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**OPPORTUNITIES FOR AID  
IN THE EXTENSIVE LIVESTOCK SECTOR  
OF MOROCCO**

by

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## SUMMARY OF ACRONYMS

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

## INTRODUCTION

This report discusses opportunities for AID in Morocco's extensive livestock sector. Extensive livestock production is understood here as the grazing of cattle on stubble, fallow and rangeland and with 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 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 several Moroccans sent 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 natural 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 to strengthen 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.

## 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 and stubble and with 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				6491	56
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>	<u>Per Cent Change (1970 prices)</u>
Red meat	522	2093	+ 46
Milk	269	1228	+ 66
Poultry and eggs	222	1130	+ 85
<b>Total livestock</b>	<b>1013</b>	<b>4451</b>	<b>+ 60</b>
<b>Total food</b>	<b>3996</b>	<b>13896</b>	<b>+ 27</b>

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:

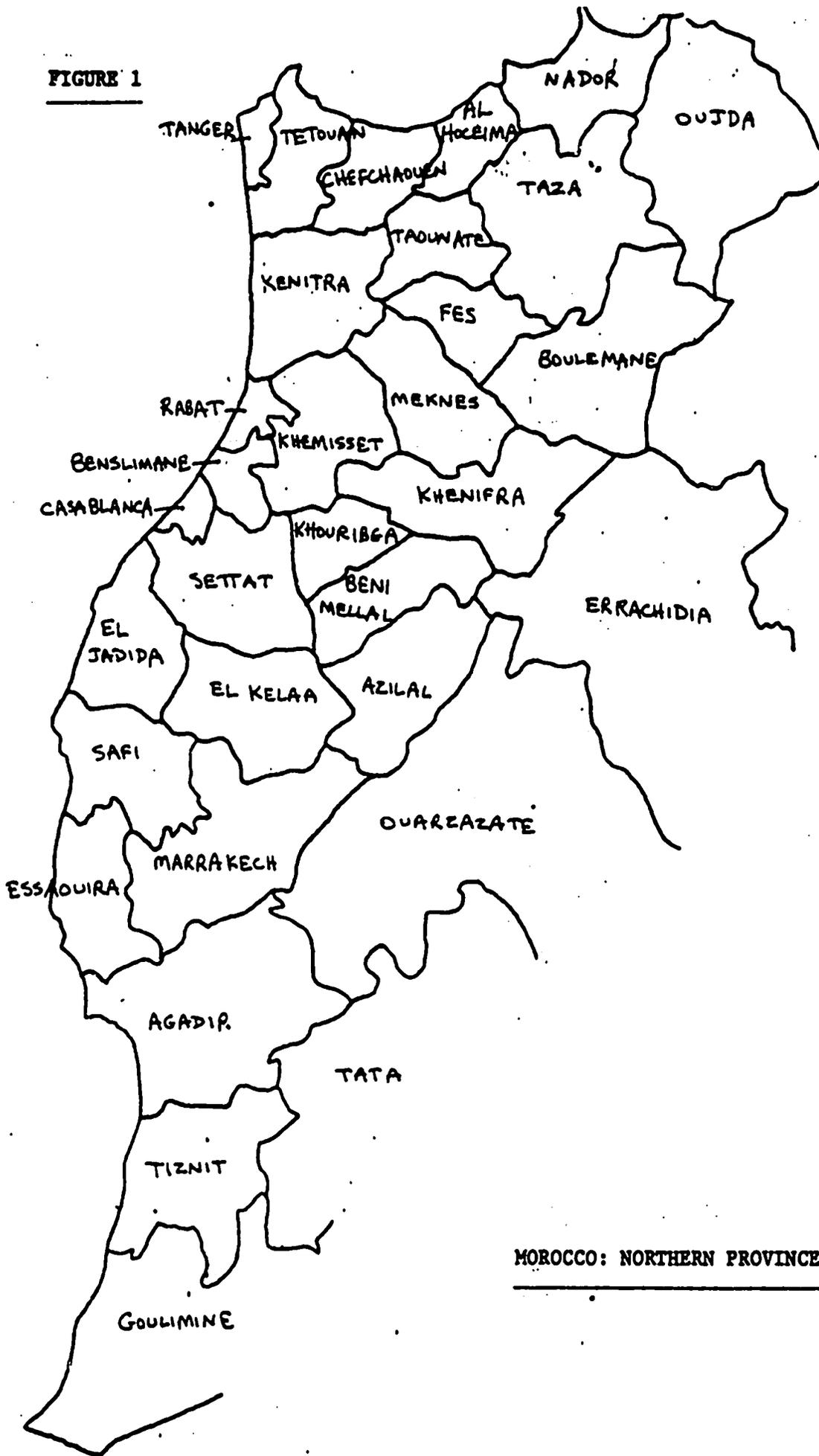
**Table 4: Livestock Slaughter and Mortality Data for 1982-83 (000)**

	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>	<u>Total LSU</u>
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 Régional 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)
<b>Total</b>	<b>2363 (43)</b>	<b>2299 (42)</b>	<b>844 (15)</b>	<b>5506 (100)</b>

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)**

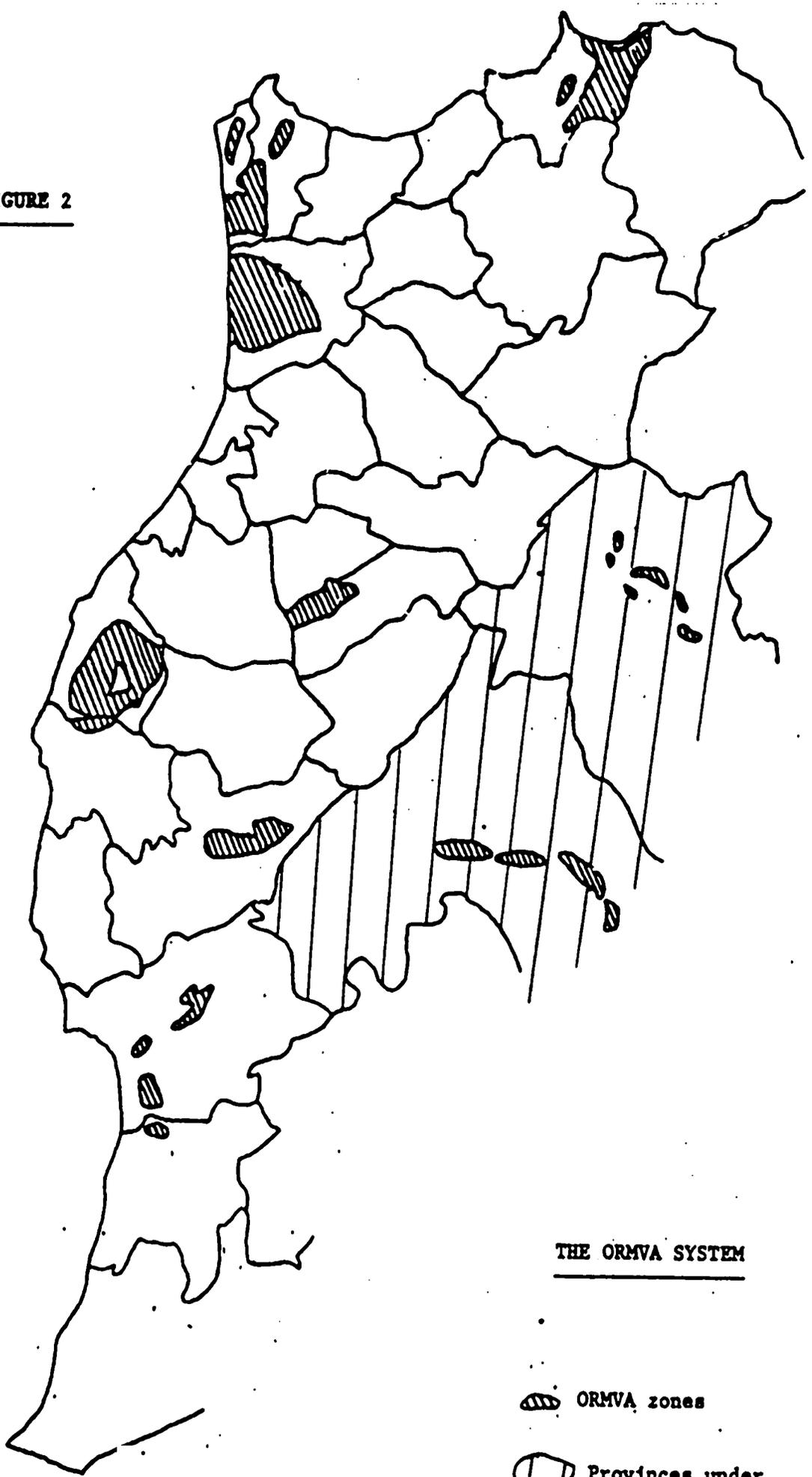
	<u>Local (%)</u>	<u>Improved (%)</u>	<u>Total (%)</u>
ORMVAs	647 (81)	153 (19)	800 (100)
DPAs	1387 (89)	176 (11)	1563 (100)
<b>Total</b>	<b>2035 (86)</b>	<b>328 (14)</b>	<b>2363 (100)</b>

Source: DE, "Enquete-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).

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

FIGURE 2



THE ORMVA SYSTEM

 ORMVA zones

 Provinces under  
ORMVA administration

**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.**

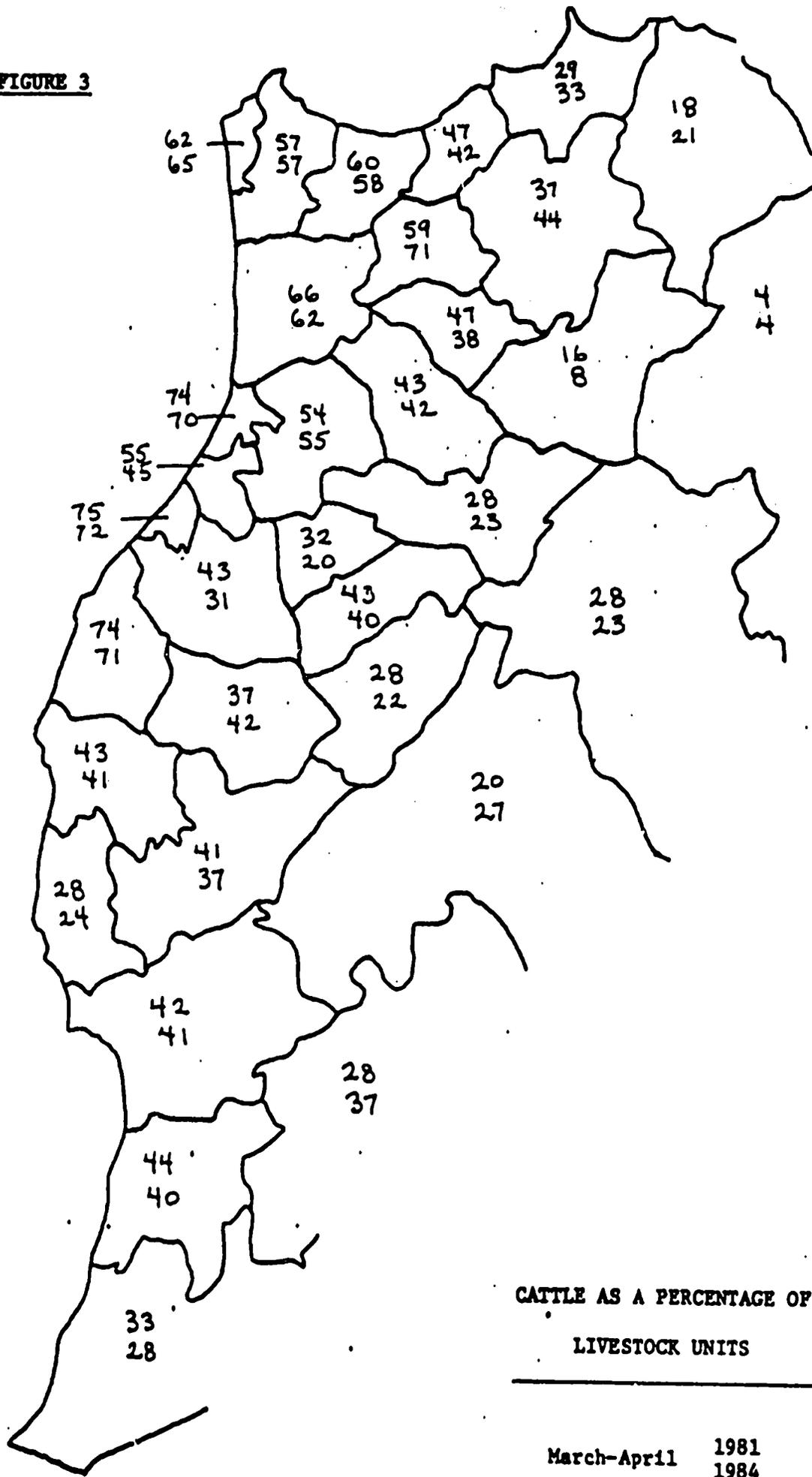
	<u>Cattle</u>	<u>Sheep</u>	<u>Goats</u>	<u>LSU</u>
ORMVAs	23	23	22	23
DPAs	29	28	23	28
<hr/>				
Total	27	27	23	26
<hr/>				

**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 Serrat 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 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.

**FIGURE 3**



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

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March-April 1981  
1984

Total provinces: 43  
43

Cattle: 1 LSU

Sheep or Goat: 1/5 LSU

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. Such fallow replacement would fare best in intensive rainfed areas above 400 mm., whereas extensive rainfed areas are more likely to have available fallow. 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 (8).

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:

- o Achieve a restructuring of the investment program;
- o Re-orient the price and incentives framework;
- o Strengthen agricultural support services, including rationalization of the role of the private sector; and
- o 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 (DMM)</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:

- o Veterinary, breeding and tractor services;
- o Fertilizer, seed, feed and cereal marketing; and
- o 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 Hassan 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).

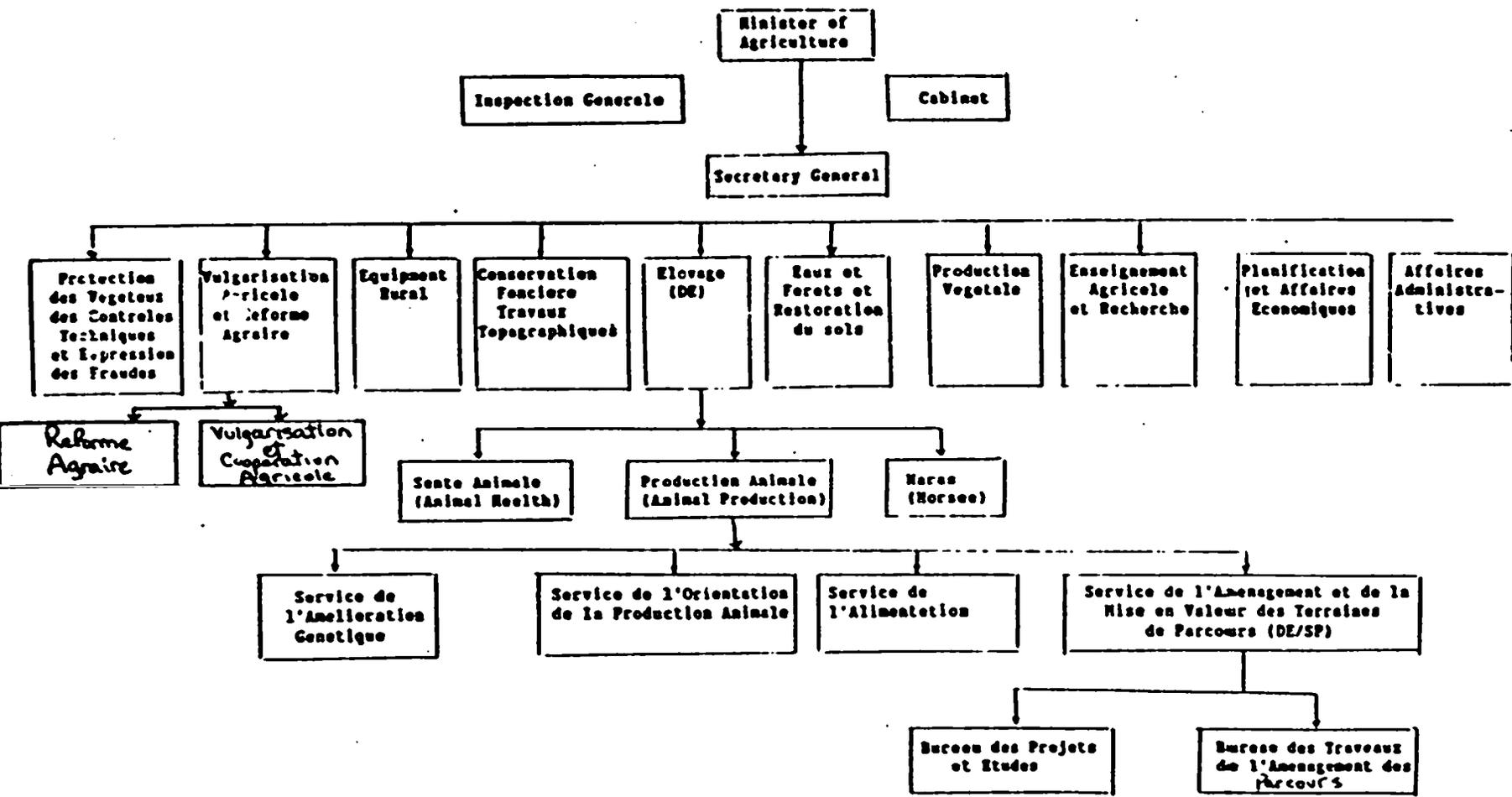
As for extension, MARA has neglected it in favor of delivering inputs and other services. There is practically no livestock extension, except in range improvement through the Service des Parcours rather than through the extension service. As for the extension service itself, it is not a separate direction 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 ORNVAs from nine to 12 and subsume the DPAs under them. The justification for this merger is to take advantage of the ORNVA'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 extend standardized land titles from irrigated to rainfed cropland. This will encourage optimum farm size and help title-holders qualify for credit. The

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



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 ranges 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 Forets 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).

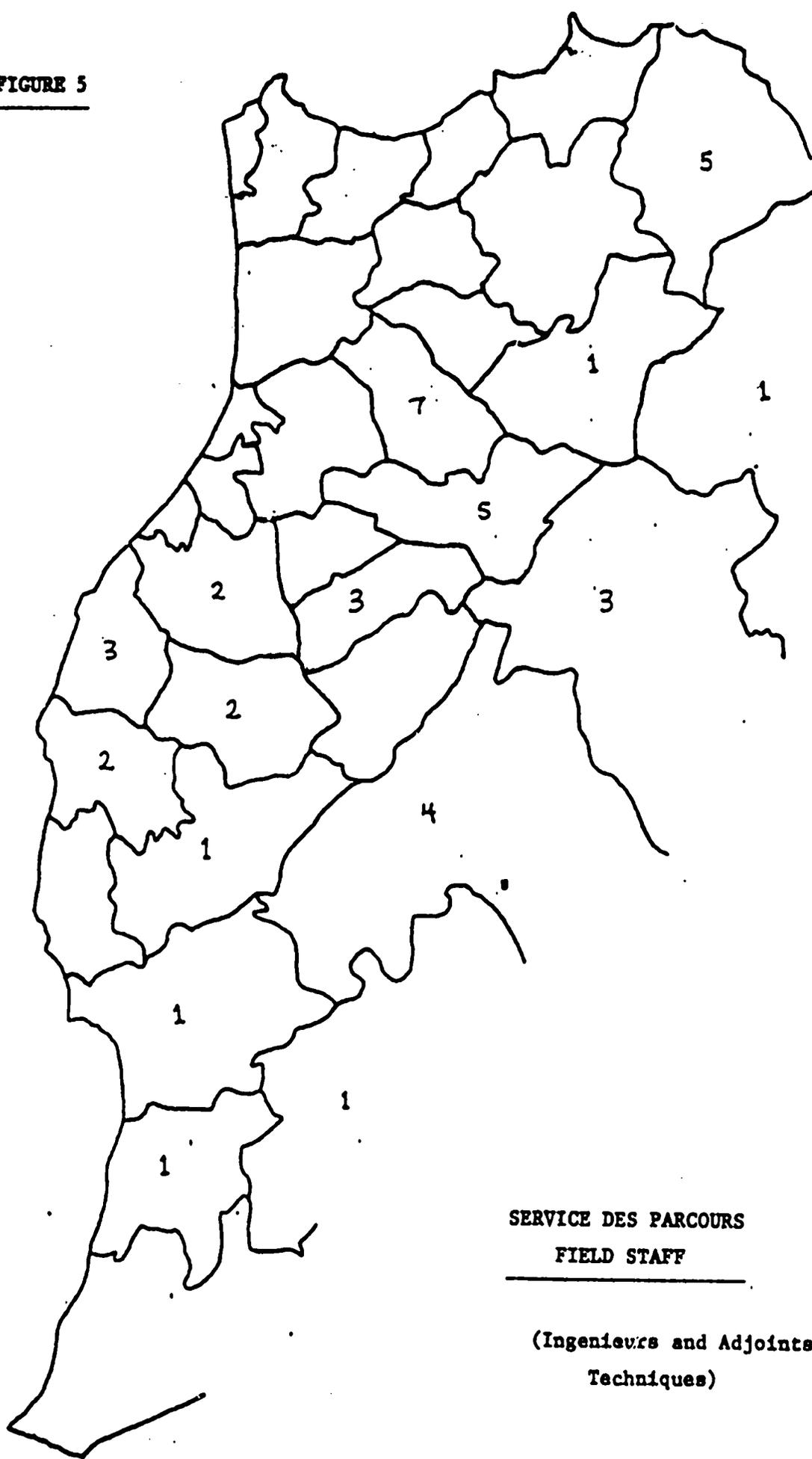
Production Animale has four Services (see Figure Four): Service de l'Orientation de la Production Animale (SOPA), Service de l'Amelioration Genetique (SAG), and Service de l'Amangement et Mise en Valeur des Terrains de Parcours (DE/SP), and Service de l'Alimentation. SOPA is a planning unit, but its staff of eight has no economic training. With a major shift in the role of Production Animale, SOPA'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 20 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



**SERVICE DES PARCOURS**  
**FIELD STAFF**

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(Ingenieurs and Adjoints  
Techniques)

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 of the Service de l'Alimentation 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 at a price 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 OENVAs	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 Incitation 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, "Enquete 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 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

USAID 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 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. The project 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. USAID also funded the importation of some American beef cattle for a perastatal breeding ranch. Overall, then, in the 20 years since the government first requested assistance, USAID 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 (O136 - \$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 in the project's program. This project could contribute to extensive livestock production by studying forage cultivation on drier cropland and grass and shrub reseeding on rangeland.

Agronomic Institute (O160 - \$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 ARA'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 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 6 per cent of AID's local 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 true as well for the World Bank Agricultural Sector Adjustment Program. Its major constraints are addressed only indirectly by the new agricultural adjustment program. 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:

- o Contract out site-specific research to local research institutions;
- o Promote in-country training for DE/SP and other relevant staff; and
- o 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. The PSC encourages herders to keep hungry animals on the range. 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 it is perhaps 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 production and promote proper land use in extensive livestock areas. The goals of the proposed program are to:

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

The objectives of the proposed program are to:

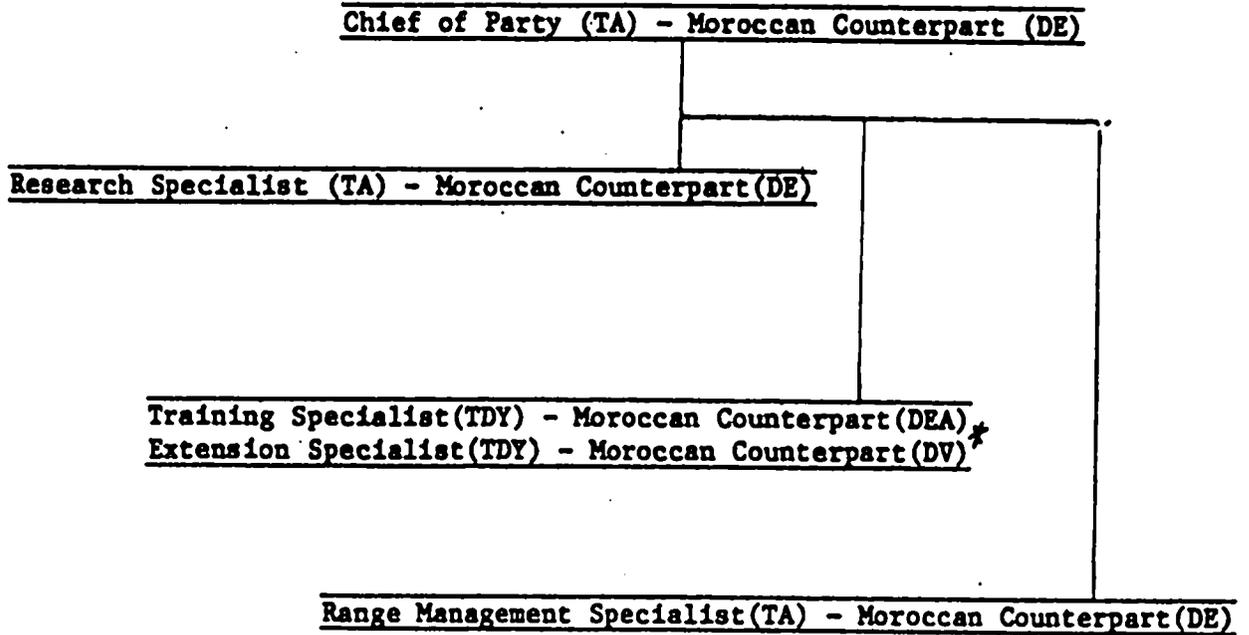
- o Establish a research office in the Direction de l'Elevage to identify disciplinary and site-specific research needs and contract out research projects to appropriate in-country research institutes.
- o Enhance INAV's ability to provide graduate training in range management and extensive livestock production.
- o Enhance ENA's ability to provide short-term training for government technicians and extension workers in proper range management techniques.
- o Provide range and extensive livestock training and materials, and transport, to extension workers in Centres de Travaux in extensive livestock areas.
- o Provide assistance to the Service des Parcours to plan, implement, and evaluate long-term range improvement interventions at specific sites throughout the country.
- o 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 positions for the 10-year life of the project. There will be eight months per year of regular, scheduled TNY assistance.

FIGURE 6

THE EXTENSIVE LIVESTOCK PROJECT



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

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 Baux 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 agendas.

Research topics might include: 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 agricultural workers 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 on 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/SP, and other staff.

In order to provide such training, assistance would be made available to the institutions for:

- o Technical assistance for planning and implementing the short course;
- o Preparation of materials;
- o Funding faculty and personnel;
- o Transportation and expenses for field trips;
- o Food and lodging for trainees while enrolled, including transport from work-site to Meknes.

### 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 about 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 for discussions of problems and to learn of new programs and techniques.

The new project appears to be working very 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 (COP) 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:

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

The third long-term IA, 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.

USAID 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 pasture lands, which cover more than four fifths of the country's agricultural land. This project might begin in specific areas where DE/SP is active, and might or might not be funded through the ELP research office.

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

- o Review of existing information
- o Development of a satellite image base
- o A system of soil/vegetation unit classification

- o Soil/vegetation mapping
- o Mapping land capability classes
- o 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 (on-sight visits and overflights can often be combined by using a helicopter). 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." Rabat: Development Alternatives, Inc., 1985.

INFO COP

المملكة المغربية  
ROYAUME DU MAROC

PROJET DE L'AMENAGEMENT DES PARCOURS  
Ministère de l'Agriculture et de la Réforme Agraire

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



October 31, 1985

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

ACTION : AGR W/ATTS DUE : 1  
INFO : DIR, D/DIR, CHRON,

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.



Utah State University, Logan, Utah 84322 - U.S.A.  
Contractor, USAID Contract No. 608-0145-G-00-0008

Dr. Malcolm Purvis  
Page 2  
October 31, 1985

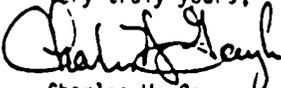
It is true that during the previous year we often concentrated our efforts on the PCVs. This was because they had only just arrived in country, and we wanted to bring them up to their counterparts capacity as quickly as possible.

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 Oulahboub 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

CHG/cr

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

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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
<b>Beni Mellal</b>														
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
<b>Idelt</b>														
Senior Staff	1	2	3	-	-	3	-	1	-	-	-	-	10	16
Junior Staff	-	2	1	-	-	2	-	1	1	-	1	-	8	13
<b>Meknes</b>														
Senior Staff	1	2	2	-	-	1	2	1	2	1	-	-	12	22
Junior Staff	-	4	-	-	-	3	-	3	-	1	1	-	12	41
<b>Oujda</b>														
Senior Staff	-	2	-	-	1	1	-	1	2	-	1	-	8	18
Junior Staff	2	-	2	-	2	2	1	2	1	-	2	2	16	40
<b>El Jadida</b>														
Senior Staff	-	-	1	-	-	1	-	1	-	1	-	-	4	12
Junior Staff	-	-	-	-	-	1	-	-	-	-	-	-	1	2
<b>Ouarzazate</b>														
Senior Staff	-	-	1	-	-	-	-	-	-	2	-	-	2	8
Junior Staff	-	-	-	-	-	-	-	-	-	2	-	-	3	12

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

HC: 2 3 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 hearing 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.

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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.

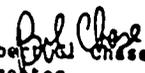
- The evaluation team also suggested that, as part of DE/SP's development strategy, it must avoid spreading itself too thin geographically. The team recommended that DE/SP shift its resources away from those areas where local conditions have frustrated efforts to improve management of common lands and 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 D. 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 (608-0145) 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

Draft:AGR:PCrawford

Clearances: AGR:DWatts (Draft)   
FAO:MPurvis (Draft)   
ADO:RStyker   
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

29 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.

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 OENVA 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'aient 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).

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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 C. 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.

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