wholly Moroccan in DE/SP and the other wholly American in the "Project Office". The implication is that the activities developed in one office may not be fully agreed upon and adopted by the other, and that the complete physical separation may result in a lack of well-integrated, joint activities focused on the transfer of technology. This could prevent, in the last analysis, the achievement of the project's institutional development objectives. Please discuss this issue fully with the Utah State Team and advise us of the means by which both parties will address the problem together over the remainder of the project, in order to maximize the institutional development and technology transfer achievements of the project.

In conclusion, USAID takes pride in the efforts of this project over the last four years and believes that the foregoing major recommendations, if addressed during the next few months (and prior to the termination of the Project), will significantly enhance the achievements of the project and further range management in Morocco. USAID looks forward to discussing these and other evaluation findings with you and your staff in the near future.

Sincerely,


Robert W. Chase
Director

cc: Roger Banner, USU Chief of Party, Range Management Improvement Project
Ben Norton, USU Campus Coordinator, Range Management Improvement Project

Attachments: 1) AID Evaluation Summary, Range Management Improvement Project (608-3145) Nov. 5, 1985.
2) GOW, D., et. al., "The Range Management Improvement Project in Morocco: An Evaluation" Oct. 28, 1985
3) Gay, C. Letter to Dr. Purvis concerning the Final Evaluation of the Range Management Improvement Project, Oct. 31, 1985

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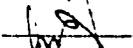
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ADO:Rstryker 

PROG:JGiusti (Draft) 

PROG:SRhodes (Draft) 

D/DIR:CJohnson 

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Dr. Abbès Marsile
Directeur
Direction de l'Elevage
Ministère de l'Agriculture et
de la Réforme Agraire
R A B A T

13129 1985

Monsieur le Directeur,

Je vous prie de trouver ci-joint un exemplaire du rapport d'évaluation d'octobre 85 du Projet d'Amélioration de la Gestion des Parcours réalisé par une équipe d'évaluation indépendante, ainsi qu'un résumé de cette évaluation par l'USAID. La conclusion principale en est que les efforts menés au titre de ce projet ont considérablement renforcé la capacité de la Direction de l'Elevage en matière de gestion de parcours, ce dont l'USAID se félicite. L'évaluation a permis d'identifier un certain nombre de réalisations importantes, notamment la réussite de la composante formation et le développement du Centre de Multiplication des Semences Pastorales, ce qui constitue une ressource nationale importante pour le Maroc. L'équipe d'évaluation a également rendu hommage à l'enthousiasme et au professionnalisme de votre personnel.

Vous relèverez que, bien que l'évaluation ait recommandé que l'AID envisage de continuer à soutenir le secteur de l'élevage extensif au Maroc, elle a également recommandé que le projet d'Amélioration de la Gestion des Parcours se termine en Août 1986, comme le prévoit l'actuel calendrier. L'USAID estime que les recommandations suivantes ont une importance particulière :

1. L'équipe d'évaluation a recommandé que la Direction de l'Elevage (DE) voie s'il ne serait pas judicieux de restructurer le Service des Parcours (DE/SP) en une Division. Elle a suggéré que ceci permettrait au DE/SP d'occuper une situation plus appropriée sur le plan des questions politiques et contribuerait à accroître son efficacité au niveau de la DPA. Nous aimerions connaître votre point de vue à ce sujet.
2. L'équipe d'évaluation a recommandé que la DE élabore un plan et un calendrier de transfert du contrôle du Centre de Multiplication des Semences Pastorales au secteur privé. Sa privatisation serait peut être le meilleur moyen de garantir qu'il parvienne à une autonomie financière. L'USAID appuie la recommandation visant à ce que la DE entreprenne une telle démarche et vous prie de bien vouloir nous communiquer votre décision à ce sujet avant le départ du Maroc de Monsieur John Harding.

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3. L'équipe d'évaluation a recommandé que la DE étudie sa stratégie de développement à long-terme pour le secteur de l'élevage extensif. L'USAID appuie totalement cette recommandation. L'équipe a identifié un certain nombre de questions qui devraient s'insérer dans ce plan à long terme :

- Il semble que les affectations budgétaires de la DE soient largement dirigées vers les besoins en production animale intensive (en particulier pour l'amélioration sanitaire et génétique) plutôt que vers la gestion et l'amélioration des parcours. L'équipe d'évaluation s'interroge sur la réussite des efforts de la DE pour améliorer les ressources en parcours du pays si le DE/SP ne reçoit pas des ressources budgétaires accrues.

- L'équipe d'évaluation a suggéré que la stratégie de développement du DE/SP définisse son rôle et ses fonctions propres. Considérant qu'il s'agit d'un service relativement nouvelle et petite, elle a recommandé qu'elle limite son rôle principal à l'utilisation des terres et à la gestion des parcours. Elle a recommandé que les activités de recherche et de vulgarisation en elles-mêmes soient placées sous la responsabilité d'institutions et d'organismes équipés pour ce faire. Le rôle du DE/SP dans la recherche pourrait alors consister à se concentrer sur le développement des hypothèses de la recherche et la définition des tâches pour les contrats (en se basant sur sa connaissance des besoins des propriétaires de bétail), et pourrait ainsi passer des contrats avec des institutions marocaines telles que l'INRA/Settat et l'INAV les chargeant de la recherche en elle-même. En ce qui concerne la vulgarisation, le rôle du DE/SP pourrait consister à travailler en collaboration avec la Division de la Vulgarisation, les DPA et les ORMVA à l'élaboration des cours et programmes de formation pour les actuels agents de vulgarisation.

- L'équipe d'évaluation a également suggéré que, dans le cadre de la stratégie de développement du DE/SP, il devrait éviter de se disperser géographiquement. Elle a recommandé que le DE/SP transfère les ressources allouées à des régions où les conditions locales ont entravé les efforts d'amélioration de la gestion des terres communales aux régions qui présentent un potentiel réel pour l'application du contrôle des pâturages, du réensemencement et/ou d'autres techniques rentables de gestion des parcours. Des critères clairement définis devraient être élaborés par le DE/SP pour identifier et évaluer des objectifs qu'il serait possible d'atteindre bien que n'ayant pas été prévus, comme cela se pratique actuellement à Midelt/El Faija.

- Enfin, l'équipe d'évaluation a recommandé que la stratégie de développement du DE/SP s'attaque au problème du surpâturage afin d'empêcher de nouvelles dégradations et la perte des pâtures communales. Il est nécessaire de déterminer des approches institutionnelles, organisationnelles et légales appropriées aux conditions locales de chaque périmètre susceptible de réduire le surpâturage et de permettre la régénération ou le réensemencement des pâtures communales. Elle a recommandé qu'une plus grande attention soit accordée à la création d'organisations locales efficaces pour véhiculer les techniques d'amélioration des parcours et que la DE encourage et soutienne activement les efforts des collectivités locales à mieux gérer leurs pâtures communales. L'équipe a également suggéré d'autres approches qu'il faudrait examiner pour limiter le cheptel (limiter le nombre de bêtes par des taxes, des programmes de vente de terres, etc).

4. L'USAID relève avec une certaine inquiétude la constatation faite par l'équipe d'évaluation concernant les deux structures organisationnelles parallèles qui se sont développées, l'une entièrement marocaine au DE/SP et l'autre entièrement américaine au "Project Office". Il en résulte que les activités élaborées dans l'un peuvent ne pas être totalement approuvées et adoptées par l'autre, et qu'une séparation physique complète pourrait se traduire par un manque d'activités bien intégrées et conjointes, axées sur le transfert de la technologie. Ceci pourrait empêcher, en dernière analyse, l'aboutissement des objectifs de développement institutionnel du projet. Nous vous prions de bien vouloir examiner cette question en détail avec l'équipe d'Utah State et de nous communiquer les moyens qui seront utilisés par les deux parties pour traiter ce problème pendant le reste du projet afin de maximiser les réalisations en matière de développement institutionnel et de transfert de technologie.

En conclusion, l'USAID se félicite des efforts déployés dans le cadre de ce projet durant ces quatre dernières années et est convaincue que l'application dans les prochains mois des importantes recommandations ci-dessus améliorera considérablement les réalisations du projet et la gestion des parcours au Maroc. L'USAID espère pouvoir très prochainement discuter de ces recommandations et des autres conclusions de l'évaluation avec vous et vos collaborateurs.

Veuillez agréer, Monsieur le Directeur, l'assurance de notre parfaite considération.


Robert E. Chase
Directeur

- P.J.: 1) AID Evaluation Summary, Range Management Improvement Project (608-0145) Nov. 5, 1985
2) GOW, D., et. al., "The Range Management Improvement Project in Morocco: An Evaluation" Oct. 28, 1985
3) Gay, C., Letter to Dr. Purvis concerning the Final Evaluation of the Range Management Improvement Project Oct. 31, 1985.

**The Range
Management
Improvement
Project in
Morocco:
An Evaluation**

Executive Summary

David Gow
Donald Burzlaff
William Duggan
Roy Martin

November 1985



Development Alternatives, Inc. 624 Ninth Street, N.W. Washington, D.C. 20001

EXECUTIVE SUMMARY

The Range Management Improvement Project (RMIP), whose implementation began in 1981, has important implications not only for those involved in the process of institution building but also for those concerned with the problems of extensive livestock production on common rangelands. Designed in 1979, the RMIP originally focused on range extension and training. A midterm evaluation, conducted early in 1984, identified several positive factors resulting from the project, particularly the effectiveness of the training component. Nevertheless, a partial redesign approved shortly afterward emphasized the importance of upgrading the institution-building component -- defined as creating the capacity within the Direction d'Elevage/Service des Parcours (DE/SP) to plan, implement, and evaluate programs of applied research, extension, and rangeland development.

Activities undertaken under this project have included applied forage research, applied sociological research, range extension, and development of a plant materials center (PMC). The forage research has been sporadic, and results to date have been mixed; the applied sociological research has contributed little to the overall development process; and the range extension work has also been sporadic, partly because these efforts have not been well coordinated. But the creation of the PMC has been successful, and it is now in a position to distribute seeds and shrubs to the various project sites.

Of all the activities undertaken by the RMIP, the training component has been the most successful: DE/SP capability has been considerably enhanced as manifested by its well-qualified, well-motivated, creative staff. Nevertheless, DE/SP suffers from two limitations that can severely affect the future viability of DE/SP as an institution.

The first limitation is structural: DE/SP is the youngest service within an institution whose priorities, until recently, have been concentrated on the eradication of animal diseases and the augmentation of milk production in the intensive livestock sector. Many of the veterinarians who predominate within the DE have yet to be convinced of the importance and potential contribution of range management. The upgrading of DE/SP to the division level would provide those responsible for range management with a larger budget, additional staff, and a louder voice in policy decisions that affect Morocco's rangelands. This upgrading would also serve to counterbalance the heavy veterinarian influence within DE.

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The second limitation concerns the proper role of DE/SP. Should it be engaged in a variety of activities, such as forage research, animal production research, socioeconomic research, and range extension, or should its primary role be to address range management issues -- leaving these other, more specialized activities to the relevant agencies and institutions? By default and primarily as a result of the efforts of the RMIP, DE/SP became involved in research and, to a lesser extent, extension -- with little prior experience in either field. The proper role of DE/SP is land use and range management. The necessary research and extension activities should be undertaken by the appropriate agencies.

Institution building is long-term process. The contractor, Utah State University (USU), has made an important contribution to the long-term American commitment to create a range management capability in Morocco. Both USU and AID should take pride in having contributed to this process. Nevertheless, both the situation and the capabilities of DE/SP have changed over the life of the RMIP. The evaluation team therefore recommends that:

- The RMIP should terminate on the date already agreed upon -- August 30, 1986;
- AID should promote the upgrading of DE/SP from the status of a service to that of a division; and
- Most important, if AID is to continue its involvement in the extensive livestock sector -- and the evaluation team strongly recommends that it does -- DE/SP should be the lead agency through which to channel such development assistance.

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SUMMARY OF ACRONYMS

AID:	Agency for International Development
ANCC:	Association Nationale des Ovins et Caprins
COMAGRI:	Compagnie Marocaine de Gestion des Exploitations Agricoles
COP:	Chief of party
CNCA:	Caisse Nationale de Cr�dit Agricole
CI:	Centre des Travaux
DE:	Direction de l'Elevage
DPA:	Direction Provinciale de l'Agriculture
DE/SP:	Direction de l'Elevage/Service des Parcours
ELP:	Extensive Livestock Program
COM:	Government of Morocco
INRA:	Institut National de la Recherche Agronomique
INAV:	Institut Agronomique et V�t�rinaire Hassan II
MAFA:	Minist�re de l'Agriculture et de la Reforme Agraire
ORMVA:	Office R�gional de Mise en Valeur Agricole
PCV:	Peace Corps Volunteer
FMC:	Plant Materials Center
FSC:	Programme de Sauvegarde du Cheptel
RMIP:	Range Management Improvement Project
SNDE:	Soci�t� Nationale de D�veloppement de l'Elevage
SOGETA:	Soci�t� de Gestion des terres Agricoles
SONACOS:	Soci�t� Nationale de Commercialisation des Semences
USU:	Utah State University, Logan, Utah

CHAPTER ONE

THE RANGE MANAGEMENT IMPROVEMENT PROJECT: AN OVERVIEW

Introduction

The Range Management Improvement Project (RMIP), implementation of which began in 1981, has important implications not only for those involved in the process of institution building but also for those concerned with the problems of extensive livestock raising on common rangelands and the resulting "tragedy of the commons" situation. Over the past decade, but particularly over the past five years, there has been an increasing awareness by both international donors and host country governments alike that development assistance, rather than focussing on short-term gains, should concentrate on the achievement of long-term sustainability, that is, the capacity to maintain the provision of services and flow of benefits once such assistance terminates. One way in which such sustainability can be achieved is through the process of institution building--the creation of institutions with the necessary resources, personnel, and experience to plan, manage, and evaluate development activities. Almost by definition, institution building activities are a long term proposition with few appropriate short cuts or "quick fixes" to accelerate the process.

Ever since the Sahelian drought of the early 1970s, and even before, there has been increasing concern expressed about the growing imbalance in many semi-arid countries between the size of the livestock population and the capacity of the rangeland to support that population. As many of the rangelands are communal property, with few restrictions on the number of livestock an individual community member can pasture, overstocking and overgrazing have flourished--a result of increasing population pressure, improved animal health, and the availability of supplemental feed sources.

As a result, communal pastures are, in certain parts of the world, being steadily degraded--thereby reducing their capacity to support extensive grazing, leading in some cases to a tragedy of the commons, whereby such communal resources have been so overexploited that the only way to recapture their productive potential is through a process of range management grazing control. Projects designed to address these problems in sub-Saharan Africa have met with only limited success and some vocal critics now question whether AID should be involved in the extensive livestock sector at all. Unaddressed, however, is the issue of whether this limited success has been due to poor design, the complexity of the problems, or a combination of both. The project under review addresses both institution building and range management concerns.

Project Background

The RMIP project is the most recent of AID efforts to create a range management capability within the Government of Morocco (GM), specifically the Range Management Service of the Direction of Livestock (DE/SP) within the Ministry of Agriculture and Agrarian Reform (MARA). While earlier efforts

were sporadic and somewhat ineffectual, valuable lessons were learned from these experiences. In 1968, at the request of the GCM, AID financed a range management project with technical assistance provided by a private voluntary organization, International Voluntary Services (IVS). The goal of the project was to develop range management perimeters in two areas, Plaine de l'Aarid and Tafrata. Over time, however, the scope of this project was considerably curtailed--from one of rapid development of each perimeter to one of limited research.

The basic problem, and one that has been well documented for both East and West Africa, was the project's failure to obtain the understanding, consensus, and participation of local livestock producers and their leaders(1). Not surprisingly, the local population effectively resisted the project's attempts to control a part of their communal resources. The problem was exacerbated by the GCM's unwillingness to meet its commitments to the project. Four of the five IVS volunteers resigned before their contracts were completed.

Nevertheless, some important preliminary steps were taken in addressing the problems of managing communal rangelands. First, six Moroccans were sent to the US for short-term training and one was sent for an MS degree. With project assistance a Royal Proclamation (Dahir No. 1-69-171) was passed in 1969 which provided the legal basis for the creation of range improvement perimeters on communal lands, thereby ceding control over the management and development of these perimeters to the GCM. Finally, the project demonstrated the feasibility of reseeding and deferred grazing. These three elements--training, perimeters, and deferral and reseeding--have played important roles in the present range management project(2).

Designed in 1979, this project originally focussed on range extension and long and short-term training:

The purpose of the proposed project is to strengthen the technical and administrative capability of the Service of Feeds and Ranges [the precursor of DE/SP] of the GCM Livestock Service to conduct research in range management and to implement its range improvement program. The range improvement program is primarily a program of technical assistance to the grazing associations and extension and demonstration of the benefits of improved range management techniques on their perimeters in the effort to get other tribal groups interested in forming grazing associations(3).

The contract to implement the project was awarded to Utah State University (USU) and in 1981 they fielded a four person team consisting of three range management specialists and a social anthropologist. The former were assigned to work in Cujda (Ain beni Mathar perimeter), Beni Mellal (Ait Rbaa perimeter) and Meknes (Timahdite perimeter), where the sociologist was also located. The range management specialist in Meknes also served as team leader. A fifth technician, a seed production specialist, was added a year later with primary responsibility for working with the Plant Materials Center (PMC) located near El Jadida. In addition, seven PCVs were assigned to the

project in late 1982--four range management specialists and three sociologists. All told there were a total of 12 Americans actively involved in the project at that time.

Project Redesign

A mid-term evaluation, conducted early in 1984, identified several positive factors resulting from this project--specifically the fact that both long and short-term training in the US was proving to be effective, that over \$400,000 had been spent on commodity procurement for both the PMC and the perimeters, and that morale among the American technical assistance (TA) team, earlier plagued by internal conflict and dissent, was steadily improving. Notwithstanding, a Project Paper Amendment, which was partially based on the evaluation team's findings, did identify the following three design related problems as serious impediments to the implementation process:

- * A concentration of extension activities on range management perimeters which form but one potential source of animal feed. To address this limitation, the project was to focus on the total livestock/crop production system;
- * A lack of coordination between the various perimeters. This problem was to be resolved by concentrating the TA in Rabat and having them provide their specific expertise to each of the perimeters on a regular basis. Collaboration with allied organizations and activities was also to be encouraged; and
- * The institution building component of the project had been downplayed and no specific strategy for achieving this objective had been developed. As a result, institution building became the principal purpose of the project--to be achieved through various types of training (long-term, short-term, non-formal, in-country, and on-the-job) and an increased emphasis on providing DE/SP staff with direct, hands-on experience in the planning, implementation and evaluation of applied research, extension and rangeland development programs(4).

When these recommendations were made, a five-year time frame in which to implement them was proposed. This was unacceptable to AID since USU's performance for the first three years had been poor and AID could not, in good conscience, award them with an extension and an increase in funding. While USU had made some significant changes in the makeup of their TA team, it was too soon to tell how effective the newcomers would be. As a result, by the time the project amendment was signed, the team had approximately two years in which to act. This short time frame must be borne in mind since it flies in the face of reality when dealing with such objectives as institution building and rangeland development, both of which are, by definition, long-term propositions.

Institution building, while highly laudable and worthwhile, is somewhat nebulous and difficult to measure. A simple, straight forward definition of institution building would state that the bottom line is to create

institutions that can do their work more effectively. Such increased effectiveness can only be gauged by results, not potential. In the case of this project, institution building must be gauged in terms of results, but results achieved by Moroccans. The FP Amendment defines the project purpose as follows:

The purpose of this project is not to identify and introduce improved 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(5).

In order to assess this capacity, the evaluation team looked closely at the specific activities in which DE/SP--with USU assistance--is presently engaged: the various research activities, range extension, training, and the development of the Plant Materials Center. The assumption underlying this approach is that institutional capacity should be operationalized through these activities which, in turn, should eventually contribute to the achievement of the project goal--an increase in livestock productivity and production efficiency by Morocco's low income livestock producers.

External Factors Affecting the RMIP

The first factor affecting the RMIP and perhaps the most immediate is that of time. Barely 15 months have elapsed since the FP Amendment was signed, hence it would be very surprising if significant changes had occurred in such a short time frame. Nevertheless, sufficient time has elapsed to allow an assessment of whether DE/SP is now pointed in the right direction.

While the temporal factor is more important in the short run, there have been several other external factors over which the project has exercised no control--specifically climatic conditions and the macroeconomic situation. Since 1980 Morocco has suffered from irregular rainfall conditions, in terms of timing and quantity. Rainfall has tended to be much lower than "average". These variations have had a differential impact but, particularly in the early 1980s, several parts of the country were hit by drought. As a result, both herds and rangelands were severely affected. For example, in the province of Safi where the perimeter of Sidi Chiker is located, the following fluctuations in herd size were recorded for the period 1979 through 1985:

Table 1: Livestock Variation in Safi, 1979-1985

<u>Species</u>	1979	1980	1981	1982	1983	1984	1985
Cattle	145,191	150,799	139,625	79,779	77,391	80,731	111,000
Sheep	890,506	977,785	845,541	383,837	543,999	541,604	723,500
Goats	88,255	91,926	73,844	30,838	41,887	49,466	78,000
Camels	15,590	18,000	17,000	15,000	12,362	12,071	10,200
Rainfall	345.5mm	268.5mm	196.8mm	262.2mm	173 mm	239.8mm	364.6mm

Source: DE/SP, "L'Elevage dans la province de Safi," Safi: DPA, 1985, p. 3.

Another area that was severely affected was Oujda where the Ain Eni Mathar perimeter is located. The other perimeters where the project works were also hit. Hence, it is unrealistic to expect dramatic changes or dramatic results as a consequence of project activities, given these severe environmental constraints.

A third factor that must be borne in mind is the deteriorating macroeconomic situation--which has been exacerbated by years of successive drought. Budget deficits and balance of payments problems have also been aggravated by the world-wide recession which reduced Morocco's export earnings, particularly from the sale of phosphates, as well as by an expensive war in the Sahara. As far as the range management project has been concerned, this has meant that the level of GOM support has remained relatively constant over time--even though project activities have been expanding.

Table 2: Budgetary Expenditures for RMIP, 1981-1985

<u>Item</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Total</u>
Salaries	333,840	511,660	566,400	611,280	660,480	2,683,660
Investments	4,096,000	5,753,000	3,820,000	2,350,000	2,251,000	15,270,000
Operating Costs	1,035,000	650,000	1,545,000	1,351,000	2,365,000	6,946,000
<u>Total</u>	<u>5,464,840</u>	<u>6,914,660</u>	<u>5,931,400</u>	<u>4,312,280</u>	<u>5,276,480</u>	<u>27,899,660</u>

Source: Figures supplied by DE/SP. The 1985 figures are estimates based on budgetary allocations.

Consequently, this budgetary constraint has somewhat limited both the expansion of activities and the hiring of additional personnel to implement these activities at the various project sites.

Evaluation Methodology

For the first three weeks in which the evaluation team was in Morocco, its movements were largely dictated by an ambitious, somewhat rigid schedule of travel and interviews arranged by AII and DE/SP. While this readily identified all the key players to interview and strategic places to visit, it did not allow for much flexibility or in-depth interviewing, given the "rural tourist" aspect of the whole undertaking. Be that as it may, however, a lot of information was gathered in the process, some of it very worthwhile and extremely relevant.

The first week was spent in Rabat talking to various people and institutions involved in RMIP and the livestock sector in general. The second two weeks were spent visiting the four project sites as well as the Plant

Materials Center at El Jadida. At each site visits were made to observe specific project activities and interviews were conducted--on an individual or group basis--with both Moroccan and American personnel at each site. The same types of questions were asked across the four sites--to the extent that they were relevant. Documents and reports were also consulted. The fact that the team was accompanied by the DE/SP coordinator, as well as an AID representative who had worked on the project redesign, greatly facilitated the team's comprehension and appreciation of the process under review. The final week was spent in Rabat where the team drew its own tentative conclusions which were discussed in detail with the interested parties--specifically AID, USU, and DE/SP. The recommendations listed at the end of this report are those of the evaluation team which assumes sole responsibility.

NOTES

1. For West Africa, see Michael M. Horowitz, The Sociology of Pastoralism and African Livestock Projects. Washington, D.C.: Agency for International Development, 1979. For East Africa, see Walter Goldschmidt, "The Failure of Pastoral Economic Development Programs in Africa". The Future of Pastoral Peoples. J.G. Galaty, D. Aronson, P.C. Salzman and A. Chouinard, eds. Ottawa: International Development Research Center, 1981, pp. 101-118.
2. USAID/Morocco, Range Management Improvement Project (608-0145): Project Paper Amendment. Rabat: USAID, 1984, pp. 11-12.
3. USAID/Morocco, Range Management Improvement Project (608-0145): Project Paper. Rabat: USAID, 1980, p. 9.
4. USAID/Morocco, Range Management Improvement Project (608-0145): Project Paper Amendment, pp. 16-20.
5. Ibid, p. 20

CHAPTER TWO

PROJECT PURPOSE ACCOMPLISHMENT: ROLE AND FUNCTION OF DE/SP

Introduction

In assessing the role and function of DE/SP and its performance to date, it is important to evaluate the specific activities in which the institution is presently engaged. While the role of DE/SP is ostensibly to plan and implement applied research, extension, and range management programs, achievement of this can best be understood in terms of specific functions undertaken. These include the following:

- Applied forage and animal production research;
- Applied sociological research;
- Applied economic research;
- Range extension;
- In-country training, and
- Development of a plant materials center.

Each of these will be discussed in detail below.

Applied Forage and Animal Production Research

Work plans for the revised RMIP called for a broadened scope for applied research activities. Consequently interventions were selected that could be implemented at all sites. These included:

- Species and variety adaptation trials;
- Grass seeding with conventional seedbed preparation compared with seeding with rangeland drill;
- Site production data;
- Herd monitoring for production systems information; and
- Herd health activities.

Other activities were more site specific. Their implementation depended upon local interest and the expertise of DE/SP, PCV and USU technicians. Some of these included:

- Legume seedings;

- Shrub plantings;
- Development of benchettes and contour furrows;
- Use of fertilizers to increase production;
- Mechanical treatments to increase water infiltration; and
- Ram sterilization by means of the "short scrotum technique".

Field visits to the research sites at Beni Mellal, Timahdite, Midelt and Gujda confirmed that the interventions were appropriately conceived. The time constraint from implementation to project completion date dictated that the activity show short term benefits. Since the implementation techniques for field research were part of the institution-building process, they also had to be considered as training experiences.

Grass and legume seedings were delayed by availability of seed. In spite of high rates of germination and emergence, seedlings failed to become established at some locations. The rate of seedling mortality was enhanced by extensive and severe drought in the area. In some instances the effects of the drought were intensified by extremely "loose" seedbeds. The condition of the seedbed allowed evaporation of soil moisture before the grass seedling was adequately developed to permit establishment. The importance of firm seedbeds cannot be overemphasized when seeding grasses on critical sites under adverse conditions.

Certainly grass and legume adaptation trials and seeding techniques must be continued. Much rangeland has been plowed and planted to cereal crops by persons whose judgment has been distorted by ignorance as well as by the overwhelming desire to achieve some type of land ownership. There must be a concerted effort by DE/SP and associated agencies to convert these ill-advised farmlands back to productive ranges.

Shrub plantings within benchettes, contour furrows, and other water harvesting structures were accomplished at selected sites. These practices show much promise since they can be implemented with minimum equipment needs. Local people can be taught the procedures quickly and technical assistance is needed only in production of seedlings, surveying of level terraces, and in creating appropriate schemes for utilization. Their importance lies in the fact that they can both help control erosion and increase moisture retention, thereby improving the potential for natural vegetative growth.

These plantations were considered to be successful in spite of the drought and appear to be a successful step in improving rangelands as well as the feed budget of range livestock production systems. In addition, there are soil and water conservation benefits which have long term improvement potentials for the rangeland resources of Morocco.

Field visits and interviews verified that activity has been initiated at all locations to meet work plan objectives in animal production systems

research. DE/SP and technical assistance personnel were involved in the implementation and maintenance of the data base. As might be expected the activities were more complete at some locations than others. The exceptions to a fully integrated approach occurred at a work site where there appeared to be inadequate personnel. Overlapping work responsibilities dictated priorities in schedule. Work preferences of personnel also enter into the decisions. It is in these circumstances that technical assistance in planning and budgeting resources plays an important role. It is not unusual for national as well as local representatives of various governmental agencies to agree to work loads beyond their resource capability to fulfill stated obligations.

The study of the "short scrotum technique" for sterilization of male sheep has long range implications for the industry in Morocco. The technique allows opportunity for breed improvement through selection for rates of gain, wool quality, and other desirable characteristics in each flock.

Applied Sociological Research

The applied research program in sociology outlined in the PP Amendment identifies the following items to be assessed in all project areas:

- Perception of producer needs, issues, opportunities and limitations;
- Producer expectations;
- Producer perceptions of current production systems; and
- Social and cultural influences on livestock/crop production and on acceptance of new technology.

The project has given general direction to the PCVs and the Moroccan technicians assigned as sociologists on the type of data to be collected and how to collect it, based on the recommendations made by a consultant. No uniform questionnaire has been supplied to the technicians at each site but data is of generally the same type and it may be possible to combine the common features for analysis. The PCV sociology technicians were concerned about the lack of coordination from the project and about how the information would be used. They expressed a feeling of wasted time and effort in the data collection process.

Most of their efforts are presently concentrated on the Agro-Pastoral Systems Study which was really initiated in July 1985 after a consultant's visit. This study consists of regular visits to an average of 12 households at each site every two to three weeks. Data on family activities, consumption habits, livestock and crop sales, and herd production are collected during these visits. Plans are for this to be carried out during an entire crop year, that is until the end of the present project.

A study of the market is conducted by going to the souks held in

communities near the perimeters. This information is used to determine market trends.

One of the efforts which was started early in the project and which still continues is the preparation of a lexicon of words related to agriculture and livestock. This type of exercise will allow better understanding of such specialized terms but is worthwhile only when done in conjunction with other activities.

The data collected certainly has value in developing an understanding of the systems employed by the livestock producers who were interviewed. Direct application to others may be limited by the lack of uniformity of data collected between sites, by the size of the samples, and by the method of sample selection. There also may be errors in the data resulting from wrong answers provided by the producers, especially during the early stages of data collection before the PCVs gained their confidence.

Allowing for the above stated weaknesses in the program, the collected data could be useful in the design of extension programs. The most serious problem appears to be the lack of analysis and application of data which has already been collected. The data from the 1982 Timahdite survey, for example, should have been developed into usable information long ago. Probably more important than the data, however, is the working knowledge of the PCV and Moroccan sociology technicians and the rapport they have developed with the contact families. They should be involved in the development of any implementation programs which use sociological data.

The sociology program has developed the capabilities of the DE/SP staff at the adjoint technique level to collect sociological field data but little effort has been made to train any at the level required for analysis and application. In all cases but one, the local administrative staff does not understand why this type of data is being collected and merely tolerates the presence of sociology technicians on the staff. Almost certainly there will be little further sociological work done by DE/SP after completion of the project, unless those Moroccans returning from the U.S. with training in sociology are given the opportunity to redesign this component.

Much of the information collected by the sociology technicians could probably have been obtained through a literature search and better use of Moroccan staff. At least three documents were identified by FCVs which contained social information related to Moroccan livestock producers in general and, in some cases, to the specific development sites(1). A thorough investigation of this literature would have provided a good beginning and might have allowed a considerable savings of time.

The better use of Moroccan DE/SP staff might have also saved a significant amount of time. Familiarity with customs, thorough knowledge of the language, and ability to better identify the reliability of responses given, provide the local technician with a distinct advantage over foreign technicians. Given the same transportation, a well designed questionnaire and freedom to work on the data collection task, the Moroccan technicians would

probably have had little trouble in obtaining in a few weeks the same data obtained over the period of a year by the PCVs--had these technicians been working on their own.

To date none of the data has been integrated into production system models and extension programs as was projected for June 1985 in the logframe. It is conceivable that the USU staff could accomplish this by the end of the project but direct involvement by DE/SP staff is unlikely. Available evidence indicates that the social science component has never been well integrated into the RMIP. In addition, it appears that the research priorities established after the mid-term evaluation were established by USU, through the use of a consultant, with little participation by DE/SP staff.

Applied Economic Research

Although a clear distinction was made in the PP Amendment between applied economic research and applied sociological research, a distinction maintained in the most recent RMIP Annual Report, what has actually been implemented is a program of applied socio-economic research which has already been discussed in some detail above. The fact that the two programs have been integrated makes eminent sense and underlies, once again, the importance of having a chief of party (CCP) who is concerned full time with the administration and management of the project, with no technical responsibilities whatsoever. This is particularly true for the RMIP where there is a relatively large TA team working in five distinct parts of the country. The present COP is also a range economist and had hoped to be actively involved in economic research, but his managerial responsibilities precluded this. A similar dilemma also befell the first COP, who was also responsible for managing one of the perimeters with his Moroccan counterpart.

Range Extension

Although the redesigned project indicated a need existed for "applied" research before extension work could really start, the project staff initiated several extension activities while the research was being conducted. These have often been at the request of private land owners and livestock producers. Extension programs have included the following:

- Seeding of perennial forages;
- Extension program for users of perimeters;
- Cooperative formation;
- Field days;
- Development of printed training materials; and
- News releases for regional and national newspapers.

Forage seeding. In the Timahdite and Ecumia areas a number of farmers

requested that seeding of perennial forage species be done on their land. The most obvious successes were an intermediate wheatgrass seeding on a very well suited site and an alfalfa seeding near a stream where it could be irrigated. These two areas have stimulated a great deal of interest and have resulted in requests by other farmers for seedings this season.

Other seedings had been on seedbeds that were not firm enough for the best grass establishment and, coupled with a drought period soon after germination, this resulted in spotty or failed stands. Because of these failures, some farmers indicated that they will go back to cereal production. Overall, however, the extension effort for private land seeding has had a favorable impact. A season of successful establishment could provide a basis for greatly expanded activity by DE/SP beyond project completion. At the present time, this is a small scale activity with the farmer preparing the land and DE/SP providing the seed and planting it.

Grazing Systems. An extension program is being developed for use at the Plaine de l'Aarid to explain the purposes of the grazing systems being used on the perimeter. Since the water system is not complete, the herders have their camps near the central watering area where they are a natural audience for extension activities.

Cooperative formation. A cooperative has been functioning for some time on the 10,000 ha. pilot perimeter at Ain Beni Mathar. Now there are requests from adjacent areas for similar organizations and efforts are being made to organize them. As this happens, control of grazing land in the area should expand. It should be pointed out, however, that the cooperative in question has only 60 members and has a permanent DE/SP director.

Field days. Several field days have been organized for extending range management techniques. These have included shrub planting and contour furrowing at Ain Beni Mathar, and revegetation with perennial grasses at Plaine de l'Aarid. Unfortunately, many of the areas have little to show for these efforts. Nevertheless, there are at least some results at El Faija and at Ait Rbaa which may be effective in letting producers know that the project can get something to grow. Increased bermuda grass at Ait Rbaa, for example, may be enough to encourage the setting aside of more land for treatment.

Printed Materials. Some printed materials have been developed but these are very limited and have not been produced in Arabic. The project staff might find that wordless, illustrated brochures can be developed which would have meaning even for the illiterate. The project has not reached its work plan goal in this area.

News releases. Good quality news releases have been prepared and provided to national and regional newspapers.

The extension program is not well coordinated and consists mostly of bits and pieces conducted at the various perimeters. More coordination from the central office and a concerted effort towards extension could produce good results, if range extension were high on the priorities of the MNP and if it were, in fact, part of DE/SP's mandate.

DE/SP staff, especially those who have had US training, seem very eager to apply their knowledge and to extend it to the range users. PCVs have been active in extension activities. Even the interest generated by the questions asked during sociological interviews and during animal production studies has a useful extension function. Staff members conducting these studies are now viewed favorably by the producers and should be used in an extension capacity as much as possible. This would not only be effective in extension of ideas for improvement of livestock and range management, but would also make the PCVs and their counterparts feel more useful and thereby serve to provide a continuation of Moroccan involvement following project completion.

Training

DE/SP field staff and main office staff have been beneficiaries of specific in-country training activities. These activities were developed under the institutional building activities of the project. They included:

- * Language Training opportunities;
- * Semi-annual training seminars;
- * TDY visits and workshops; and
- * Attendance at professional meetings.

DE/SP training recipients were most complimentary and appreciative of these training opportunities. For example, the project training program held at Kasba Tadla in September 1984 included a variety of speakers from different institutions as well as some from RMIP. Formal presentations were complimented by field trips to various sites. Perhaps the most enthusiastic response to questions about effectiveness of the training in program planning and work scheduling was encountered at the Gujda location. The very extensive and diverse demands on DE/SP resources required higher levels of organization than at other sites.

Intended goals and needs for institutional development through in country training have been adequately addressed by the TA team.

The Plant Materials Center

The Plant Materials Center was originally conceived as a facility to produce, process, and distribute foundation seed. It became apparent that the need for grass and legume seed for field plantings was more urgent than production of certified seed. Consequently PMC purpose was modified to one of multiplying and processing grass and legume seed for intended grass seedings at project sites and other DE/SP locations in Morocco.

The process of developing the PMC reflects a very coordinated effort

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between the GOM and the RMIP. Planning, design and construction have been well organized and were completed in a timely manner. The unit is complete except for some cleaning equipment that is yet to be delivered.

Implementation of the production and processing of seed has been orderly. Both the PMC director and the farm manager have completed intensive short-term training in farm management and seed production in the US. They have also received intensive one-on-one training from the American technician responsible for PMC development.

Location of the PMC in a frost-free zone limits its usefulness in production of cool season grass seed. The Agropyrons and perhaps other grasses do not set seed at this location because there is no low temperature dormancy (vernalization) of the plants.

Many of the adapted grasses for all sites do produce seed and this has been harvested and processed with the first major distribution to be made in 1985. The quality of seed and production procedures reflect appropriate training of personnel.

The PMC is also developing a capability for production of shrub seedlings for transplant to perimeter sites. Currently they have 250,000 or more Atriplex seedlings available with the capability to produce 400,000 or more per year. This, together with the nursery at Oujda and the production capability of the Direction des Eaux et Forêts, would make available some one million seedlings per year. This would seem adequate to meet the field site demands that exist today.

The anticipated role of "ley farming" in the rainfed agricultural areas will create a demand for seeds of the annual medics. The PMC is appropriately situated to be a site for producing seed for this aspect of agriculture. This may well be the most consistent demand and, consequently, consistent source of funds for the PMC operation.

As the efficiency of production and development of PMC increases, it is logical for the Government of Morocco to consider "privatization" of that facility. Perhaps it should function as a parastatal to assure that it is maintained as a seed production facility and not diverted to dairy or other extensive agricultural production.

According to PMC personnel, the PMC has the capacity to generate its own income and operating capital through the following types of activities:

- The production of certified seed through SQNACOS;
- The production of forage;
- The cleaning of custom seed;
- Seed sales to local consumers such as CCMAGRI, SOGETA, SNDE, SCDEA, SQNACCS and other AID supported projects; and

- The coordination of seed production activities with other entities involved in similar activities such as INRA, SOGETA, and the Direction des Eaux et Forêts.

The project goals for development of a Plant Materials Center with appropriate training of personnel to operate the institution have been met by the contracting institution.

NOTES

1. For example, see the following: W.P. Boyle, Jr. Contract and Kinship: The Economic Organization of the Beni Mquild Berbers of Morocco. Ph.D. dissertation. Los Angeles: University of California, 1977; J. Chiapuris. The Ait Ayaah of the High Moulanya Plain: Rural Social Organization in Morocco. Ann Arbor: University of Michigan, Museum of Anthropology, 1979; and J. Couleau. La paysannerie marocaine. Centre National de la Recherche Scientifique, Paris, 1968.

CHAPTER THREE

PROJECT PURPOSE ACCOMPLISHMENT: INSTITUTIONAL CAPACITY

Introduction

In assessing DE/SP's institutional capacity to plan, manage, and implement these activities, care must be taken to distinguish the various levels of institutional capacity involved. In this case three levels must be considered:

- At the national level in Rabat;
- At the managerial level on the four project sites and the PNC; and
- At the level of the field personnel actively involved in the implementation.

The National Level

At the present time DE/SP has a staff of 26 working on RMIP, three of whom are based in Rabat. The most important is the Chef de Service, who is responsible for all DE/SP activities throughout the country. At present, DE/SP is working at 16 different locations. The major responsibility for monitoring RMIP field activities for DE/SP lies with the project coordinator, who is the main link between national and field offices. He is also the major link between DE/SP and the TA team based in Rabat. Although he has no formal counterpart on the American side, he is an almost de facto one to the present acting COP. Both the Chef de Service and the project coordinator were trained in the US and both are highly motivated, dynamic and diligent, but grossly overworked.

The increased emphasis on planning, information gathering, analysis, and report production appears to have originated primarily from the TA team, with the active support of the DE/SP, but with little indication that such activities will be expanded beyond the immediate project sites. One of the major contributions to the RMIP made by DE/SP has been the provision of personnel and resources to implement project activities. As discussed earlier, such provisions have been limited by budgetary constraints, exacerbated by the fact that the investment budget is invariably late. Furthermore, DE/SP is in no position to assure that funds actually reach their designated destination, given the vicissitudes of the present administrative structure.

While the national office handles administrative and managerial matters affecting RMIP, it is not in a position to provide much technical assistance--whether in range research, range extension, or socio-economic research. Some has been provided in range research--but little has been provided in the latter two fields, primarily because they lie outside DE/SP's traditional mandate and hence personnel with the necessary expertise are not

found on their staff. Without the American presence, there would be little interest in either range extension or social research and the odds are that such activities might well be dropped when, and if, American assistance is phased out. There may, however, be some hope for social research when the present trainees in sociology return from the US.

The Project Level

At the level of the individual project sites, a much healthier situation prevails--since DE/SP has wisely chosen to concentrate its personnel in the field and thus avoid the temptation to create a top-heavy bureaucracy in the capital. As discussed earlier, the PMC is up and running and could, over the next two years, become a private concern since the capacity and increasing experience of the personnel there make this feasible. Establishing the PMC as a viable institution has been one of the major achievements of the RMIP: a combination of resource availability, training, the calibre of the Moroccan staff, and intensive, experienced TA on a one-to-one basis. While establishing a PMC may be a little easier and more straight forward than establishing a rangeland development program, its creation is no mean achievement.

At the level of the individual RMIP project managers at the specific project sites one factor strikes the disinterested observer smack between the eyes: those managers who do have the capacity to plan, manage, and implement RMIP activities are precisely those who have been on the job the longest, since before the RMIP started. For example, M. Fagouri has been in Midelt since 1971 and M. Laraisse in Oujda since 1979. The fact that they have been at the same location for some time has obviously contributed to the institution-building process at the local level. The fact that they both believe strongly in what they are doing (though both use radically different methodologies) has also contributed. The fact that they both are strong personalities who have learned how to operate well within the present existing administrative structure of the DPA has also contributed.

This latter capability, cannot be overemphasized. Since one of the acid tests of the effectiveness of institution building is the capacity not only to manage resources but also to have:

- Access to sufficient resources to do the job at hand;
- Control over these resources; and
- A specific awareness of future resources needed and a realistic awareness of where they will come from(1).

In the case of rural Morocco, the ability to do this calls for a considerable amount of political acumen--since resources allocated at the national level may be "diverted" or "hijacked" at the provincial level. This is particularly true of budgetary allocations for operating costs. The "bottleneck" in this process may be the DPA director, the provincial Chef d'Elevage, or the bureau head to whom individual project managers are directly responsible, or both. In the words of one recent study:

An important vehicle for policy development is the annual budget process. These policy statements are communicated from the Service des Parcours and from the Division de la Production Animale in Rabat. At the same time, the Direction Provinciale de l'Agriculture (DPA) or ORMVA develops local policy, including that developed by the provincial governor, and coordinates the activities of local offices. In theory, this development of policy serves to refine national policy to local circumstances. In practice, it often serves to counteract policy generated in Rabat. This is particularly true in the budget process where funds may be earmarked for one service and are reallocated to another(2).

Thus, in order to function effectively the existing organizational structure must be massaged in order to obtain the necessary resources to execute RMIP activities. In Midelt, the project manager works well with his immediate superior who, in turn, does his best to support his colleague. In Oujda, the project manager there has succeeded in gaining control over his own budget and creating his own Bureau de Parcours which responds directly to the DPA.

On the other two project sites, at Peni Mellal and Timahdite, the project managers do not enjoy a good working relationship with their immediate superiors and are continually fighting over budgetary allocations. Both received MS degrees in the US under the RMIP and both, immediately on their return, were assigned to the perimeters as project managers--with little or no previous experience in either project administration or management and no opportunity for on-the-job training. Suggestions that they be given time to serve an apprenticeship under someone more experienced were turned down because they were not feasible at the time. However, experiences with other returning MS people has convinced DE/SP of the importance of this on-the-job training before such technicians assume posts of responsibility.

The Field Level

The human, physical and financial resources of the DE/SP are rather thinly dispersed. There needs to be a continual priority for growth in all three resource areas. The effectiveness of the individual DE/SP units within the project is affected by the motivation, personality, seniority, priorities, and experience of the responsible managers. But these managers are only as effective as the staff they have to work with. The 26 DE/SP personnel presently working on the RMIP are assigned as follows:

Table 1: Distribution of DE/SP Personnel in the RMIP

Rabat	3
PMC	5
Beni Mellal	4
Midelt	4
Oujda	6
Timahdite/Midelt	4

Source: DE/SP, Amenagement et Mise en Valeur des Terrains de Parcours, Rabat, 1985, p. 72.

The consensus of the evaluation team is that the field level personnel do have some capacity to implement short-term range improvement and livestock management interventions, as discussed earlier in Chapter Two. However, as might be expected, there is some considerable variation from site to site. For example, in the case of Beni Mellal, the sociology technician is working well and is enthused about the work but there appears to be little chance that he will be able to continue after the PCVs leave as he will have no support from his superiors and no transportation. There is no apparent extension work by DE/SP except with direct involvement of American TA staff.

In Midelt, the sociology technician is strong and, with some support, might be able to continue studies after project completion. There is some doubt that the senior technical staff will provide such support as they seem to question the validity of sociological work.

Extension efforts are being conducted by the DE/SP staff, directed toward the producers using the Plaine de l'Aaride. These efforts, however, seem to be presented in a very paternalistic fashion. The attitude of the staff is that they must force good management on the producers, which is contrary to effective extension work. It also raises the critical question: should those enforcing grazing controls also be doing extension activities?

At Timahdite the entire staff seems to be overwhelmed by the presence of the Moyen Atlas project. There is little chance of continuing sociological work or extension work by DE/SP staff under current conditions. This is because the whole area is dominated by this World Bank-financed project which makes the RMIP appear very small and insignificant.

In contrast, the DE/SP staff in Oujda is very strong and is capable and willing to use sociological data which has been collected to date. It is very likely that this type of activity will continue after project completion--mainly because the staff has found it useful in planning and modifying their interventions.

Extension work has been done and will likely continue. It is, in at least some cases, somewhat heavy-handed and is related to the control function of the organization, rather than extension in the normally accepted term. The DE/SP staff was influential in the establishment of a grazing cooperative at the site. The cooperators benefit from the organization but apparently are directed by DE/SP in exactly how to graze the rangeland rather than taught the

principles of range management. One co-op member was very adamant about the way the DE/SP director told them what they had to do instead of working with them to determine the best way to operate.

NOTES

1. Craig Olson et al, Private Voluntary Organizations and Institutional Development. Washington, D.C. Development Alternatives, Inc., 1985, pp. 18-20.
2. Paul Bartel, "An Analysis of the Service Delivery System of the Service des Parcours, Direction de l'Elevage, MAFA." Rabat: FMIP, 1985, p. 3.

CHAPTER FOUR

PROJECT PURPOSE ACCOMPLISHMENT: THE USU/AID CONTRIBUTION

Introduction

In order to assist the RMIP accomplish its purposes and achieve its ultimate goal, the project - in this case USU with AID support - has made several distinct types of contribution: the provision of technical assistance - both long- and short-term; the provision of overseas training - also both long- and short-term; and some commodity procurement. The assumption is that these contributions have made a noticeable difference in DE/SP's institutional capacity - particularly when the capacity of those involved in the RMIP is compared with that of DE/SP staff not involved. Any major differences noted should be attributable to the project - at least in theory. A final issue to be addressed is that of replicability, that is, could the RMIP experience in institution building be replicated within other DE services or branches? Hence, this chapter will address the following important elements:

- The TA contribution;
- The training contribution;
- Attribution; and
- Potential for replication.

The TA Contribution

TA has played a very important role in this project - both before and after the mid-term evaluation: before there were 12 expatriate technicians and now there are 15, with four senior technicians, four junior technicians, and seven PCVs. After the mid-term evaluation, an important change was made in the structure of the American TA. In order to coordinate the project better and thereby obtain a common program of activities across the sites, as well as making the differing technical expertise available to all sites, it was decided to centralize the TA in Rabat. In fact, all senior and junior technicians (with one exception) now operate out of Rabat.

It was hoped that they would become mobile technicians visiting sites on a regular basis - to assist with planning and monitoring, provide specific types of technical assistance, and resolve any problems that might arise. Hence, the earlier model of TA, with each senior American working closely on a one-to-one basis with his Moroccan counterpart on the perimeter, was replaced by that of the adviser who visits on a regular basis.

Not only was this approach viewed as being a better utilization of scarce resources, but it was also believed to be more effective since accurate records would be kept of these visits and of progress made towards the achievement of project purposes and goals. The frequency of these visits has

varied - depending on the time of year and also on the needs of the specific site. The distribution of these visits is presented in Table One.

Table 1: Site Visits by TA Members, 1984-85
Month

<u>Site</u>	9/84	10/84	11/84	12/84	1/85	2/85	3/85	4/85	5/85	6/85	7/85	8/85	<u>Total</u>
<u>Beni Mellal</u>													
Senior Staff	2	1	1	1	2	3	1	1	2	-	-	-	14
Junior Staff	-	2	1	-	1	2	-	4	1	-	2	-	13
<u>Midelt</u>													
Senior Staff	-	2	1	-	-	2	-	1	-	-	-	-	6
Junior Staff	-	1	-	-	-	1	-	1	1	-	2	-	6
<u>Meknes</u>													
Senior Staff	1	2	1	-	-	2	-	1	1	1	-	-	9
Junior Staff	1	1	-	-	-	2	-	4	-	1	1	-	10
<u>Oujda</u>													
Senior Staff	-	1	-	-	1	1	-	1	1	-	1	-	6
Junior Staff	1	-	-	-	1	2	1	2	1	-	2	2	12

Source: Compiled from USU records.

Most of these visits were short, usually of two to three days duration. From the table, several interesting observations can be made: first, that the most developed sites - Midelt and Oujda, received less visits than did the less developed, less active sites - Beni Mellal and Meknes/Tinakhite. This could be expected since these latter sites were the ones more in need of assistance. Second, with the exception of Beni Mellal, site visits by a senior technician averaged less than one a month. Finally, junior technicians made more site visits on average than did senior technicians. In a sense then, the juniors became surrogates for the seniors. This would be quite acceptable if, in fact, the juniors were working directly with Moroccan field staff. From information gathered in the field, however, it would appear that they have tended to concentrate their efforts on the FCVs. The question then becomes: who is training whom - particularly when there are 15 Americans on the TA team of varying skills, background, and experience?

One of the drawbacks to this centralization of the TA in Rabat has been the creation of a project office which, by default, has become the sole domain of the TA team. When the decision was taken to centralize, DE/SP was unable to provide them with space in its present building nor did it encourage any Moroccans to work out of the project office. What has developed, then, is a parallel organizational structure: a Moroccan one within DE/SP and an American one completely outside, but formally linked through regular meetings, telephone conversations, and field trips.

In the long term, creation of a separate office and the addition of more Americans to the TA team work against the creation of institution building capacity, since the project, in a sense, has become more Americanized - partly in response to the time constraints dealt with in Chapter Two. Given two years in which to improve the situation, USU wished to have some tangible results to demonstrate at the end of that period. Many of the more serious implementation problems encountered over the past 15 months--including the size, distribution and composition of the TA team, the weakness of the sociology component, and this separate office question--stem directly from the time and research limitations inherent in the redesign, as conceived in the PP Amendment.

The TA team is very much aware of this double bind situation in which they presently find themselves - as witnessed by the following comment from the most recent annual report:

Institution building activities can only be accomplished when the project has very close contact with Moroccan personnel in the Range Management Service (SP). Presently, Moroccans are only occasional visitors to the Project Office. If these activities are to succeed, SP must commit at least one individual to working in the Project Office in Rabat. In addition, Moroccan personnel must be willing to accompany Project personnel on field visits. (1)

DE/SP personnel claim that while this is a problem, it is not a serious one - at least from their perspective. Plans are underway for the DE/SP head to have office hours in the project office two days a week.

Closely related to this problem of centralization and separate offices is, of course, that of counterparts. As no organigram of the RMIP exists, it is difficult to know where the TA team fits into the existing structure, if at all. From the American TA perspective, the COP is regarded as being in charge of the project - and this is certainly the point of view of USU in Logan. From the Moroccan perspective, however, the situation is a trifle murkier and the COP is reputedly referred to in official correspondence as the official representative of the State of Utah. In addition, when people in the field refer to the RMIP, they call it "le project" - referring exclusively to the American office in Rabat. This raises the interesting question of "ownership": whose project is it?

When TA is provided to development projects such as the RMIP, it can usually be divided into two broad categories:

Technology Transfer: the provision - formally or informally - of technical education that local staff require to perform their functions; and

Systems and Organizational Development: the provision of assistance in the design of structures and procedures that integrate the activities and tasks needed to achieve project objectives and sustain results. When successful, this consists of adjustments in current structures and procedures, rather than creation of new systems and organizations (2).

According to the PP Amendment, the four senior technicians were to divide their time among the following responsibilities:

- Project-wide program planning;
- Location-specific program planning;
- Project-wide program coordination;
- Technical consultation and field assistance;
- Location-specific coordination;
- Data analysis and interpretation;
- Reporting and project progress documentation; and
- Project administration.

Their major contribution over the past year has been the introduction of an annual planning process and the elaboration of an annual work plan for each specific site. Project managers said they had found this innovation useful and, at Oujda, where there are several activities underway, it was viewed as a valuable form of assistance. As of this writing, the process is presently being repeated at each project site.

With the exception of Oujda, from which the resident American technician had been transferred some time prior to the mid-term evaluation, project managers expressed a longing for the old model of TA, daily one-to-one contact with an expatriate technician. While the visits from Rabat were appreciated, Moroccan personnel felt they were too short and fleeting and left little time for serious discussion of the problems and issues that had arisen since the previous visit.

The TA in sociology has some distinct limitations. There is no senior sociology staff member on the team, leaving only junior technicians and PCVs. Sociological surveys conducted at the perimeters are not consistent from site to site. PCV sociologists were told what types of data they should be collecting but questionnaires were not used to provide continuity.

All PCV sociologists had the feeling of a lack of direction by Rabat and a lack of understanding how the data they were collecting was to be used. They expressed the need to get on with extension work so they could feel like they were able to make a contribution.

Another point brought out by each of the PCVs was that the data they were collecting either existed already or could be much more quickly and accurately collected by Moroccan staff armed with a list of questions for which they would find answers. As previously noted, several studies of this

nature have been done and a thorough literature search should have been done by the staff before undertaking field research. Much of the information sought might have been available, limiting the amount of additional information required from field surveys.

The sociological components of an implementation project are required early in the project and should be designed to answer questions to specific problems which have been identified. The sociologist should also be alert to problems which may result from implementation but which may not be identified before the study.

Since range management depends upon the control of livestock numbers, distribution and time of grazing on the area of range under consideration, the range manager must be able to know what the constraints relative to control might be. It appears that in many cases the sociological component of this project was not aimed toward obtaining answers to the range manager's questions, but rather undertook a study just to see what might turn up. Studies similar to those being conducted now were also reported in the 1982-83 annual report and sociological papers were presented as part of that report.

There is no readily apparent use being made of the previous sociological work and the time left in the project does not allow a realistic application of current studies. A better use of time and effort would have been the application of knowledge from earlier work and of information in the literature to answer questions related to application of range extension. The Moroccan sociology counterparts need to be trained in the interpretation of results for the purposes of range management, more than they need further experience in conducting surveys.

Extension technical assistance has been provided at the senior technician, the junior technician and the PCV levels, but has been somewhat limited at all levels as the team has concentrated its efforts on obtaining data for future extension applications. Where obvious extension opportunities were found, as in the case of farmers requesting forage seeding on private land, the TA team has attempted to provide this as a way of interesting more farmers in the program. This met with limited success due to drought, coupled with improper seedbed preparation in some areas. Other, more general extension activities have been conducted by senior staff. These include field days, tours and a few articles which are currently in progress.

While a considerable amount of TDY assistance has been provided over the past year only two consultants were regularly mentioned for the contribution they had made. It appears they were appreciated for two reasons: one, because they were acknowledged experts in their fields and, two, because they were very willing to share their knowledge and experience with project staff.

The Training Contribution

A total of 11 Moroccans have been involved in advanced degree training in the United States. All of these men have been DE/SP employees. All have

been involved in MS degree programs. As of November 1985 eight have completed their graduate work and returned to positions in Morocco. The remaining three are scheduled to return before the end of July 1986.

Nine of the 11 have had range management oriented training. Two will have degrees in rural sociology. By the project completion date the goals for long-term training will have been satisfactorily completed and the technical capability of the DE/SP will have been greatly strengthened.

The length of short-term training period was reduced from six to four months. This reduction allowed more DE/SP staff to participate. By project completion date 80 person months of training will have been completed.

The training component of the RMIP has been not only essential but also most successful. There is no doubt that DE/SP capability has been greatly enhanced. The training component should not be neglected in future activities developed in Morocco. The emphasis might shift from US training to assistance to Moroccan educational institutions to provide adequate advanced level short-term training to agency personnel.

If any constraint was noted in long-term training it was the decision to opt for a non-thesis MS degree. This option may have had desirable short-term implications, but well may have long-term liabilities for the recipients since it precludes the possibility of doing original research. Unfortunately, funds were not budgeted for research. In addition, DE/SP will only pay salaries for employees studying overseas for a maximum of two years.

Attribution

Are the DE/SP staff involved in the RMIP qualitatively different from their colleagues in DE/SP who are not involved in the project? Based on comparative impressions gathered at sites where RMIP is not active - Quarzazate, Chichabua, Sidi Chiker, and Asjen - the answer has to be a qualified no. Even within RMIP, as already indicated, there are qualitative differences between the DE/SP personnel at the various sites. Furthermore, although the other sites visited had received little direct assistance from RMIP, they had received some from other sources. Hence, to say that there is little qualitative difference between RMIP and non-RMIP personnel is not so much a reflection on the TA as it is on the quality and caliber of many of the people that DE/SP has in its ranks. The indications are that it is overseas training, combined with resource availability, that helps make a crucial difference. For example, the highly effective project manager in Oujda had little time for TA, but he did receive an MS in the US prior to the start up of the RMIP--as well as various forms of material assistance from both RMIP and non-RMIP sources.

In areas where there are highly motivated leaders, for example in Quarzazate and Asjen, and where technicians have had similar types of training, there is no noticeable difference between their competence and enthusiasm and that of regular RMIP personnel.

HC

The Asjen Centre des Travaux (CT) is directed by a technician with a degree in range management. His influence can be seen in the reclamation of the collective land in the Asjen community. The livestock producers with grazing rights have agreed to a management program which includes limiting the stocking rate, reseeding to adapted improved species, and regulating the period of grazing. The site was seeded in 1984, deferred during establishment, and grazed after the end of the growing season in 1985. It appears to be in good condition with about 50 per cent of the plant material left as stubble and with no further grazing planned for the current season.

This work has been accomplished as part of a successful, integrated extension program. Also included is rotation of cereal crops with legumes to provide on-farm forage for the livestock of the area.

The Ouarzazate ORMVA has two trained range technicians with degrees from the US. They and their adjoints techniques have been very involved in rangeland development in the area and have also produced a very professional report on the rangelands near Ouarzazate which includes environmental, biological, economic and social information(3). Estimates of forage production and area measurements have been made. A field trial/demonstration site was established with some areas planted to Atriplex spp. and other areas left as native range. Trials were conducted using different stocking rates on native range. Palatability and production of Atriplex were tested and estimates were made of firewood production. A nursery was established at Ouarzazate for production of Atriplex seedlings which will be planted on 10,000 ha. this year. These staff members are very competent and are able to initiate and complete projects using their own initiative.

Replicability

Can the technical and planning processes introduced to DE/SP by the RMIP be replicated throughout DE/SP and DE? Before answering this question, it is important to decide which of the technical processes introduced are worth replicating. On the basis of the information presented here on specific RMIP technical activities, the most successful have been in the area of research on animal production and range forage. RMIP became involved in these activities by default, since no one else was conducting this type of research. But DE/SP is not a research institution and it is highly questionable whether such a capacity should be replicated throughout DE/SP - particularly when it does not have the personnel to conduct such research.

In theory, the planning processes introduced by RMIP should be replicable if they do not disrupt existing procedures too greatly. For such replicability to be effective, however, there need to be changes in the budgeting process so that field offices receive their funds on time and in the amount stipulated: The best planning in the world cannot compensate for resources that regularly arrive late. Since this process has been in place for only a year, it is hardly surprising that it has not been replicated in DE/SP or elsewhere. While the planning process had no effect on budgetary allocations for 1985, DE/SP hopes to improve this process by having its annual plan for 1986 approved by the Minister of Agriculture in person.

Notes

1. DE/SP and USU, Morocco Range Management Improvement Project: AID 608-0145. Annual Report, 1984-1985, Rabat, 1985, p. 29.
2. George Honadle, Jerry Silverman, and Donald R. Mickelwait, "Technical Assistance Shortcomings". Implementing Rural Development Projects: Lessons from AID and World Bank Experiences, eds. Elliott R. Morss and David D. Gow, pp. 83-106. Boulder: Westview Press, 1985, p. 83.
3. DE/SP, "Etudes générales et voies d'amélioration des parcours du bassin versant de Ouarzazate," Ouarzazate: GRMVA, 1984.

CHAPTER FIVE

CURRENT STRENGTHS AND LIMITATIONS OF DE/SP

Introduction

DE/SP is a viable institution: it has some well qualified, well motivated people, who are implementing some exciting activities in the extensive livestock sector. Nevertheless, as earlier sections of this report have indicated, institutional capacity is weak at some of the sites--two in particular. But in assessing DE/SP as an institution--broadening the focus from that of the five sites where the RMIIP has been active to the DE/SP program as a whole--it is apparent that DE/SP suffers from several limitations, some of which are more amenable to change than others. Among the more critical are the following:

- * Structural factors affecting DE/SP;
- * The proper role of DE/SP;
- * The DE/SP development strategy;
- * The DE/SP intervention strategy; and
- * The potential role of local organizations(1).

Each of these will be discussed in detail below.

Structural Factors

DE/SP is the youngest service within the DE, an institution whose priorities--until very recently--have been directed towards the eradication of animal diseases and the augmentation of milk production, primarily in and around the ORNVAs. As a result, the lion's share of DE's resources has traditionally gone to animal health and genetic improvement. While this focus has changed somewhat since the drought of 1981, it does mean that the veterinarians still form the professional backbone of the DE. As a result, the priorities in the extensive livestock sector have still continued to be animal production rather than range management and the improvement of range resources. From the perspective of the veterinarians, many still have to be convinced of the importance and potential contribution of DE/SP to the development of the extensive livestock sector. Hence, from their perspective DE/SP has two strikes against it: it is young and it is different.

This situation is exacerbated by the fact that SP is merely one service among four that fall under the rubric of Production Animale (PA). If MARA and DE are serious in their attempts to address the problems of Morocco's degrading rangelands, then it is in their interests to strengthen DE/SP. The upgrading of DE/SP to the division level would provide those responsible for

range management with improved budgeting, additional staff, and a louder voice in policy decisions that affect Morocco's rangelands. Such an upgrading would also serve to counterbalance the heavy veterinarian influence within DE.

In addition, it would also help DE/SP to become more effective at the DPA level. As discussed earlier, while the DPA has no control over DE/SP's investment budget, it can do as it wishes with their operating budget. Under the present structure at the DPA level, the local Service de l'Élevage is divided into two bureaus, the Bureau de Santé Animale and the Bureau de Production Animale. In theory, the RMIP project manager serves under the head of this latter bureau. In practice, as we have seen, there is considerable variation from site to site. While DE/SP has encouraged their project managers to create their own Bureaux de Parcours, the only place where this has been effective--in the sense of responding directly to the DPA director and having some relative budgetary autonomy--is Oujda which, structurally at least, should serve as a model for other DE/SP sites.

Even if DE/SP's status is improved within both DE and the DPA, this upgrading will be little more than a paper exercise unless DE/SP is provided with the resources to implement its program. Attention has been drawn in previous reports to the willingness of the government to support present RMIP activities and to provide additional funding in the future as worthwhile programs are identified. Within DE/SP the RMIP has traditionally received the majority of the funding, ranging from a high of 69.1 per cent in 1982 to a low of 52.7 per cent (estimate) this year. In addition, as discussed earlier, the country is presently weathering a severe economic crisis which has necessitated a cut back in government expenditures.

The indications are very strong that the problems of agriculture and extensive livestock raising in the lower rainfall areas of the country, those that receive less than 400 mm. of rain a year, are not high on the government's priorities. One of the principal objectives of the Agricultural Section Adjustment Loan is to restructure public investment and expenditure in agriculture toward quick maturing, high return investments. Investments in the rangelands are neither: hence, by both definition and choice, they are low on the government's priorities. In 1985, DE/SP received only 10 per cent of DE's investment budget. The fact that there has been AID assistance to DE/SP over the past five years has undoubtedly stimulated the government to meet its obligations. If and when this assistance terminates, where will the motivation and the leverage to continue the present level of support come from:

The Proper Role of DE/SP

Should DE/SP be engaged in a variety of activities, such as forage research, animal production research, socio-economic research, and range extension, or should its primary role be that of addressing range management issues--leaving these other, more specialized activities to the relevant agencies and institutions? It was never the intention that DE/SP would be a multifaceted institution with the capacity to address the variety of

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interdisciplinary problems found in extensive livestock production and range management. By default and largely through the efforts of RMIP, DE/SP--particularly on the five perimeters in question--became actively involved in research and less actively involved in extension, with very little prior experience in either field. Hence, the RMIP was attempting to build this capacity from scratch--although such activities rightfully belonged (as they still do) to other entities within the MARA structure. The indications are that the research and extension activities undertaken latterly were a result of American encouragement. Without a strong American presence--particularly in the form of junior technicians and PCVs--it is unlikely that such activities would have been undertaken in the first place.

This interpretation is substantiated by the fact that there is little indication that the DE/SP played an active role in the redesign of the RMIP--an exercise conducted primarily by USU and AID. The proper role of DE/SP is land use and range management. The necessary research and extension activities should be undertaken by the appropriate agencies.

The DE/SP Development Strategy

Overall, DE/SP is presently working in 16 DPAs and providing a little assistance to other DPAs where, although there is no official DE/SP presence, there is an expressed interest in range management issues. As a relatively new institution, DE/SP is vitally concerned with establishing a presence in those parts of the country where it can make a contribution to rangelands development. But if it spreads itself too thin, will this not make it relatively ineffective in its impact, given its limited personnel and resources? On the other hand, if it consolidates its activities, as is the case with the RMIP working on five sites, will it ever move beyond the "pilot phase"? DE/SP is as much aware of this dilemma as anyone and would like to strike an acceptable balance between an extensive and an intensive approach.

Closely related to this issue of youth and establishing a presence is the unwillingness of DE/SP to learn from its mistakes and act accordingly. The evaluation team was not impressed by DE/SP activities at either Beni Mellal or Timahdite. While plans are underway for DE/SP to move beyond the perimeter at Ait Rbaa, such expansion will be futile unless it has the support of the DPA and the DE/SP head is provided with the necessary transportation to get the job done. In the case of Timahdite, little is being done at present and, as the Moyen Atlas project continues to flounder, the situation will further deteriorate. Why does DE/SP not reallocate its scarce resources to other areas with more potential?

Nevertheless, it would appear that if DE/SP were to cut its losses and withdraw from Timahdite, this would be an admission of defeat which would provide ammunition for those who do not view the rational management of rangelands as an important issue. On the other hand, the successes noted at both Midelt and Oujda have resulted from--among other factors--a long term DE/SP involvement in the area. Have lessons been drawn from these four very different sites which might be used in the identification of additional sites which show some realistic potential?

DE/SP cannot afford a shot-gun development strategy. Given the present fiscal crunch, it has to use its limited resources wisely. While the argument is often made that DE/SP cannot have a standard intervention strategy, one would hope that enough had been learned from the RMIP experience to cater to facilitate the creation of a more rational development strategy, particularly in terms of identifying criteria for the selection of "targets of opportunity" for DE/SP.

The DE/SP Intervention Strategy

When all is said and done, and DE/SP protestations to the contrary, there is a somewhat standardized blueprint model utilized by DE/SP--that of the perimeter model--whereby the local population cedes control and management of part of their communal lands to DE/SP. Where does the perimeter model of rangeland development lead? Who is supposed to manage the perimeters in the long run--DE/SP or the local population? Is Flaine de l'Aarid a model or an example from which relevant lessons have been learned?

In a sense, the Flaine de l'Aarid is an important example of how not to do range management and perimeter development since DE/SP plays the role of both manager and policeman. While DE/SP establishes the stocking rate, it is the local population that decides who gets to pasture their livestock within the perimeter and how many head they can pasture. This year, for example, 200 people, approximately 10 per cent of those so entitled, have the right to pasture 10,000 sheep and individual herd sizes range from five to 200. In cases of extreme climatic variation, the decisions of DE/SP can be overruled by the local authorities, in this case the Commission Locale d'Amélioration Pastorale. This happened in 1981 when the grazing season was lengthened because of the lack of forage on other communal lands. Livestock were allowed to remain in the perimeter even though the pastures were overgrazed. As a result of the heavy mortality rate due to the drought, grazing controls were temporarily suspended(2). But the extension does not prove the rule. To all intents and purposes DE/SP runs the perimeter and will continue to do so well into the foreseeable future.

While diffusion of such a model makes little sense politically or economically, the perimeter there does provide a powerful example of what can be done to improve the quality of the rangeland through the introduction of grazing controls and the reseedling of virtually the whole perimeter of 12,000 ha.

The DE/SP staff from Midelt are presently working on the establishment of a second perimeter at El Feija which was selected according to the following criteria:

- The grazing lands are collective and have already been delimited;
- These lands are used only by one faction, thereby minimizing the potential for inter-tribal disputes;
- This faction has access to other grazing lands, hence permitting more flexibility in the development of a range management program; and

- Local leaders have given their consent to undertake development activities on the perimeter(3).

As this perimeter is developed, it is proposed that the local population will be responsible for its management--though exactly how this will be achieved has not yet been specified.

On the Ain Bni Mathar perimeter at Oujda a cooperative has been formed which is responsible for managing the perimeter with technical assistance and a cooperative director provided by DE/SP. The cooperative has 60 members and appears to be more directed towards production than management of the perimeter per se. While plans are underway to expand the perimeter to include a much larger area of communal lands, it is unclear how this will be achieved except through the slow process of demonstration and persuasion.

In Oujda, however, DE/SP has been engaged in activities outside of the perimeter: the planting of shrubs, the establishment of water catchment sites, the creation of contour furrows, and the like. This is important because it dilutes the overdependence on the perimeter model, a model which has severe limitations.

The Dahir authorizing the creation of range management/improvement perimeters was passed in 1969. According to the latest DE/SP figures, 33 perimeters have been identified (some on land belonging to the state already) of which only six have been legally recognized(4). While DE/SP also works on those that have not been legally recognized, the majority of its resources have been concentrated on the five perimeters included in the RMIP. This is a very slow way in which to address the problems of communal rangelands. Various alternative ways of addressing overstocking should be explored including privatization, taxation of those with over a certain number of livestock, and a guaranteed land sale program. The present rate of perimeter development is lagging far behind the rate of environmental degradation on many communal lands.

Local Institutional Capacity

While much effort has gone into strengthening DE/SP as an institution, with the exception of Oujda there has been little interest in creating institutional capacity at the local level. While the creation of local organizations can increase participation by intended beneficiaries, they can also play positive roles in rangeland management and development by acting as vehicles for:

- Maintaining two-way flows of information;
- Reducing risk to a minimum and practicing economies of scale;
- Adapting project activities to local conditions;

- Marshaling local resources;
- Achieving greater political and economic leverage for local people by exercising influence over local administrators and asserting claims on government;
- Coordinating and spreading the benefits of outside assistance; and
- Sustaining project benefits(5).

The latter point is the most important in this context since DE/SP cannot do rangeland management and development all on its own and it is in DE/SP's self interest to help create such organizations. But this must be viewed against the organizational culture within which DE/SP operates:

One aspect of the realization of these activities is the top-down nature of their design and administration. The information and decisions are generally made by an administrator and carried out by a subordinate...The Ministry of Agriculture is a top-down organization(6).

Field visits to the various sites substantiate this diagnosis. Against this background, where DE/SP field staff may feel that they have little participation in the planning and decision-making affecting project activities, it is unrealistic to expect them--on their part--to encourage participation and the formation of local institutions (or the strengthening of existing ones where appropriate). This will only be achieved if project staff feel that they too are taken seriously by their superiors.

Such staff participation can be encouraged through the provision of resources to accomplish tasks and the provision of various sorts of incentives which may provide the opportunity for advancement, to contribute to important decisions, and to increase one's skills. And such provision of resources can start at a very practical level in DE/SP: the provision of fuel, an adequate per diem, and adequate transportation to get the job in hand done. Participation by both staff and the local population should not be promoted merely for the sake of participation. It should be promoted to enhance institutional capacity.

Within DE/SP, adequate resources and incentives could improve performance, which, in turn, may stimulate some interest in creating or working with local organizations that, over time, could become responsible for managing perimeters, instituting grazing controls, organizing the installation and maintenance of water catchment sites, and various other activities.

NOTES

1. Several of these limitations are described and discussed in Paul Bartel, "An Analysis of the Service Delivery System of the Service des Parcours, Direction de l'Élevage, MARA." Rabat: RMIP, 1985. They are also discussed in the PP Amendment, see particularly pp. 62-68.

2. For further information, see M'Barek Fagouri and Alan Gray, "Initiation of Range Management Activities in Morocco--A Look Back," RMIP: Rabat, n.d., p. 4.
3. Ibid, pp. 6-7.
4. DE/SP, Amenagement et Mise en Valeur des Terrains de Parcours. Rabat: MARA, 1985, pp. 35-38.
5. George H. Honadle et al, Integrated Rural Development: Making It Work? Washington, D.C.: Development Alternatives, Inc., 1980, pp. 129-139.
6. Bartel, op. cit., pp. 16-17.

CHAPTER SIX

PROJECT GOAL ACCOMPLISHMENT

At Present

As stated in both the PP and the PP Amendment, the goal of the RMIP is "to increase livestock productivity and production efficiency by Morocco's low income livestock producers." At present, this goal has not been met--a result of climatic, temporal, political, and social factors which have been discussed earlier. In two places, Plaine de l'Aarid and Oujda, there have been some short-term benefits for a select group of cooperators, benefits which may have been gained at the expense of the majority. In the former, the 200 livestock producers who have been allowed to pasture their livestock within the perimeter have benefited. In the case of Oujda, the members of the cooperative who graze their communal herd on the perimeter are benefitting considerably: profits have been reinvested in a large tent, a truck, and - most recently - a herd of 25 beef cattle which is being fattened for slaughter. In both cases, since the stocking rate was strictly controlled, it is fair to assume that there has been some increase in livestock productivity.

In the Future

There is some potential for future impact on increased livestock productivity and production efficiency with or without AID assistance. In the latter case, the potential is slight. In the former case, given the appropriate type of assistance, there is somewhat greater potential.

Comments

Three comments are in place here. First, given the teething problems experienced by the RMIP in its earlier years, it is both unfair and unrealistic to expect these goals to have been achieved. Given the complexity of the problems to be dealt with, these are very much long-term goals. Second, these goals are so general and vague as to be virtually meaningless. If they are to be of any use, they have to be carefully defined. Finally, given that this particular project presently has both institution building and range management objectives, one may question whether these goals - developed a good five years ago - are now either particularly relevant or appropriate. After all, increased livestock productivity and production efficiency must be accompanied by sustainable development of Morocco's rangelands. Without this sustainable development, the rangelands will continue their downward spiral of overstocking, overgrazing, and degradation.

CHAPTER SEVEN
RECOMMENDATIONS

Introduction

USU has made an important contribution to the long-term American commitment to create a range management capability within DE. Both USU and AID should take pride in having contributed to this process. The decision to redesign the project in 1984 and continue with the USU involvement was a rational one. Failure to do so would have set back and perhaps permanently impaired the creation of this range management capability in Morocco. Nevertheless, both the situation and the capabilities have changed over the life of the RMIP. At this time, the evaluation team would like to make eight recommendations - four for AID and four for DE/SP and USU.

AID: Recommendation No. 1

- The RMIP should terminate on the date already agreed upon - August 30, 1986.

AID: Recommendation No. 2

- If AID is to continue its involvement in the extensive livestock sector--and it is strongly recommended that they do--DE/SP should be the lead agency through which to channel such development assistance.

AID: Recommendation No. 3

- AID should promote the upgrading of DE/SP from the status of Service to that of Division.

AID: Recommendation No. 4

- If PCV involvement is to continue after August of next year, it should be clearly focussed on some tangible activity such as extension. Such involvement should be on a reduced scale and PCVs should not be viewed as substitutes for DE/SP personnel. Any proposed changes should be carefully discussed with DE/SP.

DE/SP and USU: Recommendation No. 5

- In its planning exercise for 1986, DE/SP should clarify its present development strategy (extensive or intensive) and expand upon its possible intervention strategies.

DE/SP and USU: Recommendation No. 6

- Plans should be drawn up for the privatization of the PVC over the next two years.

DE/SP and USU: Recommendation No. 7

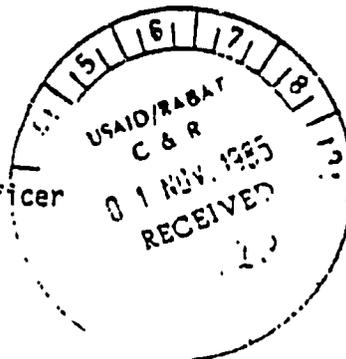
- Strenuous efforts should be made to persuade the head of DE/SP to have some office hours in the USU building. Likewise, strenuous efforts should be made to have the USU chief of party reciprocate by having some office hours at MARA.

DE/SP and USU: Recommendation No. 8

- Efforts should be made to encourage more PVC involvement in extension activities.

USU Range Management Project 608-0145
Mr. Charles W. Gay
USAID/US Embassy, B.P:120
Rabat

Dr. Malcolm Purvis
Food and Agriculture Officer
USAID
Rabat, Morocco



October 31, 1985

ACTION : AGR W/ATTS DUE : 11/12
INFO : DIR, D/DIR, CHRON, RF.

Dear Malcolm:

There are some general observations concerning the recent evaluation that I think should be part of the record. Also, there are some factual errors in the report that I believe need clarification.

Basically, I agree with their findings, and believe that they have perceived well our strengths and weaknesses. However, I am bothered by the fact that their strong criticism of the sociological work (two pages worth) was based on the reactions of a young, inexperienced group of PCVs whose viewpoint can be nothing else but simplistic in nature. After all, for most of them, it is their first field experience.

The worrisome point is that no member of the evaluation team took the time for any one-on-one conversation with Paul Bartel or Cindy Visness to analyze their views in light of the information received from the PCVs. In fact, none of the USU staff was accorded this opportunity. Our input was confined to two general meetings, and one session to check errors of the original draft after having just read it. This latter problem was not the evaluation team fault. Roger's illness leaving us short-handed, and the demands in the field at this critical time of the year created this situation.

I think it would be very difficult for us to measure the annual production cycle in "a few weeks". Believe me, most of the interviews are conducted by the Moroccan counterparts to take full advantage of their knowledge of customs and culture. Few PCVs ever attain the facility to operate alone. To enhance the interchange of information between PCV and counterpart, ethnographic interviews of DE/SP staff were part of last year's activity.

A literature search is a continuous activity of the sociological element. To wit, it is part of every site's workplan supported by the TA staff with at least monthly mailings of materials to site offices. The studies mentioned in the evaluation were in fact copied, reviewed, and mailed to the PCVs from the Rabat office. Had the evaluation team read these reports, they would have realized that they contain little or no production data. There are two reports currently being prepared for distribution that utilizes the collected data and develops a model as we now see it. Unfortunately, the evaluation team didn't see it because we had no idea this was an issue.



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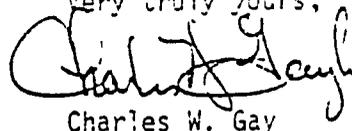
It is true that during the previous year we often concentrated our efforts on the PCVs. This was because they had only just arrived in country, and we wanted to bring them up to their counterparts capacity as quickly as possible.

A few factual errors:

1. p. 17. Mr. Harkousse was trained under the Minnesota project, not ours.
2. p. 19. Dale Nolte, junior technician, resides in Midelt, not Rabat.
3. p. 20. The table on site visits is erroneous and incomplete. A corrected table is attached. An important figure not mentioned is that senior TAs spent five months of the time period in the field (97 man days), and junior staff almost eight months (156 man days). True, visits are short, precise, and to the point. Our presence is always an interruption to the work activity at the sites. If we cannot serve a bonafide purpose, we do not go.
4. p. 28. I think the point raised about DE/SP's participation is an interesting one. Actually, Mr. El Gharbaoui was involved almost daily as his schedule would permit. Had Mr. Akka Culahboub been available, I think we might have had more involvement. The problem seems to be that we were agreed here in Rabat, but DE/SP staff in the field had other ideas and needs that in hindsight probably were not well addressed. We must include these technicians with their varied experiences and viewpoints in any continuing work. They, more than Rabat, control the fate of project success.

Perhaps these are, in reality, minor items. Just the same, I think it is important that you, at least, know the rationale behind our actions.

Very truly yours,



Charles W. Gay

CWG/cr

Enclosures: Site Visits by TA Members, 1984-85.

Table 1: Site Visits by TA Members, 1984-85

SITE	9/84	10/84	11/84	12/84	1/85	2/85	3/85	4/85	5/85	6/85	7/85	8/85	TOTAL	Man Days
Beni Mellal														
Senior Staff	1	3	2	1	2	2	1	1	3	-	1	-	17	29
Junior Staff	-	4	2	-	1	-	1	3	1	-	3	-	15	47
Midelt														
Senior Staff	1	2	3	-	-	3	-	1	-	-	-	-	10	16
Junior Staff	-	2	1	-	-	2	-	1	1	-	1	-	8	13
Meknes														
Senior Staff	1	2	2	-	-	1	2	1	2	1	-	-	12	22
Junior Staff	-	4	-	-	-	3	-	3	-	1	1	-	12	41
Oujda														
Senior Staff	-	2	-	-	1	1	-	1	2	-	1	-	8	18
Junior Staff	2	-	2	-	2	2	1	2	1	-	2	2	16	40
El Jadida														
Senior Staff	-	-	1	-	-	1	-	1	-	1	-	-	4	12
Junior Staff	-	-	-	-	-	1	-	-	-	-	-	-	1	2
Ouarzazate														
Senior Staff	-	-	1	-	-	-	-	-	-	2	-	-	2	8
Junior Staff	-	-	-	-	-	-	-	-	-	2	-	-	3	12

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**Opportunities
for AID in the
Extensive
Livestock Sector
of Morocco**

Executive Summary

David Gow
William Duggan
Donald Burzläff
Roy Martin

November 1985



Development Alternatives, Inc. 624 Ninth Street, N.W. Washington, D.C. 20001

GA

EXECUTIVE SUMMARY

This report discusses opportunities for AID in Morocco's extensive livestock sector. Extensive livestock production is understood here as the grazing of cattle, sheep and goats on stubble, fallow, rangeland and rainfed perennial forages. The report does not deal directly with intensive livestock production, that is, dairy, poultry, beef, sheep and goat production with irrigated and rainfed annual forages supplemented with agricultural by-products. AID might consider new projects in intensive livestock, which offers greater short-term returns than extensive livestock does.

The World Bank Agricultural Sector Adjustment Program supports a shift toward mixed farming, that is, crops and livestock together, in intensive farming areas. The most viable intensive livestock activities, dairy and poultry, are already well developed in Morocco. Cultivated forages are supported in the adjustment program through new research and extension efforts, the former with assistance from AID projects. Rabbit production, facing no major barrier in consumer taste, might merit AID assistance.

As for extensive livestock production, this received minimal attention in the World Bank adjustment program. It is the least developed sector in Moroccan agriculture. On AID's part, extensive livestock production presently claims some six per cent of its agricultural project portfolio. Before the present Range Management Improvement Project, AID's contribution to extensive livestock development comprised a \$0.5 million range project in 1968-72 and the sending of several Moroccans to the US for training. Although AID's contribution has been a small part of its total agricultural activities, it has almost single-handedly assisted Morocco to develop the technical capacity to manage the country's rangelands.

The neglect of extensive livestock development is perhaps justified on financial grounds. Other sectors, including intensive livestock, yield greater short-run returns. Morocco's present financial crisis argues strongly for this rationale. The irony is that technology already exists to quadruple the productivity of Morocco's vast rangelands. This technology cannot be effectively applied, however, without controlling animal numbers on the range. The collective pastures must first be enclosed. This is a legal problem that technology alone cannot solve.

On financial grounds, then, intensive livestock production is a better investment than extensive production. On nutritional grounds, protein is more cheaply supplied through poultry and dairy production than through extensive production of red meat. Red meat production is also becoming more intensive, so that even as grazing pressure continues to mount, grazing's contribution to the national feed budget continues to decline. Neither do balance-of-payments concerns justify investment in red meat production, for almost no meat is imported.

There are, however, strong non-financial reasons to support extensive livestock production. Red meat production is a critical source of income for most of Morocco's rural citizens, and grazing still accounts for perhaps half of the national supply of red meat. Investment in extensive livestock production can thus be justified on grounds of income distribution.

There is another important justification for extensive livestock investment. Uphill from every crop farm in Morocco is an overgrazed, degraded pasture. Erosion travels downhill. Improper grazing management presently threatens crop production through soil erosion, irrigation dam siltation and a fall in the water table. This is a national issue of critical importance to the entire agricultural sector.

This report proposes a modest, long-term AID investment in extensive livestock production. The present Range Management Improvement Project, scheduled to end next year, has done its job in strengthening local technical capacity to manage Morocco's rangeland. Interest is growing among herders to enclose their collective pastures, but progress in actually enclosing these pastures will continue to be slow. AID need only provide a limited amount of long-term technical assistance and program funding to enable Morocco to implement a coherent range improvement program. The potential benefits are as great as the risk. But if AID does not help Morocco face this critical problem, no one else will.

The purpose of the proposed program is to increase extensive livestock productivity and promote proper land use in extensive livestock areas. Its objectives are to:

- Establish a research office in the Direction de l'Elevage to identify disciplinary and site-specific research needs and contract out research projects to appropriate in-country research institutes;
- Enhance the ability of the Institut Agronomique et Vétérinaire Hassan II (INAV) to provide graduate training in range management and extensive livestock production;
- Enhance the ability of the Ecole Nationale de l'Agriculture to provide short-term training for government technicians and extension workers in proper range management techniques;
- Provide range and extensive livestock training to extension workers in Centres de Travaux in extensive livestock areas;
- Provide assistance to the Service des Parcours to plan, implement, and evaluate long-term range improvement interventions at specific sites throughout the country; and
- Assist the Direction de la Conservation Foncière et des Travaux Topographiques to conduct a land resource inventory of extensive livestock areas.

The proposed extensive livestock program will entail a minimum of technical assistance and out-of-country training. Most of its elements will fall under an Extensive Livestock Project (ELP). Strengthening INAV's graduate-training capability and the development of a land resource inventory are separate activities outside the ELP.

6/6

**Opportunities
for AID in the
Extensive
Livestock Sector
of Morocco**

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November 1985



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SUMMARY OF ACRONYMS

AID:	Agency for International Development
ANOC:	Association Nationale des Ovins et Caprins
COMAGRI:	Compagnie Marocaine de Gestion des Exploitations Agricoles
COP:	Chief of party
CNCA:	Caisse Nationale de Crédit Agricole
CT:	Centre des Travaux
DE:	Direction de l'Elevage
DPA:	Direction Provinciale de l'Agriculture
DE/SP:	Direction de l'Elevage/Service des Parcours
ELP:	Extensive Livestock Program
GOM:	Government of Morocco
INRA:	Institut National de la Recherche Agronomique
INAV:	Institut Agronomique et Vétérinaire Hassan II
MARA:	Ministère de l'Agriculture et de la Reforme Agraire
ORMVA:	Office Régional de Mise en Valeur Agricole
PCV:	Peace Corps Volunteer
PNC:	Plant Materials Center
PSC:	Programme de Sauvegarde du Cheptel
RMIP:	Range Mangement Improvement Project
SNDE:	Société Nationale de Développement de l'Elevage
SGETA:	Société de Gestion des Terres Agricoles
SONACOS:	Société Nationale de Commercialisation des Semences
USU:	Utah State University, Logan, Utah

INTRODUCTION

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CHAPTER ONE

EXTENSIVE LIVESTOCK PRODUCTION IN MOROCCAN AGRICULTURE

The Sector

This report concerns extensive livestock production, that is, the grazing of cattle, sheep and goats on range, fallow, stubble and cultivated perennial forages. Cattle especially, sometimes sheep and even goats are also produced intensively, that is, through the feeding of cultivated forage and agricultural by-products. The same animal often eats from both intensive and extensive sources.

In general, farmland in Morocco can be divided into two intensive and two extensive zones:

Intensive irrigated on 0.8 million ha.;

Intensive rainfed (more than 400 mm. of rainfall) on 3.5 million ha.;

Extensive rainfed (less than 400 mm. of rainfall) on 3.5 million ha.; and

Rangeland (25 per cent in forest) on 20 million ha.(1)

Available statistics do not permit estimates of the animal or human populations in each of these four zones. Moreover, as animals regularly move from zone to zone, one farmer might exploit all four. As Table One suggests, however, the two extensive zones probably support more than half the national herd.

Table 1: Estimated Fodder Availability

	<u>Unit</u>	<u>Amount</u> (000)	<u>FU per</u> <u>unit</u>	<u>FU</u> (millions)	<u>Percent</u>
Forage crops	ha	274	2460	674	6
Fallow	ha	2137	620	1320	11
Straw and stubble	ha	4703	455	2140	19
Plant leaves and tops	ha	1000	170	168	1
Grain	ton	1415	-	1424	12
By-products	ton	1100	-	765	7
Total cropland				<u>6491</u>	<u>56</u>
Rangeland	ha	25800	190	5000	44
Total availability				<u>11491</u>	<u>100</u>

FU = Forage Unit - 1 kg. of barley.

Source: World Bank, Agricultural Adjustment Loan, Washington, D.C., 1985, p. 139. Very different feed budgets appear in MARA/AIRD, Etude sur la Politique des Prix et des Incitations dans le Secteur Agricole, Rabat, 1985, p. 138, and FAO, Assessment of the Food, Agriculture and Livestock Situation, Rome, 1984, p. 20.

Range alone supplies 44 per cent of available fodder. If extensive rainfed areas supply at least one-eighth of cropland fodder, a reasonable assumption, then the extensive zones account for more than half the national livestock feed supply.

Livestock as a whole, and particularly in the extensive zones, plays a much more important role in the rural economy than national production figures suggest. In one sense, Morocco is no longer an agricultural nation, and its agriculture is no longer based on extensive livestock production. The World Bank estimates agriculture's share of GDP in 1985 as only 14 per cent, and livestock's share of agricultural output as only 36 per cent. In 1980, before the drought struck with force, red meat contributed less than half of livestock production:

Table 2: Value of Food Production, 1970 and 1980 (DH million)

	<u>1970</u>	<u>1980</u>	Per Cent Change (1970 prices)
Red meat	522	2093	+ 46
Milk	269	1228	+ 66
Poultry and eggs	222	1130	+ 85
Total livestock	1013	4451	+ 60
Total food	3996	13896	+ 27

Source: Groupe de l'Etude de la Strategie Alimentaire, Etude de la Strategie Alimentaire Marocaine, Rabat, 1984, Annex 1.

Extensive livestock production perhaps contributed half the red meat. This means that the extensive livestock sector accounts for less than one and one half percent of total GDP.

More than half the country's population remains rural, however, and most of them own livestock. Most of those who presently do not own livestock aspire to do so, and most probably have owned or will own livestock sometime in their lives. Many urban dwellers also own livestock, which are tended by rural family members or through contracts with other herders. These marginal livestock owners, who move in and out of the sector, usually do so through sheep and goats herded extensively. Red meat, the major livestock product, comes almost exclusively from small herds with very few modern inputs. Extensive livestock production is probably the least industrialized of Morocco's agricultural activities.

The last national survey of agricultural households in 1973-74 reported that 77 per cent of farmers had access to land, 58 per cent owned cattle, 34 per cent owned sheep, and 18 per cent owned goats. It did not report combinations of animals, and so we cannot determine how many total households owned stock and how many did not. Table Three suggests, however, that livestock ownership is the rule among all sizes of farms.

Table 3: Livestock Distribution by Landholding, 1973-74

Size of Landholding (ha.)	Cattle			Sheep			Goats		
	House holds (%)	Head (%)	Head/ House- hold	House holds (%)	Head (%)	Head/ House- hold	House holds (%)	Head (%)	Head/ House- hold
0	27	21	2	21	21	18	16	16	12
0 - 2	29	21	2	28	13	8	39	33	11
2 - 10	33	35	3	35	32	16	33	34	13
10 -	11	22	6	16	35	39	11	16	17
	100	100	3	100	100	17	100	100	12

Source: MARA, Recensement Agricole, 1973-74, Rabat, 1976, Table 5.1

In general, larger farms had more livestock, except that landless sheep owners had more sheep than many small cultivators.

Despite the small contribution of extensive livestock to the national economy, it remains a critical source of income for rural producers. In general, they eat their grain and sell their animals for cash, although many sheep and goats are slaughtered at home. Many small grain farmers could not stay in business without income from livestock. Livestock production thus has an effect on income distribution, grain production and rural employment far beyond what its contribution to GDP might suggest.

In 1979, before the drought struck with force, family consumption totaled seven per cent of cattle slaughter but 43 per cent of sheep and 43 per cent of goat slaughter. In 1983, these figures were five per cent, 28 per cent and 29 per cent. Stock owners reduced meat consumption and tried to hold onto their animals, often much too long. In 1982-83, thousands of animals died before their owners sold them for slaughter or ate them themselves:

Table 4: Livestock Slaughter and Mortality Data for 1982-83 (000)

	Cattle	Sheep	Goats	Total LSU
Slaughtered	25	614	215	191
Died	34	359	200	146

Source: DE, Mouvements des Bovins, Ovins et Caprins, Novembre 1982-1983, Rabat, 1984.

Stock owners held onto their animals in the hope of them surviving until the rain fell again. Meat prices fall during drought, discouraging livestock sales. Herd owners also hold off selling because capital turned to cash can disappear quickly, especially in a drought when a wide circle of relatives need money. Herders find themselves short of cash after a drought to rebuild their herds, so they hold onto their animals in the hope that they will survive until the next rain. Moreover, range and often fallow and stubble, the most important feeds of extensive livestock, are costless to the producer.

FIGURE 1



MOROCCO: NORTHERN PROVINCES

The only available statistics that show a distinction between intensive and extensive livestock production discriminate between ORMVAs (Office Regional de Mise en Valeur Agricole) and DPAs (Direction Provinciale de l'Agriculture). ORMVAs cover the large irrigation areas, but also include surrounding intensive and extensive rainfed cropland (See Figure Two). DPAs cover most rainfed cropland and rangeland, but also include some irrigated land. Both intensive and extensive livestock production are thus found in both ORMVAs and DPAs, although ORMVAs are more intensive and DPAs are more extensive.

Table 5: 1984 Livestock by Zone (000 LSU)

	<u>Cattle (%)</u>	<u>Sheep (%)</u>	<u>Goats (%)</u>	<u>Total (%)</u>
ORMVAs	800 (49)	601 (37)	236 (14)	1636 (100)
DPAs	1563 (40)	1698 (44)	609 (16)	3870 (100)
Total	2363 (43)	2299 (42)	844 (15)	5506 (100)

Cattle = 1 Livestock Unit (LSU)

Sheep/goat = 1/5 LSU

Source: DE, "Enquete-Elevage, Mars-Avril 1984", Rabat, 1984.

Table Five suggests that the distinction between intensive and extensive livestock production does not fall out neatly by species. Sheep are most important in the DPAs, although even there cattle account for 40 per cent of livestock units. Cattle dominate the ORMVAs, but even there sheep total 37 per cent of livestock units. The importance of extensive cattle production is further supported by the numbers of improved breeds, overwhelmingly dairy, in each zone:

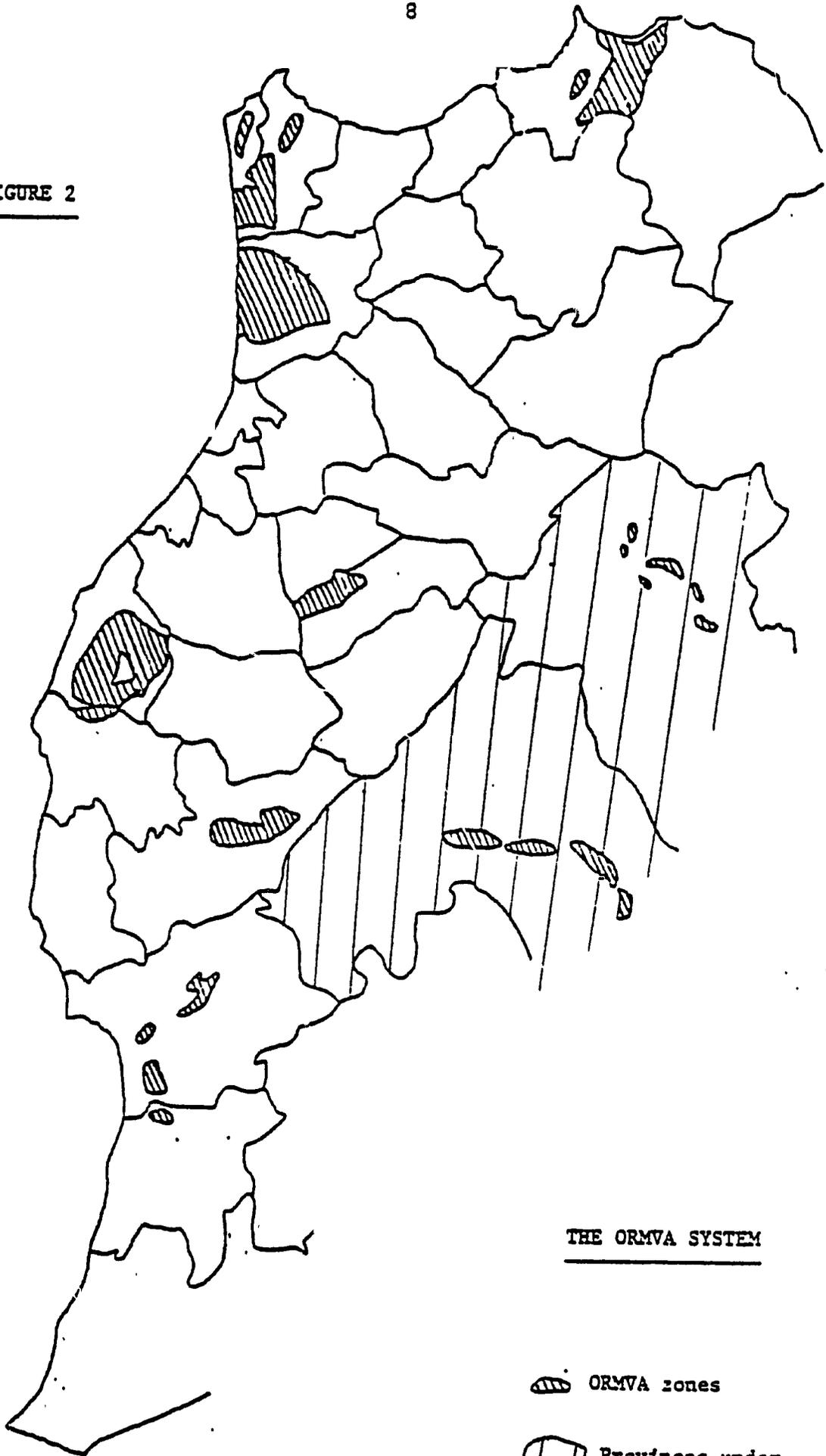
Table 6: Cattle Breeds by Zone (000)

	<u>Local (%)</u>	<u>Improved (%)</u>	<u>Total (%)</u>
ORMVAs	647 (81)	153 (19)	800 (100)
DPAs	1387 (89)	176 (11)	1563 (100)
Total	2035 (86)	328 (14)	2363 (100)

Source: DE, "Enquête-Elevage, Mars-Avril 1984", Rabat, 1984.

Even in the ORMVAs, improved cattle number fewer than one fifth of the total. Certainly, many local animals are being milked commercially, but many others are raised extensively. Red meat production is about equally divided between cattle and small stock (2).

FIGURE 2



THE ORMVA SYSTEM

 ORMVA zones

 Provinces under
ORMVA administration

The recent drought has greatly reduced stock numbers in both intensive and extensive zones. Table Seven shows this decline:

Table 7: National Herd (million head)

<u>Year</u>	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>	<u>LSU</u>	<u>% change</u>
1965	2.3	8.7	5.1	5.0	
1970	2.7	11.7	5.6	6.1	+22
1975	3.6	14.3	5.7	7.6	+25
1980	3.4	16.5	6.2	7.9	+4
1984	2.4	11.5	4.2	5.5	-30

Source: USAID, 'Draft Agricultural Sector Strategy Paper', Rabat, 1985.

Drought before 1980 reduced cattle numbers somewhat, but the severe decline in all species came after. By crippling fodder production on both crop and range land, the drought seems to have struck both intensive and extensive livestock production with great force. Table Eight reports the decline by zone, and Figure Three shows the change in species by province.

Table 8: Percentage Drought Loss by Zone, 1981-84.

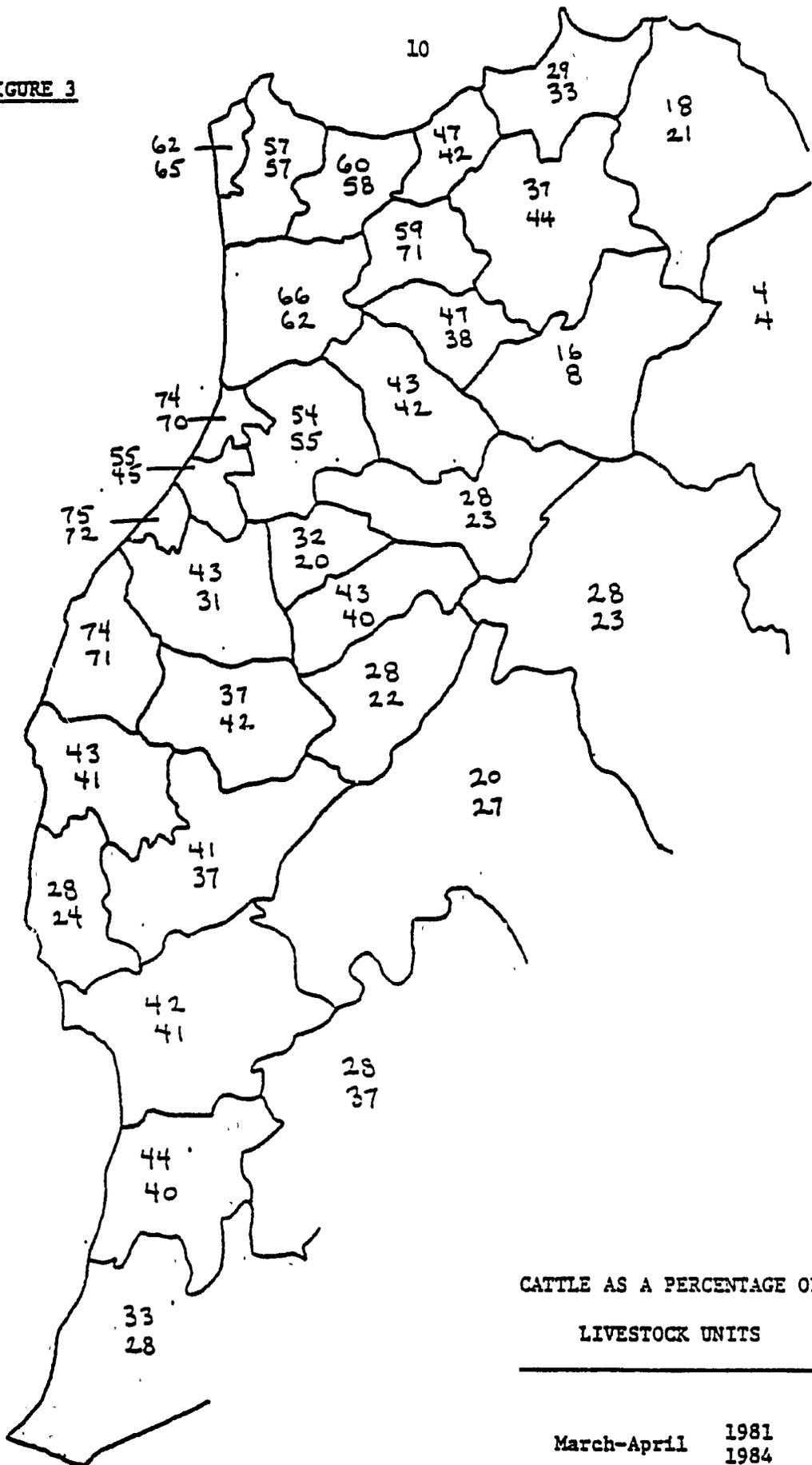
	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>	<u>LSU</u>
ORMVAs	23	23	22	23
DPAs	29	28	23	28
<hr/>				
Total	27	27	23	26
<hr/>				

Source: DE, 'Enquête-Elevage, Mars-Avril 1984', Rabat, 1984.

Table Eight shows a somewhat higher loss of cattle and sheep in the DPAs. Figure Three shows the dominance of cattle in the northern and western provinces but an overall stability in the ratio of large to small stock through these years of drought. The provinces varied from Taounate, where this ratio actually grew 12 per cent, to Settat and El Kelaa, where the ratio fell by 12 per cent. Overall, though, cattle fared as well as small stock during these years of drought.

Even with greatly reduced stock numbers, Morocco's crop and range lands do not provide enough feed. Animals reproduce and grow poorly, have high mortality rates, and cause serious environmental degradation. Despite poor statistics on actual feed availability and carrying capacity, it is obvious that Morocco's pastures are seriously overgrazed (3). Palatable perennials have given way to annuals and unpalatable perennials, remaining plants are grazed down to the ground, bare soil is exposed where rainfall is high enough

FIGURE 3



**CATTLE AS A PERCENTAGE OF TOTAL
LIVESTOCK UNITS**

March-April 1981
1984

Total provinces: 43
43

Cattle: 1 LSU

Sheep or Goat: 1/5 LSU

to support a greater vegetation cover, soil has washed away to expose bare rock. The severe loss of livestock, 30 per cent over four years, attests to the fragility of Morocco's livestock production system.

The destruction of Morocco's rangelands is a national issue of great import above and beyond the value of red meat they produce. Poor pasture management threatens not only the pasture but also neighboring cropland, through soil erosion, irrigation dam siltation, and a fall in the water table. Overgrazed pasture lies uphill from every crop field in Morocco, and erosion travels downhill.

Production Constraints

Poor animal nutrition stands out as the greatest production constraint in extensive livestock production. Animals move from feed source to feed source throughout the year, sometimes over great distances. The shortage of rangeland water is a related constraint, for it requires animals to walk great distances on a daily basis between water and fresh pasture. Animals lose condition and require even more feed.

Although the feed constraint shows up as overgrazed range, it can be relieved through providing more of either cultivated or uncultivated fodder. From Table One above, the most likely opportunity for increasing cultivated feed is to increase the area of forage crops (274,000 ha) at the expense of fallow (2,137,000 ha). An annual leguminous forage might replace fallow in a dryland cereal rotation. Although such fallow replacement would fare best in intensive rainfed areas above 400 mm., available fallow is more likely to be found in extensive rainfed areas. In intensive areas there is great pressure to skip fallow completely and plant grain every year. Only research, and the final profitability of grain versus livestock on the individual farm, will reveal the future of forage production in extensive rainfed areas.

Beyond forage cultivation, the best hope for improving extensive feed sources is the regeneration of degraded pastures. There are no reliable data on the degree of present degradation, but with proper management and perhaps replanting where necessary, the non-forest range should be able to increase more than fourfold the annual feed supply. This conservative estimate is based on observations made at Oujda, Plaine de l'Aarid and Timahdite where pasture within the perimeters was compared with that growing outside. This would nearly double the total feed available to livestock in both intensive and extensive zones. This would most likely be able to support present animal numbers at good nutritional levels without significant loss during drought.

Present technology, then, can have a greater impact on the rangelands than on extensive forage cultivation. There are a variety of range improvements waiting to be applied to Morocco's pastures. They are mostly useless, however, without proper grazing management, chiefly the reduction of stock numbers below damaging levels.

Thus far, proper management has eluded most of Morocco's rangelands. The most important reason for this is their legal status as collective lands. Land tenure, then, is the second important constraint in extensive livestock production.

Although specific tribes and sub-tribes have specific rights to particular pastures, these rights often overlap. Thus one tribe will have rights to several pastures, and several tribes will have rights to one pasture. Some pastures, particularly in the high mountains, are grazed for rigidly controlled periods by their tribes. Most important, however, stock numbers are not controlled on collective pastures. Forests, one quarter of all rangeland, are sometimes an exception to this rule, for they fall under the control of the Direction des Eaux et Forêts. This government agency, a branch of the Ministry of Agriculture and Agrarian Reform, closes some of its forests and allows in only a carefully controlled number of animals. At present, only 15 per cent of forests have a management plan for grazing and wood offtake. Most of the rest are severely overgrazed. The value of forest livestock production presently exceeds that of the recorded wood harvest (4).

Also, users of collective lands cannot use them as security for loans. Extensive crop land, historically part of collective lands, also suffers from insecure title. As a result, the Caisse Nationale de Credit Agricole reaches only 25 per cent of potential customers in rainfed areas, as compared with 60 per cent in irrigated zones (5).

As the rural population continues to grow, as stock numbers recover from the drought and surpass their previous heights, the collective ranges will only degrade further. Each year of overgrazing lengthens the time it will take for the pasture to recover even under proper management. Although no statistics capture this steady decline, each year the collective ranges are less and less able to provide fodder for the nation's livestock herds. The result is not only poor livestock nutrition and thus poor production, but spreading erosion on both range and cropland.

The third major constraint in extensive livestock production, and the least important of the three, is animal breeding. Animal diseases are less severe in Morocco than in the tropics, and less important as a health problem than poor nutrition. In the same way, breed improvement can only succeed if animals get enough to eat. Indeed, native breeds usually fare better than high-performance improved breeds in periods of nutritional stress.

Breeding is generally well-controlled in extensive cattle herds. Despite the failure to castrate males, herds are generally very small (see Table Three above) and so breeding is easily controlled. Uncastrated males will actually grow better than castrates. Beyond individual arrangements among neighbors, however, there is no organized system of breed selection and improvement for the native beef breed. The only beef breeding in the country is on parastatal ranches, which produce exotic Santa Gertrudis stock for sale to breeders and growers. Until the feed crisis is solved, selecting and breeding the native beef animal might do more to improve efficiency on the range.

Sheep breeding is only partially controlled. Sheep herds are larger than cattle herds (see Table Three), and are often pooled under one herder. Rams are selected for breeding and the rejected rams are culled, but not always in time to prevent the poorer rams from breeding too. The problem of too many males of breeding age is common to low-productivity grazing systems on collective land. It makes sense to wait until the stress of weaning, often

at a time of general nutritional stress, shows which male can grow best under difficult conditions. This one is then selected, perhaps too late to prevent the others from breeding too. Meanwhile, poorer quality animals have eaten valuable grass and passed on their inferior genes. In the spring of 1981, before the drought struck with force, the ratio of breeding males to breeding females was 1:10, somewhat high but not seriously so (6).

Seven private cooperatives presently operate for sheep selection and multiplication, with three of the country's six major breeds. They are presently selecting true to breed, by phenotype. This includes some selection for meat production, because larger animals are favored, but breeders should begin selecting for fertility and wool production as well. In 1979, before the drought reduced sheep numbers, shearings totaled 8.6 million, 54 per cent of the total flock of 16 million sheep. This is a low shearing rate (7).

Fleece weight and quality are very low, and merchants pay more for weight than for quality. Breeding native sheep for wool, introducing improved wool sheep into suitable areas, and establishing market grading for quality, would encourage more shearings and raise wool income considerably. Fleeces presently weigh about 1.5 kg and command some 15 Dh each. With a shearing rate of 90 per cent on the present population of 12 million sheep, and a doubling of fleece quality and weight to yield Dh 60 per fleece, wool income would rise from Dh 97 million to Dh 648 million. The country's sheep should be able to support its carpet industry, which presently has to import wool. Drier rangelands, especially, too harsh for proper breeding herds, could grow out males specifically for wool production.

Goat breeding resembles sheep breeding, with late culling and selection for size. There are plans for a goat-breeding cooperative in the Middle Atlas. In 1980, when the goat population peaked at 6.2 million, 25 per cent were clipped for hair. This hair is of very low yield and quality, and there is no place in the foreseeable future for the introduction of hair breeds. Sheep and goats graze together, and wool offers greater potential.

Government Policy

There is no separate government policy for extensive livestock production. There are overall policies that affect it, plus specific policies for individual elements within it. The agricultural sector as a whole is presently undergoing a major shift in overall policy, under two World Bank Agricultural Adjustment Loans totaling \$180 million.

The adjustment program aims to improve agricultural productivity:

The technical and economic ceilings of input used to increase yields could be substantially increased in the rainfed areas as well as the irrigated areas. In the former, despite natural constraints, major productivity improvement would result from widespread introduction of improved farming techniques including mechanization of land preparation, use of modern inputs, and a more intensive and rational land use through an integration of crop/animal production. Most of these increases in productivity can be expected to occur in the medium to high rainfall areas. In the irrigated areas, there is also considerable room for increase in yields... (8)

Under this adjustment program, agriculture received 13 per cent of total government appropriations in 1985, divided as follows: large-scale irrigation projects 39 per cent; small and medium scale irrigation projects 10 per cent; plant production 14 per cent; livestock 9 per cent; forestry 8 per cent; research and extension 7 per cent. Moreover:

The budgetary appropriations within each subsector again accord priority to projects and operations that meet the following criteria: a) early completion; b) high economic return; c) rehabilitation and modernization of existing plant; d) low recurrent charges; e) rapid impact on production and the balance of payments; and f) high employment creation (9).

The adjustment program, then, aims for a rapid financial return from higher rainfall areas. Extensive livestock production can only yield returns in the long term, and it is mostly found in the lower rainfall areas. It is thus a low priority in the adjustment program.

The specific goals of the adjustment program are to:

- Achieve a restructuring of the investment program;
- Re-orient the price and incentives framework;
- Strengthen agricultural support services, including rationalization of the role of the private sector; and
- Build institutional capacity for agricultural planning and policy analysis, and resolve structural problems (10).

The first objective, to restructure the government's investment program, aims for "greater emphasis of public investment on rainfed agricultural development, forestry, small-scale irrigation, and livestock" (11). Table Nine reports the 1985 allocations for priority projects, which compose 69 per cent of the adjustment program's public investment budget for that year. This gives a good if incomplete picture of the investment plan:

Table 9: Core Group of Priority Projects and Operations

	<u>1985 Allocations (DHM)</u>
Reforestation	103
Gharb-Mamora and Loukkos	64
Soil Conservation and Sylvopastoral	42
Rangeland Improvement	16
Medium-scale Irrigation	86
Small-scale Irrigation	64
Integrated Rural Development	162
Vegetable Marketing	18
Large-scale Irrigation	469
Extension and Research	78

Source: World Bank, Agricultural Adjustment Loan, Table 5a.

The largest element by far is large-scale irrigation, some 43 per cent of the investment budget shown in Table Nine. This is an improvement over the 1970s, when large-scale irrigation absorbed 65 per cent of the government's investment budget (12). Adding the medium and small-scale irrigation budget plus vegetable marketing gives a figure of 62 per cent of the total investment shown in Table Nine devoted to irrigated farming. This sector, totaling less than 10 per cent of cropland, contributes about 45 per cent of the value added in agriculture (13).

Extension and research should benefit all sectors. Forestry receives a sizeable share of the investment budget under reforestation, Gharb-Mamora and Loukkos, soil conservation and sylvopastoral, and the three integrated rural development projects. Only one of these three integrated projects, in the Middle Atlas, also involves non-forest grazing land. Extensive livestock thus receives an investment of some six per cent of the total in Table Nine.

The second objective of the adjustment program, to reorient the price and incentive framework, entails the removal of input and output subsidies and price controls. In past years, 70 per cent of input subsidies and 80 per cent of output subsidies have benefited the irrigated zones. In 1984 alone, input subsidies totaled DH 1150 million and output subsidies totaled DH 900 million. Of 1984 output subsidies, 80 per cent went to sugar producers and the rest went to milk and cereal producers (14). Only the last group could possibly hail from extensive areas.

The only input subsidies that reach extensive farming areas are perhaps those for agricultural machinery and breeding livestock, which total well under 10 per cent of total input subsidies. The government's plan to eliminate its input and output subsidies will thus affect extensive livestock production very little, except as the new prices affect the mix of crops and thus the availability of cultivated forage, stubble and fallow. There might be a shift away from intensive farming as input prices rise and output prices fall. Indeed, one of the adjustment program's objectives is to eliminate the net taxation of cereal and rainfed farming that helped raise cereal imports to 27 per cent of national cereal consumption before the drought (15). If farmers shift to extensive farming, they might grow more forage or try to put more animals on the already overgrazed range.

The third objective of the adjustment program is to strengthen agricultural support services, including rationalization of the role of the private sector. This will be accomplished by eliminating government agricultural services that the private sector can provide, and by strengthening the government's ability to deliver services that the private sector cannot provide. The government will gradually pull out of:

- Veterinary, breeding and tractor services;
- Fertilizer, seed, feed and cereal marketing; and
- Seed and breeding stock production.

Among these activities, extensive livestock farmers presently benefit mainly from the veterinary services. A pilot program will establish private veterinarians in 20 intensive farming zones. The program will then be extended to all intensive areas. There are no plans to extend private practice to extensive zones (16). Farmers in intensive areas are also the customers for the subsidized breeding stock and can best take over breeding stock production themselves. A freer cereal market should benefit extensive crop farmers as well. Government tractor units have served extensive as well as intensive farms. Extensive farmers may use commercial seed, but they cannot hope to produce it themselves in the near future.

As for the agricultural services that only the government can provide, these are chiefly research and extension. The two principal agricultural research bodies are INRA (Institut National de la Recherche Agronomique) and INAV (Institut Agronomique et Veterinaire Massan II), although MARA conducts research on its own farms as well. The adjustment program concerns strengthening INRA and making it more responsive to practical research demands. INRA presently has no capacity for livestock research, however, and the loan document does not specify that it should develop any (17).

As for extension, MARA has neglected it in favor of delivering inputs and other services. There is practically no livestock extension, except in range improvement through the Service des Parcours rather than through the extension service. As for the extension service itself, it is not a separate direction nor even a separate division, but falls under the Division de la Vulgarisation et Cooperation Agricole, which together with the Division de la Reforme Agraire makes up the Direction de la Vulgarisation et de la Reforme Agraire (see Figure Four).

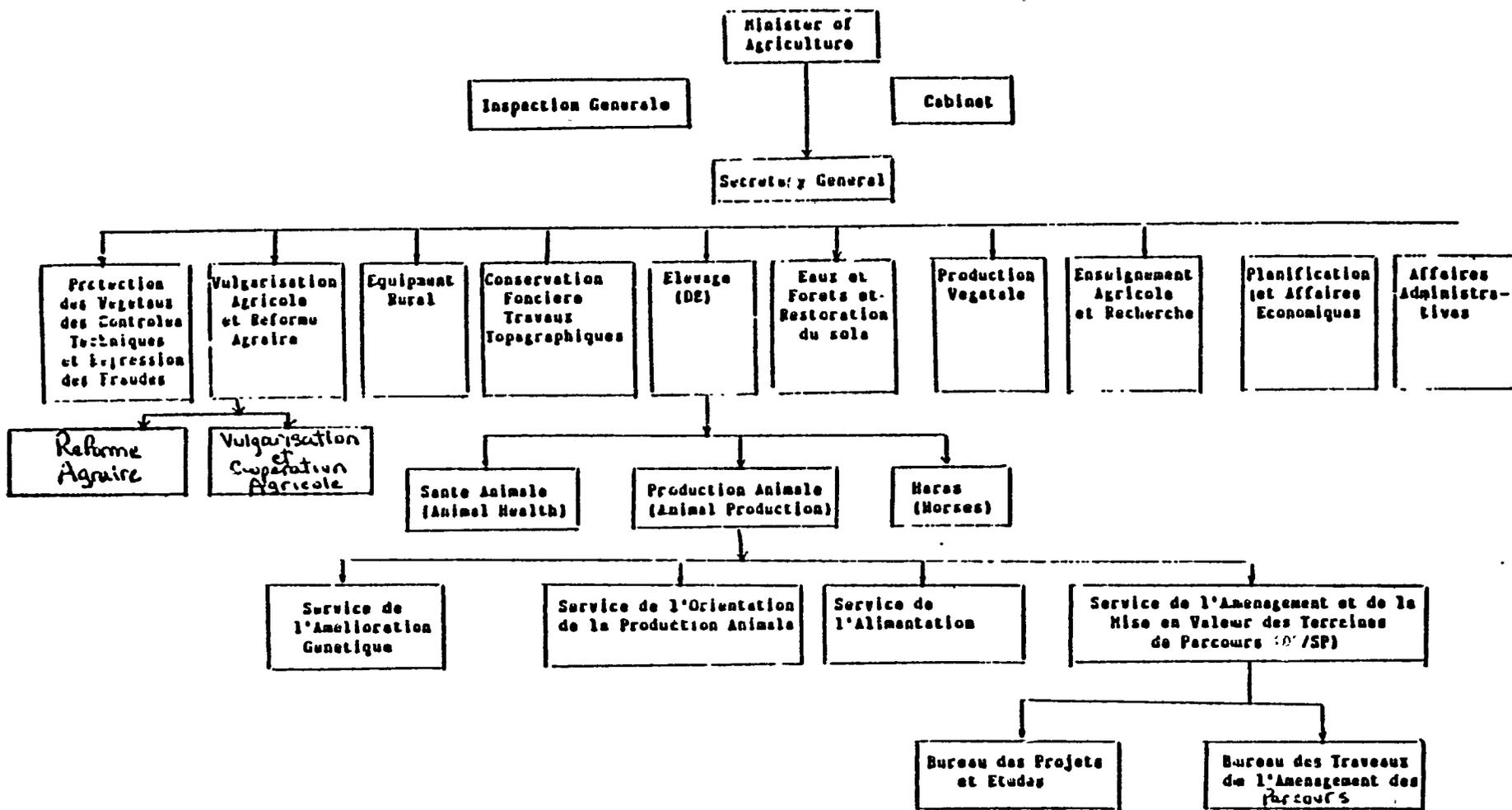
The adjustment program is establishing 28 pilot extension centers, one in each DPA. Agents at these centers will spend most of their time actually visiting producers' farms. The extension program will have a strong livestock component, and will gradually extend throughout the country. Everywhere extension agents will need information on herd records, selective breeding, and wool improvement. Agents in extensive areas will need special training in pasture reseeding, watershed management, and the advantages of deferred grazing.

The fourth goal of the adjustment program is to build institutional capacity for agricultural planning and policy analysis and to resolve structural problems. Toward the former end, MARA will use AID and FAO assistance to strengthen statistical collection and evaluation in its Direction de la Planification et des Affaires Economiques, appoint economists to key Directions, train staff in planning and analysis, and establish a parastatal economics firm to handle immediate price and statistical analysis. The government also plans to increase the number of ORMVAs from nine to 12 and subsume the DPAs under them. The justification for this merger is to take advantage of the ORMVA's greater fiscal and operational autonomy (See Figure Two).

As for resolving structural problems, these fall into two categories: land tenure and natural resource management. The land tenure program aims to

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FIGURE 4: POSITION OF DE/SP WITHIN THE MINISTRY OF AGRICULTURE AND AGRARIAN REFORM



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extend standardized land titles from irrigated to rainfed cropland. This will encourage optimum farm size and help title-holders qualify for credit. The program is directed specifically at intensive rainfed areas (18). The natural resource management program will encourage reforestation and forestry research, inventory and management to enable domestic wood production to replace the 30 per cent of local needs currently imported, and to develop grazing and harvesting plans for the 85 per cent of forest lands that currently lack them.

The Agricultural Sector Adjustment program, then, constitutes a major shift in government policy. Its effect on extensive livestock production will be largely indirect. The public investment program has minor components for extensive livestock; the price and subsidy reforms concern intensive farming; the agricultural service reforms in planning, extension and research will affect the sector as a whole and focus on intensive farming areas; the land tenure program is aimed at intensive areas but forestry planning should improve forest pasture.

The adjustment program's emphasis on intensive areas is deliberate. Morocco is currently in a financial crisis, with foreign debt greater than annual GDP. The adjustment program thus aims at investments with a high return in the short and medium term, and which improve the balance of payments (19). Investment in extensive livestock production would require many years to pay off. Short and medium-term profits are higher in other sectors. Degraded rangelands take years to regenerate, and they cannot regenerate at all without major changes in land tenure first. The adjustment program's grazing activities are mostly part of forestry projects, and thus avoid the difficult land tenure problems of the non-forest range.

Outside the adjustment program, extensive livestock production remains the charge of MARA. Within MARA, the Direction de l'Elevage (DE) has primary responsibility for it, chiefly through the Service des Parcours (SP) of the Division de la Production Animale (see Figure Four). The Direction des Eaux et Forêts oversees forest rangeland. The Direction de la Vulgarisation will soon have responsibility for livestock extension. Table Ten reports DE's 1985 investment budget:

Table 10: Direction de l'Elevage Investment Budget, 1985 (DHM)

Health control	33.9	29%
Feed distribution	5.3	5%
Meat and milk industrialization	26.9	23%
Genetic improvement	10.3	9%
Direct farm subsidies	28.7	25%
Rangeland improvement	10.0	9%
<hr/>		
Total	115.1	100%
<hr/>		

Source: World Bank, Ag. Adj. Loan, Tech. Supp. Vol., p. 135.

This budget differs from what DE will actually spend in 1985. In 1983, the budget was DH 136 million but only DH 49 million was actually disbursed. Direct subsidies within this 1985 investment budget amount to DH 60.1 million, or 52 per cent of the total. Of the total subsidies, 36 per cent are directed to farmers, 30 per cent to milk collection and processing, 20 per cent to parastatal farms, and 14 per cent to slaughterhouses (20).

The abolition of subsidies will thus seriously curtail DE's present range of operations. These changes will mostly affect the Division de la Production Animale, which handles all of the subsidies and the entire budget in Table Ten except for health control (21).

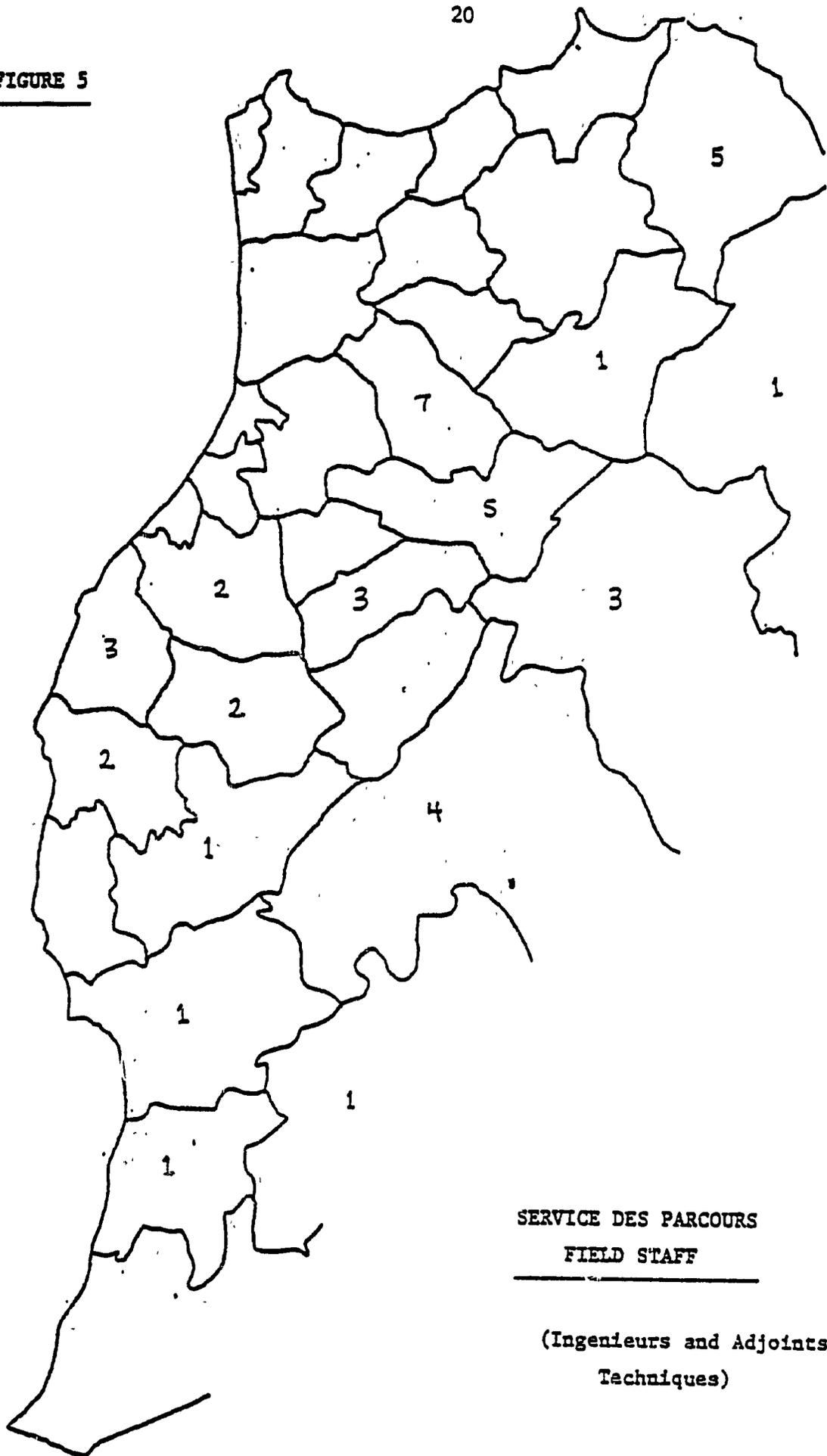
Production Animale has four Services (see Figure Four): Service de l'Orientation de la Production Animale (SOA), Service de l'Amelioration Genetique (SAG), Service de l'Aménagement et Mise en Valeur des Terrains de Parcours (DE/SP), and Service de l'Alimentation. SOA is a planning unit, but its staff of eight has no economic training. With a major shift in the role of Production Animale, SOA's burden will greatly increase.

SAG is essentially a dairy cattle service. It handles herd books, performance testing on private and parastatal farms, natural breeding and artificial insemination services, the impact of breeding stock and the subsidized sale of imported and local breeding stock to farmers. SAG has some sheep activities as well, organizing breeding cooperatives and handling the subsidized sale of breeding stock from government farms. It also handles the subsidized sale of exotic parastatal beef cattle breeding stock. When subsidies are eliminated and breeding stock production and breeding services shift to private farms, SAG will be limited to herd book registry. There is ample opportunity to extend this system to sheep and eventually to native beef cattle. Promoting proper conservation and reproduction of the nation's prime breeding stock will be especially important when its production is dispersed from a small number of parastatal farms to a large number of scattered private farms.

At present, DE/SP is the only government agency charged directly with extensive livestock development. Its mandate is to improve the productivity of Morocco's vast rangelands. It presently has a professional staff of five at headquarters and 42 in 16 of the country's 33 provinces (see Figure Five). Some 23 of these field staff are involved in the AID Range Management Improvement Project at four separate sites.

Experience at these four project sites shows that stock numbers can be controlled on collective pastures, and pasture productivity can be increased. This experience also shows that these things take time. The most difficult task is gaining the consent of collective grazers to reduce their stock numbers and to keep their herds off a pasture for several years while it regenerates. Grazing control on collective lands is perhaps the most difficult problem in agriculture development. Herders resist reducing their stock because drought might come along and reduce it further, putting them out of business completely. On uncontrolled collective pasture, herders aim to have larger herds so that more animals from their herd will survive a drought. A smaller number of well-fed animals would fare better, but on collective pasture smaller herds are no better fed than larger ones.

FIGURE 5



The pastoral commons suited the agricultural system when population was low and pasture was plentiful. As human and animal populations grow, pasture becomes more and more scarce, and so herders are more and more loathe to keep their herds off any one piece to let it regrow. Herder resistance to grazing control makes sense in the short run, but in the long run the pasture will vanish without it. Herders will enclose their own commons only with substantial government assistance and encouragement. This is the job of DE/SP.

At present, DE/SP's 42 field staff are hardly sufficient to promote pasture improvement and grazing control throughout the country. The present coverage ratio is more than a third of a million hectares of non-forest rangeland per technician. These field staff conduct research, extension and range development. Under the new agricultural policy, DE as a whole will no longer conduct research or extension. Research institutes, chiefly INRA and INAV, will be responsible for extensive livestock research, although at present only the latter has any capacity for this. The extension service has only begun to include livestock in its program and it doubtless will start with intensive production. Extension staff in extensive areas will need training especially in pasture reseeding, herd records and selective breeding, wool improvement, watershed management and the advantages of deferred grazing.

DE/SP will thus be free to concentrate on range development.

DE/SP operates on collective, domanial and private land. Domanial land is less than one per cent of the total range, and private land is an unknown but certainly small amount as well. On domanial land there are no legal impediments to grazing control, for the land is owned by the state. Private pasture is usually land plowed for grain at such low yields that grazing is a more economic use. There is no legal impediment to a private pasture owner improving it.

Legislation already exists to convert collective ranges to controlled pastures. The legal procedure requires the consent of herders who use the land, and this is the bottleneck in the process. The sites that currently have some grazing control can encourage extension to other areas. Extension agents should try to interest other herders in pasture control and improvement, using existing sites as demonstrations. SP can then concentrate on land management and pasture development at participating sites.

The last service of Production Animale is Service de l'Alimentation. This office handles the subsidized supply of animal feeds throughout the country. There are two separate programs. The first handles beet pulp and wheat bran, which are consumed almost wholly by animals in intensive areas. The government plans to phase out this subsidized distribution.

The second program is the Programme de Sauvegarde du Cheptel (PSC). This is essentially drought relief for animals. It began in 1961 and became a permanent program in 1972. Imported barley and alfalfa and domestic beet pulp, as well as some concentrates, hay, straw and molasses, are sold to livestock owners prices from 30 per cent to 100 per cent below cost. This subsidy rate varies from zone to zone, feed to feed, and year to year. Table Eleven shows PSC activity from 1973 to 1982:

Table 11: Programme de Suavegarde du Cheptel

	1973	1975	1976	1977	1978	1979	1980	1981	1982	Total
Total (000 DH)	699	6389	557	5647	1897	4490	4888	65025	1090	90601
Per cent to DPAs	88	69	39	82	81	74	67	89	69	83
Per cent to ORMVAs	12	31	61	18	19	26	33	8	18	15
Per cent to parastatals	0	0	0	0	0	0	0	3	13	2

Source: MARA/AIRD, Etude sur la Politique des Prix et des Incitations dans le Secteur Agricole, Rabat, 1985, p. 150.

In 1983, the government ended direct funding of the PSC and instituted a slaughter charge at abattoirs. In 1984, the sale prices of beet pulp and wheat bran in Service de l'Alimentation's other program were raised, and the extra funds were added to the PSC reserve.

Thus PSC has done its share to further overgraze Morocco's pastures. There are already too many animals for the available feed supply in a year of average rainfall. Even if there were not too many, animal numbers should decline during a drought through culling and slaughter to match the decline in available forage. This prevents further stress on the pasture, allowing it to rebound quickly after the drought and support a recovery of animal numbers. A herder on collective land tries to delay culling and slaughter as long as possible, for someone else's animals will remain and eat the pasture even if his do not. And herders would like to keep their herds large through a drought so that even after mortality loss they will have a large enough herd to stay in business. It is best for the range and for the country as a whole if the herders sell their animals instead, but prices fall during a drought and this is a further incentive to hold onto them instead. The PSC further encourages herders not to sell, by supplying them with subsidized feed. The money that pays for the subsidy would be much better spent during a drought in buying animals, at higher, pre-drought prices and sending them to the abattoirs. This would relieve the pressure on the range and give herders money to buy animals again when the drought ends. Moreover, in a well-functioning livestock sector, animals move to feed rather than the reverse. Feed costs much more to transport than the animals that eat it.

The PSC raises a fundamental issue of extensive livestock production on communal lands. Overgrazing is so severe largely because communal pasture is free. Extensive grazing on collective land is low-cost, low-output production. Supplying health services or feed on a low or no-cost basis only encourages the pattern. Technological improvement in extensive livestock production, as in other kinds of agricultural development, entails moving producers to higher-cost, higher-output techniques. Free or subsidized feed does the opposite. Moreover, much of the PSC feed is imported, a cost that Morocco cannot afford. And the subsidized feed prices discourage domestic feed production. And the abattoir tax translates partly into a tax on

producers, which further discourages sale for slaughter and adds to the pressure on the range. More animals on poorer pasture need more subsidized feed, and on and on until the range is hopelessly damaged.

NOTES

1. World Bank, Agricultural Sector Adjustment Loan, Washington, D.C., 1985, p. 11 (henceforth A.S.A.L.). These figures are rough estimates, and are contradicted elsewhere in the loan Technical Support Volume, pp. 1, 26, 54, 139, 203-4 (henceforth T.S.V.).
2. World Bank, A.S.A.L., T.S.V., p. 160. FAO, "Rapport Sectorial - Industrie de la Viande," Rabat, 1985, p. 2, gives a 1978 estimate of three eighths of the beef supply coming from dairy animals.
3. The only available detailed study on national pasture production is FAO/MOR, "Les Parcours Hors Forêt." Rabat, 1984. Even this does not estimate carrying capacity or stocking rate.
4. World Bank, A.S.A.L., T.S.V., p. 203.
5. World Bank, A.S.A.L., p. 33.
6. DE, "Enquête Elevage, 1981," Rabat, 1982.
7. DE, "Production Ovine et Caprine," Rabat, 1983.
8. World Bank, A.S.A.L., p. 13.
9. World Bank, A.S.A.L., Annex IV, p. 4.
10. World Bank, A.S.A.L., Loan Summary and p. 35.
11. World Bank, A.S.A.L., Annex V, p. 1.
12. World Bank, A.S.A.L., p. 15.
13. World Bank, A.S.A.L., p. 19.
14. World Bank, A.S.A.L., pp. 19-20.
15. World Bank, A.S.A.L., p. 20; T.S.V., p. 183.
16. World Bank, A.S.A.L., Annex V, p. 5.
17. World Bank, A.S.A.L., T.S.V, Ch. IV.
18. World Bank, A.S.A.L., p. 37.
19. World Bank, A.S.A.L., pp. 6, 15; T.S.V., p. vi.
20. World Bank, A.S.A.L., T.S.V., p. 135.

21. Of the other two divisions, changes in the Division de la Sante Animale have been discussed above, and the Division des Haras is a largely self-financing horse service.

CHAPTER TWO

AID'S ROLE IN EXTENSIVE LIVESTOCK DEVELOPMENT

Past Projects

AID first became involved in extensive livestock production in Morocco in 1968. A \$0.5 million project set up range management perimeters, performed forage adaptability trials, and provided technical assistance and training. Six Moroccans were sent to the US for 20 weeks of training and one was sent for an MS degree. The project helped formulate the official proclamation (Dahir) of 1969 that established the legal procedure for gaining the consent of herders with rights to collective lands to enforce grazing control on them.

The project planned twelve sites, but achieved herder consent on only two. In 1972, the same year that the project was terminated, the Direction de l'Elevage was formed with a Service de l'Alimentation et des Parcours (SAP) within it. The Dahir of 1969 remained in force. The SAP handled the PSC and continued range management activities until they split in 1981 into the Service de l'Alimentation and SP.

In 1975, the government requested further assistance in range management. USAID funded a forage seed production feasibility study in 1977. An outline project proposal followed in 1978 and was approved in 1979. The project paper followed in 1980 and the project began in 1981. This Range Management Improvement Project, funded with \$5.1 million from AID and Dh 27.9 million by the Moroccan government, is scheduled to end in August, 1986.

In the time between these two range improvement projects, several Moroccans received range management training in the United States. AID also funded the importation of some American beef cattle for a parastatal breeding ranch. Overall, then, in the 20 years since the government first requested assistance, AID will have spent somewhat less than six million dollars on extensive livestock production.

Present Projects

Aside from the Range Management Improvement Project, AID funds the following activities that can affect extensive livestock production.

Dryland Agriculture Applied Research (0136 - \$26.3 million). This project aims to strengthen INRA's capacity to conduct applied research in dryland farming. Forage production within a cereal rotation is included. This project could contribute to extensive livestock production by studying forage cultivation on drier cropland and grass and shrub reseeding on rangeland.

Agronomic Institute (0160 - \$28.5 million). This project aims to strengthen INAV's capacity to train agricultural managers, technicians, and scientists. INAV is presently more capable than any other institution to carry out livestock research. This project could further contribute to extensive livestock production by INAV faculty developing contracts for specific research projects through DE/SP.

Planning, Economics and Statistics for Agriculture (0182- \$12.6 million). This project aims to improve MARA's overall planning capacity through improved statistics and procedures. As DE's role in livestock production changes, this project can have an important impact on how well DE performs its new functions. This project especially could help DE/SP plan its land management activities throughout the country.

Drought Recovery Credit (0184 - \$15 million). This project has a very specific purpose, to reschedule the loans of small farmers struck by the long drought. The Caisse Nationale de Credit Agricole (CNCA) has 95 local and 140 seasonal or mobile branches that make loans only to farmers with assets of less than \$700, while 36 regional branches make loans to farmers with more than \$700 in assets. The only distinction between intensive and extensive areas is that lending limits are lower for farmers without title to land, and these are mostly in extensive areas. Although there are no special provisions for extensive farmers, they will benefit as will other farmers from debt rescheduling.

Small Ruminant CRSP (Title XII, centrally funded). This research and training project concerns grazing management, nutrition, breeding, and sociology in both intensive and extensive production. INAV is the host institution. The research and training resulting from this project can make an important contribution to extensive livestock production in Morocco, especially if it contracts with DE/SP for site specific studies for range development. A recent evaluation of this project suggested that the range management component "calls for a scale of support far in excess of the resources currently available to the SR-CRSP."⁽¹⁾

The Range Management Improvement Project (0145 - \$5.1 million). This project has trained DE/SP staff and bolstered its ability to engage in range development. During the project, DE/SP has also conducted range research and extension. DE/SP is now well enough established to become a land and range management agency. There is now enough interest in the country in range management that DE/SP can contract out range research to research institutions and turn range extension over to the extension service.

Overall, extensive livestock production takes up less than six per cent of AID's agricultural project portfolio.

Opportunities for AID

Extensive livestock production, then, is a critical income source for most of Morocco's rural population. Its present course is one of environmental degradation, leading not only to a crisis on the communal pastures, but also to soil erosion, dam siltation and falling water tables in neighboring irrigated and rainfed farming areas. Something must be done, not only to raise herder incomes, but also to save Morocco's precious farmland.

The two most important production constraints are, first, poor animal nutrition and, second, collective land tenure which prevents proper pasture

management. Agronomic research at INRA especially is addressing improved nutrition through fodder crop production, and INAV is conducting research on small ruminant production. DE/SP has been conducting research on pasture management and reseeding, but only where the research institutes have not. If INRA and INAV undertook a full program of research in extensive livestock production, DE/SP would be free to concentrate on land management and range development.

The second major constraint, collective land tenure, can be overcome slowly through patient extension and demonstration to herders on collective land. Beyond extension, there are further legal measures for speeding pasture control and improvement on collective land. Today, sixteen years after the Dahir of 1969, there are only a handful of sites with any controlled grazing. The government might consider paying some right-holders to give up their rights to collective pasture, or taxing severely animals above a certain herd size for each herder, or even introducing some limited form of privatization. Such intensified means, in conjunction with a concerted extension and development effort at specific sites, might speed the expansion of controlled grazing on the rangeland.

The third and less important constraint is animal breeding. Cooperatives are already selecting for true breed type in sheep. There is a need for selection for meat and wool production, as well, and for some system of selection for the native beef breed.

Overall, extensive livestock production has not been a major priority for agricultural policy. This is just as true for the World Bank Agricultural Sector Adjustment Program which addresses the major constraints only indirectly. Investment in annual cereal production and irrigated agriculture as a whole can reap benefits in the short-term. Pasture improvement is a long-term proposition. Its rationale is to conserve - that is, to prevent - damage to farmland as much as it is to increase production. As such, the benefits accrue to the public as a whole, rather than to individual producers. Its costs must be borne accordingly. Pasture improvement is thus a prime candidate for donor-funded assistance.

AID is best placed to fill this need. Although its contribution to extensive livestock production has been very small compared to its other agricultural activities, it has a longer history in the sector than any other donor. DE/SP arose from the first AID range management project, several of its staff were trained in the 1970s, and the present range management project has assisted it in research, training, extension, and range development. DE/SP is ready to become a fully active, range and land management agency. AID is best placed to help them in this task. At this point, if AID does not assist DE in addressing the crisis on the commons, no one else will do so.

AID can best contribute to extensive livestock production through a unified Range and Extensive Livestock Development Program. It would operate through DE to:

- Contract out site-specific research to local research institutions;
- Promote in-country training for DE/SP and other relevant staff; and

- Assist DE/SP to become a fully functioning land and range management agency.

This Program would capitalize on Morocco's improved institutional capacity and would thus minimize both overseas training and long-term technical assistance. Chapter Three of this report presents this program in some detail.

AID can further contribute to extensive livestock production in Morocco by helping to end the Programme de Sauvegard du Cheptel. Stocking rates must be flexible, declining when drought reduces available feed, rising when rains are good. Government programs should help to make stocking rates more flexible, by encouraging herders to reduce numbers during drought and to increase them again in good years. Instead, the PSC makes the stocking rate more rigid, by encouraging herders to hold onto their animals during drought. This keeps even more hungry animals on an already overgrazed range. The national herd should contract in a drought, but through slaughter, not through mortality. During the recent drought, more animals died than were slaughtered. This is a terrible waste of the nation's wealth.

The Private Sector

AID has an especial interest in promoting private sector development in Morocco. The agricultural adjustment program strongly supports this goal, by aiming to turn over production and marketing and as many services as possible to private enterprise. The policy is clear. AID can assist the government in carrying it out.

First, AID can help DE privatize the Plant Materials Center (PMC) of the Range Management Improvement project. The PMC functions well as a farm, and has turned its attention away from perennial range grasses and shrubs to annual forages. This is laudable, for cool season grasses cannot reproduce properly at the present PMC, and range shrub seedlings must travel too far to the pasture sites. Small range shrub nurseries close to the range sites have already sprung up. It is wise to keep PMC as a reproducer of annual forages and appropriate range grasses and shrubs, but this can be accomplished through a contract with a private operator.

Second, AID might assist the transition of veterinary services from DE to private hands. The new private veterinarians, though still signing government contracts, will have to finance their own medicines, equipment, and vehicles. This is an issue more important to intensive dairy farming than to extensive livestock production, but it is a valuable task nonetheless.

Beyond these two actions, there is little AID can presently do directly in the private sector for extensive livestock production. This is ironic, for extensive livestock is perhaps that component of the agricultural sector most firmly in private hands. Yet those private hands use collective land. The greatest need in the extensive livestock sector is moving collective land toward private control, through establishing a fixed number of herders with fixed rights to a fixed area of land. This is a legal task for the government and can best be aided by the program outlined in this report.

There remains the issue of the private herder groups that receive rights

to enclosed land. They might constitute themselves as cooperatives. CNCA has well-established procedures for extending credit to cooperatives, and these are adequate at the present time for enclosed collective herding groups. The main problem is one of collateral, for coops do not have land to put up. They often meet collateral requirements through cash deposits. Collective herders will have difficulty providing adequate collateral. The government has mechanisms for guaranteeing loans that a coop cannot back itself. AID should not involve itself directly in this issue.

There are also herder cooperatives that are not fixed to a particular piece of land. These are member coops of the Association Nationale des Ovins et Caprins (ANOC). They are service coops. That is, herders manage their own flocks, but receive government services and subsidies in common. True, ANOC is the private sector, but it would not exist without intensive government technical assistance and priority in the allocation of input subsidies. And breeding selection does not address the fundamental problems of nutrition and land tenure on collective pasture. AID might consider, however, helping to establish a similar private breeding program for native beef cattle.

AID's most important potential contribution to the private extensive livestock sector would be to help the government address the nutrition and land tenure problems. Addressing these problems involves financial losses that private agents by definition could not sustain. Saving the ranges is a public issue, and the benefit will accrue to the country as a whole. The costs must be borne accordingly.

A final issue in the role of the private sector is livestock and meat marketing. The World Bank adjustment program will have little effect here because livestock and meat marketing are already almost entirely free from government price controls. The only intervention is in health inspection in slaughterhouses and a slaughter profit margin fixed by municipalities. Retail prices are thus uniform within a municipality, but they vary over time according to livestock prices in the local market. The justification for this fixed margin is to allow small butchers to compete with larger meat merchants, and this indeed it does.

Morocco does need, however, a better market information system. Herders selling animals in one village do not always know the prices in neighboring villages or towns, where the price might be better. AID might assist SOPA in DE to develop a price reporting system for the country.

There is no present need for a nationwide system of meat grading or for expanded cold storage capacity. These might become important in the future if Morocco reaches the point of being able to export meat, most probably to the Middle East. In the domestic market, livestock sales by weight and condition and meat sales by weight, taste and butcher reputation are adequate for present demand(2).

NOTES

1. Small Ruminant CRSP, "Seventh Report of the External Evaluation Panel," 1985, Washington, D.C., p.10.
2. See FAO, "Rapport Sectoriale - Industrie de la Viande," Rabat, 1985.

CHAPTER THREE

A PROPOSED EXTENSIVE LIVESTOCK PROGRAM

Program Summary

The purpose of the proposed program is to increase extensive livestock productivity and promote proper land use in extensive livestock areas. The goals of the proposed program are to:

- Develop in-country capacity to identify and meet research needs in pasture and watershed management, extensive livestock nutrition, health, and breed improvement;
- Develop in-country capacity to train range and extensive livestock scientists, technicians and extension workers; and
- Develop in-country capacity to carry out range and livestock development programs in extensive livestock areas.

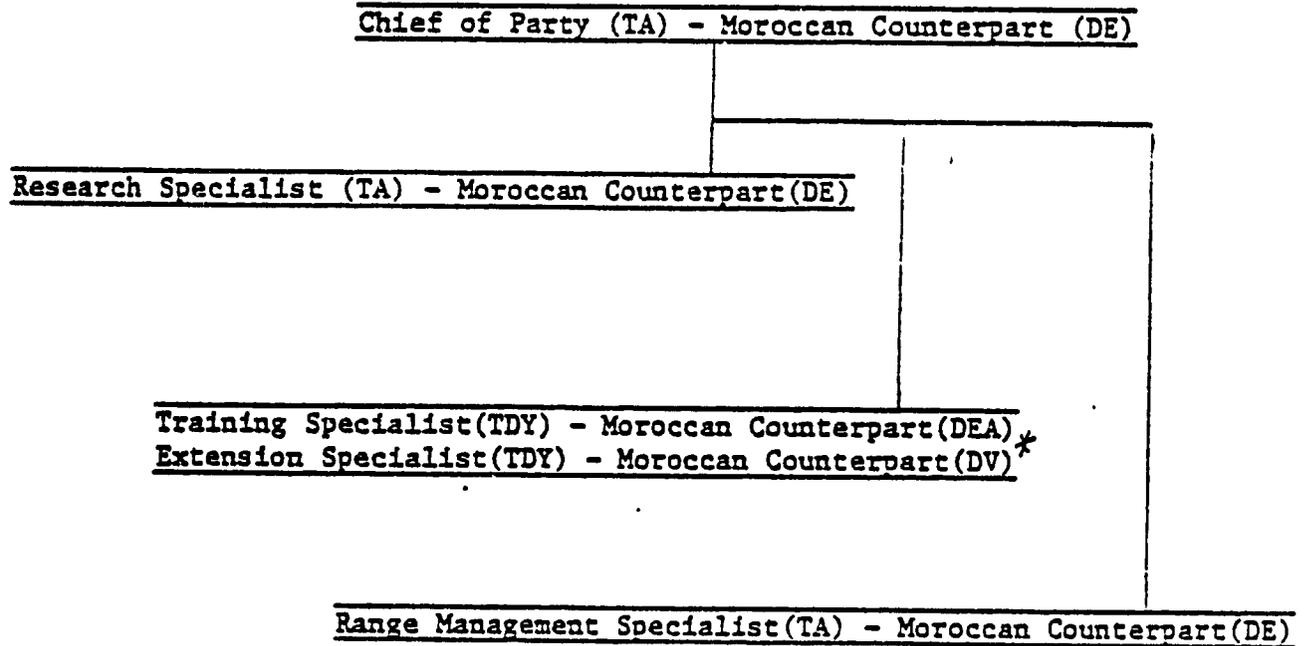
The objectives of the proposed program are to:

- Establish a research office in the Direction de l'Elevage to identify disciplinary and site-specific research needs and contract out research projects to appropriate in-country research institutes;
- Enhance INAV's ability to provide graduate training in range management and extensive livestock production;
- Enhance ENA's ability to provide short-term training for government technicians and extension workers in proper range management techniques;
- Provide range and extensive livestock training and materials, as well as logistical support, to extension workers in Centres de Travaux in extensive livestock areas;
- Provide assistance to the Service des Parcours to plan, implement, and evaluate long-term range improvement interventions at specific sites throughout the country; and
- Assist the Direction de la Conservation Fonciere et des Travaux Topographiques to conduct a land resource inventory of extensive livestock areas.

The proposed extensive livestock program will entail a minimum of technical assistance and out-of-country training. Most of its elements will fall under an Extensive Livestock Project (ELP). Strengthening INAV's graduate-training capability and the development of a land resource inventory are separate activities outside the ELP (see Figure 6).

The proposed ELP will have three long-term technical assistance

100X

FIGURE 6THE EXTENSIVE LIVESTOCK PROJECT

- * DEA - Direction de l'Enseignement Agricole et de la Recherche
 DV - Direction de La Vulgarisation et de la Reforme Agraire

positions for the 10-year life of the project. There will be eight months per year of regular, scheduled TDY assistance.

All three long-term TAs will have permanent Direction de l'Elevage counterparts. The first long-term TA position will be the Chief of Party who will share administrative responsibility with one Moroccan counterpart for the project's three activities: research, training and extension, and development. The second long-term TA position will share with another Moroccan counterpart technical responsibility for soliciting, developing, approving and monitoring research projects contracted out through the Direction de l'Elevage to appropriate in-country research institutions. Site specific research in pasture and watershed management should receive priority. The third TA position will have responsibility for assisting the third Moroccan counterpart in the Service des Parcours to coordinate range improvement efforts throughout the country.

The regularly scheduled short-term TA will have specific duties in training and extension development. There will be four months a year of training TA and four months a year of extension TA. There will be two permanent Moroccan counterparts with whom these TAs work, one in the Direction de l'Enseignement Agricole and one in the Direction de la Vulgarisation.

The other two components of the Extensive Livestock Program are separate activities outside this ELP. Strengthening INAV's graduate capability will be accomplished through exchange programs with American universities and the provision of funds for range and extensive livestock courses. This is only the first year of INAV's Range Management Master's program, and it must be supplemented by courses at Meknes and Sale.

The land resources inventory will require a team of American and Moroccan scientists over a two-year period. This land resource inventory should be on large-scale maps (1:100,000) whereas present land use inventory is on small-scale maps (1:20,000). The small-scale mapping is essential for intensive farming areas, but it is not recommended for immediate extension to other areas. Mapping the whole country at 1:20,000 is too slow, expensive and detailed for extensive areas. There is an immediate need for the whole country to be mapped quickly and inexpensively at 1:100,000 so that country-wide land use planning can commence. This will especially help planning for extensive livestock production, which ranges over more than four fifths of the country's agricultural land.

An Extensive Livestock Project (ELP): Research

Morocco has a well-trained cadre of researchers in its universities and research institutions. By the end of this year, there will be six PhDs in range management or closely related fields at IAV, INRA, ENA, ENFI, and the College of Science. Many others are trained in other related fields such as animal science, crops, forestry, botany and soils. These institutions have already begun to win research contracts within Morocco. This project proposes an extensive livestock research fund to take advantage of and to further this in-country capability.

The fund will be located within DE, but DE itself will do none of the

research. The Moroccan head of the fund in DE, and his TA counterpart, would develop research proposals with interested parties within DE in Rabat and in the field, with Eaux et Forêts, or with any other relevant party. There will be ceilings on the amount of funding going to any one project and any one subject. Project proposals may include requests for TDY to assist in the research. Project funding will provide for the transmission of results to relevant parties.

Contracting of research offers a very real benefit to the research and educational institutions. The funds provided will strengthen the research program while providing information to the contracting agency. In the universities such contracts can provide topics and funding for graduate student research, while at the same time broadening the experience and capabilities of the professors as principal investigators. Contracting also leaves the research institutions free to set their own research agendas and only submit proposals on projects that fit these agencies.

Research topics might include the following:

- grazing systems best suited to particular ecological zones;
- improving water retention on certain rangelands;
- nutritional requirements and forage preferences of the various native sheep breeds;
- selection practices for improvement of wool on Moroccan sheep;
- improvement of native beef cattle through selection; and
- relationship of grazing livestock and tree reproduction on forest grazing areas.

The creation of land resource inventories for specific project sites could also be funded under this component.

An Extensive Livestock Project: Short-term Training

Many of the Moroccan extension personnel are already trained. However, their training and experience have been restricted to more intensive production systems. As they are moved into positions associated with range management and extensive livestock production systems, their perspective must be enlarged. Extension workers in extensive areas need special training in the advantages of deferred grazing, herding coop organization, watershed management and pasture improvement.

It is proposed that the Ecole Nationale de l'Agriculture at Meknes would be a logical institution at which short-term training could be provided for extension, DE/SF, and other staff. In order to provide such training, assistance would be made available to the institutions for:

- Technical assistance for planning and implementing short courses;

- Preparation of materials;
- Funding faculty and personnel;
- Transportation and expenses for field trips; and
- Food and lodging for trainees while enrolled.

An Extensive Livestock Project: Extension

Current extension programs in Morocco are aimed at cultivated agriculture, leaving extensive livestock and range extension to a piece meal effort carried out by DE. Under a new program being instituted by the World Bank, two pilot Centres des Travaux (CTs) have been operating for 18 months. These centers field a number of extension agents who live and work in the field with their clientele four days of the week during which they carry out a program of integrated agricultural extension. On the fifth day, extension agents meet with specialists to discuss the problems encountered and to learn of new programs and techniques.

The new project is working well at the pilot sites, with a well integrated approach. An area of common land has been reseeded and managed in addition to rotation of forage crops with other crops being instituted on private land. Animal husbandry is also integrated into the program and results are already being realized.

An additional 28 such CTs are being planned under the World Bank program for the coming year. These centers, one per DPA, will be in areas of higher agricultural potential. The need will still exist for this type of center to be established in the rangeland areas where extensive livestock production is practiced. Since these areas will be lower priority on the existing program funded by the World Bank, it is proposed that an AID program be initiated to provide funding and technical assistance for establishment and/or upgrading of a number of CTs, fitting into the overall extension program of the ministry. Extension workers will need training, materials and transport.

An Extensive Livestock Project: Improving Range and Land Management Capability

This fourth and final component of the proposed ELP will build directly on the experiences of the RMIP and the recommendations contained in the recent evaluation(1). If DE/SP is to continue to play a leading role in the solution of range and land management problems in the extensive livestock sector, then it should be upgraded from the level of a Service to that of a Division. This should provide DE/SP with increasing responsibility, authority, and resources to address these problems.

Under the proposed ELP, the American Chief of Party (CCP) would serve as counterpart to the head of this newly-created division and would assist him in setting priorities in extensive livestock research, training, extension and implementation.

Particular attention would be attached to the planning process so that

realistic objectives could be established and viable development and intervention strategies created. To date, DE/SP has favored an extensive development strategy on the grounds that, as a relatively new institution, it must establish a presence throughout the more important rangelands regions of the country. Under the proposed project, DE/SP would hopefully consider consolidating some of its personnel and resources in those areas that show the greatest potential for demonstrating some success in the medium term. While this has happened under the RMIP to a certain extent, it is questionable whether DE/SP's limited resources have always been allocated in a developmentally rational manner. This process of consolidation and concentration on "targets of opportunity" would begin by selecting areas of the country where research, extension, and implementation activities would be coordinated. Such areas should include regions where DE/SP is already active but should not be restricted to those which have already received direct assistance from RMIP. In addition, in those areas selected, DE/SP will ascertain that the knowledge gained from RMIP, particularly in the area of range extension, be fully incorporated into the proposed ELP program. As extension staff elsewhere develop interest among herders for range management, new sites will be added to the program.

Proposed extension activities which have already proved their worth include the following:

- The building of benchettes and contour furrows;
- Reseeding in appropriate areas;
- The planting of shrubs;
- The introduction of water catchment systems;
- The introduction of water retention techniques;
- Deferment of communal grazing lands; and
- The "short scrotum" sterilization technique for rams.

The third long-term TA, with his Moroccan counterpart, will assist in planning, implementing and evaluating DE/SP activities in the field. This field team will travel from site to site, serving as the main link between local range management staff and Rabat headquarters. This team will further serve to communicate site-specific research and TDY technical assistance needs to Rabat.

DE/SP will also be encouraged to broaden its intervention strategy at the local level--presently limited to a single blueprint model in which the local community agrees to the creation of a range improvement perimeter and thereby cedes control and management to DE/SP. It is on this carefully delimited perimeter that DE/SP undertakes many of its activities. As this report has continuously emphasized, the issue of land tenure and the control of stocking rates on communal lands is primordial in addressing range improvement for extensive livestock production. The development of range improvement perimeters is one way, albeit slow and small-scale, in which this issue can be addressed.

But other ways must be found to encourage this process--through privatization, some form of taxation, or some form of guaranteed land sale program. While such possibilities would broaden DE/SP's intervention strategies, they are not likely to materialize without some new legislation. Nevertheless, DE/SP could take the initiative in pushing for such legislative changes--based on its own experiences to date on both state and communal lands. Together with the Ministry of the Interior, DE/SP is best placed to pursue this initiative.

Other Program Activities: Long-term Training

Any sustained effort in range management within Morocco will depend on personnel trained to BS, MS, and doctorate levels at INAV. Various programs of staff exchange between INAV and US institutions with range programs or some US training for Moroccan staff would improve the capability of INAV to provide the trained personnel needed for a continuing program in range management. Perhaps the training of personnel within Morocco would be most expedient because of the limited number of range scientists in the US with adequate command of French. There may also be Moroccans trained at the doctorate or PhD level who could be temporarily reassigned to INAV to organize and give leadership to this program.

Program assistance to the university would include but not be limited to funding for technical assistance, travel expenses, equipment purchase, library acquisitions, support for program identified students, and training costs in the US, if necessary.

The most logical way to achieve this development might be to augment the existing programs. Added funds could be directed at training for specific individuals to increase institutional capability in range management.

Long-term projections would indicate that the system could absorb at least one PhD and three MS degrees in range management each year for a period of 10 years after the capability is achieved.

Other Program Activities: Land Use and Land Capability

A pressing need in planning for extensive livestock development is a land use inventory. Present agricultural land use inventory and mapping is on a scale of 1:20,000, appropriate for area-by-area analysis of intensive farming zones. At the same time, there must be a strong effort in national land use planning, which requires large-scale mapping of the country as a whole. This can be done quickly and relatively inexpensively.

AID has funded similar programs in other countries of the region, such as the Land Use Inventory in Mali and a similar program in Mauritania, both in the early 1980s. Such mapping is crucial for Morocco's pastures, which cover more than four fifths of the country's agricultural land. This project might begin in specific areas where DE/SP is active, perhaps funded through the ELP research office.

Such an inventory and classification should be conducted by a team of Moroccan and US scientists and should proceed in the following steps:

- Review of existing information;
- Development of a satellite image base;
- A system of soil/vegetation unit classification;
- Soil/vegetation mapping;
- Mapping land capability classes; and
- Land use classification and mapping.

During the time when the satellite imagery base is being developed, a review of existing data should be conducted. Maps, soil surveys, ecological studies, land use inventories, and anthropological studies relating to the classification and mapping of land and its uses would be collected in a documentation center. This information would be reviewed and would provide the base from which the inventory would be initiated.

High quality satellite imagery is available or can easily be obtained for the entire country. This imagery is available on computer compatible tapes which can be digitally mosaiced and geometrically corrected to match the existing map base of the country (probably at 1:100,000 scale). Each satellite image mosaic would correspond to one map sheet of the topographical base maps. Imagery would be digitally enhanced to state-of-the-art and enhanced as false-color photographic images. These would be selected from the most recent satellite passes, preferably those which occurred during the late spring to obtain good vegetation development but without major cloud cover. There should be good color matching of adjacent imagery within each sheet and between sheets.

Prior to mapping the soils and vegetation using the satellite imagery, a classification system must be developed. This would identify and describe the various units of soil and the vegetation it is currently supporting in units which are appropriate for the scale of mapping. Each unit would be described and a legend would be developed to represent each unit in mapping. Using the classification system, the soil/vegetation units would be mapped on the satellite image mosaics. This would be done by a combination of remote sensing, on-site visits, interpretation of aerial photo samples, and overflights in small aircraft. The final product would be a set of soil/vegetation map overlays which can be used on both the satellite image map sheets and their corresponding topographical map sheets.

A set of land capability classes similar to those used by the USDA would be developed for Morocco. These would correspond to suitability for various agricultural uses, such as irrigated farming, dryland agriculture, rangeland, or forestry. Within each broad category would be subclasses to identify limitations due to drainage, soil depth, slope and rainfall as appropriate. The actual use of the land, land tenure systems, transhumance systems, and

nomadism would be identified and classified as appropriate to Morocco. A system of applying this information to the land base would be developed and suitable overlays would be developed.

NOTES

1. David D. Gow et al, "An Evaluation of the Range Management Improvement Project in Morocco." Washington, D.C.: Development Alternatives, Inc., 1985.