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PRELIMINARY PROGRESS REPORT
AND
QUARTERLY REPORT

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GUIDIMAKA INTEGRATED RURAL DEVELOPMENT PROJECT
EXPERIENCE, INCORPORATED

B.P. 91

SELIBABY, MAURITANIA



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PRELIMINARY PROGRESS REPORT

This is the report required in article 1 paragraph C, page 4 of the contract between Experience, Inc. and USAID, signed on September 24, 1981 by Robert A. Delemarre and M.H. Snyder for the execution of the Selibaby Integrated Rural Development Project (682-0201) in Mauritania. This report is also the first of the quarterly reports required under that same article of the contract. The next will be submitted soon after the end of the first quarter of 1982. As requested, this report will present :

- 1° - An overall statement on the Projects progress in research and in increasing production among the farmers and herders of the Guidimaka ;
- 2° - A report on progress to date by major task according to the PP amendment of May 1981, as reproduced in the above-mentioned contract between Experience, Inc. (EI/DC) and USAID ;
- 3° - A discussion of remaining constraints - economic, social and technical - which influence rural development possibilities in the Guidimaka ;
- 4° - Propositions for overcoming these constraints ;
- 5° - A set of questions that the contracting team feels should be posed during the evaluation of February 1982, which replaces that of December, 1981 ;
- 6° - A proposal for permitting the analysis and presentation of the data and information gathered by the Project sociologist during his stay in the Guidimaka.

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PART 1 - OVERALL STATEMENT ON PROGRESS IN ACHIEVING PROJECT GOALS

The goals of the DRIG Project are simple : to develop and begin extension of innovations in agriculture, range management, and animal husbandry that are technically feasible, economically viable, and socially acceptable in the Guidimaka Region of Mauritania. The purpose of the Project is to increase agro-sylvo-pastoral productivity in the region and to help diminish the rural exodus from the Guidimaka. To this end, the Project has developed a research strategy and a modified extension plan (on-farm trials, in AID language). Subsets of specific aims in each of the above-mentioned fields have also been developed and are presented in the PP amendment of May 1981 and in the contract between EI/DC and USAID. I shall analyze our progress toward accomplishing these goals in the next section of this report. Before presenting this detailed analysis of our progress to date, however, I feel that a short resume of the history of the Project and of some of the problems we have had to face in getting to our present position is in order.

The Guidimaka Integrated Rural Development Project was the first major rural development effort planned, funded, and started up by USAID/RIM. Indeed, it was the first major project of any kind executed by USAID in Mauritania. This has led to many difficulties in execution, since AID had not developed appropriate administrative, financial and technical systems to back up an effort like the DRIG in an area as remote as the Guidimaka. Thus the Project has had to break new ground in nearly every aspect of its operation, from the first days of its life. As the DRIG remains the major rural development effort of AID in Mauritania, the problems of breaking new administrative ground continue to plague us as the end of the first phase of the Project approaches and decisions must be made about whether or not to continue the activities begun by the DRIG.

One of the first consequences of being the first Project begun by AID in Mauritania, was the slowness of the approval and funding process. The first study teams went to the Guidimaka in 1973 and ever since, the people of the region have expected immediate action and tangible results from USAID in their area. Their expectations were not fulfilled, of course, since the

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original Pro-Ag was not signed until September, 1977. The original contractor, Pacific Consultants of Washington, DC signed a contract to do the Project in September of 1978 and by January 1979, they had signed on a complete team with the exception of a range management expert. Nonetheless, because the housing was not ready and because a bilateral agreement between Mauritania and the U.S had not been approved, the first members of the project team did not go to Mauritania until April of 1979, when work on Project tasks finally began.

Even then, work began very slowly, because the state of the housing provided for the technicians was such that the first Project mechanic and the first animal husbandry expert only came to the field in August of that same year and the first agronomist did not come until January of 1980. Pacific Consultants finally recruited a range management expert and sent him to Selibaby in August of 1980. Of course, all the problems encountered in the Early phases of the project were not AID's fault. Pacific Consultants turned out to be a difficult and unreliable company, whose contract was terminated for the convenience of the American government in November 1980. Their mechanic and agronomist were incompetent and had to be fired and their animal husbandry expert though competent, was unhappy in Selibaby and left the team in December of 1980. Pacific's inability to pay the team regularly and to provide money for expenses in Mauritania led to serious morale problems on the team, which culminated in a collective offer to resign if something was not done about the situation by AID.

When Pacific Consultants' contract was terminated by USAID, Experience, Inc. received the task of administering the Project and of completing the team of expatriate technicians. Since EI's arrival on the scene, there have been no problems between the field and our home office. Financial, administrative, and technical support have arrived when needed and new, competent technicians have arrived to complete the team in the field.

While all these problems with the USAID and Pacific Consultants were retarding the execution of certain phases of the Project, the Mauritanian

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government (GRIM) was carrying out its obligations to the project quite conscientiously. The counterpart team is now at eight full-time technicians and in general, the Ministry of Rural Development has responded promptly to our personnel needs. Three counterparts have left the Project : one for a more research oriented assignment, which he preferred ; one to enroll in the ENFVA at Kaedi ; and one for personal reasons. They have been effectively replaced and on the whole, the counterpart team has grown correctly in response to Project needs.

The GRIM also undertook to provide, through the Guidimaka's peasants and herders, sufficient land and animals for the experimental aspects of our program. This has also taken place. The Project currently uses : an office site of 50 m x 100 m on land officially ceded to the Agricultural Sector of Selibaby ; a 1.5 hectare nursery/market gardening site on land also ceded to the Agricultural Sector for our use ; a 500 hectare range/animal husbandry/agricultural site - Katamangue - ceded to the Project by the traditional owners in the village of Selibaby ; a 20 hectare range/forestry/agricultural site - Niarwale - on land ceded to us by the traditional owners in Bambaradougou Village. In the latter three cases, the owners have agreed that the land be used by the Project or the GRIM for as long as either needs it. Afterwards, the land and all improvements on it will go back to the original owners. In addition, the herders in the Direct Intervention Zone (ZID) have lent the project sufficient animals for our experimental herds on the Katamangue Site and for control herds in the ZID. In villages where the Project conducts on-farm-trials, villagers have lent us land for demonstration fields.

The problems that we have had with the GRIM have been limited to those stemming from the rapid movement of officials into and out of the Guidimaka, a movement which has recently slowed down significantly. The Ministry of Rural Development has not replied regularly to correspondence or sent us observers and visitors as much as we might have liked, but they kept us informed of their opinion on Project activities through meetings with Project personnel on TDY in Nouakchott.

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In spite of the problems listed above, I feel the Project has made excellent progress toward the accomplishment of its goals. We have discovered through research on our sites, literature searches, and discussions with experienced Guidimaka development personnel, innovations in all the domains in which the project works, which merit extension to the people of the Region. We feel these innovations meet the technical, economic and social criteria posed by our mandate. Some of our research programs have not reached fruition because the personnel charged with carrying them out have not yet had the time in the field they need, but they are already showing promise which we hope will be fulfilled in the future. We have conducted on-farm-trials for many of these innovations and are planning to begin further activities of this nature during the 1982 dry and wet seasons. Current indicators predict as good success for these new programs as for the old ones which we shall extend to an ever larger group of pilot farmers.

PART 2 - PROGRESS TO DATE ON THE MAJOR TASKS ACCORDING TO THE PP AMENDMENT OF MAY 1981 AND THE CONTRACT BETWEEN EI/DC AND USAID

The scope of work section (Article 1, part B) of the contract between EI/DC and USAID presents a list of tasks which the contractor (EI/DC) must carry out to satisfy its obligations under the Contract N° AID/afr-0201-C-00-1012-00. I shall deal with these requirements in the order in which they are presented in the contract. After this, I shall present other accomplishments of the Project.

- 1° - Provide technical services and procure commodities necessary to accomplish the work required : EI now has in the field an experienced and competent team of linguistically and technically qualified agents :

- Agronomist : Quan Minh Doan, from February 1981, agronomic engineer, fluent French and English, 25 years of relevant experience.

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- Range management : Greg Greenwood from August 1980, MS in Range Management, fluent French and English, 6 years relevant experience in the Sahel ;
- Animal Husbandry : Duane Schaad, from October 1981, Veterinary Doctor, fluent French and English, no professional overseas experience, but 17 years in Africa as a youth ;
- Mechanic/Administrative assistant: Jean Varenne from October 1979, appropriate technical certificates from French Army, fluent French, adequate English, 25 years appropriate experience in the Third World ;
- Administrative/financial assistant : Paul Guenette, from January 1979, BA, fluent French and English, 6 years relevant experience in the Sahel ;
- Chief of Party : Max Goldensohn, from November 1978, PHD in Social Anthropology, fluent French and English, 17 years relevant experience in the Third World.

2° - Procure commodities necessary for carrying out Project activities : Experience, Inc. has proved itself exceptionally swift in finding, buying and shipping supplies from the US and Europe to Nouakchott. Their logistics officer, Robert Locke, keeps close track of all requests for commodities and monitors the progress of all orders until they reach their destination. Materials have so far arrived quickly and in good condition. In its turn the EI/RIM team, ably complemented by Mohammed Ould Salleh and Paul Bernard, has regularly been able to find most of the commodities we need in Nouakchott and Dakar and has established an efficient system for sending them without damage to Selibaby. The only crimp in the system has been the necessity of passing through AID's slow and inefficient PSD division for Purchase Orders and PIO/C's on large local orders.

On page 4 of the above mentioned contract, there is a list of commodities to be procured :

- a - D-6 type bulldozer : now in Nouakchott for overhaul and an operator is in training ;

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- b - A 7 T truck was supposed to have been ordered by PSD, who refused to let EI procure this item. As a result it has not yet been ordered and the PIO/C has just been signed.
- c - 12 125 cc motorcycles are in the Nouakchott airport awaiting customs clearance ;
- d - The 4 four-wheel-drive vehicles were acquired from the RAMS Project and are now in service in Mauritania ;
- e - Three catchment basin liners have been cancelled due to excessive cost and non-replicability ;
- f - Veterinary drugs and supplies are regularly procured as needed. Currently the materials for the village veterinary volunteers are being procured in Dakar and in Nouakchott ;
- g - Animal traction equipment will be ordered as soon as we find a regional supplier, as our previous supplier (SISCOMA) has gone out of business. This problem is not urgent as the CCC (FAC) has brought a great deal of traction equipment into the area and sales have only begun now. There will not be a serious lack of equipment in the Guidimaka, even if the DRIG Project fails to order any more. However, since the CCC (FAC) project has not ordered any equine or bovine equipment, we feel that we should make a small order to satisfy the growing demand for this equipment;
- h - Camping equipment has been procured and is now in Selibaby ;
- i - Agricultural seeds, tools and supplies are ordered as needed, generally in Mauritania or Senegal ;
- j - Range/forestry supplies are also ordered as needed. We have sufficient supplies of nearly everything now, except imported forage seeds for the 1982 rainy season. These have been ordered and we await them in the near future.

- k - The 5 generators have been cancelled on the advice of our mechanic, on the grounds that our current generators can survive until December 1982 ;
- l - The air-conditioners have also been cancelled as we received 10 units from the RAMS Project.

On the basis of the above summary, I feel justified in saying that EI's procurement record, both in the US and in the RIM has been more than satisfactory.

- 3° - Construct water catchment basins : three water catchment basins have been completed on the Katamangue range site. Dug in rocky, clay soils by hand they are not an extendable technology : they require too much manpower for too long a period for local villages or groups of villages to undertake. In addition they would be dug far from centers of habitation, in areas where there is pasture but no water. We are thus awaiting our bulldozer to try catchment basins in the ZID. The basins on the sites held water this year from July through October, a month and a half less than last year. The loss was due mostly to infiltration, though evaporation certainly played a role. We had planned to cover the basins with plastic, but the cost rendered this operation non-replicable by villages or groups of villages and we are now trying to cement one basin. The cost is estimated at 1/6 of the cost of plastic for one basin. Digging basins by hand costs approximately 20 times the cost of digging them by machine. We have thus no intention of extending hand-dug catchment basins in the ZID.
- 4° - Determination of most adaptable and productive food crop varieties : This research program on our sites has used two lines of attack. First we have, since 1979, planted fields of cereal varieties whose adaptability in the Guidimaka was well known in order to provide seed for interested farmers in the ZID. The quantities of seed produced have risen each year. We have

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concentrated on one variety of millet (Souna III), of which we shall have 800 kgs. to distribute in 1982 ; one short cycle sorghum (Sidi nieliba), which is very drought-resistant, of which we shall have 1 T 600 of seed to distribute this year ; and one variety of longer cycle, high-yielding sorghum E 35-1, of which we shall have approximately 500 kgs to distribute. These varieties are more productive than most of the commonly used local varieties, particularly when cultivated with improved techniques introduced by the Project.

The second line of attack is the testing of imported varieties of cereals, particularly sorghums, to see if they are well adapted to the conditions of the Guidimaka. This aspect of the program had its first successful rainy season in 1981. During the 1979 season, the Project had no agronomist and our fields were not determined or fenced. During 1980 season, irregular rainfall nullified the results obtained, as was the case for most research stations in the Sahel. In 1981, however, competent personnel and well-distributed, if scanty rainfall (454 mm) permitted us to test varieties from Upper Volta (SAFGRAD), the United States, and Nigeria. Sixteen varieties gave results of between 1,8 T and 4 T/hectare, while most local varieties failed because of the light rainfall. Experiments with these varieties will be continued in 1982.

We have tried corn varieties from Upper Volta, but found no varieties that give higher yields than local varieties. We are thinking about discontinuing experiments with corn, particularly as the irrigated perimeters along the River organized by the SONADER are producing quantities of corn that may well satisfy local needs.

We have tried niebe varieties from Upper Volta and 14 varieties gave yields double or more those of local control species. These varieties will also be tested in 1982 for confirmation.

The SAFGRAD also provided us with striga-resistant sorghum varieties, nine of which gave yields more than double those of local control species in striga-infested fields. We shall also continue this program in 1982.

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1982 will be the third season which our original Pro-Ag called for, however, since the 1980 results were nullified by bad rainfall, we feel that a further season (1983) should be added in the hope producing more reliable results in these experiments.

5° - Demonstrations of soil management practices : These experiments were begun during the 1980 rainy season, but once again the briefness of the rainy season defeated our attempts to obtain valid results from our fields. However, in 1981, the experiments have begun to bear fruit. Thus plowed fields gave, in general, yields 15 % higher than unplowed fields next to them.

Associations of legumes with sorghum indicated that peanuts would be the ideal legume for this practice, and that the local method of mixing legume and cereal seeds in the same hole gave the best results. A rotation experiment was carried out including planting different legumes (peanuts and niebe), sorghum, and nothing (fallow) on adjacent plots of land. These crops will be alternated in 1982 to test the results for the improvement of soils through rotation. Experiments in soil improvement through manuring and composting were also carried out. As expected, the results on composted and manured soils were strikingly better than those of non-treated soils, even on the degraded Niarwale land.

6° - Introduction of animal traction : During the 1980 and 1981 rainy season, animal traction has proved its usefulness for water retention and labor economy both on project fields and in on-farm demonstrations in the villages of the ZID. Soil preparation through plowing or scraping fields and weed control have been carried out by cattle, horses, and donkeys trained by the Project for this work. We have found that pairs of bulls and single horses are the most effective and economic animals. Donkeys tire quickly and cannot pull a plow in the heavy soils of the Guidimaka. Cattle are the animals we most recommend, since they can work for the longest time without tiring, require less care than horses, and at the end of their career can be sold for meat. A cattle cart can haul 1500 kgs, whereas a donkey can only pull 500 and a horse 1 T. The Project has trained 7 pairs of bulls for itself (three have since been sold to peasants in the ZID) and 7 pairs for local farmers. At any given time, we have up to 5 pairs of bulls and several

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horses in training and receive requests regularly for this service. In 1979, as far as I know, there was no animal traction, beyond a dozen or so donkey carts in Selibaby, in the ZID. Today, there are at least 30 plows that worked during the rainy season of 1981 ; some sold by the Project to farmers, other repaired by Project technicians for farmers who had bought them years ago and had not used them for a long time. Most of these were pulled by horses as bovine traction had never been seen in the Guidimaka before our introduction of it. Next year (1982) we expect to have at least 10 peasant owned teams working, as well as the 6 project demonstration teams. In toto, the Project has sold to the peasants of the ZID 45 units of animal traction equipment, including donkey carts, horse carts, cattle carts and plows. To go with this introduction of animal traction activity in the ZID, the Project has trained 9 animal trainers who are now able to take full responsibility for preparing an animal to work in the fields. They have 6 apprentices with them now, who we hope will soon become capable of training animals, too. Local wood-cutters have learned how to make yokes for cattle, and local blacksmiths have learned how to make certain repairs on carts and plows. The project depends for all its yokes and repairs on these artisans, who also serve the peasants who have purchased our equipment. We have also introduced animal traction as an alternative to pumps to haul water from wells for gardens and stock watering. We feel that pumps are unjustifiable economically and ecologically.

While a regular feature of herding activity in the Trarza, for example, this was unknown in the Guidimaka before our introduction of it. Already, one peasant is watering his herds with water hauled from a well with his pair of project-trained bulls.

- 7° - Gardening and fruit production : Vegetable gardening has been a minor cold season activity for some Guidimaka peasants for some time ; however, irregular supplies of seeds and tools, as well as unreliable technical supervision kept the activity limited. Nonetheless, the people of the Guidimaka like to eat vegetables and appreciate the occasional extra income that this activity provides. Thus, the Project has established a demonstration garden in Selibaby and is this year supervising approximately 200 gardeners in 11 villages in the Region. Last year, the program operated in

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5 villages. The 5 centers for animal traction training in ZID villages act, during the cold season, as vegetable gardening technique training centers. In addition a mobile team backs them up and covers villages that are too far from the Centers, whose agents have no transport for the moment. The production from the project garden is either sold to Project staff or given to the hospital for patients, to the grade school dormitory for student meals, or to the PMI for nutritional demonstrations. Our two female extension agents also give demonstrations in villages on how to prepare vegetables for the table. These demonstrations are kept simple, and so far have been successful. In the demonstration garden, we also test vegetable varieties. For example, we have retained two of five tomato varieties tested. And we test cultivation techniques, such as mulching, hill and furrow cultivation, watering frequency, fertilization and composting, spacing, etc. The results of these experiments are passed on to our pilot gardeners as soon as we are confident of their usefulness.

Fruit production, on the other hand, has been discouraging so far. A project orchard was established in the cold season of 1979-80. Mangoes have failed to grow there and though citrus and guavas have survived their development has been slow. The Project agronomist's analysis of this question based on the results of the Project orchard and on observations of the orchards of local people leads to the conclusion that fruit production cannot be a major economic activity in the Guidimaka's dry culture zones. Families may certainly keep a few trees in their yards or in small private orchards for family consumption and pleasure, but large orchards simply require too much water and investment to be economically viable. So far our efforts to grow seedlings for distribution to peasants have not been very successful, though all the seedlings we do produce are eagerly purchased by local peasants.

- 8° - Improved cultivation techniques : The techniques that we have tested on our sites include : plowing with animal traction before planting, weeding with animal traction, early thinning, planting in rows perpendicular to the slope of the field, trimming secondary heads, earthing up around stalks, manuring, composting, proper intervals between plants and rows, etc. In several cases,

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such as the last on the preceding list, the normal local practices have proved the most efficient and thus no extension plans have been made. In other cases, such as early thinning of millet and sorghum fields to two or three stalks per hole, local practice has proved less efficient and an educational campaign has begun. The team of Project agronomists have found that these innovations are extendable with close supervision and encouragement, but that if mistrust develops between the farmer and the project agent for any reason, the farmer returns to his traditional patterns. This is why we have insisted on working intensively with a small number of farmers in our first years of on-farm trials.

9° - On-farm-trials : I have discussed the on-farm-trials of vegetable gardening techniques above, but the main thrust of our on-farm trials has been in cereal culture. The rainy season of 1981 was the first year that we had the authority and the personnel to conduct such trials. To this end, we have established Animal Traction and Improved Cultivation Training Centers (CFTA's) in 5 villages in the ZID. Each center is staffed by a Project-trained extension worker, as well as an animal trainer and an assistant animal trainer. These workers live in the villages chosen as centers. Each of them covers at least two other villages as well as the village of residence. Last year, they identified approximately 25 pilot farmers who agreed to follow a precise program of improved agriculture including animal traction and improved cultivation techniques. In addition, the extension workers supervised the fields of as many peasants as possible to teach them those techniques that seemed appropriate. In general, the animal traction this year was done with Project animals as a demonstration, however, around 20 % of the pilot peasants supplied their own animals and others used them under project supervision without being pilot farmers. We estimate that we thus improved the yields of approximately 500 farmers through one sort of advice or help or another. We also distributed Souna III seeds and Sidi Nieliba seeds from the 1980 harvest, although quantities were limited, since the year was not a good one. These seeds are highly appreciated and much in demand.

The preliminary results of the 1981 rainy season indicate that pilot peasants improved their yields by between 50 % and 300 % over the yields of control

plots on similar soils nearby and all report great differences between this year's harvest and last years. With animal traction for plowing, land that recently had not been used for agriculture even in good years, gave good harvests because of increased water retention. Planting in rows perpendicular to the slope of the field also gave startlingly good visual results. Unfortunately, the data on this latter on-farm-trial, was lost through a misunderstanding that led to harvesting before a project agent could come to weigh the grain. We have received many requests to be pilot farmers for the coming year, and we are planning a training program in animal traction in May to prepare pilot farmers for the 1982 rainy season. We are also regularly receiving more requests to have animals trained than we can handle.

The new cereal varieties Souna III and Sidi Nieliba have also proved successful in on-farm-trials, giving yields approximately equivalent to those obtained with similar techniques on our own research sites.

- 10° - Establishment of a range management test and demonstration area : The 500 hectares Katamangue site has been fenced and mapped. The three required catchment basins are completed, though one is in the process of being cemented to limit loss of water into the ground. Two small and one large storage buildings have been built and maintained. A vaccination corral has been constructed out of local termite resistant wood (the same wood used for the fencing with five strands of barbed wire) and cattle and small ruminant scales have been installed in chutes. Sheds and corrals have been constructed in each of the pasture blocs for the project herds there, including pens for calves and kids and lambs. The site has been divided by barbed wire (5 strand) fences into four blocs of approximately equal surface area, though one of the blocs contains a 25 hectare agricultural and pasture improvement site and a 25 hectare forest has been fenced in for protection in the south east corner of another bloc, without diminishing its surface area. The villagers of the ZID have lent us sufficient animals (cattle, sheep and goats) to conduct our experiments with. These have been on the site since November 1980.

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11° - Demonstrations of ruminant nutrition : During the rainy season of 1981 there were four herds on the Katamangue. In Bloc A a herd of cattle and sheep at 0.4 UBT/ha ; in Bloc B a herd of cattle, sheep and goats at 0.8 UBT/ha ; in Bloc C a herd of cattle sheep and goats at 1.2 UBT/ha ; and in Bloc D a herd of cattle at 1.5 UBT/ha. Blocs A and D receive only hay from natural pasture. Bloc B's animals receive residues from the harvest (millet and sorghum stalks, and peanut and bean leaves) in addition to natural pasture. All the herds have water trucked to them as the wells dug on the Katamangue have not produced water. The herds are mixed because we are interested in the impact of animals on vegetation, as well as that of vegetation on animals, and thus wanted to reproduce, as closely as possible, the situation of most pastures in the region, where mixed herds graze. In addition, most herders have all three sorts of animals and are interested in the best husbandry techniques for all three. Camels are infrequent and highly seasonal in the Guidimaka and thus were not included in the herds.

The purpose of the above nutritional experiment is to test whether or not industrial feeds and harvest residues are economically viable additives to animal feed in the Guidimaka. Mr. Greenwood, the Project range specialist feels that he has now sufficient data to make a preliminary analysis of the results of the first year of the animals' presence on the site. We have also carried out haying experiments on the Katamangue and the hay is given the animals of Bloc B along with their harvest residues. The results of these experiments have not yet been analyzed either.

Groups of herders from approximately 20 villages have come to visit the Project sites and have heard explanations of the animal husbandry, pasture improvement, silvicultural and vegetable programs from the technicians of the concerned divisions of the Project.

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12° - Develop among herders a general understanding of range management principles and techniques. As opposed to the other domains in which the Project works, range management is a relatively new science in Mauritania. Very little is known about the range and how best to use it. Thus, most of the range division's time and effort to date has been devoted to finding out how best to use the range resources of the region. Nonetheless a certain amount of education has taken place through the demonstration effect of our herds and pastures and the village visits mentioned above. In addition, the Range team has undertaken missions of education and research in all the villages and even the uninhabited corners of the ZID. For example, last May and June, when there was literally no grass left within 15 kilometers of Selibaby, we let approximately 2000 cattle onto the Katamangue site for about a month. There was no mortality among these cattle and we feel that many of them were saved by this pasture that we made available close to the water they drank in Selibaby and Danguerimou. I have heard constant favorable comment on this action in the villages of the ZID this year.

The purposes of the range research are : to determine the ideal carrying capacity of the range ; to determine the effects on vegetation of different numbers of animal units per hectare ; to determine the contribution of tree species to the sustenance of the animals throughout the year ; to determine the effect of supplementation on the development of the weight of the animals ; to determine the effects of the seasons on available vegetation and the condition of the animals ; through cutting experiments to determine the best usage pattern for available pasture ; to introduce appropriate grass and tree and leguminous species to improve the pasture (local and imported varieties).

We have received permission from the Regional government to establish small pasture reserves in a few villages in the ZID this year and two villages have ~~been~~ already expressed a real interest in doing so. We hope to have these reserves operative in time for the current rainy season. There will also be tree planting on these reserves, as well as introduced grasses and legumes. The main purpose of the reserves, in addition to reconstituting

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the natural vegetation of the land which has been hurt by the recent droughts, is to preserve pasture near sources of water, we hope to diminish, at least for some animals, the long walk from water to pasture which is necessary in May and June as the pasture near the village where there is water has been eaten. The value of such techniques as restricted grazing and feed/water balance has already penetrated the herders of the region. However, we have to find a way to apply these techniques and these limited reserves are the best possibility for the moment, given the lack of a national pasture use law in Mauritania.

13° - Demonstrate the value of animal health and sanitation : This aspect of our program has two sides. On the Katamangue site, our animals are thoroughly monitored and cared for. They undergo regular vaccination and deparasiting, both internal and external. The effects of these treatments on the animals are explained to the visitors who come regularly to see them and in educational missions to the villages of the ZID. These explanations are supported by the visible good health of our animals and their relatively high rate of reproduction. They have excited comment throughout the ZID and all the villages that have lent us animals regularly ask us if we do not want some more. Thus I conclude that the demonstration of animal health and sanitation is successful. This idea is reinforced by the second phase of our animal health and sanitation program.

The project has received the authorization of the Directorate of Animal Husbandry in the Ministry of Rural Development to sell veterinary drugs to the herders of the Guidimaka. The herders have been used to receiving these drugs for free from the veterinary service of the region, but in recent years, financial problems have prevented this service from providing the drugs and it has become government policy to encourage people to buy drugs. There was thus considerable doubt if the villagers would accept paying for drugs they had always received for free in the past and the Project's sales of these products is an important test case. Thus far we have been able to see no resistance to making this sort of investment in their herds among the animal owners of the Guidimaka. Certain products, such as anabot (an anti-botulism vaccine), we are having trouble keeping in stock. Certain others like Berenil or Novar, sell slowly and steadily. Some others

like thibenzole seem to go in spurts. Nonetheless, we have sold nearly UM 400,000 worth of drugs in approximately a year of operation of this program. The herders are now getting used to having this service and some villages have even refused to accept the free vaccination against rinderpest if the anti-botulism drug was not available for sale at the same time.

14° - Assist the GRIM animal health service : The DRIG Project assists the animal health service in the Guidimaka in numerous ways, just as we assist the other MDR service in the Guidimaka. Each service receives from the project in kind the equivalent of UM 7000/month to help them meet the increased responsibilities that collaboration with the DRIG imposes on them. The DRIG garage does all repairs and maintenance on MDR cars, provided they furnish the necessary parts. The appropriate MDR sectors accompany DRIG missions in the ZID and DRIG agents accompany sector missions. If these missions are in the ZID, the DRIG furnishes the gas when the sector car is used. For the Animal Health Service in particular, we provide Project trained vaccinators to help with immunization campaigns and to sell drugs to herders in conjunction with Animal Health Service (AHS) missions. When the AHS cars are broken down, all their campaigns operate with DRIG vehicles. We provide a good deal of material to help them provide services to the herders of the region. Approximately \$ 15,000 worth of veterinary equipment (not drugs) was delivered to the AHS in Selibaby in 1980, in accord with the provisions of the first Pro-Ag. This material, which included a kerosene freezer, was ordered along with the veterinary material for the Project itself. As this material breaks or wears out, the DRIG provides what it can to help the animal health service from our own stocks. The AHS is forbidden by the Directorate of Animal Husbandry in Nouakchott to sell drugs for us. Thus they give prescriptions to herders who need drugs and the herders come to us. Without these prescriptions, we do not sell drugs. In cases where the AHS technicians cannot handle a disease or injury to an animal, the DRIG veterinarian will intervene at their request.

All animal service educational campaigns by the DRIG are planned in conjunction with the Animal Health Service and we make clear to the villages that the AHS participates in all DRIG activities. Thus, we assist the AHS with their tasks of educating the herders to practice good sanitation and to care properly for their animals.

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- 15° - Distribute veterinary drugs (see above)
- 16° - Establish village veterinary pharmacies : This aspect of the DRIG program has fallen a bit behind schedule, due to the gap of nearly a year in which we did not have the technical personnel to supervise the activity. Now however, we have informed all the villages in the ZID of the program and have identified 7 volunteers. The training program has been established in conjunction with the AHS, where the training program and to constitute the first village pharmaceutical case are being assembled and will be complete in time for the first training program of 10 days which is now scheduled to begin on February 10, 1982.

The idea of these village pharmacies has been accepted by the AHS Directorate in Nouakchott and by the Regional Administration. The villages are enthusiastic about it, but as the idea is new, many of the more conservative villages are awaiting the results of the first batch of village pharmacies before sending us an agent. I cannot disapprove of this strategy, but it does mean that we need another year to extend this opportunity to the other villages of the ZID.

- 17° - Involving women farmers : This aspect of the DRIG Program has not gone quite as well as we had hoped. While a number of women participate in the vegetable gardening program - one cooperative of women in Selibaby and about 20 individual gardeners in different villages - and a number of women have purchased carts for transport of agricultural products, we have not had a satisfactory participation of women in our rainy season cereal campaigns. We feel that this is the result of faulty extension techniques on our part. Nonetheless some progress has been made. In the Guidimaka today, women and men work together on most fields. Thus if innovations are introduced in a village and are applied in village members' fields, the women benefit from these innovations and provide labor for their application. In this way they learn the techniques. However, as women did not traditionally produce the major inputs of cereals for family diets and are still only now coming to share this task with the men, they are quite conservative in

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practices and less ready to innovate and try new approaches than the men are. They generally insist on associating the men with any decisions of this sort and thus our program to work with women apart from the men, was doomed to failure. We did have one female pilot farmer last rainy season whose harvest was significantly improved by her cooperation with the DRIG Project. We hope to have more next year. We have worked to improve storage techniques, particularly for niebe and peanuts, but thus far have not found solutions to the invasions of insects that destroy seed stocks and diminish reserves of these crops.

We have trained two female extension agents who work well and provide supervision for the women gardeners and pilot farmers. The male extension workers also work with these women once their participation in our program is established. The women have the same program as the men, both for cereal production and vegetable gardening. They are introduced to the same improved techniques and tools as the men are. The female extension agents provide demonstrations of preparation techniques in the villages when requested. In most villages this is unnecessary, as men who have returned from France teach their wives what to do with the vegetables they do not know. Since local, traditional vegetable crops such as niebe leaves and onions resemble introduced crops and are prepared the same way, teaching the new skills is not complicated.

We have requested that the Ministry assign us a female social worker to revitalize this aspect of our program, though we have not yet heard from our Project Director whether or not this request will be granted. If it is, we will provide the woman with sufficient agricultural training to complement her skills as an agent of social change.

18° - Small infrastructure projects : This has been one of the most successful aspects of the DRIG Project. During the cold and hot dry seasons, there is relatively little agricultural work to do in most villages. There is thus labor available to improve the quality of life for those whose life is centered on village communities. Since one of the main goals of the Project is to keep people in the rural areas where they can contribute to increasing agricultural productivity through applying project introduced innovations, we feel that we should encourage the villages to improve their infra-

structure, since one of the main reasons for leaving the villages is lack of the things we help them to provide for themselves : water wells, schools, dispensaries.

We planned to have one such infrastructure project per village in the ZID thus 32 projects. Each project has a maximum expense limit of UM 50,000 or 25 % of the cost of the Project, whichever is lower. In general, villages provide all the labor, both skilled and unskilled and all locally available materials : bricks, sand, gravel, stones, mats, wood, etc. The Project generally provides imported materials : cement, steel, nails, doors, windows, etc., as well as technical advice when necessary. We occasionally send Project skilled workers to stay a few days in a village to help with such tasks as installing foundations, putting in cement blackboards, reinforcing well sills, etc. Thus far the following projects have begun or have been finished :

- Mbekhere - one room school - finished
- Soufi - two room school - finished
- Toumiatt - water well - in progress
- Lwara - water well - in progress
- Nahasse - water well - in progress
- Dialla - well and trough - finished
- Diegui - one room school - in progress
- Koumba Ndao - two wells - finished
- Bouroudji - water well - finished
- Saboussire - two room school - finished
- Wompou - four room school - in progress
- Sanga Dieri - two room school - finished
dispensary - in progress
- Ould Rame - one room school - in progress
- Mbaedia Sakha - Two room school - in progress
- Diarabe - water well - in progress
- Kininkoumou - vaccination corral - finished
- Danguerimou - water well for garden - in progress
- Bambaradougou - water well - finished
- Selibaby - fence around cooperative garden - finished
- Selibaby - water well for new quarter - in progress
- Hamdallaye - water well - awaiting hydraulics service
- Selibaby - well N° 2 for new quarter - awaiting hydraulics service.

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Thus ten projects remain unassigned for the moment. Most of these will begin soon as there are still a number of villages in the ZID who are organizing themselves for the effort to take advantage of this aspect of our program. We regularly receive requests to begin projects from all over the region, and for those outside the ZID we refer to the Regional administration for guidance in choosing worthy enterprises, since many of the ZID villages are too small or too transient to undertake such infrastructure projects.

- 19° - Forestry Components : A nursery has been established in Selibaby itself on approximately 3/4 of a hectare of land ceded to the Agricultural sector for our use by the Prefecture of Selibaby. A well has been completed, from which water is hauled by a pair of project-trained bulls. The nursery produces between 16,000 and 25,000 trees per year, with its staff of 10 full time workers. It is fenced and a shaded area exists for sensitive plants. A storage building has also been completed on the nursery site.

The Project estimates that it has planted approximately 30,000 trees so far for forage, shade, erosion control, live fencing, and ecological reconstitution. Most of these trees have been planted on our sites, especially on the Singha and Niarwalle, though a significant number have been planted in villages including Selibaby, principally for shade.

This year most of the tree-planting effort will be directed towards the several pasture reserves we intend to set up in the ZID, as well as replacing trees that die on the sites. We hope to plant approximately 20,000 trees this year by transplantation and direct seeding. The main varieties planted will include : leucaena, acacia senegal, bauhinia refescens, neem, albizzia lebbek, acacia radiana and acacia nilotica. In addition a large number of parkinsonia will be planted as live fencing, both in villages and on sites. Leucaena seeds have been ordered from the US and local tree seeds are being collected as the appropriate species mature. I do not think that we shall succeed in planting 100,000 trees before December 1982 and I do not know where that figure came from. Nonetheless, we shall plant a lot of trees.

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20° - Training : Three sorts of training are carried out by the DRIG Project. Mauritanian counterparts assigned full-time to the Project work in daily association with highly trained expatriate experts and learn from them, as the experts learn from their knowledge of local habits and conditions. This learning process is clearly a mutual one as experts, mauritanian and foreign, exchange those aspects of their experience that can best help the Project accomplish its tasks.

Second, the Project has a budget to send the Mauritanian counterparts on short term training courses in subjects related to Project tasks. Such training has already been carried for one counterpart, is currently underway for two more, and is planned for three others. We have requested information for training courses for two more of our counterparts. Thus :

- Wague Ousmane, animal husbandry : three month course in parasitology and laboratory techniques at the CNERV/Nouakchott, 1980.
- Ba Abdoulaye, forestry : ten day course in forestry nursery management at the Senegalese National Forestry Research Center, at Hann, Dakar, January, 1982.
- Kebe Souleymane, animal husbandry : one month course in parasitology and laboratory techniques at the CNERV/Nouakchott, January, 1982.
- Ba Sourakhe, forestry : three month course in reforestation techniques and nursery management in Senegal at the Various sites of the Senegalese National Forestry Research Center, March-June, 1982.
- Ba Khalidou, agriculture : three month course in animal traction and agricultural extension, at the Senegalese National Agricultural Research Center in Bambey, April-July, 1982.
- Wone Abderrahmane, Mauritanian Chief of Party : accepted for a three month course in Project evaluation at the Pan African Development Institute in the Camerouns. We await ministry approval to process the paper-work for Mr. Wone's training.
- Kane Abdoul Karim : we have written to Bambey to request that Mr. Kane take a three month course in agricultural research techniques there before the 1982 rainy season. We await their answer.

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For other counterparts, Barry Mamadou Issa and Kone Moussa, we are exploring possibilities for training.

Finally, we have trained the 9 required animal trainers and are training a second group now. They are all at work in Selibaby and the ZID training animals for peasants and working project animals in demonstrations of the usefulness of trained animals. We have trained five extension workers in animal health and husbandry, four in range and forestry, and eight in agriculture, including two women. An additional man has been trained for vegetable production extension, though his literacy level is not high enough for him to count as a full-fledged extension agent. Thus we have satisfied the requirement that we prepare eighteen extension agents for work in the various fields of the Project in the ZID.

On the basis of the above summary of project accomplishments in relation to the goals stated in the contract between EI and USAID, I feel that the Project staff, mauritanian and foreign have on the whole done what we were supposed to do and have been successful in the execution of our assigned tasks to the extent that the ecological conditions of the Guidimaka have permitted us to be so. The villagers have been seeing our personnel regularly for the past 2 ½ years and have confidence in us, since what we have undertaken in their villages has worked. The Project staff of 180 employees has been trained to accomplish our research and maintenance tasks efficiently and enthusiastically. Most of these employees, who would have left the Guidimaka in search of employment elsewhere if the Project had not hired them have continued to cultivate their fields around Selibaby and in the ZID and have learned new skills that should permit them to earn a living while remaining in the rural areas in which those skills are applicable.

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PARTS 3 & 4 - CONSTRAINTS ON DEVELOPMENT IN THE GUIDIMAKA AND POSSIBLE SOLUTIONS TO ELIMINATE THEM

The Guidimaka is officially classified as a Sudano-sahelian zone and thus development there must cope with constraints implied by the climate and soil conditions associated with such zones. It is also the most isolated of the agricultural areas of Mauritania, far from the capital of the country and the national administrative and technical services based there. This too, imposes constraints on development of the region. Finally, the peoples of the Guidimaka - four ethnic groups, two major adaptive patterns, innumerable factions and clans, as well as many returned emigrants from Europe and Senegal- impose constraints on development, as well as being subject to them. In this section of the report, I shall present brief analyses of some of these constraints. Some of them the DRIG project can help overcome. Others can only be overcome by the Regional administration of the Guidimaka. Still others require action on the national level. Where the DRIG can hope to make a contribution, I shall explain in some detail. Where higher level organizations must act, I shall briefly outline my impression of a positive form that this action could take.

I - ECOLOGICAL CONSTRAINTS

A - Water is the primary factor limiting agricultural development in the Guidimaka. In this context, I take agriculture to include animal husbandry, range management, and forestry as well as cereal and vegetable crop cultivation. The Guidimaka needs water for domestic consumption and hygiene, for gardening and agriculture, for watering herds of animals, and for construction of basic infrastructure. However, all the studies done in the region indicate that there is no phreatic water table available for tapping and thus no large amounts of underground water that might be made available. In most inhabited parts of the region, including the ZID, shallow, dug wells of between eight and thirty meters can provide limited amounts of water for the domestic consumption of the population that digs them and perhaps some surplus for watering domestic herds of animals. As the rainfall in the region decreases -we are supposed to be in the 660 mm zone but in the last three years have had 300 mm, 500 mm and 450 mm of rain- the level of

water in these wells drops and they have to be deepened. Also, population increases in some areas means that more wells have to be dug. If these wells are not deepened or dug, the population simply leaves the zone in which they can no longer live and go to Selibabytown or to the river or elsewhere, to try to earn a living as domestic or agricultural labor in between the rainy seasons when they can return to their homes to farm. Of course, each year that this process goes on, fewer and fewer of the young people who should be the backbone and future of these communities return to the hard life in the fields. They prefer to continue to work for others or to quit the region entirely and enter the modern sector permanently.

The lack of water for human consumption and hygiene in the villages is not the only reason for the rural exodus in the Guidimaka, but it is an important one. And it can be solved relatively cheaply and easily. The villages in the ZID that have cooperated with the Project in its well-digging (small projects) program include some of the poorest communities in the area. If the Project supplies the cement and steel for the well they manage to find everything else and to provide the skilled and unskilled labor necessary for the enterprise. The opportunity to participate in this aspect of the DRIG Project should be extended to all the villages in the Guidimaka. Since the villages themselves determine their highest priority needs for this program, there is no danger of digging unnecessary wells or of omitting villages that should have such wells.

The hydraulics service in the Guidimaka also digs wells for villages. However, the Guidimaka Brigade is underequipped and under-financed. It cannot hope to do more than a few wells a year if they to them from start to finish. Also wells they dig are far more expensive to everyone concerned than are hand-dug, artisanal wells. The latter are as sturdy as the professionally dug wells if the construction is supervised and enough steel is employed. However, the hand-dug wells often encounter rock that is too hard for picks or chisels and sledgehammers to break. In these cases, the intervention of the hydraulics

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brigade with their jack-hammers and dynamite and skilled technicians is imperative. I feel that the hydraulics brigade in the Guidimaka should limit itself to deepening wells where the villagers have found rock and to supervising the villages own digging of hand-dug wells, employing local artisans. This would permit the Brigade to intervene far more effectively in far more places than they do now and would encourage employment of the local well diggers and their teams. This latter would not diminish agricultural production since wells are not dug during the rainy season when the well digging teams return to their farms. The wells thus dug provide water to stabilize communities near their farms, but also permit gardening during the cold season, watering of domestic herds near villages where pasture reserves may be established, and tree planting in the villages themselves. Women often walk as many as 7 kilometers to water or take donkeys even farther. Digging wells close to villages would cut dramatically the amount of time and effort invested in so basic a process and free the women for other pursuits.

Water for agricultural uses is a problem much more difficult to resolve in the Guidimaka. Aside from villages along the Senegal River, where pumping stations have been installed to take water to levelled fields and in a few villages along the Karakoro River where flooding creates zones of Wallo land which provide cold season crops, the farmers of the Guidimaka depend on rainfall to plant and harvest their fields. As rainfall has diminished in recent years, this has meant that a good bit of land has gone out of Cultivation in recent years (higher land particularly) and that the pressure on lowland fields has increased dramatically to the point where for the first time in the history of the region, there is not enough good land for everyone who wants some to farm. In addition, the lowland fields are very risky as they are subject to flooding in good years, or even after big rains in dry years. Irrigation from underground water is impossible, given the absence of reserves of this kind in the area.

The solution to the dilemma of irregular rainfall and flooding of lowland fields seems to lie in the construction of small dams and water diversion

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structures in the dry stream beds that carry run-off water to the Senegal River, where it does no good for any of the areas farmers. I feel that the DRIG Project should be authorized to create a dam-building capacity in its follow on activity. This would mean finding experts in this field and providing them with the resources to carry out the program they would plan. Studies executed in the Guidimaka, both by expatriate firms like Burgeap of France, and by the Regional Administration have analyzed the possibilities for creating water reserves in the Guidimaka and there are many favorable sites. The water they collect could be used to irrigate crops on nearby fields, to water animals near pasture zones, for gardening and tree-planting and, in emergencies, for human consumption and hygiene. In addition, crops could be planted in the pond-beds themselves as the waters recede.

Water for animals would come both from the wells and the dams proposed above, but neither would solve the dilemma in the Guidimaka posed by great stretches of grass-lands far from any possible source of water. In certain zones, like that near Tectac, where certain authorities pretend that there is a large underground reserve, drilled pastoral wells might be tried. I do not feel that the DRIG Project should undertake this operation, but rather that it should be entrusted to specialists. However, on our demonstration sites I feel we have proved the usefulness of catchment basins, at least for 5 months of the year in holding runoff water that animals can drink. If such basins are available to animals during the wet season in remote pasture areas without dry season water, then perhaps herds could be encouraged to congregate around them, leaving for the dry season, pasture nearer to traditional sources of water in oglats or dug wells. Unfortunately, the DRIG bulldozer is still in Nouakchott undergoing repairs that should have been done before shipping from the US and I am not sure that it will have time to try digging basins in the Guidimaka this year. However, this should definitely be part of the program of any follow-on activity after the end of the DRIG in 1982.

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No Project can do anything about diminished rainfall or falling water tables in the Guidimaka. But through a combined effort of animal traction plowing, planting perpendicular to the slope of fields, tree-planting, nature protection, well-digging, dam-building, and basin-digging, a future Integrated Rural Development Project could improve significantly the hydraulic situation of the region. The DRIG has made a good start on many of these activities and has established their worth. Now they must be extended to all the farmers and herders of the region.

B - Land : There is plenty of land in the Guidimaka, but there is not enough land that is agriculturally reliable in the context of diminished rainfall, lack of wallo, and lowland field flooding explained above. Before the drought the farmers of the Guidimaka used sandy or clayey plateau land for most of their agriculture (Singha or Katamangue or Parawolle, in Soninke). They avoided lowland (rakhe) areas where too much water would destroy their crops as effectively as drought. Today, however, the rakhe lands are the most desired agricultural sites, in spite of the risks of flooding there. Unfortunately, there is relatively little rakhe land available and it is all controlled by the dominant families in any given village. Thus, in spite of the vast surface of the Guidimaka relative to its population, there is a land shortage.

This shortage is complicated by the deficiencies characteristic of most sahelian or sudano-sahelian soils. These are everywhere relatively poor in organic matter, and lack nitrogen completely. They are generally poor in other essential elements, too. The land could produce more if it were helped to do so by judicious supplementation.

Certain aspects of this problem, the DRIG Project can do nothing to solve. Questions of land tenure and local social organization must be met by the regional administration backed up by the central government. A Project can only apply government policy as embodied in the Pro-Ag that governs it and work with those peasants and herders who choose to participate in its programs. However, the current DRIG program is conceived to meet certain aspects of these problems and to contribute

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to their solution. These activities should be expanded in any follow-on project and extended to the entire region.

The main reason why whole categories of agricultural land in the Guidimaka have gone out of cultivation is lack of water. However, using a combination of animal traction plowing and weeding and planting perpendicular to the slope of the field, much water is retained. Fields thus treated remain moist and soft long after untreated fields next to them have become hard and dry. Crops planted on them yield more than crops on similar land not-so-treated. Crops such as Souna III in sandy zones and Sidi Nieliba and E-35 in clay soils are early maturing and well adapted to such upland soils. They can give a decent harvest even in droughts when other varieties fail utterly. The use of animal traction for field preparation and weeding liberates enough labor for farmers to plant higher yielding varieties in the lowland fields and still plant these quicker, drought resistant varieties as insurance crops and supplements. This will be particularly important if dams permanently flood the rakhe zones near subject villages. In addition, the project is currently testing other imported cereal varieties that may prove even better adapted and higher yielding than currently used ones. For this reason, I feel that a follow-on activity to the DRIG must include the continuation of the extension package of animal traction, improved varieties, and improved cultivation techniques, as well as the continuation of variety testing in conditions that reproduce as much as possible those that local peasants face each rainy season.

The soil fertility question can also be approached by Projects like the DRIG. Although we feel that chemical supplements like industrial fertilizers are too expensive for use in rain-fed agricultural zones like the Guidimaka, there are locally available methods for improving soil fertility which we have tested and should try to extend. These include green fertilizer, manuring, composting, crop rotation, associated culture and inter-cropping. All of these are currently being tested by the DRIG and some are already being extended in on-farm-trials.

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Results are promising, particularly on marginal soils like the Niarwale. This experimentation must continue and extension of proven techniques must reach all interested farmers of the Guidimaka.

A final constraint on land use in the Guidimaka cannot be attached by any action on the part of the BRIG or any other Project. The Guidimaka's pasture is among the richest in Mauritania. Nonetheless, it is becoming less rich each year, as herds from all over the country take refuge there from drought stricken zones. A recent dry season survey showed herds from the Tagant, the Gorgol, the Western Hodh, and even from the Brakna on pasture in the Guidimaka. This has led to progressive denudation of pasture areas and to increased brush-fires, either set accidentally by herders or purposefully by those who would keep the herds off their lands. Even if this process of degradation through overuse were not in progress, the Guidimaka's pastures need improvement. Bromotological analyses of available vegetal matter on typical pastures show that while they provide sufficient energy they provide almost no protein or nitrogen for a good part of the year. The animals thus can eat as much as they want and still lose weight, sicken and die. They must supplement the straw they eat with leaves and shoots from the Guidimaka's dwindling supply of trees. These trees are regularly massacred by illegal lumberers as well as herders cutting branches for their sheep and goats to nibble on.

Pasture in the Guidimaka can be improved by planting trees. It can be improved planting native and imported leguminous species, which fix nitrogen in the soil and provide rich fodder long after the grasses have lost most of their food value. The BRIG Project has tried out these techniques and found out which species are best adapted to different terrains and conditions. The government has authorized us to try out these techniques in small pasture reserves which we have permission to fence in and protect from herds other than those of the peasants who created the reserve. We expect this program to be successful but it is not, for the moment, extendable.

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Mauritania does not have a national law limiting access to pasture, nor is there any precedent for fencing in large areas of pasture for the exclusive use of a given group of people and their herds. Without such a law, a major program of pasture improvement is difficult to conceive. Planting trees or new grasses, installing leguminous species or plowing denuded areas to catch seeds in runoff water and refurnish them require heavy labor inputs. The people of the Guidimaka are prepared to undertake such tasks, but only if they can be assured that the fruits of their labors will be for themselves. Without a law that guarantees them this result, they cannot be asked to undertake large scale pasture improvement.

The only alternative to this approach is the establishment of government reserves, fenced and replanted with hired labor, that could be opened to public use at specific intervals decided by the regional administration. These reserves could be supervised -both in their creation and their administration- by a Project like the DRIG or by the local antennas of the MDR. If the government makes the land available, this sort of enterprise might be included in a follow-on activity to the DRIG Project.

II - INFRASTRUCTURAL AND ADMINISTRATIVE CONSTRAINTS

A - Roads : The Guidimaka is Mauritania's most difficult province to reach by road. During the dry season (December-June) vehicles come from Nouakchott via Boutilimit, Aleg, Boghe, Kaedi and then either Maghama or Mbout. The total trip is of approximately 650 kms of which 400 are on unpaved roads. 300 kilometers of these roads are completely unimproved. The trip takes about 14 hours of driving in a land-rover and two or three days driving in a truck. It is nearly impossible to operate without four-wheel drive and breakdowns are frequent and severe. During the wet season, vehicles must come from Nouakchott via Kiffa, l'harraj, Ould Yenge and Soufi. The latter 200 kilometers of this 850 kilometers run are over what is generally said to be the worst important road in Mauritania. Most vehicles can get to Kiffa in a day, but from there to Selibaby takes a minimum of 8 hours and often two or three days. Trucks occasionally spend a week or more on this road.

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Given these conditions, it is difficult to bring anything into or out of the Guidimaka. This limits development in every sense of the word, but agricultural and pastoral development suffer markedly from the impossibility of marketing anything produced in the region outside of the region, except illegally in Mali or Senegal. The DRIG Projects only contribution to the solution of this problem would be a secondary one. If our bulldozer comes and we begin a limited fire-break program, these fire-breaks would serve as secondary roads (see below). However they would in no way solve the main issue of opening up the region to trade and contact with the rest of the country.

USAID and the PNUD/UNSO have promised to build good roads throughout the Guidimaka on all the major axes. We can only hope that these programs will be quickly realized.

- B - Brush-fires : There are no fire-breaks in the Guidimaka, although fire-breaks coming from Maghama and from Tintan stop at the borders of the region. At the same time, the rich pastures of the region are prey to frequent fires. This year, for example, in addition to many small outbreaks, major fires have wiped out large areas of pasture along the Karakoro from Mbaediam to Khabou and in the environs of Mbalou. We expect serious difficulties from these losses later in the year when herds from other regions begin to arrive in the Guidimaka and when water farther from the Karakoro begins to dry up and herds head for traditional pasture reserves near the stream-bed. When fires wipe out large areas of pasture they constitute a serious constraint on the development of the animal industry in the Guidimaka.

When the DRIG Project was beginning its operation in 1979, there was a lot of discussion about the usefulness of fire-breaks as an efficient method for limiting the damage done by brush-fires. Many experts felt that they did no good whatsoever and they were dropped from the DRIG Project by USAID before the Project began operations. However, the experience of people who have worked in the region, including myself, is that fire-breaks do work. I cannot count the times I have seen one side of a road burnt out and the other side untouched by fire, even

when the road was only three meters wide and far from perfectly clean. I am convinced that fire-breaks established according to the plan already worked out by the Nature Protection Service of the MDR would make a substantial contribution to the reduction of losses of pasture to brush fires in the Guidimaka. The inhabitants of the region are industrious and quick to attack fires they see and with a network of fire-breaks to work from they would be able to control all but the very worst fires. I thus think that the DRIG bulldozer, when it finally arrives, should spend some time making fire-breaks in the ZID. In addition, in a follow-on activity to the Project the full fire-break program included in the original study for the DRIG Project should be reanimated and executed.

Fire-breaks, I want to emphasize, have an important secondary function. They act as useful avenues of communication between villages that are otherwise isolated from centers of trade and administration. These 'roads' would facilitate transport by animal-drawn cart, as well as by vehicle and horse-back, and further encourage development work in the region by making extension work easier through more frequent visits to newly accessible villages and camps.

C - LACK OF WELLS AND CATCHMENT BASINS FOR STOCK WATERING

I have discussed the usefulness of these structures above. There are no basins in the Guidimaka now, except those dug on the Katamangue site. I know of only one pastoral well, near Ould Yengue, but I am not sure if its pump is working. The Project will continue its activities in this domain and any development activity in the region should include a provision for these structures.

D - LACK OF DAMS

As mentioned above, there are no dams in the Guidimaka now. Even the small dike at Artemou did not function properly this year, from of maintenance. The DRIG Project does not include dam construction in its current mandat, but any follow-on activity should attack this problem.

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E - Lack of banking and credit institutions : There is no bank in the Guidimaka today. The Project can and should do nothing about this, but the presence of a bank would facilitate all financial operations, permit credit and the control of exchange operations, and encourage industry, commerce and agricultural enterprise. The administration should encourage the opening of a bank in Selibaby as soon as possible.

Except for the credit operations run by the DRIG and the Agricultural Sector -the latter has not yet begun operations under the CCC-FAC grant- for the sale of animal traction equipment and trained animals, there are no organizations offering credit to the people of the Guidimaka at this time. The people of the region have quickly taken advantage of the possibility of credit to purchase the carts and plows we offered them. They have also begun to purchase our trained animals which have only recently been offered for sale. They seem to understand and accept the credit system, which was given us by the Directorate of Agriculture and is identical to that used by the CCC/FAC Program.

There are many things that could be purchased and well used by the people of the Guidimaka if credit were available to them : tools, welding equipment, pumps, fencing, breeding stock for herds, etc. I feel that a follow-on activity after the DRIG Project should include a generalized credit fund, if no other institution is available to offer this opportunity to the peasants. This fund would purchase and resell at cost and on credit whatever inputs seem appropriate to individual or collective agro-sylvo pastoral or associated enterprise, in the Guidimaka. I would suggest that all such transaction take place with the approval of the Governor, at least for collective purchases over a certain, pre-established sum.

F - Lack of seed for agriculture. Lack of tools and equipment

Year after year, we hear of farmers who stop planting peanuts, or niebe or one variety of sorghum or millet for lack of sufficient seed supplies. We have never been able to carry out a potato campaign in the region, in spite of promising results from experimental quantities of seed potatoes in our own garden, because we have not found a source which can supply

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and transport sufficient seed for on-farm-trials or extension work. The same is true of small agricultural tools and equipment. Transport and expense prevent their effective use and distribution in the region.

To a certain extent the DRIG's seed production aspects can palliate the difficulty for certain species, and should definitely be continued in any follow-on activity. But the national administration should set up a reliable system for providing large quantities of seed and equipment for farmers and herders each year. These could be sold at cost plus transportation to finance the yearly renewal of the operation. I do not think the DRIG or a follow-on activity should get involved in furnishing this material, since national scale orders could be purchased and shipped far more economically.

G - Isolation from Senegal : Much of the agricultural material needed by the villagers and herders of the Guidimaka is manufactured in Senegal. International accords make this material easily and cheaply available. The material includes : peanut cakes and compsite feed for animals, mineral and salt blocks, cereal seed stocks, animal traction equipment, veterinary products and many other items. Now, the problem of transporting this material from Bakel to Gouraye in Mauritania is difficult and expensive to solve. A ferry has been built by the GRIM and is in Gouraye. Every effort should be made to render it operational to facilitate contact with Bakel. I do not see a role for the Project in solving this problem.

H - Limited resources at the disposal of the Guidimaka Regional administration
If the amount of money, personnel, and equipment at the disposal of the regional administration were increased and more autonomy were permitted regional officials in making decisions about development policy in their zone of responsibility, I feel that development efforts in the regions would be better coordinated and effective. To this end, the Government's current policy of maintaining their administrators in a given region for a relatively long period of time is to be applauded.

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III. Social and human constraints.

A. Rural exodus and labor availability.

For over one hundred years, young men have been leaving the Guidimaka to seek work elsewhere. At first they went to Senegal to work on peanut farms or on the docks of Dakar. Many got work on ships, usually as stokers, and travelled all over the world. The army attracted a large contingent from the Guidimaka and carried them to fight France's wars in Europe, Indochina and other parts of Africa. Finally, since the early 1950's many Guidimakiens, particularly Soninké, have gone to France to seek employment. In the past, most of these workers would return to work on family fields during the rainy season, but as they went farther away and established themselves in their country of residence, they returned less regularly and many never come back at all. Since those who leave are often the youngest, strongest members of the community, their absence has created a serious labor shortage in the Guidimaka.

The consequences of this labor shortage have been exacerbated by the drought, which has led even more people to leave the rural zones for Sélibaby, Kaédi, Nouakchott and Nouadhibou. In addition, the social reforms introduced by the colonial administration effectively ended the exploitation of 'slave' labor by the noble families of the region and complicated the land-tenure and use situations.

Today, in France, nearly 80% of the Africans working in the country are Soninké. While most of them are from Mali, there are many Guidimakiens there, too. People of the Guidimaka are also well established in Nouakchott and Dakar and receive a regular stream of visitors looking for work or for opportunities to study. Few of these people ever return to live in the Guidimaka, and those who do generally have a hard time readapting to agricultural life there. The people of the Guidimaka are generally thought the hardest working group in Mauritania and in my opinion merit the label. However, if up to 70% of the young men in some villages are absent during a rainy season, it is hard for those who remain to carry out their tasks.

This has led to several consequences, both good and bad :

1. The emigrants send a lot of money back to the Guidimaka, which has permitted residents to invest in construction of houses and mosques, wells, schools, occasional vehicles and pumps, and, especially animals. The formerly non-pastoral Soninké may now be the most important group of animals owners in the region, though it is very hard to get reliable figures on this sort of trend.
2. The absence of the emigrants relieves a certain amount of the pressure on land, especially bottom-land in the Region.
3. The absence of men has led women to do more and more cereal cultivation for family nutrition. This has led to the abandonment of certain traditional female crops like cotton and rice, which are only cultivated rarely now. Others

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like peanuts are of much diminished importance, since the women must grow sorghum and millet for their families.

4. The absence of the men has led to ever greater investment in hired labor to do agricultural work. This generally takes men away from their villages to zones where they have no land and thus diminishes the general agricultural productivity of the region. These laborers are generally out of work the rest of the year and are forced into debt while awaiting employment afterwards. Many of them finally leave the region entirely.

5. The absence of the men prevents putting large tracts of potentially arable land to agricultural use, since all available labor is used for the preferred rakhe (lowland) fields.

6. The absence of young men has a negative social impact on the villages as the young women have no suitors, the older men no heirs, and the village in general lacks the social stratum that in the past provided much of the animation that rendered village life agreeable and attractive. The older, more conservative men control decisions and often stifle initiatives taken by the few young men around. The role model of the traveller has become an ideal-type for the children of the village who look forward to the day that they too can obtain high status by quitting their place of origin and wandering across the globe in search of money and adventure. Thus the cycle continues.

7. With the lack of labor at the rainy season, agricultural work at which the Guidimakiens used to excel is now often done sloppily -- weeding is less thorough than it ought to be, too many seeds are planted per hole by inept or uncaring laborers or children, fields are inadequately protected from birds and monkeys because there are not enough people around to throw stones at the pests.

The above are only some of the most striking and easily described consequences of the rural exodus from the Guidimaka. It imposes serious constraints on development efforts since there is little labor available for any but the most essential tasks and this creates resistance to innovations that demand work. I want to underline that this is not an implication of laziness. The people we collaborate with in the Guidimaka are hard workers. But they hesitate to commit themselves to tasks they fear they will not be able to see through to the end.

There are thus many tasks to undertake to combat the rural exodus from the Guidimaka. There is no task more urgent than this one. Mauritanian government policy is oriented toward solving this problem and the projects efforts should also bend in this direction. They all revolve around the effort to make life in the rural areas of the country -- and I feel that all of the Guidimaka, including Sélibaby is a rural area -- more attractive. This implies improving economic prospects for those who live there, providing essential human services for them, and revalorizing rural life in the eyes of the nation as a whole. Much of this work can only be done by the national government, who might offer tax incentives to rural industries, broaden customs exemptions for goods destined to increase rural production, conduct educational campaigns to make people aware of the importance of rural occupations and roles, or send more dedicated officials to work in the rural zones next to the peasants and herders.

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In the context of the government effort which is already underway to stop the rural exodus, a Project like the DRIG can make an important contribution. The following, very briefly explained are the sorts of activities that the Project has undertaken and will continue to undertake to help diminish the rural exodus from the Guidimaka.

1. Creation of jobs and training for rural careers. The DRIG project now has approximately 180 employees and has up to 250 at peak periods. Most of these employees will spend at least two and possibly more years in the employ of the Project. Studies have revealed that at least 50% of these people would have left the Guidimaka long ago if the DRIG Project, and previously, the construction of the Chinese hospital had not held them here. Approximately 80% of these people own land and 90% of former land owners cultivate fields during the rainy season. The official working day of 7h00 to 14h00 permits them to do so in a community like Sélibaby where fields are in general close to town. In addition about 50% of those who had not farmed before working for the Project (herders, merchants, laborers, etc) have met land-owners in the Project, borrowed land from them and now do farm. If the Project continues, many of these workers should remain with us and thus will not leave the region, as it is their stated intention to do. In confirmation of the above indications, of those workers who have quit the project or been fired at least half have left the Guidimaka for Nouakchott or elsewhere to seek work.

Projects like the DRIG, since they are based on improving rural skills for rural careers train workers in fields which they can apply in rural areas, instead of being obliged to go to towns for employment. Thus we have trained : 15 men for animal trainers ; 10 for forestry nursery and tree-planting work, 20 for market gardening, 18 for rural animation, 20 for fencing skills, 10 in masonry and other housing maintenance and construction skills, 15 in automotive mechanics and electricity, etc. Many of these people already supplement their incomes with money from jobs done in after project hours for citizens who know their talents.

The creation of rural jobs combats directly the rural exodus and encourages general economic development as well as maintaining levels of agricultural production.

2. Creation of rural income. Very little of the money earned in the Guidimaka goes elsewhere for investment. People build houses, buy animals, encourage commerce and local services such as carpenters, weavers, etc. Thus Projects like the DRIG, with its local orientation and avoidance of major imported inputs for economic growth can promote rural stability by spending a good proportion of their budget in local markets. Up to now, for example, we estimate that the DRIG has spent approximately 1/3 of the budget so far expended in the Guidimaka itself and at least another 1/3 in Nouakchott. This is in stark contrast to Projects which depend on imported materials and often spend as little a 1/4 of their total budget inside the country where the Project takes place. Future Projects in the Guidimaka should continue the DRIG's effort to create incomes locally in order to promote local level economic development.

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3. Introduction of labor-saving technologies. Many of the young people who leave the Guidimaka now or who plan to leave soon are discouraged by the amount of agricultural work there is to be done in most families, relative to the labor available. The number of children and old people supported by each active adult is striking in its disproportion. Young men do not see a way out and thus go off to look for work hoping to be able to send back money to support their families. By introducing innovations like animal traction for plowing, weeding, or hauling water out of wells, Projects like the DRIG can show people how to produce more than ever with fewer people. The introduction of higher yielding varieties also helps, as do other agro-sylvo-pastoral innovations described above.
4. Elimination of ecological and administrative/technical constraints on development. These were described briefly in the previous sections of this report. I feel that Projects like the DRIG can make their most significant contribution in this domain.
5. Creation of infrastructure necessary for decent life and appropriate to the aspirations of the people. The people of the Guidimaka know the importance of schools, hospitals, and wells. They are prepared to contribute significant sums of money and unlimited labor and time to help create them. I feel that programs like the DRIG encourage self-reliance in local communities while providing essential material and technical support ought to be continuously available to the people of the region. Children raised in the villages and educated there are more likely to remain there than those raised elsewhere. Social networks will be firmer there and rural orientations maintained. Mothers who can see their children well-cared for by rural dispensaries will be less eager to move to town to be near medical facilities. Towns with wells are not abandoned. Those without them are always seasonal villages without stability or hope for the future. People have no reason to invest in such villages. With essential services they can plan their lives there and look to the future.

Roads, fire-breaks, dams, ferries and other essential services must also be established by the regional administration in collaboration with local Projects, where necessary. People want these public services as well as private ones like cinemas, shops, markets, and other distractions. The more the government and its projects can supply them, the more likely people will be to stay in the rural zones.
6. Public revalorization or rural life. The rural peasants and herders of the Guidimaka feel abandoned. They are rarely visited by government officers, and when they receive such visits, they rarely have the chance to express themselves. They feel removed from the regional authorities and even more so from the national government. They are convinced of these organisms indifference to their fate. While a general increase in the status of rural villagers is not within the reach of a regional administration or of the projects it coordinates, given adequate resources -- vehicles or other transport, fuel, and personnel -- much can be done to alleviate these feelings in the rural zones. Representatives of the administration, be they Ministry officials, Project technicians, or local administrators should visit the villages regularly. As the DRIG Project has slowly switched its main effort from research to extension, we have been more and more frequently to the camps and villages in our ZID. As we visit more frequently we have observed the people's confidence in our agents rising and

their willingness to take advantage of our programs increasing. More and more of the young people in the villages have begun speaking up in meetings and taking part in our pilot activities. I feel very strongly that such programs as the DRIG, which involve several domains, all of which touch the lives of the rural people of a region, and which therefore must constantly have agents in the villages talking to the people, working alongside them, encouraging them, helping them accomplish tasks that they themselves have set as desirable collective goals, making resources available when requested and listening to the people's concerns make in this as in many other ways a very positive contribution to removing reasons for people to leave the bush for the cities.

B. Political Divisions among the elite of the Region.

This is not the place for an explanation of the dimensions and consequences of these divisions, but it must be said that they have placed constraints on economic and social development of the Guidimaka as one faction or another defeats plans made by their rivals. Happily, many of these divisions are healing now, after years of strife and we can only hope that the elite will now unite to encourage honest efforts to promote the welfare of the region, while maintaining a careful watch against corruption and favoritism. A Project such as the DRIG has no role to play whatsoever in eliminating this constraint.

C. Feudal social structures and land tenure traditions.

Here again, the DRIG or similar Projects have no role to play in eliminating the constraints on development that stem from these structures and traditions, but they must be mentioned. They do exist and they often complicate development efforts aimed at less advantaged strata of the population.

Conclusion :

The Guidimaka will not soon become an industrial center for Mauritania, nor a source of revenue from large quantities of export-oriented crops. However, in spite of the many constraints on development discussed above, the region may become entirely self-sufficient in food, even in bad years, and contribute significantly to ending the annual cereal deficit that plagues the nation and makes her dependant on gifts from abroad. An integrated program like that of the DRIG, in combination with well-planned infrastructural improvement can go far toward realizing the GRIM goals of increased food production leading to auto-sufficiency and slowing if not eliminating the rural exodus from the region. The constraints are formidable, but we of the DRIG Project feel that after three years of work, we shall have the technical knowledge and experience to combat most of them. Hand in hand with a dynamic regional administration, a follow-on activity based on the lessons learned by the DRIG, can do an enormous lot of good for those who need help the most : the peasants and herders of the Guidimaka.

Part 5 : Questions to be resolved by the Evaluation

Two basic questions should dominate the discussions during the upcoming evaluation of the DRIG Project : has the Project Team carried out the requirements of the PP and the PP amendment of 1977 and 1981 ? And should some or all of the activities of the DRIG Project continue in Guidimaka after the end of the AID's financial support for Project O201, the DRIG, in December of 1982 ? The first set of questions should be addressed before the second and this report is meant to help provide answers to both.

I. Project performance to date.

Four basic questions need answers :

- a. Are the innovations that the DRIG is trying to introduce in the Guidimaka technically feasible ?
- b. Are these innovations economically viable ?
- c. Are these innovations socially acceptable in the Guidimaka ?
- d. Have the administrative and support systems built into the Project adequate to satisfy its needs ?

In addition the performance of the four administrations with responsibilities for the project must be judged :

- a. Has the MDR fulfilled its obligations to the Project ?
- b. Has AID/RIM performed the tasks it ought to perform to make the Project work ?
- c. Has Experience, Inc. recruited the personnel and provided the support necessary to execute its contract to administer the Project ?
- d. Has the Guidimaka Regional Administration helped the Project perform its tasks and has the Project helped this administration improve conditions in the Region ?

II. Future development efforts in the Guidimaka.

If the answers to the above questions are generally positive, the evaluation team should then turn its attention to how development efforts in the Guidimaka should follow the work of the DRIG Project :

- a. Which aspects of the Project should be continued in their present form ?
- b. Which aspects of the Project merit continuation, but should be modified by our experiences so far and by the new ideas of the evaluation team ?
- c. Which aspects of the project should be eliminated from further development efforts in the Guidimaka ?

Once these questions have been answered in a preliminary way, there are a number of details which I feel should receive attention from the evaluation team :

- a. Should extension efforts currently limited to the ZID of 20 kms around Sélibaby be extended to the whole region ?
- b. Should those aspects of the DRIG research program which merit continuation continue to take place in conditions which approximate local growing or animal husbandry conditions or should we introduce more ideal conditions to facilitate certain aspects of the research ?
- c. Should the work continue to depend on local materials and inputs which most peasants and herders or groups thereof can afford or should we switch to expensive imported inputs like chemical fertilizers ?
- d. Are there any new approaches which should be added to what is retained from the DRIG Project in any future activity ?

The Project Team feels strongly that at least three new aspects should be included : 1. an extended and more flexible credit program for peasants and herders ; 2. a dam-building program for small scale barrages that can be maintained easily by the interested population ; and 3. a human program based on that already begun by the Sélibaby hospital under Dr. Kane Youssouf.

- e. What new material, vehicles, personnel and buildings will be necessary for the the follow-on activity and how much will that activity cost ?
- f. For how many years should the follow-on activity last ? To what extent will foreign donor financing be needed and for how long ?
- g. Where should sub-stations of the Project be located, if extension is to cover the whole region, and what sort of personnel and equipment will be needed ?
- h. Should the Project request Peace Corps Volunteers to help with the added extension tasks, if they are approved ?
- i. To what extent can the lessons learned by DRIG O201 be applied to Integrated or other development projects in other regions of Mauritania or the Sahel ?
- j. How can cooperation among the four interested organisms be better fostered and encouraged ? Modes of interaction among USAID, the MDR, the Regional administration and the Project team and consulting Company (EI) need better definition.

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- k. Should relations between the representatives of the MDR and those of EI/USAID on the Project team be defined otherwise than at present ? If so, how should this be done ?
- l. Should the relationship that now pertains between the Project and the MDR representatives in the region be modified and how so ?
- m. What steps, if any, should be taken to ensure the permanent institutionalization of the aspects of DRIG activities that merit such permanence ?

As incomplete as it may be, answers to the above questions will, I feel, help greatly in planning a follow-on activity to the DRIG Project.

Part 6. The Sociology 'Problem'.

As implied in the contract between EI and USAID for the execution of the DRIG Project, the Project sociologist (myself) will not have time before the end of the current financed period to analyze and write up the information gathered during the first 4 years of Project operation (April, 1979 - December, 1982). Thus some means should be found to permit this analysis and writing, so that this valuable information not be lost to future developpers in the Region.

Rather than bring on an expensive consultant for the analysis of this information based on discussions with the Project Sociologist, I propose rather that USAID obtain funding for an additional three months work by him two assistants and a secretary in Sélibaby and Nouakchott after January, 1983, and for one month in Washington at the end of this period. I believe that this solution would be the most efficient and least expensive, though USAID will have to contact Experience in Washington for approval of this use of one of their contract employees.

Part 7. Conclusion.

In spite of its uncomfortable length, this report is only a brief expose of the accomplishments and perspectives of the DRIG Project. I have summarized the technical accomplishments of the Project in the interest of brevity and thus beg the interested reader to refer for more precise information to the detailed reports which each Division of the Project furnishes at the end of each month and each campaign. These reports are available from the Directorate of Agriculture, USAID/NOUAKCHOTT, and from the DRIG offices in Nouakchott and in Sélibaby. The Governor's Office in Sélibaby also has copies of all our reports.

I also would like to apologize to the technicians of the project for any inaccuracies or misrepresentations in my presentation of their work.

Finally, I would like to praise the entire DRIG team, whose dedication, energy and talent have created whatever success the Project has enjoyed in the first 34 Months of its life. The spirit of communication and cooperation that has dominated our work from the beginning is an irreplaceable trump card in the game of development work. One of the major advantages that any development team

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has in its work in communities of peasants and herders is its continuity and longevity. The power of the DRIG team's long association with the people of the Guidimaka, an association that has thus far been entirely positive, is not to be taken lightly. I feel that it is one of the major arguments for continuity in the financing and activity of the Project itself or whatever comes after it.

I feel that the Project, whatever its drawbacks or failures may be, has succeeded in helping the people of the Guidimaka and is now ready to amplify that help many times over. For this reason, I feel that the continuation of its activities should be a major priority for the MDR, USAID, and the regional administration of the Guidimaka.