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Ministry of Economy and Finance

**Directorate of Studies and
Programming**

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Rural Assessment and Manpower Surveys

Non-Formal Education

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Report on Non-Formal Education

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Introduction

Like most less developed countries, Mauritania suffers from high rates of un- and under-employment, a scarcity of skilled workers, low enrollments in schools, high drop-out rates and a limited ability to expand formal education. It is necessary for educational planning in a developing country to confront the discrepancies between the supply of, and the demand for skills needed for national development. A variety of social, cultural and political conditions lies behind the distortions in skill creation in educational systems that have been transplanted from developed to developing countries without being adapted to local needs.

Like other former colonies, Mauritania must overcome certain problems before there can exist an educational system that meets the country's needs.

- 1) Jobs in the modern (wage) sector pay much higher wages than jobs in traditional (usually non-wage) employment. Since access to the former depends upon academic credentials, there is heavy pressure to expand enrollments in the formal educational system.
- 2) The amount of formal education and level of diplomas held are usually more important in obtaining jobs in the modern wage sector than the actual quality of education and its relevance to job requirements or an individual's demonstrated proficiency.
- 3) Increased primary enrollments intensify competition for wage employment and the demand for education rises. Faced with an increasingly

- educated pool of manpower, employers tend to hire job-seekers with increasingly higher levels of education for jobs that were formerly given to persons with less education.
- 4) Formal education on one level becomes a preparation for the next higher level. Educational content becomes more theoretical and abstract rather than practical; cognitive more than manual or social skills are emphasized; universal rather than local experience is drawn upon.
 - 5) Formal education becomes irrelevant for most kinds of employment, particularly in rural areas, and for roles needed in a developing society.
 - 6) School enrollments increase faster than job opportunities in the modern wage sector, resulting in "educated unemployment" at increasingly higher levels of education.
 - 7) Schooling often produces an alienation of students from their original milieu, particularly if they are of rural peasant or nomadic origin. The result is an exodus of the young, particularly the educated, from rural to urban areas.
 - 8) The proportion of public expenditure allocated to formal education is already high and cannot expand significantly without subtracting resources from other sectors.¹⁾

This report explores the possibilities of nonformal, or out-of-school education in dealing with these problems in Mauritania. It examines institutions and programs in

¹ The preceding analysis is drawn from World Bank, Education Sector Working Paper, (Washington, D.C.: IBRD, 1974) pp. 20-21.

nonformal education in the light of larger issues of manpower training and employment generation, particularly in rural areas. It is concerned mainly with how well nonformal education in Mauritania operates in meeting the skill needs of the country and how well it complements the activities of the formal educational system. This report constitutes Volume III of the RAMS study on Manpower and Employment in Mauritania.

The report is organized in three parts. The first provides a rapid overview of basic concepts and domains of nonformal education. It also describes the institutions and programs concerned with the training of teachers or staff in this field.

Part II of the report provides a tabulation of the large number of institutions and programs involved in nonformal instruction and evaluates their activities in the light of the country's needs at this time.

Part III analyzes the findings of the Qualifications Survey carried out by RAMS in 1979. In this survey, five traditional rural occupations were examined from the standpoint of the training and skills of the practitioners and of the educational needs for upgrading these skills. The role of women was included in the survey.

Although this report is comprehensive in its coverage, several sub-domains and programs in nonformal education were excluded from the analysis because of time and personnel constraints. Lack of documentation is a serious limitation in this field. While the informal urban sector has been treated, to an extent, by the ILO¹, and there are numerous

¹ Robert Jourdain, "Analyse de résultats du recensement du secteur non structuré de Nouakchott, République Islamique de Mauritanie", doc. WEP 2-33/Doc 2 (Genève: Bureau international du travail, 1979).

conferences, seminars, short-term scholarships and meetings organized by foreign donors (UNDP, European Economic Community--FED, AID and others) that train mid-level management personnel in techniques of development planning, technical skills of research, it has not yet been possible to obtain data on these programs. The autonomous public agencies do a significant amount of training related to their own particular skill needs. The training centers operated by SNIM, the national mining company, and SONELEC, the national utilities company, are mentioned in this report, but they are analyzed in detail in the report on formal education. Job-related training and apprenticeships are treated in the Employment Report and in the Manpower Report.

Religious literacy (and efforts to modernize it) are partially covered in the report of a World Bank project¹, but more complete data on this important domain would require extensive field research. A hybrid form of private religious and/or secular literacy school has recently emerged in urban areas, notably in Nouakchott, but no data have been gathered. The Ecoles Ben Ameur and Ecoles Fellahia are well-established.

Counterpart training in government services and foreign donor projects, in which expatriate technicians prepare Mauritanian counterparts for eventual take-over of their positions, is apparently undocumented. Data on this activity will require further field work.

Unlike the formal education system whose beneficiaries are essentially children and youth of statutorily-defined

¹ André Lecourtois, "Etude expérimentale sur l'Enseignement islamique traditionnel en Mauritanie", (Paris: SEMA, Entreprises et Développement, 1978).

age groups, nonformal education is not so restricted. Indeed, it is concerned with the whole population in a process of life-long education. Special attention is given in this study to the population of the rural areas.

The great diversity of activities in nonformal education prevented an equally detailed analysis of all forms, but those programs and activities that seemed to have the greatest relevance to development in the rural sector were given priority. The great reservoir of educational needs related to productive activities in the rural areas is the reason for particular concentration on the Government extension services, SONADER (National Rural Development Company) and the traditional rural occupations.

The low productivity of rural occupations and the rapid rate of rural-urban migration (particularly of the young) were among the motives for carrying out of the Qualifications Survey. This survey assessed the level of skills, tools, and professional practices among farmers, herders, traders, craftsmen, fishermen and women workers. It also generated data on the modes of skill acquisition in these occupations and on what the felt needs of their members are. The survey on women was concerned with their roles as wives and mothers as well as the degree to which they engage in economic production. The Qualifications data will thus give an empirical base for planning appropriate types of nonformal education in rural areas.

No previous comprehensive study exists of nonformal education in Mauritania. Existing documentation consists of partial analyses of training or education in certain sectors, including a partial analysis of traditional

Islamic education¹ and some description in the form of project proposals or progress reports dealing with specific development projects financed by foreign donors. Studies concerning the modern urban sectors or the traditional rural sectors rarely give more than peripheral attention to apprenticeships and training programs.

The material in this report comes from direct data gathering through on-site observations and interviews with sixty persons in projects and agencies. Data were collected between February and May, 1980. Interviews are carried out in Nouakchott, Rosso, Kaedi and Kiffa.

The report is basically divided into those activities which promote productive work, and thereby incomes, and those which contribute indirectly to productive work and to social welfare.

¹ André Lecourtois, "Etude Expérimentale sur l'Enseignement Islamique Traditionnel en Mauritanie", (Paris-SEMA, Entreprises et Développement, 1978).

General Summary and Conclusions of the Report

Part One of this report is primarily concerned with development the concept of nonformal education itself. It also summarizes the types of nonformal education in Mauritania.

In this report, nonformal education is seen as an organized intentional learning activity involving an instructor-learner relationship. It is linked with and builds upon informal "education", or unintentional learning resulting from interaction with the environment. It can complement, reinforce and sometimes substitute for formal, or academic education that takes place in diploma-granting institutions.

Part Two of the report covers types of nonformal education that are directly linked to productive work. These types include traditional and modern agriculture, herding, water resource management, cooperatives and fishing in rural areas. Also analyzed are extension services including the Agricultural Extension Service, the Livestock Service, SONADER and several donor projects in the rural areas. Included as well is an analysis of certain projects in nonformal education in the modern urban sector and the non-structured sector (construction and crafts). Lastly, there is a general evaluation of these programs.

Following the section on nonformal education directly linked to productive work is the description and analysis of programs indirectly linked to productive

work. These are in the domains of preventive medicine, first aid, maternal health and child care and nutrition. In addition, there are data on environmental protection and conservation efforts, adult literacy and finally a general evaluation of all of these programs.

A brief chapter gives some information on types of nonformal education linked to social and cultural integration. These are traditional Islamic education, arts, literature and sports.

Part Three of the report is an analysis of five of the most important traditional (rural) occupations in Mauritania (plus women) in the light of the traditional modes of skill acquisition, external influences on the support and development of the occupations and their predominant types of skills and practices. The present types and levels of skills and practices are compared with the types and levels of skills and practices needed to modernize these occupations. By studying the felt needs of the members of these groups it is possible to establish general guidelines about the priorities in training/education programs for these groups. The conclusion to Part Three suggests steps to take the traditional occupations within an overall development strategy.

Conclusions
Government Programs

Most Mauritians acquire at least traditional vocational skills and religious training through nonformal education. Although there is a wide variety of activities and programs in nonformal education, few are explicitly designed to impart skills that are directly relevant to modernizing production, upgrading manpower or creating new employment. Most forms of nonformal education are indirectly linked to productive work or are concerned with social and cultural integration. The relative scarcity of nonformal education directly linked to productive work is due largely to conceptual, organizational and financial problems. Government planners and civil servants are generally not aware of what nonformal education is or what it can do in the realm of manpower training and employment generation. There is also an administrative fragmentation of services and organizations concerned with development in Mauritania that prevents the planning and coordination of a comprehensive strategy of employment-related training. Finally, Mauritania has very limited financial means at its disposal and only a small proportion of its national budget is allocated to rural development activities. In most cases, training activities are an accessory to service activities and receive very few financial and personnel resources.

Conceptual Problems

Experience in data-gathering for this report revealed that the notion of nonformal education itself is unknown to Mauritanian government planners. While there are

difficulties in defining and classifying nonformal education, the concept that out-of-school education and training is worthy of major government and donor investment or that it may be the most appropriate means of involving largely traditional, illiterate people in development does not seem to have taken hold in Mauritania. The government is doggedly committed to formal education as the primary means of imparting literacy and vocational skills in spite of the fact that the formal school system can absorb only a fraction of the school age population (see the report on formal education). There is a fear, no doubt, that education outside of a school is of dubious quality. While it is true that certain types of knowledge and skills may be best learned in formal education (physics, chemistry, modern medicine, etc.), it is not yet an accepted idea that non-formal education can be an equally viable way of learning basic functional literacy and vocational skills. The commitment to certified "professional" competence has blinded the government to the value of nonformally trained para-professionals in literacy and general development work. For example, the actual and potential value of the worker-assistants (mandeuvres) in the Agricultural Extension Service, in which they seem to constitute an informal parallel extension service, does not appear to be appreciated by the Service.

In spite of rhetoric about the importance of rural development in Mauritania, the bulk of its resources in education and training is used to prepare an essentially urban elite for higher education and for work in the civil service. The resources committed to nonformal education related to rural development are symbolic at best.

Organizational Problems

a. Un-Coordinated Planning

The principal organizational problem in nonformal education in Mauritania is an absence of coordinated planning among the organizations that sponsor in nonformal education. The Ministry of Rural Development's various services do not coordinate their extension and training activities. There is a new effort to try to overcome this problem through the creation of multi-sectoral extension brigades (FAO-UNSO project).

b. Service Orientation

A further, perhaps more serious problem is the fact that the main organizations involved in nonformal education are services first and training institutions second. Thus the Livestock service gives free vaccinations to cattle, the Agricultural Extension service distributes seeds, fertilizer and pesticides and the dispensaries and PMI's do mainly curative work. As a result, training is at best a secondary activity and an entrenched passivity and dependency on the part of the clients' results. They often expect to be served and tend not to feel motivated enough to be active participants in training activities, thus negating one of the most fundamental aspects of the dynamics of nonformal education. This is one of the most serious problems in nutritional education, to cite but one case.

c. Lack of Pedagogical Preparation

A further complication is that the personnel of the services are usually unprepared to work as trainers. The

National School of Nursing (ENISF) gives its graduates no pedagogical training even though many are called upon to train Red Crescent volunteers, women (pregnancy and child care education) or community health workers. Even when the service personnel are given a pedagogical background, such as the graduates of the ENFVA, they are often unable to apply it because their service does not have transportation to reach clients or because the service itself does not engage in much training at all.

d. Job-Creation

The fact that nonformal education is largely the responsibility of services with little interest in education or with no direct relation to productive work means that there are few efforts to create jobs. The Agricultural Extension Service does not have the means to open up new land for cultivation or to help settle more people on existing farm land. SONADER also appears to work mainly with existing farm populations. On a small scale, Women's Training Centers attempt to train women to operate their own craft cooperatives, but there is none of the essential follow-up support needed to help a shaky new cooperative become self-supporting. The absence of a functional literacy program means that "graduates" of literacy classes must fend for themselves if they hope to work.

e. Diploma Requirements

There is a serious difficulty in encouraging employment-oriented nonformal education because the civil service (Fonction Publique) does not recognize the qualifications of persons not trained in formal education (and therefore not possessing degrees). The A, B and C-level cadres are

defined by level of formal education attained as are promotions, salaries, benefits, etc. Thus, the training of mid-level technicians through strictly on-the-job training by the Hydraulic Service produced skilled personnel whom Fonction Publique has refused to pay because they do not have recognized credentials.

f. Internal Management

Data gathering for this report also revealed that there was a lack of budgetary and even personnel data that would have permitted an assessment of the costs of nonformal education in Mauritania. Training/education costs are not factored separately in most service budgets, perhaps because the services do not give importance to training functions. The fact that service personnel had other, service functions and that records are not usually kept on "curricula", adequacy of training or even on numbers of clients trained prevents the factoring of costs stated in most budgets.

Unequal distribution of service staff has resulted in serious regional imbalances. In few cases can the numbers of personnel be called adequate, but there is generally a greater concentration of Rural Development personnel in the northern regions than in the more agricultural south. There is generally an over-concentration of service staff in Nouakchott, as well. The urban concentration of many services (especially health) and the lack of transportation for many service personnel means that nomadic and many rural sedentary people do not benefit from services or training.

g. Motivation

A general gloom seems to pervade many services, whose skimpy budgets and inadequate equipment prevent them from performing many of their tasks. From a salary and benefits point of view rural development work is not very attractive and it seems that the students who go to the ENFVA are often drop-outs from more prestigious schools who had no other choice. Many rural development workers regard themselves as white collar civil servants, which creates barriers between them and the clients they are to serve and train.

Indigenous Non-Governmental
Organizations

Indigenous non-governmental organizations tend not to have a development-oriented training function. The Red Crescent Society does not yet play a large training role in development outside of Nouakchott. It does have some positive aspects:

- a fund-raising and volunteer coordination capability;
- a readiness to work in collaboration with other agencies (notably Lutheran World Relief and Catholic Relief Services).

The Délégués Sanitaires are a valuable experiment that can be strengthened and duplicated in other regions. The program will need better training and logistical support.

Too little is yet known about indigenous cooperatives and professional organizations to assess their value as

vehicles of skill acquisition and economic development. They appear to be:

- unable to provide access to credit or modern tools;
- without the means of giving technical advice;
- isolated and unconnected to one another.

Traditional Islamic education does not appear to play a role in the development process. Given its purpose and pedagogical methods, it may not be an appropriate vehicle for development-oriented nonformal education or functional literacy in all parts of Mauritania. There are, however, positive indications that new configurations of "traditional" nonformal education are emerging with little or no governmental support. These seem to be mainly in urban areas (especially Nouakchott) and appear to:

- orient themselves to a dual religious and secular literacy function;
- reach people excluded from the formal educational system;
- enroll significant numbers of adults, including women.

These schools, including the Ben Ameer and Fellahia schools, do not seem to have the advantage of offering employment-related skills beyond general knowledge, literacy and numeracy (as do the CFPP and SNIM schools).

Foreign Donor Agencies

Foreign donor agencies seem to play the most active and well-defined role in development-related non-formal education. These programs have several serious

difficulties including, being:

- too small-scale to meet the learning needs of the majority of the out-of-school population;
- funded for limited periods of time;
- difficult to integrate properly into the Mauritanian governmental services once foreign funding and personnel are phased out.

Nevertheless, the foreign donor projects have some notable strength:

- formal and nonformal training of Mauritanian personnel in development work;
- introduction of appropriate technology, experimentation with cooperatives, credit institutions, environmental protection techniques;
- initiation of potentially self-financing development activities.

The close collaboration between foreign donor agencies and Mauritanian governmental (and non-governmental) organizations may come to naught unless there are major structural changes in the planning, funding and management of governmental development policy. In most cases, it is too early to evaluate the effects of the foreign donor projects since they are of recent origin in most cases (several are in their early implementation stages).

Populations and Needs

Perhaps the most extensive activities in nonformal education take place in the occupations of, traditional agriculture, livestock, crafts, commerce and fishing. The type of nonformal education is the traditional apprenticeship, family-based or otherwise. The combined nomadic and sedentary population involved, whether as learners or "trainers" is 139,226¹ herders, 138,453 farmers, 24,953 shopkeepers, 14,013 craftsmen and 2,375 fishermen. Of these occupations, only farmers, artisans and herders benefit in any way from governmental or non-governmental efforts in improving the practices of the occupations in question. Even these occupations show little evidence of a ripple effect resulting from the injection of new knowledge and practices because of the personnel and financial constraints in the services and agencies involved. In the case of the Livestock Service, no educational efforts per se have yet been undertaken on a significant scale. The other occupations have few institutional means of gaining and applying new knowledge and practices, except for a few isolated cases in crafts and coastal fishing. There are virtually no governmental cooperatives, marketing or credit facilities in these occupations.

¹ This and the following four figures are from the 1977 Census computer printout table 22B and NA12; data summarized without adjustment. Population included are males aged 12 and over as well as female heads of nomadic households.

Various kinds of professional organizations and the concomitant training needed to make them workable are needed in order for the occupations in question to play a meaningful role in the development process. The traditional rural occupations are the largest sources of employment in the country and must be revitalized in order to contribute significantly to economic productivity.

Other, even larger groups, have only embryonic institutions to give them the kinds of skills they need to gain meaningful employment and to reinforce the ripple effect which can happen when one group of people receives training in various kinds of skills and knowledge and passes these on informally to colleagues, apprentices and children. The first of these groups is the total population aged six and over that has no education or the beginning of traditional Islamic education only. These 585,638¹ persons are potential clients of mahadras, urban literacy-oriented schools and the government's adult literacy program. The facilities, personnel, materials and funds to launch a large-scale functional literacy program in French or Arabic are utterly lacking. There are only the beginnings of literacy efforts in the other "national" languages.

The second group is women between the ages of fifteen and forty-nine of some 312,887 individuals. A few of those who are fortunate enough to live in the administrative centers or cities can benefit from crafts, homemaking, literacy and cooperatives training in the Centres de Promotion Féminine. Urban and some village

¹ 1977 Census computer printout tables NC11 and SA20 bis; data are summarized without adjustment.

² Ibid. table TD02.

women can benefit from nutritional and hygiene education.. at PMI's and CRN's and certain food distribution centers. There are no efforts to give other kinds of practical skills to women, particularly rural and nomadic women. Given the present state of affairs, (including the low enrollment rates of girls in all levels of education, including mahadras), women can play at best a peripheral role in social and economic development.

As it now appears, few sedentary women play an economic role outside of the home. Nonformal education for women can be expected to have positive effects on family life in general and children in particular. Women play a dominant role in raising children of both sexes to at least the age of ten. In the areas of health and hygiene, women are already sensitized to the usefulness of modern medicine and are logical targets in efforts to improve the hygienic conditions of the home in the context of a preventive medicine campaign.

Strategy Outlines

--Organizational Means

An overall, unified strategy integrating formal and nonformal education is necessary in order to meet Mauritania's manpower and employment needs in the context of rural development. There must be a coordination of all national institutions concerned with education and training of all kinds. This must be coupled with a decentralization that would allow a regional and even a local planning and coordination process to take place. Maximum use of all resources is imperative given the financial and personnel constraints in Mauritania. Para-professionals, development service personnel and even parents are resources to draw upon in schools. Persons of all ages must be actively involved in strengthening the learning resources of a community as a whole.

--Other Institutions

- Institutions not yet involved in development work. The whole formal educational system needs to be re-structured in the light of Mauritania's development needs. The National Pedagogical Institute (IPN) could play a role in improving the pedagogical efforts of the Rural Development services and help knit them into a larger educational and training framework. The National Languages Research Institute could help define a functional literacy policy. Within the Rural Development Ministry itself, the Livestock Service and the Environmental Protection Service will need assistance in acquiring an educational function.

- Media

The success of radio fora in other developing countries (India, Niger and Colombia, to name but three) leads one to conclude that the potential role of radio in literacy and economic development activities in Mauritania must not be ignored. Substantial numbers of farmers already indicate that they listen to agricultural broadcasts. Visual media such as posters and rural newspapers have been used successfully in health, family life literacy and agricultural development programs elsewhere. Mauritania does not yet have the capacity to develop and use these media to its advantage.

- Pedagogical Materials.

In addition to the media problem, there will have to be a major effort made to develop appropriate materials for the educational efforts of the agencies and services involved in nonformal development training. This will involve research and testing by competent specialists before large-scale production is possible.

- Further research

The present report is essentially a tour de horizon giving a general description and evaluation of nonformal education in Mauritania. Its assessment of learning needs among five traditional occupations and women is only the first step towards defining strategies and programs to meet these needs. In order to obtain a finer-grained picture of learning processes and learning needs, further research is recommended in several domains.

- Direct observation of the learning process in traditional apprenticeships and family-based learning would provide much useful data.

- Research in the heretofore unstudied urban nonformal schools would give some useful clues about the possibility of strengthening these institutions and possibly giving them a more vocational focus.
- A study of professional organizations, cooperatives and mutual help groups would help to define ways of linking these to larger development schemes involving traditional occupations.
- The present report needs to be completed with data on nomads.

Part One

1.1. Basic Concepts

The goals, methods, contents and processes of education are conceptualized in this report in terms of formal, nonformal and informal education.

Formal education is "the highly institutionalized", chronologically graded and hierarchically structured 'education system' spanning lower primary school to the upper reaches of the university"¹. Formal education is the kind of diploma-oriented learning offered in schools usually run by ministries of education. The curriculum is largely a jumble of discrete subject matters that, for the average student, have little or no meaningful relations to one another: languages, mathematics, social sciences, natural science, and others each of which is often again subdivided into further discrete units².

Schools and school systems are formal hierarchical organizations with vertical authority structures.

In addition to teaching basic literacy and numeracy, formal school have roles such as custodial care of the young, selection and certification for social roles and status within the community and inculcation of social values.

¹ Philip Coombs with Manzoor Ahmed, Attacking Rural Poverty. How Nonformal Education Can Help. (Baltimore, the Johns Hopkins University Press, 1974), p. 8.

² Theodore Brameld, "Imperatives for a Reconstructed Philosophy of Education" in Modern Philosophies of Education, ed. John Paul Strain (New York: Random House, 1971), p. 116.

Between the extremes of highly organized school-based formal education and the diffuse, unstructured experiences of informal education lies nonformal education. Seen as any "organized, systematic, educational activity carried on outside the framework of the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children. Thus defined, nonformal education includes, for example, agricultural extension and farmer training programs, adult literacy programs, occupational skill training given outside the formal system, youth clubs with substantial educational purposes, and various community programs of instruction in health, nutrition, family planning, cooperatives and the like"¹. The purposes of nonformal education are generally more specific than those of formal education, which may be broad and diffuse. Nonformal educational programs tend to be focused on specific population groups and last less time than formal educational programs (e.g. a two-year literacy program versus a six or seven year primary education)².

Obviously, not all learning goes on in schools and the majority of humanity has little or no formal education, especially in developing countries. Most learning, in fact, takes place outside of schools and throughout one's life. This learning process may be seen as an educational process, although it does not involve

¹ Philip Coombs with Manzoor Ahmed, Attacking Rural Poverty. How Nonformal Education Can Help. (Baltimore, The Johns Hopkins University Press, 1974), p. 8

² Cited in Ted W. Ward and William Herzog Jr. Effective Learning in Nonformal Education (East Lansing, Michigan: State University, 1977) p. 26.

a formal teacher-student dichotomy. The lifelong process of accumulating knowledge, skills, attitudes and insights from daily experiences and exposures to the environment is often called informal "education"¹. This form of learning lies outside the realm of institutionalized pedagogy, but will be treated in the context of socialization in traditional rural sector occupations.

¹ Philip Coombs with Manzoor Ahmed op.cit. p. 8

1.1.1 Three Modal Types of Education: A Continuum

Types of education can be classified on a continuum ranging from highly structured, formal education in specialized institutions staffed by specially trained professionals to completely unplanned, unintentional learning that takes place continuously throughout life in all of its settings. Formal, nonformal and informal education are inherently interconnected and complementary learning processes. They are most clearly understood from the point of view of life-long education, meeting different learning needs in different ways. Although each modal type of education has its own functions, there is a significant amount of overlap and inter-penetration..

Figure 1: Continuum of Types of Education

Informal Learning ("Education")	Nonformal Education	Formal Education
Socialization, enculturation, unintentional learning throughout life in the family the community, peer groups, through popular mass media, travel etc. Cognitive styles acquired influence learning in formal and nonformal education.	Organized, intentional learning with an instructor-learner relationship in a wide variety of settings outside of the formal school system. Settings include adult literacy centers, farmer training programs, on-the-job-training, apprenticeships, etc. Focus on practical, instrumental skills. Usually short-term programs; affective, psychomotor skills, important. Certification is usually of secondary importance, if any.	Organized intentional learning in degree-granting schools, usually controlled by Ministries of Education Much emphasis on cognitive, intellectual skills. Tendency for pre-determined curricula to prepare students for the next higher level of schooling. Examinations mark certified levels of knowledge. Clients are usually theoretically defined age groups who are taught for limited, arbitrary periods of time.

In conceptualizing the various types of education as continuous and complementary, it is possible to analyze and plan for the overall learning needs of a given population. Concentration of resources in one domain results in disequilibria such as discontinuities between cultural background and types of knowledge taught or neglect of economically productive skills in favor of intellectual skills and theoretical knowledge. Favoring only one kind of education may also limit it to small numbers of learners.

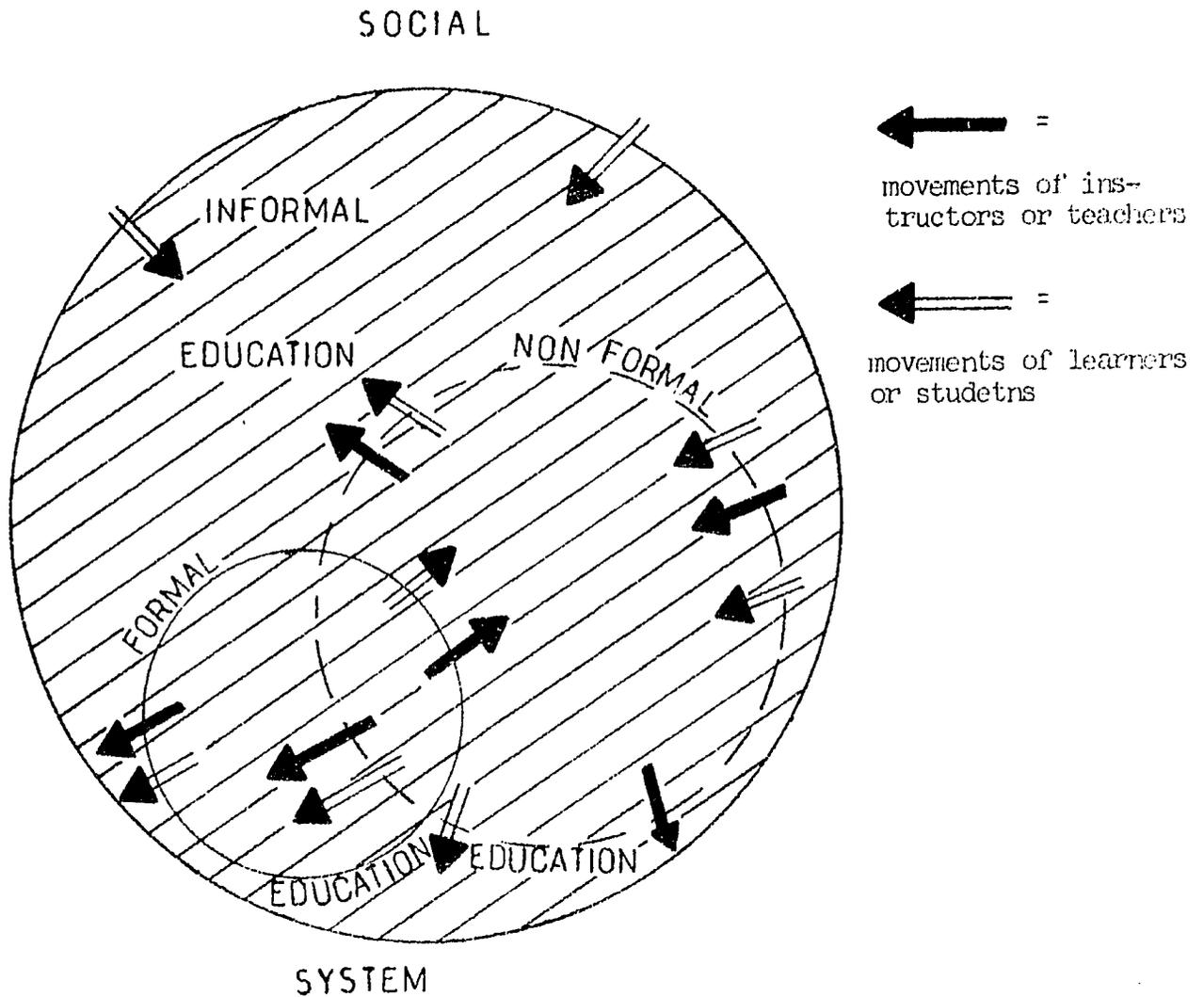
1.1.2 The Relationship of Formal, Non-Formal and Informal Education

Educational institutions become major means of cultural reproduction and social change as a society becomes too complex for the family and community alone to transmit all valued attitudes, knowledge and skills. As shown in figure 2, informal education underlies the whole society including its formal and nonformal education institutions and programs. Informal education extends even beyond the social system in the form of contact with other societies through the popular mass media, travel and interaction with foreigners. In traditional rural societies like Mauritania, however, there is still relatively little change in productive work that results from informal education.

Nonformal education includes a wide variety of institutions, programs and activities and plays an important role in manpower training and skill innovation. The activities in question are often closely linked with productive work in the communities where they take place; for example, the Agricultural Extension Service and various donor projects

Figure 2 The Relationship of Formal, Non-Formal and Informal Education.

Informal Education: co-terminal with society itself. Influence from other societies through popular mass-media, travel, interaction with foreigners (arrows from outside the largest circle). Underlies formal and nonformal education.



Non-Formal Education: Agencies, programs activities usually linked with local community in terms of training for jobs, or social well-being (health, nutrition, religion). Education of drop-outs from formal schools and persons who never entered schools. Light arrows: movements of learners; dark arrows: movements of instructors.

Formal Education: Essentially academic education; few links with the local community or preparation for productive life in it. Enrollments relatively limited. Light arrows: movements of students (graduates, dropouts); dark arrows: movements of teachers to nonformal education or out of teaching altogether.

seek to train farmers in methods of improved vegetable cultivation on their own farms and the Women's Training Centers are designed to prepare women for craft making in local cooperatives.

Formal education in Mauritania consists of highly specialized institutions that communicate attitudes, knowledge and skills that have little to do with productive work in rural areas. Schools have few links with the communities where they are located and have little impact on them. Of the three types of education considered, formal education touches the fewest people.

Formal and nonformal education are not entirely separate, however; and there is significant movement of instructors and learners between the two. Students who do not complete their academic education in schools may enter institutions and programs in nonformal education to gain or improve vocational skills. For example, the SNIM training centers give training in industrial skills to young men of limited (formal) education. Teachers from nonformal schools may move to formal education on a full- or part-time basis. Thus, sheikhs (religious instructors) may leave the nonformal mahadras (Koranic schools) and teach in Arabic in the formal, government primary schools. Teachers from government primary schools teach in after-hours adult literacy programs. It is apparently common for persons with little or no formal education to enroll in nonformal literacy programs or non-formal schools for night courses to prepare for exams required for a primary or secondary school diploma. Thus, there is overlap and movement between formal and nonformal education in Mauritania, although unplanned and un-coordinated and not always complementary at present.

1.1.3 Complementary and Substitutability of Formal and Non-Formal Education in View of Development Needs

Basic Needs and Education

One of the most important functions of education is to prepare people for productive, satisfying lives within their own milieu. Some of the fundamental needs that education must meet in Mauritania are functional literacy and numeracy on a mass scale, acquisition of vocational skills, skills aiding the health and well-being of individuals and families and attitudes favorable to life in local communities. Formal, nonformal and informal education can play a positive role in meeting their needs just as they can play a negative role. Each has its own unique strength as well as weakness which must be taken into account in planning an overall strategy in education as part of a manpower and employment-generating policy.

One of the unique strengths of formal education is disciplined acquisition of intellectual skills that allow one to learn on one's own. Literacy, knowledge of a common language, general knowledge and some understanding of the world beyond the local community are strengths of formal education.

While formal education fits students into a common mold which may or may not suit the individual, nonformal education has the possibility of giving flexible instruction to meet particular needs of individuals or subgroups. Vocational skills for specific types of work and skills related to particular problems such as health and well-being may often be best met by nonformal education.

Complementarities of Formal, Non-Formal and Informal Education

The reinforcement of learning in formal and nonformal settings is a particularly important function of informal education. The availability of books, magazines and other printed material is essential for maintaining functional literacy outside of school. The kind of information available through the broadcast media and the presence or absence of clubs, professional organization and social centers can enrich or detract from the efforts of formal and nonformal education. In the domain of attitudes toward learning and innovation, informal education is especially powerful and community opinion may discourage women and girls from going to school, favor or disfavor new kinds of agricultural or herding practices, etc.

In Mauritania, whose financial and human resources prevent the possibility of schooling 100% of the population in the foreseeable future, alternative ways of meeting the needs cited above must be tried. While the value of formal schools in the realm of intellectual training and spreading a common culture is great, the aptitude of non-formal education in training for job skills would make it a desirable addition to formal education. Nonformal education in functional literacy and numeracy for special groups such as illiterate adults, school drop-outs and children who never enrolled in school is an additional function that formal schools can play, given the presence of pedagogical materials, teachers and the possibility of multiple uses of school buildings, particularly after

hours and during vacation periods. Nonformal educational components added to the "formal" curriculum, such as practical work experience in and outside of school can strengthen the school's role in the development process. The inclusion of development service personnel, parents and other working adults as para-professional instructors is an important way of creating valuable links between the schools and their communities by helping students prepare for productive lives there. By using the community as a resource, schools can become more closely tied to development activities when students can have active experience with development personnel in school and at project sites (e.g. irrigation projects, community health and nutrition centers, public works activities, etc.). These experiences in nonformal education help to socialize people for productive life in their own communities.

A complementarity of formal and nonformal education that is not to be missed is through the nonformal education of parents, who are thereby able to improve the learning environment of their children. The ensuing informal transmission of knowledge, skills and attitudes through the family and community can be encouraged through vocational training of working adults who pass on skills to their children via a "ripple effect". Increasing the quantity and quality of broadcast and print media has important indirect effects on what and how well children and adults learn in formal and nonformal settings.

By localizing the content of the formal curriculum through the use of local languages and the creation of links with the community, it is more possible for schools

to prepare students for lives in their communities. By giving students active experience as learners (and eventually instructors) in nonformal kinds of education they are not forced to go to cities to find wage jobs that suit their educational backgrounds. Nonformal education related to job-creation in local development projects complements formal education. Thus, the balancing of the intellectual and practical requires efforts in multi-sectoral economic planning. Without this, nonformal education is likely to be a fragmented series of low prestige training programs for ordinary people while formal education will be an agency of elite certification, drawing talent away from the rural areas and contributing little to Mauritania's development needs.

1.1.4 Substituting Non-Formal for Formal Education

As noted above, formal education can meet the learning needs of a limited number of persons in Mauritania. the same learning needs can also be met by a variety of programs in well-planned nonformal education. Functional literacy and numeracy can be designed for older youth and adults in the context of vocational training programs. Nonformal programs in these domains for these groups can supplement the role of the more child-oriented formal primary school and the theoretical and general training of formal vocational high schools.

In the area of agriculture, for example, specially-trained professionals and para-professionals may be better instructors in setting up school gardens and small livestock

pens than primary school teachers.

Agricultural Extension and Livestock Service agents who have specialized knowledge in these domains could play a valuable role as resource agents in schools. Students could learn even more by attending actual demonstrations or training sessions that the Agricultural Extension and Livestock Service agents might carry out with practising farmers and herders "in the real world".

Nonformal education, either as a program on its own or as a component of a formal school curriculum, can probably better orient students to productive work in their communities or in rural development projects than formal education alone. Nonformal education involves active learning through participation in productive activities; in that these provide satisfying experiences for learners they help socialize them into occupational roles favorable to rural development. Formal education offers at best indirect experience through reading about development. As long as formal education is divorced from rural development it cannot contribute to it.

1.2 Goals of Non-Formal Education

In Mauritania, nonformal education has not been organized into a system. It is a very diverse unconnected group of institutions, activities and programs that have in common the fact that in one way or another they provide some kind of organized instruction outside of the formal school system.

Although many programs in nonformal education are indirectly concerned with improving economic production or training people for jobs, quite a few are focused on indirect contributions to productivity through improved health, nutrition, personal and social welfare. Not all nonformal education activities are organized with development in mind. Traditional Islamic education encompasses most of the Mauritanian population for varying periods of time, but vocationally-relevant literacy and numeracy are not the main goals of this kind of instruction.

The types of nonformal education concerned with direct contributions to productive work are essentially in the domains of agriculture, herding, fishing and other traditional rural occupations. There is also the modern urban and non-structured sector vocational (usually on-the-job) training.

The types of nonformal education that contribute indirectly to productive work are largely social welfare programs. These include health, women's training and literacy.

Religion, arts, literature and sports constitute a third domain of nonformal education concerned with social and cultural integration.

Basic Table A is a summary of the main types of non-formal education in Mauritania, organized by the types of skills they teach. The table enumerates clients or learners, the staff or other persons filling an instructional role and finally, the location of the programs.

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>- Agriculture</u>			
- Traditional Agriculture, including recessional, rain-fed, bottom land, oasis and dam agriculture	Theoretically the 6-14 age group among 68,804 rural sedentary persons and 27,745 nomadic households	Adult farmers, particularly male relatives	Most of Mauritania south of the 350 mm isohyete. Northern and central oases, wadis, banks of Senegal River.
Skills:			
Hoeing, sowing, weeding, harvesting, threshing, winnowing, storing, traditional hand tools, equipment, methods			
Absence of fertilizer, extensive irrigation, pesticides, fungicides, machines or animal traction.			
Ways of Learning:			
Learning by observing, gradual participation in adult work.			
- Modern Agriculture			
. Vegetable gardening	Uncounted sedentary farmers near groundwater sources (vegetable growing)	Vegetables: 1. Agr. Ext. Services 116 techn. and admin. 2. AID Vegetable Proj. 13 expats. plus Maurit. counterparts. 3. DRIG (Proj. Selibaby) 5 US technicians, 6 Maur. counterparts 4. War on Want	-all regions but Nouadhibou and Tiris Zemmour -Trarza, Brakna, Assaba, Gorgol -Guidimakha -Guidimakha - on River
Same skills as above plus choice of soil, rotation of crops, collection of seeds, watering, thinning, use of seed beds, fertilizers, pesticides; preservation and storage of crops.			

1.3 Organizations Sponsoring Non-Formal Education

Basic Table 2 is an institutional summary of programs in nonformal education. The programs or activities are arranged according to the administrative affiliation of the sponsors. The table also gives data on the age of the programs, the skills or services provided and other relevant information.

1.4 Institutions and Programs Concerned with Training Rural Development Agents or Instructors in Non-Formal Education Activities

There is only one institution whose basic goal is to train rural development agents, the ENFVA (National Agricultural Training and Extension School) in Kaedi.

There are several other institutions and agencies that train personnel who may work as trainers in development-related fields, but they either have other primary goals, have short-term training objectives, or train temporary foreign personnel (e.g. the Peace Corps).

Government of Mauritania

- ENFVA (Ecole Nationale de Formation et de Vulgarisation Agricole-National Agricultural Training and Extension School) in Kaedi.

The school trains extension agents and mid-level personnel for the Agricultural Extension Service, the Livestock Service and the Environmental Protection Service.

Basic Table 2

Institutions and Programs:

Administrative Affiliation of Organizations Sponsoring
Nonformal EducationGovernment of Mauritania

- . Rural Development Services
 - Agricultural Extension Service
 - Livestock Service
 - Environmental Protection Service
 - Cooperatives Service
 - SONADER
 - Water Resources Service (Service de l'Hydraulique.)

Public Health Department

- Hospitals (certain cases)
- Dispensaries (certain cases)
- Maternity Clinics (certain cases)
- P M I's (Mother and Child Protection Centers)
(certain cases)
- C R N's (Nutritional Recovery Centers)
(certain cases)

- . Ministry of Fundamental and Secondary Education
(adult literacy)

- . Ministry of Culture Youth and Sports (National
Library, Museum, Sports program)

Autonomous Public Agencies (treated in the report
on formal education)

- . SNIM (National Mining and Industrial Company)
 - Industrial Training Centers
- . SONELEC (National Utilities Company)
 - Worker Training Centers

Private Companies, Modern Sector (not treated in this report)

- . Apprenticeships
- . On-the-job- training
- . Counterpart training (for Mauirtanization)

Traditional and Non-Structured Sector

- . Apprenticeships

Indigenous Systems and Organizations with Little or No Government Assistance

- . Mahadras (Traditional Islamic learning with an emphasis on adolescents and young adults. Some teaching of "modern" subjects in the larger ones. Certain Mahadras receive a small subsidy from the Ministry of Justice and Islamic Affairs.
 - Ecoles Ben Aneur (data not available for this report)
 - Ecoles Fellahia (transitional schools offering Islamic learning as well as "modern" subjects to youth and adults)
- . Délégués Sanitaires (Community Health Workers)
- . Nonformal Private Schools (mainly urban, giving literacy in French or Arabic as well as tutoring to those who tend to take exams for the formal educational system; no government subsidy)

Basic Table 1: Types of Non-Formal Education Indirectly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>Public Health</u>			
- Community-based Preventive Medicine			
Skills: Ability to identify common illness, administer very basic curative treatments, taking temperatures, assessing stages of infant dehydration, willingness to serve as liaison between community, health authorities.	About 30 volunteers (<u>Délégués Sanitaires</u>) 192 village health workers (Rural Medical Assistance - Project Trarza)	1 doctor, 1 midwife, 5 nurses 2 Maurit. nurses (<u>infirmiers diplômés</u>) 10 Maurit. nurses at dispensary level.	Training in Atar for <u>Délégués</u> , in rural areas for general population. Training in Nouakchott and Rosso for village health workers training in rural areas for population.
Ability to explain need for vaccinations to rural people, explain measures to prevent diarrhea in young children, how to disinfect wounds. Ability to explain environmental causes of illness	Population of Adrar region Population of Trarza region	4 Peace Corps vols. 2 expatriate public health specialists. 1 Maur. counterpart.	
First Aid			
Skills: Basic first aid procedures Social work, <u>animation</u> techniques.	about 3,500 volunteers (secouristes) about 40 moniteurs (supervisor-trainers) 250 families 10 Red.Cresc.volunt.	Various volunteer doctors, nurses. Public health, Red Cross Officials. 10 Red Cres.volunt. Agri.Ext.pers.and Lutheran World Rel.	Most regional administrative centers. Nouakchott hospitals overseas workshops. Nouakchott veg.gard. Nouakchott
Vegetable gardening. Extension methods.			
Sewing, Knitting	variable numbers of women	1 trainer.	Red Crescent headquarters, Nouakchott.

Basic Table 1: Types of Non-Formal Education Indirectly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>Maternal Health and Child Care</u>			
Skills:			
Understanding pregnancy, birth process, measures to take in case of difficult pregnancy.	Pregnant women in general, usually residing in administrative centers	Midwives, nurses interpreters.	<u>Centres de Protection Maternelle et Infantile</u> (PMI's) in administrative centers
Family Life Education.	Husbands of pregnant women.	Expatriate nurse	<u>Centre Medico-Social</u> , Nouakchott
Recognition of difficult pregnancies.	57 <u>Accoucheuses auxiliaires</u> (auxiliary midwives) (9 months training).	2 specialists in maternal, child health	Nouakchott based training
Pre- and post-partum hygiene.	102 <u>Accoucheuses traditionnelles</u> (traditional midwives) (1 month on-the-job training)	nurses, midwives	In regional PMI's maternity clinics and hospitals
<u>Nutrition Education</u>			
Skills:			
Learning causes of malnutrition; Identification of symptoms of malnutrition of right foods for a balanced diet.	28 Nutrition auxiliaries (literate village women) (3 months training)	Nutritionist plus nutrition educators and nurses.	Nouakchott based training
Preparation of food for babies, children. Recognition of health-weight relationships.	Unknown no. of village women volunteers (<u>mères animatrices</u>) for home visits. (2 week training).	Regional nutritional educator auxiliaries.	Regional PMI-CRN's (Nutritional Recuperation Centers).

Basic Table 1: Types of Non-formal Education Indirectly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>Adult Literacy (secular)</u>			
Skills:			
Reading, writing in Arabic or French.	1,731 adults in 1977-78 mainly women in some centers	Primary school teachers	18 government centers in most regional capitals, including 6 in Nouakchott, including the CFAT
Same skills plus arithmetic, general education, Islamic religious principles. Some instruction of Pular, Wolof, Soninké.	Unknown number of students especially adolescents and adults	Unknown number of educated persons, some of whom are or were teaching Koranic schools or primary schools	Urban areas, especially Nouakchott.

Types of Non-Formal Education Linked to Social and Cultural Integration

Religious Education

- Skills: Reading, reciting the Koran (1st stage) Arabic language, literature, history, Islamic law (2nd stage)	Nearly all Mauritians	Literate parents, sheikhs or religious scholars.	Ketatib (basic level) Mahadras (advanced level) schools in cities, towns, camps
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Arts, Literature, Sports

- Skills: Language, intercultural learning, acquiring information about science, art, history, archeology. Learning football, basketball.	Educated youth, civil servants, foreign residents.	Personnel of National Library Museum, Staff of Foreign cultural. Sports coaches.	Nouakchott
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Basic Table 1: Types of Non-Formal Education Indirectly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
- Record-keeping relative to child health and vaccinations, Explanation to mothers of how to select nutritious foods. Demonstration of how to cook donated and local foods.	35 Red Crescent Volunteers who have trained about 32,000 women requiring food	Expatriate Catholic Relief Services Staff Trainer, PMI/CRN personnel	Nouakchott - 16 centers, mainly in south-western Mauritania.
<u>Environmental Protection and Conservation</u>			
Skills:			
Collection, planting, care of <i>prosois chilensis</i> seeds, samplings. Establishment, care of tree nurseries.	35 men trained as nursery workers 165 persons trained to water trees in "Green Belt".	10 trainer-agents from Environmental Protection Serv.; supervision, funds from Lutheran World Relief.	Northern edge of Nouakchott.
	villagers in Barkéol (Lutheran World Relief Project).		Barkéol (Assaba)
	villagers in 5 villages on Senegal River.		Trarza
	School children and adults among 1,000 people in 4 villages.	COSOC and Environmental Protection Service.	near Rosso (Trarza)

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive Work

Type of Service or Activity	Clients	Trainers	Location
- Modern Fishing			
Skills:			
Sailing, navigating aboard motor-driven boats. Motor maintenance, sorting, preserving fish; physical education	up to 40 fishermen to be trained annually	At least one Japanese specialist for each skill	Japanese-financed fishermen's training center to open in Nouadhibou.
<u>Vocational, Industrial Training</u>			
Mining, industrial skills	400 industrial mining workers 200 per center.	Company technician-trainers	Zouerate (Tiris Zemmour) at 2 SNIM training centers
Electrical repair and maintenance skills	up to 200 workers per training cycle	2 expatriate instructors	Nouakchott
<u>Tertiary and Government</u>			
Training of vocational trainers.			
Skills:(for trainers):			
Teaching methods, survey methods, audio-visual aid use, methods of job analysis.	15 vocational specialists with work experience, general or technical.	ILO-UNDP vocational training specialists.	Nouakchott, at the CFPP (<u>Centre de Formation et de Perfectionnement Professionnelle</u>).
Skills (for trainers):			
construction skills, mechanical skills, secretarial, accounting skills.	Up to 350 persons a year: lower and mid-level employed workers starting 1981.	13 CFPP trainers starting.	Nouakchott, at the CFPP

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>Mid-Level Professional Management</u>			
Skills			
Social sciences research methods, data analysis, organizational management, human relations skills, etc.	Unknown no. of mid-level administrators, technical cadres, Mauritanian counterparts to expatriates	Unknown no. of expatriate advisors in government services, research institutes. Maur. specialists.	Ministries, services in Nouakchott and in the regions. Foreign donor projectsites, institutions.
<u>Nonstructured Sector</u>			
<u>Housing</u>			
<ul style="list-style-type: none"> masons 	5 Mauritanian masons	2-3 expatriate architects (who train the masons);	Satara (shanty-town section of Rosso) ADAUA (private Swiss project); eventually COSOC villages near Rosso.
Skills: Use of basic tools and equipment, including trowels, levels, plumb lines square rules, scaffolding, arch supports.	30 trainee-masons	5 masons (who train the mason-trainees)	
<ul style="list-style-type: none"> brick-makers 	undetermined number of men.		
Skills: Use of wooden brick moulds, manual presses, spades, seives, watering cans, correct proportions of sand, clay, cement, chalk.			
<u>Crafts (See Cooperatives)</u>			
Weaving, dyeing, sewing, literacy in French, Arabic	800 women	10-12 instructors	Women's Training Centers in regional capitals.
Rug-weaving, literacy in French, Arabic	50-60 young women	Technicians on 22 member staff	CFAT rug-weaving school in Nouakchott.

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive Work

Types of Service or Activity	Clients	Trainers	Location
<u>Multi-Sectoral Rural Development Training</u>			
Skills:			
animation techniques; visual média use; group process skills.	Up to 20 rural development agents, divided into 4 teams, each comprising an agricultural extension agent, an environmental protection agent, a health service agent and a hydraulics specialist	Unknown at present. Project in planning phase. FAO-UNSO funding and support	Training site unknown. One team, once trained, will cover the Hodhs, another Gorgol and Guidimakha, another Trarza, Brakna and Tagant, another the northern part of the country
<u>Water Resources Management</u>			
Skills:			
Ability to apply meteorological principles to agriculture and herding needs; Knowledge of how rainfall influences the natural environment	9 men with general educational backgrounds	Mainly one UNDP specialist. Some training at School of Meteorology in Dakar, Senegal.	Training in Nouakchott, with UNDP specialist. Agro-meteorologist to work in meteorological stations in S. Mauritania, supply data for the Rural Development Services.
<u>Cooperatives</u>			
Skills:			
- Animation: consciousness-raising among peasants, development of critical awareness of conditions of life; reduce fatalism, develop awareness that people can bring about change in their own lives.	-1,135 in mid 1970's	8 cooperative service agents	2 in Rosso, 2 in Boghé, 2 in Kaédi, 2 in Nouakchott, 1 at ENFVA (being trained)

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive work

Type of Service or Activity	Clients	Trainers	Location
- Management, book-keeping (for offices).	- 128 presidents, 128 vice-presidents, 128 treasurers representing 128 rice cooperatives	SONADER Management personnel in each sector office	SONADER-sponsored cooperatives in the 4 regions along the Senegal River.
	- 22 cooperatives comprising 1,000 families	5 Chinese agronomist trainers; 3 Mauritanians	State Farm (M'Pourié)
	- undetermined number of male rice farmers	same staff	Diouk, Brenne Darou, Brenne Guyar (Trarza)
- Rug-weaving, tie dying, sewing, embroidery, reading, writing, arithmetic in French or Arabic. Simple book-keeping	800 women	10 to 12 instructors	women's Training Centers; one in most regional capitals plus Nouakchott
- Rug-weaving, French and Arabic literacy, arithmetic	50 young women	technicians among 22 total staff	CFAT rug-weaving school, Nouakchott
<u>Fishing</u>			
- Traditional Fishing Skills:			
Inland: making and using weirs, fishing lines, nets, hooks, bait. Manoeuvring canoes, sorting, cleaning drying fish in the sun.	2,375 men Mainly Pulars.	Family-based apprenticeships. No government training efforts	River bank villages of Trarza, Brakna, Gorgol, Guidimakha.
Coastal: same as above minus weirs; plus use of outboard motors.	Mainly Wolofs, Imraguen.	Family (and some non-family based) apprenticeships. No government training efforts.	Atlantic coast of Mauritania in Trarza, Inchiri, Nouadhibou.

Basic Table 1.: Types of Non-Formal Education Directly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
	1,200 families in Barkeol 250 in Nouakchott 5 villages in Trarza	5. Lutheran World Rel. 2 Maur. extension agents	-Barkéol (Assaba) Nouakchott Trarza
	1,000 people in 4 villages	6. COSOC (communication Sociale) Rural Development agents in Rosso.	-Trarza
	2,000 villagers	7. CARITAS - 4 expats., 4 Maur. extension agents.	-Gorgol - on Senegal River
	250 drought refugee families	8. Peace Corps - 9 Vols. 9. Red Crescent	-AID Veget. Proj. -Nouakchott Veg. gardens helped by Luth. world Relief
Rice growing			
Skills:			
Ability to select appropriate soil, knowledge of how to construct and level a paddy, including a seed bed, use of a hydraulic system; ability to sow, thin, transplant, harvest, thresh and winnow rice; ability to apply fertilizer and pesticide. Ability to maintain hydraulic equipment.	4,793 peasant farmers 1,000 peasant farmers, incl. some women, 160 laborers	1. SONADER (38 ext. agents, incl. 9 Peace Corps vols.) 2. State Farm (47 Chinese technicians, 3 Mauritians)	-River banks of Trarza, Brakna, Gorgol, Gu'dimakha -M'Pourié plain near Rosso, (Trarza)

Basic Table 1: Types of Non-Formal Education Directly Linked to Productive Work

Type of Activity or Service	Clients	Trainers	Location
<u>Herding</u>			
Traditional Nomadic			
Skills:			
Knowledge of climate, understanding quality of pastures, water sources, choice of grazing routes, traditional care of animals (including milking), methods of marketing animals (especially estimating weight)	Theoretically 78,310 nomadic households. Main ethnic groups: Moors, Haratins, Peuhls.	161 total staff of the Livestock Service	-All regions
Traditional Transhumant			
Skills:			
Same as above, minus knowledge of climate, plus some knowledge of pasture maintenance to avoid overstocking.	Theoretically 22,807 sedentary herders. Main ethnic groups: Moors, Haratins, Peuhls, Soninké	161 total staff of the Livestock Service; 6 expatriates plus Maur. counterparts in APPAM (Dutch); 6 expatriates plus Maur. counterparts in DRIG (USAID); 1 Mauritanian at Chinese project	-mainly the regions of S.Mauritania -Kankossa (Assaba) -Selibaby (Guidimakha) -State Farm, Trarza.

- . Red Crescent Society (significant foreign assistance from the Red Cross and other agencies)
- . Autonomous Agricultural Cooperatives (occasional governmental supervision)

Foreign Government Agencies

. France

- Volontaires du Progres (a development oriented volunteer program) (planned)
- French Cultural Center
- FAC (Fonds d'Aide et de Coopération) (counterpart training)

. USA

- Peace Corps
- ICA (Cultural Center)
- Project Trarza (Village Health Workers)
- RAMS (seminars)
- A.I.D. Vegetable Production Project
- Project DRIG (Integrated Rural Development Project in Guidimakha)

. USSR

- Soviet Cultural Center

. People's Republic of China

- State Farm at M'Pourie
- Chinese Cultural Center

. Netherlands

- APPAM (herding project)

- . Syria
 - Syrian Cultural Center
- . Libya
 - Libyan Cultural Centers
- . Iraq
 - Iraqi Cultural Centers
- . Japan
 - Fishermen's Training Center in Nouadhibou

Foreign Private Donor Agencies

- . ADAUA (Swiss)
- . CARITAS (Catholic International)
- . Catholic Relief Services (US Catholic)
- . COSOC (Swiss)
- . Lutheran World Relief (International Protestant)
- . War on Want (Great Britain)

International Agencies

- . ILO-UNDP
 - Centre de Formation et de Perfectionnement Professionnels (CFPP)
- . FED-UNDP (seminars on development planning)
- . UNSO-FAO training for mobile rural development brigades.

It no longer recruits for the rural Cooperatives Service. The school is an autonomous institution under the supervision of the Ministry of Rural Development. Its inter-ministerial advisory committee has been named (May, 1980). The teaching staff is assisted by FAO experts who are to remain there until 1981.

- ENECOFAS (Ecole Nationale d'Enseignement Commercial, Familial et Social - National Commercial, Familial and Social Training School) in Nouakchott.

Women from the social and familial sections are hired to work in the Centres de Promotion Féminine (Women's Training Centers) as directors, instructors or assistant instructors.

The school is run by the Ministry of Civil Service Management and Staff Training (Ministère de la Fonction Publique et de la Formation des Cadres).

- ENI (Ecole Normale d'Instituteurs - National Training School for Primary School Teachers) in Nouakchott.

The government uses a few primary school teachers as instructors in the adult literacy program. There is no specialized training for adult literacy. The ENI is run by the Ministry of Primary and Secondary Education.

- ENISF (Ecole Nationale d'Infirmiers et de Sage-Femmes - National Nursing and Midwifery School) in Nouakchott.

The school trains several categories of nurses and midwives.

Once assigned to posts in hospitals, dispensaries, maternity clinics and PMI's (Mother and Child Protection Centers) the graduates engage largely in curative medical treatments. In certain cases they serve as trainers in nonformal training programs for various kinds of auxiliary public health personnel, traditional midwives and community health workers (Délégués Sanitaires). The school is run by the Ministry of Health and Social Affairs.

Foreign Governmental Agencies

- U.S.A.I.D. (United States Agency for International Development)

The Vegetable Production Project will include special seminars and nonformal training for Mauritanian extension agents in Senegal and at project sites in Mauritania.

- Peace Corps

American volunteers have been trained as extension agents in rice production (for SONADER projects) and in vegetable cultivation (for AID and Mauritanian-assisted vegetable projects).

- Certain female volunteers help to train auxiliary personnel in PMI's (Mother and Child Protection Centers);
- In 1980 volunteers will help to train Community Health Committees and Community Health workers in the AID-sponsored "Project Trarza" (Rural Medical Assistance).

- Peace Corps volunteers themselves are trained in nonformal training programs lasting three to six months. These intensive programs are run at various sites in the United States and elsewhere, in settings that are conducive to learning skills applicable to the volunteers work in Mauritania. There is no permanent training site in Mauritania.

International Agencies

- CFPP (Centre de Formation et de Perfectionnement Professionnels - Center for Professional Training and Skills Upgrading) in Nouakchott.

This center, opening in 1981, has a pedagogical division specialized in training instructors of vocational training for the center itself and for training done on the premises of businesses and industries.

Private Foreign Agencies

- ADAUA (Association pour le Développement de l'Architecture Urbaine en Afrique)

At its center in Rosso, ADAUA is training masons in innovative construction techniques; the masons will train others through apprenticeships.

- Lutheran World Relief

This agency has trained Red Crescent volunteers as extension agents to train drought refugees in vegetable cultivation methods in the Nouakchott vegetable gardens.

Indigenous Non-Governmental Agencies

Red Crescent Society

Experienced and motivated secouristes (first aid volunteers) are trained to be first aid trainers and program coordinators in short-term training programs in Mauritania and abroad (the latter with Red Cross sponsorships).

Part Two: Description and Evaluation of Institutions
and Programs in Non-Formal Education.

Introduction

There is a wide variety of institutions and programs concerned with nonformal education; the ones principally concerned with rural development are described and evaluated in this report.

2.1 Non-Formal Education Directly Linked to Economic
Productivity

The two most important programs analyzed in this part of the report are the government's agricultural extension service and its livestock service, which in terms of territorial distribution and personnel are by far the largest institutions actually or potentially concerned with the economic productivity of rural people. SONADER, the government agency concerned with rice cultivation and a number of rural foreign donor projects comprise most of the remainder of the chapter on economic productivity and nonformal education.

There appears to be very little nonformal education concerned with fishing. The richness of Mauritania's potential production in this area is not being adequately tapped. There is no evidence of modern training for inland fisheries, another under-exploited resource.

The data on nonformal education of farmers, herders and fishermen derived from the Qualifications survey, in which persons were asked to describe how they had learned their occupations. The figures on the numbers of service agents were furnished by the services themselves.

2.1.1 Traditional Agriculture in Mauritania

Table No. 1 depicting activities in traditional agriculture, shows that most types of agriculture in Mauritania are relatively simple from a technical point of view. Modern practices, such as the use of fertilizers, pesticides, herbicides and the use of machine or animal traction are rare and the skills needed for the proper use of these inputs are lacking. The commonest crops are sorghum, millet, corn and a certain number of traditional African vegetables. As will be seen later, the government agricultural extension service is little concerned with these crops and types of agriculture, as are most of the foreign donor projects that include agriculture. At present there is not much being done to modernize the traditional forms of agriculture.

On a continuum of formal to informal education, traditional agriculture (and rural occupations) are learned mainly through family-based apprenticeships that are very informal in nature. They can be called nonformal education in that a father (or other adult) assumes a conscious pedagogical role in instructing his son or apprentice in specific skills belonging to the occupation. This apprenticeship begins in childhood and is part of the child's socialization process.

Traditional crops grown on dieri (dry land) and walo (recessional agriculture) lands are cultivated mainly

Table No. 1

Activities in Traditional Agriculture in Mauritania

Activities	Bottom-land Agriculture	Rain-fed. Agriculture (Dieri)	Recessional Agriculture (Walo)	Irrigated or Watered Agriculture (Oases, Dams)
Selection of Soils	X	X	X	X
Preparation of Soil	X	X	X	X
Construction of low dikes	0	0	X	X
Seed beds	0	0	0	0
Levelling of ground	0	0	0	X
Sowing	X	X	X	X
Transplanting	0	0	0	X
Weeding	twice	twice	twice	three times
Fertilizer use	0	0	0	0
Pesticide, herbicide or fungicide	0	0	0	0
Drainage, irrigation	0	0	X	0
Watering	0	0	0	X
Chasing away birds	X	X	X	X
Harvesting	X	X	X	X
Threshing	X	X	X	0
Winnowing	0	X	X	0
Storage, bagging	X	X	X	X
Sale of produce	0	X	X	X
Use of hand tools	X	X	X	X
Use of machine or animal traction	0	0	X	0
Farm management	0	0	X	0

X = usual practice

0 = rare or absent

by men and adolescent boys. Boys and girls under age 15 accomplish about 28% of the overall work in walo fields.¹ Adult males carry out about 40% of all tasks.² In dieri fields children do only 11-16% of all tasks while men do 42.5%.³

Both walo and dieri fields are cultivated with the same kind of simple tools made by farmers or by village blacksmiths. By early adolescence boys learn to use hand hoes, knives and sickles.⁴ Children (mainly boys) under age fifteen participate mainly by guarding the newly-planted seeds against predators.⁵ They participate to some extent in clearing and weeding; but this is usually reserved for adults.⁶ Girls and women play a relatively minor role in the cultivation of walo and dieri, limited principally to guarding (walo and dieri) and in harvest and transport (dieri).⁷ In all cases, learning is mainly by observation before age fifteen and is participatory after age fifteen.

¹ John Grayzel, "Cultural Background and Social Soundness. Analyses for Proposed Irrigation Project at Matam, Senegal" (San Francisco: Bechtel Corp., mimeo, 1976) p. 32

² Ibid. p. 32

³ Ibid. p. 33

⁴ John A. Grayzel, op.cit. p. 35

⁵ Ibid. p. 35

⁶ Ibid. p. 33-34

⁷ Ibid. p. 33-34

Ethnic and Family Size Variables

A closer analysis reveals that family size is a significant variable in determining how children (mainly boys) learn to be farmers. In small families, the father usually teaches his son(s)¹; this holds true for all the sedentary ethnic groups observed (Wolof, Pular, Haratin, Soninké). In large families, the oldest brothers (or uncles) teach the younger boys. When children attend Koranic schools they are often initiated into agricultural work by the marabout (in Pular and Wolof areas).

In small families boys usually start going to the fields with fathers (or older brothers or uncles) at age seven. In larger families, with less need help, boys may start going to the field at age nine. Girls do not usually go to the fields until about age twelve.

Before age fifteen, a child learns by observing and by bringing food and water to the adults at work. The young are encouraged to learn the techniques of agriculture by hearing people praise the best farmers at social gatherings (baptisms, weddings, village gatherings, etc.). A father will often encourage his son to work in the fields by giving him a radio, a calf, a goat or even a plot of land of his own.

¹The following analysis is taken from RAMS field notes on M'Pourié and Kankossa by Thiam Bocar, sociologist. 1979-1980.

Effect of Formal Education

The growing season (especially in walo lands) does not correspond to the long school vacation (July-October) and children who attend school do not spend as much time in the fields as children who do not go. There is nothing in the primary school curriculum that relates to agriculture and school has the effect of weaning children away from agricultural work. Farmers seem to prefer to send their children to school, seeing formal education as a passport to an easier life.

2.1.2 Modern Agriculture

2.1.2.1 Rice Growing

Income, rather than autoconsumption is the main goal of rice cultivation. Farmers participating in large scale rice schemes are allowed to keep part of their harvest for their own consumption, but the bulk of the production is sold through the government grain marketing agency (Office Mauritanien des Céréales).

Skills

- . Preparation of paddy for sowing
 - levelling
 - seed bed preparation on (SONADER projects only):
 - flooding;
- . Sowing
 - thinning (SONADER projects only);
 - transplanting (SONADER projects only);

- . Control of irrigation;
- . Weeding;
- . Use of fertilizer;
- . Harvest.

In order to apply these skills, peasants must also acquire:

- a sense of investment, such as relatively large initial outlays to buy levelling-boards and proper tools that can significantly increase crop yields;
- the use of animal traction to prepare the paddies for flooding;
- sowing in straight lines marked by strings in order to facilitate access to the paddy and to calculate the probable quantity of plants to be transplanted;
- the value of cooperative work;
- methods of calculating the cost of the factors of production, the value of their crops and the profit expected.

Clients

Wolof, Poular, Haratin and Soninké are the major ethnic groups involved. 4,793 farmers are working in SONADER - supervised paddies. An unknown number of additional farmers works independently or with help from private foreign donor projects along the Senegal River.

Rice growing is an increasingly important activity and an additional 1,100 farmers are to be included in the SONADER Gorgol project in 1980-81. Women participate in many aspects of rice growing. Weeding and guarding the paddies against birds and other possible marauders are the particular domain of women. Women learn how to sow the rice seed along with the men, but do not participate in work involving much exertion, such as threshing.

The Wolofs are the most numerous and industrious and seem to have gained the most from the Chinese technicians' and extension agents' training. The other peasants are Moors and Peuhls. The latter are recently sedentarized nomadic herders and seem to have benefited the least from the training.

Approximately 27 men are paid to work the paddies of the State Farm itself. Those permanent workers are trained and supervised by the Chinese personnel. In addition, 130 seasonal laborers are hired each year during the growing and harvest season to help with the crop.

Staff

SONADER:

39 extension agents, including 9 Peace Corps volunteers.

State Farm:

5 Chinese agronomist-trainers (42 other agricultural specialists or technicians);
3 Mauritians

Location

SONADER

SONADER oversees approximately 1,287 hectares of rice fields and 4,793 farmers.

SONADER small rice paddies (Petits Périmètres Villageois) ranging in size from 0.2 to 0.5 hectares per peasant:

- Rosso Sector
 - 8 operational
 - 15 being readied;
- Boghé Sector
 - 12 operational
 - 10 being readied;
- Kaédi Sector
 - 12 operational

New Projects:

- Selibaby Sector
- Casier Pilote du Gorgol at Kaédi, a large-scale experimental scheme involving about 1,100 farmers.

State Farm

Situated just west of Rosso, the M'Pourié project had grown to 1,426 ha by 1980. The State Farm itself comprises 614 ha; the rest is divided into cooperative paddies ranging in size from 0.6 to 0.8 ha.

2.1.2.2. SONADER (Société Nationale pour le Développement Rural - National Rural Development Company)

As semi-autonomous agency, SONADER is administratively attached to the Ministry of Rural Development. It is concerned exclusively with rice cultivation, however.

If the ratio of one extension agent/trainer to fifty to eighty peasants¹ is the ideal in rice cultivation, SONADER is lacking about 55% of the trainers it should have.

By July, 1980, the four sectors were to contain a total of 4,793 farmers and thirty-four extension agents, including five Peace Corps Volunteers. The average ratio of farmers per agent was to be 144 to 1, well above the ideal fifty to eighty (but well below the national average of one Agricultural Extension agent per 554 sedentary farmers³). The most favorable ratio is in the Selibaby sector (1 to 95). This ratio, as well as the others, was to change in the summer of 1980 with the opening of many new rice paddies in all sectors.

There was thus an immediate need for at least twenty-five extension agents specialized in the rice production to meet SONADER's needs. Four more Peace Corps

¹ Conversation with SONADER Agronomist-Trainer at Kaedi, March 20, 1980

² SONADER records, 1979

³ See table No. 2

Table No. 2 SONADER: Extension Activities in the Small Village Rice Paddies

Sector	No. of farmers	No. of hectares of rice	No. Extension Agents		Ratio of agents to farmers
			SONADER	Peace Corps ²	
Rosso (6th Region)	1,132	303.8	6	-	1 to 188
Boghé (5th Region)	1,196	277.7	4	3	1 to 171
Kaédi (4th Region)	985 ¹ 1,100	213.2 450	6 11	- -	1 to 164 1 to 100
Selibaby (10th Region)	380	42.3	2	2	1 to 144
Total	4,793	1,287		34	1 to 144

¹ Casier Pilote du Gorgol - large scale scheme expected to accommodate about 1,000 farmers starting in July, 1980.

² 4 additional Peace Corps Volunteers extension agents added, late 1980. Total of 9, December 1980.

Source: SONADER, 1979.

Volunteers who arrived in the fall of 1980 could not close the gap which will have to be made up by the ENFVA graduates or foreign technical assistants. Only thirteen specialists in agriculture graduated in March, 1980 from the ENFVA.

Kaédi Peasant Training Center

An interesting experience is the recent (1980) opening of a peasant training center in Kaédi as part of the Casier Pilote du Gorgol project. In the mornings the 85 peasants work in the rice paddies with the active supervision of a young French agronomist and four Mauritanian agents. The latter emphasize:

- actual demonstrations of sowing, transplanting and other actions;
- questions and answers as a consciousness-raising technique;
- experimentation with different methods of transplanting so that peasant can choose for themselves the most viable way;
- the use of visual aids to help the peasant understand the growth patterns of rice plants under different conditions;
- a collegial yet professional relationship with the peasants.

In the afternoon groups of peasants assemble at the training center to discuss problems and questions relating to rice growing and to larger problems in their lives, including land tenure and cooperative formation.

The agronomist, although using an interpreter, creates an informal conversational atmosphere encouraging an open dialogue with the peasants. The discussions often prepare the peasants for the next steps to undertake in the rice paddies in the coming days. The agronomist uses a blackboard and visual aids to clarify techniques that the peasants are having problems with in the paddies.

The problem is that these training activities are on a very small scale. The agronomist and his extension assistants are responsible for training some eighty-five peasants at present. There are plans to locate about 1,100 peasants on the Casier Pilote in July, 1980 and there is not yet any provision for an enlarged training program.

Nonformal Education for Pump Operators

An important kind of ancillary training related to rice production is planned by SONADER. Realizing that pump maintenance is a key factor in the rice growing process, a four-year project is to begin in 1980 to train one pump operator for each of the 128 small rice projects that are to be developed under SONADER auspices.

Training goals:

- provide preventive maintenance of pumps and their motors;
- reduce the need to send out fully trained mechanics to service pumps located in the villages;
- provide refresher courses for pump operators already in service.

Training logistics:

- two-day duration at each of SONADER's sector centers (Boghé, Rosso, Kaédi, eventually Selibaby) five pump operators representing five villages to be trained at the same time during the March-June.

Trainers:

- SONADER mechanics specialized in hydraulics.

Outputs:

- 128 pump operators initially trained or upgrade; reduced incidence of pump breakdowns; improved irrigation.

Nonformal Education for Machine and Equipment Operators

SONADER is planning to open a special training center in Boghé to improve the skills of its personnel responsible for maintaining or operating various kinds of earth-moving and construction equipment and machinery. The center will be linked with SONADER's central workshop in Boghé. Details on training are not yet available.

2.1.2.3 The State Farm at M'Pourié

Founded in 1968, this Chinese project is the oldest existing foreign government project in Mauritania involving nonformal education.

Next to the fields belonging to the farm itself, is a section of cooperatively-farmed rice paddies. There, the Chinese technicians and trainers train new-comers in the methods of rice cultivation from sowing to harvesting and threshing. The method of rice cultivation is simpler than SONADER's and omits the use of seed beds and transplanting. After two seasons of working on the peasant fields that are directly supervised by the Farm, the peasants appear to have assimilated the basic methods of rice farming.

The Chinese technical support is expected to withdraw as management is transferred to Mauritanian personnel. The Chinese technical mission itself, which was responsible for installing the hydraulic system and the overall physical creation of the project is to leave in the near future.

In addition to rice growing, the State Farm has an experimental livestock component in which cattle are kept in a large corral and fed rice by-products.

2.1.2.4 Vegetable Cultivation

Vegetable cultivation requires certain knowledge and skills not generally available in the traditional forms of agricultural apprenticeship but does not require the mechanization and engineering skills associated with modern irrigated rice cultivation.

Vegetable cultivation is an attractive activity because of the relative simplicity of skills and the lack of sophisticated technology involved. Because of its

labor intensiveness, it does not require animal traction in order to be productive.

Vegetable cultivation in Mauritania has two functions: income through sales and autoconsumption for nutritional purposes. In general, vegetable gardens near large population centers such as Nouakchott tend to be mainly for commercial exploitation. Gardens in isolated villages, such as Barkéol, are far from markets and vegetables tend to be grown mainly autoconsumption. In agricultural terms, the skill acquisition process is the same in both cases.

Vegetable cultivation is the primary concern of the government agricultural extension service and important part of several foreign government and private projects in Mauritania.

Skills

Skills are of a more sophisticated nature than those of traditional dieri or walo cultivation. Briefly, they include:

- . Soil and water management
 - understanding soil fertility and structure;
 - crop rotations;
 - fertilizers and their uses;
 - water application methods;
 - understanding soil type and yield per unit of water.

Pests and Diseases

- carrying out crop rotations;
- weed control;
- use of deterrent plant species.

Cropping Practices

- selecting appropriate planting methods;
- knowing dates of harvest and planting;
- intercropping;
- timing of fertilization.

Clients

In the economic production area, vegetable production is most notable in the Nouakchott city gardens, Akjoujt, Rosso and the immediate vicinity of the other main towns of Mauritania. In the case of Nouakchott, an important number of cultivator families came without any previous experience in growing vegetables or even farming of any sort. These were mainly drought refugees who came to the capital from the interior.

Elsewhere, people involved in commercial vegetable production are a mixture of traditional farmers and newly-sedentarized nomads, primarily in southern Mauritania.

Staff

Nonformal education in vegetable production is being done by the Mauritanian agricultural extension service as well as by a number of foreign governmental and private agencies, including the following:

Government of Mauritania - personnel in contact with farmers

- 11 agricultural engineers;
- 12 extension agents;
- 37 extension assistants;
- 56 worker-assistants (manoeuvres).

AID Vegetable Project

- 4 American technicians, specialists in extension work, nutrition, cooperatives, agronomy plus Mauritanian counterparts.

Peace Corps

- 5 Americans acting as extension agents in an AID-funded vegetable production on project (see above).

Lutheran World Relief

- 10 Mauritanian Red Crescent volunteers trained for 1 year to become extension agents for the Nouakchott vegetable gardens (see above).
- 2 Mauritanian extension agents at its integrated rural development project in Barkéol (Assaba), seconded by the Mauritanian government.
- Personnel of Rosso Agricultural Extension Service office.

DRIG (Integrated Rural Development in Guidimakha
(AID-funded))

- 1 Mauritanian extension specialist (conducteur);
- 2 Mauritanian extension agents (moniteurs)

- . COSOC (International Child Welfare Union)
 - a Mauritanian extension agent from the Russo agricultural office is assisting women in nearby villages in the COSOC project to cultivate vegetables.

- . War on Want (Private British Project)
 - at least one extension agent helping villages at the Guidimakha project site to start local vegetable gardens.

- . CARITAS (International Catholic Agency)
 - 2 expatriate trainers.

- . Red Crescent
 - 10 volunteers trained as extension agents. (see Lutheran World Relief above).

Location

- . Government of Mauritania
 - Agricultural Extension Service Offices in all regional capitals, except Nouadhibou and Zouerate.

- . AID
 - Pilot project plots near regional capitals or water sources in Trarza, Brakna, Gorgol, Assaba.

- . Lutheran World Relief
 - Nouakchott (vegetable gardens)
 - Barkéol (Assaba)
 - 5 river villages in Trarza

- . DRIG
Selibaby area (Guidimakha)
- . COSOC
4 villages in immediate vicinity of Rosso
- . War on Want
Villages along the Senegal River (Guidimakha)
- . CARITAS
Villages on the Senegal River south of Kaédi
(Gorgol)
- . Red Crescent
Nouakchott

2.1.2.5 The Agricultural Extension Service

Extension Methods

- Demonstrations

These take place mainly in the fields of individual farmers rather than in any demonstration farm of agricultural center, which simply do not exist. The percentage of respondents indicating that extension agents perform demonstrations in their fields ranges from 0% (twenty-five respondents) in Adrar to 34%, or ten respondents out of twenty-nine, in Trarza. Only in Hodh Oriental, Assaba, Gorgol and Trarza did over 10% of the respondents report demonstrations in their fields by extension agents.

- Talks

Talks of discussions between agents and farmers simply do not occur in most regions either in the field

or in the villages. When they do occur they are held in the villages. Only in Gorgol, Brakna and Inchiri do more than 5% of the farmers report attending talks.

- Meetings.

Meetings are rather infrequent as well, although some regions report over 10% of the farmers attending village meetings.

- Films or slides

Audio-visual aids are virtually unknown in Mauritanian extension services. Only one farmer in the country reports seeing films or slides in his home; only one reports seeing films or slides at village meetings.

Table No. 3 Personnel of the Agricultural Extension Service
by Position and Post

Post and P sition	Agricultural Engineers	Extension Agents	Extension Assistants	Worker Assistants	Cooperatives Agents	Total
Head Office	8	2	2			12
1 Néma		1	3	6		10
2 Aioun		1	3	4		8
3 Kiffa		1	6	2	1	10
4 Kaédi	1	-	3	6	-	10
5 Boghé	-	1	5	8	1	15
6 Rosso		2	5	4	-	11
7 Atar	1	-	2	2	-	5
8 Nouadhibou	-	-	-	-	-	-
9 Tijikja	-	1	1	5	-	7
10 Selibaby	-	1	3	5	-	9
11 F'Derik	-	-	-	-	-	-
12 Akjoujt	1	-	-	-	-	1
Nouakchott	-	2	4	14		20
Total	11	12	37	56	2	11

Source: Ministry of Rural Development, 1980.

Figures do not include 1980 graduates of the ENFVA.

2.1.3 Herding

Nomadic and transhuman herding are the major kinds that are practised in Mauritania at present.

Table No. 4 Traditional Herding Practices in Mauritania

<u>Knowledge or Practices</u>	<u>Nomadic Herding</u>	<u>Transhumant Herding</u>
Knowledge of Climate	X	0
Understanding the quality of pastures and water sources	X	X
Choice of trek routes	X	X
Traditional care of animals (including milking)	X	X
Acceptance of veterinary intervention	X	X
Knowledge of pasture maintenance and improvement	0	X (to some degree to avoid overstocking)
Methods of marketing animals	X	X

Table No. 5 Modernized Herding Practices Planned or Being Introduced by Foreign Donor Projects

Knowledge or Practices	Transhumant Pasture-Based Herding	Ranching	Improved Pastures: Irrigated or not; Cultivated Forrage
Understanding maintenance, improvement of pastures	X (more advanced than in simple transhumance)	X	X
Understanding modern zootechnical methods (feeding, reproduction, growth)	0	X	X
Knowledge of simple modern medical treatment	0	X	X
Herd management	0	X	X
Understanding commercial value of the animals	0	X	X
Marketing methods	X	X	X

X = usual practice

0 = rare or absent

Clients

In the traditional forms of nomadic and transhumant herding practised in Mauritania, Bidan Moors, Haratins and Peuhls are the principal ethnic groups concerned. Herders pass their knowledge and skills on to their sons in a method similar to that of farmers. At an early age a boy begins to observe his father, uncles and older brothers; gradually he is given more tasks until he has learned the method of herding practised by his tribe or clan.

According to the 1977 census, there was a total of 22,807 active persons who were sedentary herders; there was a total of 78,310 nomadic herding households counted. These are the groups that the government Livestock Service is concerned with. The herding population in the regions where the donor projects involving herding activities are located is as follows:

Assaba (APPAM Project) - 3,233 sedentary persons, 7,433 nomadic households.

Guidimakha (DRIG) - 2,281 sedentary persons, 1,745 nomadic households.

Trarza (State Farm) - 3,240 sedentary persons, 21,476 nomadic households.

None of the projects is designed to reach all of the persons and each can at best complement the actions of the government Livestock Service and create pilot projects in herding.

Staff

- . Livestock Service
 - 161 total personnel.
- . APPAM
 - 6 expatriates plus Mauritanian counterparts.
- . DRIG (AID)
 - 6 expatriates plus Mauritanian counterparts.
- . State Farm
 - 1 Mauritanian livestock technician.

Location

All of Mauritania, except for the most desert areas, has some kind of herding activity. The Livestock Service maintains offices in all regions. The government's Livestock Service is the major agency involved in this sector. The only foreign agency with a primary concern for herding is APPAM, the Dutch government project in Kankossa, Assaba. The project is in its early organizational phase and project activities per se have not yet begun.

Other projects with a component of modernized herding are:

-- the AID DRIG (Project Selibaby) in Guidimakha.

Improved pastures and breeding techniques are being sponsored.

The Chinese State Farm at M'Pourié. About 60 head of cattle are being raised in a corral and fed rice by-products; this is essentially a demonstration activity and there does not seem to be evidence of peasants or herders in the Rosso area who have adopted this method of livestock raising.

2.1.3.1 The Livestock Service

The RAMS study of sedentary herders in all but the 8th and 11th regions indicates that cattle vaccinations are the principal contacts between the service and its clients and that the service agents do very little of an educational nature. 65% (70 individuals) of the national sample of 107 state that the Livestock Service agents do not show them any new techniques. 25% (27 individuals) state that they use the techniques suggested by the Service agents. (8%, or 9 individuals, claim not to follow the agents' advice). 26% (28 individuals) say that they never see any service agents at all.

Methods

- Demonstrations of techniques.

This seems to be the most popular means of communication of information even though only 19% of the herders (20 individuals) cite attending them. On the regional level, 60% (3 individuals) in Brakna report attending demonstrations, but this is an exceptional figure since no other regions report more than 36% attending demonstrations (1st region). No herders in Hodh Occidental, Assaba, Adrar, Guidimakha and Inchiri report having attended demonstrations

- Conversations.

Herders in only four regions report having conversations with the Livestock Service. The largest number, 40% (2 individuals), is in Brakna. In most regions conversations simply do not occur.

Table No. 6 Personnel of the Livestock Service by
Position and Post

Post and Position	Veterinary Doctors	Livestock Engineers	Livestock Veterinary Assistants	Livestock Assistants	Workers Assistants	Total
Head Office	5	1		6		12
1 Néma		1	9	4	8	22
2 Aioun			4	3	7	14
3 Kiffa			10	3	6	19
4 Kaédi			5	4	9	18
5 Boghé			6	2	16	24
6 Rosso			5	2	7	14
7 Atar			1	1	1	3
8 Nouadhibou			2		1	3
9 Tijikja			3	2	7	12
10 Selibaby			4	2	3	9
11 F'Derik			1		1	2
12 Akjoujt				1	2	3
Nouakchott			2	1	3	6
Total	5	2	52	31	71	161

Source: Ministry of Rural Development, 1980.

Figures do not include 1980 graduates of the ENFVA.

- Talks

This more formal kind of communication is even rarer than informal conversations (see above). Talks occur in Brakna and Trarza only and 40% (2 individuals) is the largest proportion (Brakna), stating that talks occur. 15% (3 individuals) in Trarza appear to have attended talks. "Other" methods of communications are cited by 20% (4 individuals) in the Trarza. Methods other than demonstrations, talks and conversations appear to be completely unknown to herders in the rest of Mauritania.

- Advice

80% (4 individuals) in Brakna find that the Livestock Service agents give useful advice. (20% find it not useful). In Trarza and Hodh Oriental, 55% and 57% find the advice helpful. In general few herders actually say that the advice is not useful, but 43% in Tagant and 100% (3 individuals) in the 7th region are of this opinion.

- Visits

The Livestock Service Agents do not appear to visit the herders very often (for whatever reason): 20% (1 individual) of the herders in Brakna are visited monthly by the Service Agents and 80% (4 individuals) are visited only yearly. Only Guidimakha, Tagant and Hodh Oriental, besides Brakna, record any monthly visits. For monthly visits no percentage is larger than 15%. Annual visits are mentioned by over half of the herders in all regions except Hodh Oriental, Assaba, Inchiri and Adrar. In Adrar there do not appear to be visits of any kind.

2.1.3.2 Regional Comparisons of the Agricultural Extension and Livestock Services

The following analysis is based on the 1977¹ census, the RAMS surveys of sedentary farmers and herders of 1979 and numbers of field personnel supplied by the Ministry of Rural Development in May, 1980. The personnel figures include sector inspectors, chiefs, extension agents, veterinarians, worker-assistants (manoeuvres) and give a general idea of the overall human resources available for development and nonformal education work in the rural areas. The 1980 graduates of the ENFVA training school had not yet been assigned to posts when the personnel list was drawn up.

- 1st Region (Hodh Oriental)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 673. (1 to 336 nomadic agricultural households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 114. (1 to 745 nomadic herding households).

¹ Population figures are taken from Computer printout tables 22B and NA 15 in the 1977 census. These data are summarized without adjustment. The nomadic herders and farmers are counted by households; whereas sedentary figures reflect active individuals in the labor force over age 12. It is not uncommon for partly or newly sedentarized persons to engage in agriculture while living in tents. People not living in permanent structures were counted as nomads in the 1977 census.

The Agricultural Extension Service is not very active in the 1st region. The only activity reaching more than one-third of the farmers is seed distribution. No other service is provided to more than 20% of the farmers.

The Livestock Service is considerably more active among sedentary clients than the Agricultural Extension Service. Over half of the herders report positive contacts with the service, particularly in cattle vaccinations, modern medicines and useful advice. It has a much lower ratio of personnel to client population than the Agricultural Extension Service.

- 2nd Region (Hodh Occidental)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 720. (1 to 509 nomadic herding households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 230. (1 to 868 nomadic herding households).

The Agricultural Extension Service is even less active than in the 1st region: just under 20% of the sedentary farmers report receiving seeds and less than 12% report receiving any other kind of service.

The performance of the Livestock Service is not much better than its agricultural counterpart in the same region. Only a quarter of the sedentary herders report so much as an annual visit by service personnel, another quarter say that they are never visited at all.

No demonstrations of techniques, talks, conversations or distribution of modern medicines seem to take place. Half say that their cattle have not been vaccinated.

- 3rd Region (Assaba)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 951. (1 to 247 nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 170. (1 to 391 nomadic households).

The Agricultural Extension Service is concerned mainly with seed distribution. There is some demonstration of the techniques but little distribution of insecticide. No other activities are apparent. The service is stretched very thin; only Guidimakha has a larger number of sedentary farmers per extension agent.

The Livestock Service is more active in the 3rd region than in the 2nd region, reaching over three quarters of the herders once a year, demonstrating new techniques; the agents appear to converse with some 21% of the herders and the same percentage claim to apply techniques suggested. The Assaba region is the only one in Mauritania where all the herders surveyed said that they had cattle that had been vaccinated.

- 4th Region (Gorgol)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 701. (1 to 102 for nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 230. (1 to 868 nomadic households).

The Agricultural Extension Service appears to reach a large number of farmers - one quarter to nearly one half report receiving seeds, fertilizer, insecticide and fungicide. Gorgol is, however, on the Senegal River and the surveys made no distinction between assistance given by the Agricultural Extension Service itself and other organizations, such as SONADER. It is likely that much of the reported extension support comes from SONADER in the 4th, as a field trip there in March, 1980 revealed that the regional extension office had no vehicles, funds or materials. An attitude of general discouragement prevailed.

In the area from Assaba to the Atlantic there is a number of foreign donor projects and it is not clear from the data to what extent the Extension Service or foreign donor projects are responsible for extension work.

The Livestock Service is reported to visit some 58% of the sedentary herders once a year (25% appear not to be visited). Two thirds of the herders report owning vaccinated cattle. One quarter of the herders mention demonstrations of new techniques, finding advice useful and applying the techniques. The same number has received modern medicines.

- 5th Region (Brakna)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 602. (1 to 254 nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 117. (1 to 243 nomadic households).

The Agricultural Extension Service is not active, with only 6 to 12% of the farmers receiving seeds, fertilizers, insecticide and fungicide. Village demonstrations are the only extension activities reported by as many as 14% of the farmers. Some of the services may be SONADER's as well.

On the other hand, the Livestock Service appears to be the most active in Mauritania. 20% of the sedentary herders report monthly visits, 80% report annual visits and 20% report no visits by service personnel. (Only Guidimakha has a lower incidence of no visits). 60% of the herders report learning useful new techniques and applying them. 40 to 60% report demonstrations, talks and conversations; 80% have cattle that have been vaccinated. Only 20% have received modern medicines.

--6th Region Trarza

- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 338. (1 to 609 nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 231. (1 to 1,534 nomadic households).

There is surprisingly little evidence of agricultural extension service activity in the 6th region even though it is favored by the foreign donor projects. It may be that these projects have pre-empted much of the work in the extension. The questionnaires do not specify the exact sources of extension inputs. In any case, the region has the most favorable ratio of agents to farmers after that of Inchiri (a largely desert region).

Only 7% of the farmers indicate receiving seeds, fertilizers, insecticide or fungicide. The only other activity involving more than 4% of the farmers is demonstrations of techniques in the fields of individuals (cited by 34% of the farmers surveyed).

There is a relatively high ratio of sedentary herders to Livestock personnel, exceeded only in Guidimakha. (The ratio of nomadic households to service personnel is the highest in the country). Nevertheless, 70% of the sedentary herders report annual visits and 25% report none. 90% report owning vaccinated cattle. 40% of the herders say that they are shown new techniques and 35% claim to apply them. Demonstrations, talks, conversations and "other" means of communications are mentioned by 5 to 25% of the herders.

- 7th Region (Adrar)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 411. (1 to 386 nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 154. (1 to 1,059 nomadic households).

Although the Agricultural Extension Service has a more favorable personnel-population ratio than most regions, there is scarcely any evidence of activity; only 8% of the sedentary farmers report receiving seeds, 4% report receiving fertilizer, 1% report receiving conversations with extension agents. There is no evidence of any other activity.

The Livestock Service is the least active in Mauritania. There is no evidence to any visits to sedentary herders and only one-third of the herders indicate that they own vaccinated cattle. No other activities beyond apparently very occasional vaccinations seem to occur. (The data from the RAMS questionnaire touch only sedentary herders and none of the much more numerous nomadic households were surveyed).

Adrar is essentially an area of sheep, goat and camel raising, which is another reason why the Livestock Service, with its concern for cattle, may seem so inactive. As there are few cattle in the region, one may ask what the three Livestock Service agents do in the region.

- 8th Region (Nouadhibou)

- There are so few farmers in this desert that there is no Agricultural Extension Office.

Ratio of Livestock Service personnel to sedentary herders: 1 to 19. (The number of nomadic households is unknown for the region, but it is a total of 1,632 for the 8th, 11th and 12th regions).

There are no RAMS data on agriculture or herding for the region, whose population is concentrated in the city of Nouadhibou.

- 9th Region (Tagant)

- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 368.

(1 to 421 nomadic households).

- Ratio of Livestock Service personnel to sedentary herders: 1 to 90. (1 to 668 nomadic households).

The Agricultural Extension Service's main activities are the distribution of seeds, fertilizer, insecticide and fungicide to a minority of farmers (19 to 33%). Village meetings are the only communication between the Service and more than 10% of the farmers.

The Livestock Service visits a little over half of the sedentary herders annually and 7% once a month. About one-third are not regularly visited. 71% of the herders own vaccinated cattle and have received modern medicines. About 29% of the herders report that they are shown new techniques and that they apply them. The same percentage reports attending demonstrations of techniques.

- 10th Region (Guidimakha)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 1,226. (1 to 46 nomadic households).
- Ratio of Livestock Service personnel to sedentary herders: 1 to 253. (1 to 194 nomadic households).

The Agricultural Extension Service in the best-watered region of Mauritania is stretched desperately thin. Less than 50% of the farmers indicate any kind of organized communications process with Extension Service. One quarter or fewer farmers report receiving seeds, fertilizer, insecticide or fungicide. As in the other River Valley regions, it is not clear whether the extension inputs come from the Mauritanian extension service or from one of the foreign donor projects operating in the region. In any case, the agricultural potential of the region will remain undeveloped until better extension services are allocated.

In the Livestock area the picture is brighter: The vast majority of sedentary herders is visited by agents at least once a year; 6% even receive monthly visits. Over 90% of the herders own vaccinated cattle. A few receive modern medicine, but none is instructed in new methods. There is a complete absence of demonstrations, talks and conversations between herders and service personnel.

- 11th Region
- There is no Agricultural Extension Office in this desert region.
- Ratio of Livestock Service personnel to sedentary herders: 1 to 15. (No separate regional figures are available on nomads - there are 1,632 nomadic herding households in the 8th, 11th and 12th regions. The ratio of Livestock personnel to population for the three regions combined is 1 to 204).

There are no RAMS data on the 11th region (Tiris Zemmour)

- 12th Region (Inchiri)
- Ratio of agricultural extension personnel to active sedentary population in agriculture: 1 to 25. There are no nomadic farmers in the city.
- Ratio of Livestock Service personnel to sedentary herders: 1 to 57. There are no nomadic herders in the city.

The vegetable gardens of Nouakchott are by far the best-supervised in the country, as the city has the highest ratio of extension agents to farmers in the country. No RAMS data are available on the Nouakchott gardens.

Table No. 7 Regional Comparison of the Agricultural Extension and the Livestock Services

Region	Total personnel per service	1	Concerned population ²		Ratio of population to agents	
			Sed.	Nom.	Sed.	Nom.
Hodh 1	agriculture	10	6732	3357	1:673	1:336
Oriental	livestock	22	2510	16388	1:114	1:745
Hodh 2	agriculture	8	5758	4073	1:720	1:509
Occi- dental	livestock	14	3280	12156	1:230	1:868
Assaba 3	agriculture	10	9508	2406	1:931	1:241
	livestock	19	3233	7433	1:170	1:391
Gorgol 4	agriculture	21	14720	2151	1:701	1:102
	livestock	18	3295	2102	1:183	1:117
Brakna 5	agriculture	15	9034	3812	1:602	1:254
	livestock	24	2800	5821	1:117	1:243
Trarza 6	agriculture	11	3721	6698	1:338	1:609
	livestock	14	3240	21476	1:231	1:534
Adrar 7	agriculture	5	2054	1929	1:411	1:386
	livestock	3	463	3176	1:154	1:1059
Nouadhibou 8	agriculture	-	23		1:5	
	livestock	3	56		1:19	
Tagant 9	agriculture	7	2574	2948	1:368	1:421
	livestock	12	1076	8013	1:90	1:668

Region	Total personnel ¹ per service	Concerned population ²		Ratio of population to agents		
		sed.	nom.	sed.	nom.	
Guidi- 10 makha	agriculture	8	9811	371	1:1226	1:46
	livestock	9	2281	1745	1:253	1:194
Tiris 11 Zemmour	agriculture	-	44	-	-	-
	livestock	2	29	-	1:15	-
Inchiri 12	agriculture	1	331	-	1:331	-
	livestock	3	261	-	1:87	-
District Nouakchott	agriculture	20	494	-	1:25	-
	livestock	6	343	-	1:57	-
Agriculture (North)		1	-	Total north 126	-	1:126
Livestock (North)		8	-	Total north 1632	-	1:204
Total	agriculture	116	64,804	27,745	-	-
	livestock	149	22,807	78,310	-	-
	both	265				
National	agriculture	9	4,985	2,134	1:554	1:237
Average	livestock	11	1,754	6,024	1:159	1:548

1) Source: Ministry of Rural Development. 1980 graduates of the ENFVA are not included.

2) Sources: 1977 Census of Mauritania: Computer printout tables NA 15 and 22B. These data are summarized without adjustment.

Region	Total personnel ¹ per service	Concerned population ²		Ratio of population to agents		
		sed.	nom.	sed.	nom.	
Guidi- 10-	agriculture	8	9811	371	1:1226	1:46
makha	livestock	9	2281	1745	1:253	1:194
Tiris 11-	agriculture	-	44	-	-	-
Zemmour	livestock	2	29	-	1:15	-
Inchiri 12---	agriculture	1	331	-	1:331	-
	livestock	3	261	-	1:87	-
District	agriculture	20	494	-	1:25	-
Nouakchott	livestock	6	343	-	1:57	-
Agriculture (North)		1	-	Total north 126	-	1:126
Livestock (North)		8	-	Total north 1632	-	1:204
	agriculture	116	64,804	27,745	-	-
Total	livestock	149	22,807	78,310	-	-
	both	265				
National	agriculture	9	4,985	2,134	1:554	1:237
Average	livestock	11	1,754	6,024	1:159	1:548

- 1) Source: Ministry of Rural Development. 1980 graduates of the ENFVA are not included.
- 2) Sources: 1977 Census of Mauritania: Computer printout tables NA 15 and 22B. These data are summarized without adjustment.

The Nouakchott herders are among the best-supervised in the country; only Nouadhibou and Tiris Zemmour have fewer herders per agent. No RAMS data are available on the Nouakchott herders.

2.1.3.3. APPAM (Amélioration de Pâturages et Production Animale en Mauritanie)

This project is a five-year effort to introduce a more rational type of herding in Mauritania. It is funded by the Government of the Netherlands and is being implemented by the International Institute for Aerial Survey and Earth Sciences (ITC), Enschede (The Netherlands). Although in its planning phase, the project will have some interesting features of nonformal education that may be adopted by the Livestock Service.

The project is designed to develop both the physical and the economic or managerial aspects of herding. Activities are to begin in 1981.

Skills

Feed Production:

- hay making and storing;
- silage making;
- use of doume palm products and peanuts as feed.

Management:

- learn to plan rational herd size;
- sell cattle for cash income; (one goal is to have herders pay for cattle vaccines and medicines, which have been given out free by the Livestock Service so far; the Service would thus be able to save a considerable sum of money).

Clients

An undetermined number of transhumant herders in and around Kankossa. Men only are to be trained.

Staff

Six expatriate specialists: a team leader, a zootechnician, a grasslands specialist, a sociologist, an extension specialist and an ecologist. The team will have Mauritanian counterparts who will have up to two years of specialized training, probably abroad, during the project.

Location

Kankossa (Assaba)

2.1.4 Mobile Rural Development Extension Brigades

A joint FAO-UNSD-funded project is in the early formative stage and will ultimately provide four multi-sectoral mobile teams to carry out extension work nation-wide.

The teams are to reinforce the existing Rural Development Services.

Skills

The team members will be trained in animation techniques and will use films, slides, tape recorders and demonstrations to train the peasants during their travelling. By virtue of their multi-sectoral nature, they are expected to coordinate the otherwise fragmented activities of the Rural Development Services.

Clients

4 teams. Each team will comprise:

- 1 agricultural extension agent;
- 1 livestock service agent;
- 1 environmental protection agent;
- 1 health service agent.

When possible, there will be a hydraulics specialist on the team to deal with problems of potable water.

Location

One team will be based in Aioun and will cover the Hodhs; another one will be based in Kaédi and cover Gorgol and Guidimakha; a third will operate out of Boghé and will cover Trarza, Brakna and Tagant; the fourth will operate out of Atar and will cover the rest of the country.

2.1.5 Water Resource Management (Project "Agrhymet")

This is a project to diversify the functions of the meteorological stations in Mauritania that will enable them to furnish useful information on water resources - particularly rainfall - in the rural areas. There is a need to provide timely information on rainfall to farmers and herders; specialized personnel have been trained to gather the relevant information. The information will eventually be used in extension activities in the southern part of Mauritania.

Skills

- Ability to apply meteorological principles (assessment of rainfall, changes in ground water) to agriculture and herdings;
- Knowledge of how rainfall influences the natural environment.

Clients

9 men with general educational background.

Staff

There is no institution offering training in agro-meteorology in Mauritania and a special nine-month course to train specialized personnel was designed with a UNDP expert acting as principal trainer. The nine men were trained in a field-based program in Mauritania, as training at the School of Meteorology in Dakar, Senegal proved to be inappropriate for the specific kind of work that trainers were to do in Mauritania.

Location

The agro-meteorologists are to work in the meteorological stations in southern Mauritania.

The next step is to create institutional links with SONADER, the Agricultural Extension and the Livestock Services, so that the information gathered by the agro-meteorologists can be transmitted to the "user population".

2.1.6 Cooperatives

2.1.6.1 Cooperatives Service

The government cooperatives service is attached to the Agricultural Extension Service (Ministry of Rural Development) and is essentially concerned with assisting peasants in forming producers' cooperatives. The Service's activities began in the Senegal Valley in the early 1960's but have never developed very much.

The ENFVA is in charge of training personnel for the Cooperatives Service but recruitment in that section has ended and most of the agents have left the service itself. Not all cooperative activity is coordinated by this service and the Women's Training Centers, the CFAT (rug-weaving school) and a number of donor projects are all pursuing their own activities in cooperative formation, with little or no coordination with the Cooperatives Service.

Skills

Originally conceived as animation agents to play a catalytic role in bringing peasants together in groups to discuss their needs, the cooperatives agents were to help peasants organize pre-cooperatives as a first step towards formally-constituted cooperatives.

The goals of the animation activities are:

- consciousness-raising among peasants to help the latter develop a more critical awareness of their conditions;
- reducing peasant tendency towards fatalism;
- making peasants aware that development is a means of changing their way of life.

Clients

There do not appear to be up-to-date figures on either the number of cooperatives in Mauritania or the number of members. In the mid-1970's the Cooperatives Service had recognized a total of 21 cooperatives comprising 1,135 members.

Staff

The eight active cooperatives agents are concentrated mainly along the Senegal River:

- 2 in Rosso (1 at the State Farm, 1 at the COSOC project);
- 2 in Boghe (1 at the Agricultural Extension Office, 1 at the new training center);
- 2 in Kaedi (1 with SONADER, 1 at the CNRADA-National Agricultural Research and Development Center);
- 2 based in Nouakchott (1 at the vegetable gardens in the city, 1 in charge of the gardens in Akjoujt);
- 1 agent is being trained at the ENFVA in Kaedi.

Skills needed by Cooperative Agents:

- applied pedagogy and group psychology;
- organizational and human relations skills;
- mathematics, including accounting;
- economics, including business management and credit;
- general writing skills;
- agricultural skills, including vegetables, rice and grain production.

Location

11 of the cooperatives were in Adrar, 8 in Brakna and 1 each in Gorgol and Assaba. Their total funds then equalled only 221,510 UM. The government recognizes a much larger number of pre-cooperatives, or groups without all the required formalities such as a written charter or constitution and elected officers. These groups totalled 483 in 1974, the year of the most recent data available. There were very few pre-cooperatives outside the domain of agriculture.

2.1.6.2 SONADER Rice Cooperatives

Because of the expense in purchasing and operating equipment, undertaking the construction of paddies and hydraulic systems, SONADER is encouraging the formation of rice producers cooperatives.

Skills

- improved management methods, especially simple book-keeping;
- informal exchange of views, sharing of management

experience among participants.

Clients

Starting in 1980, plans call for training three people to run each cooperative which SONADER proposes to create in the villages which have SONADER rice paddies. People to be trained for each cooperative:

- a president;
 - a vice-president;
 - a treasurer.
- 384 officers representing 128 cooperatives trained in management techniques and book-keeping between 1980 and 1984.

Staff

SONADER sector management personnel.

Location

- two days duration at each of SONADER's sector centers (Rosso, Boghe, Kaedi, eventually Selibaby), fifteen officers representing five cooperatives to be trained at one time.

2.1.6.3 The State Farm and Independent Rice Cooperatives

The State Farm itself comprises some 1,426 hectares of the 624 that have been developed as part of the Chinese project. The Farm is worked by 27 permanent and 130 seasonal workers under the direction of the Chinese agronomists and trainers. The remaining 802 hectares are divided up into cooperatively-worked peasant paddies. (see description of the State Farm for training details.)

Skills

See 2.1.6.1 for list of skills related to cooperative formation and 2.1.6.2 for additional skills.

The training related to cooperative formation is part of the technical training that first-year peasants receive while learning the methods of rice cultivation. Each member is told what his role and duties are and each must accept the obligation to repay the cost of the factors of production starting the second year of farming.

Clients

About 1,000 families divided into 27 cooperatives (or pre-cooperatives). Three of the paddies are worked by some 40 women from the village of Diouk. There are at least 7 persons in each cooperative or pre-cooperative.

Staff

Initially, 5 Chinese agronomists-trainers work with the peasants; in the second year 3 Mauritians supervise the peasants.

Location

The area adjacent to the State Farm, on the M'Pourie plain.

Further development: The Independent Rice Cooperatives

Independent Rice Cooperatives

The success of three independent rice cooperatives in the immediate vicinity of the State Farm at M'Pourie attests to the value of the training given by the Chinese instructors at the Farm. The Wolof peasants at Diouk, Brenne Darou and Brenne Guyar learned the techniques of rice cultivation on the fields directly supervised by the Farm and they have since set up their own rice paddies which they farm with their own means without outside support. Although cooperatives have existed in the villages since 1970 (Brenne Guyar) and 1968 (Diouk) rice cultivation started in 1976. There is a continuous learning process because the peasants have organized teams that take turns cultivating the cooperative paddies supervised at the State Farm as well as the independent village-owned fields.

- Major skills acquired:

- rice cultivation, including use of fertilizer, irrigation and harvesting;
- basic cooperative management, including book-keeping in Arabic;
- buying and stocking of fertilizer, fuel;
- management of funds in cooperative treasury;
- general notions of pump capacity and rice productivity;
- planning of future increases in production and marketing.

Offshoots:

- participation of women in the rice cultivation process;
- creation of a 500-member of women's gardening cooperative in Diouk;
- creation of a non-profit shop by the (men's) cooperative in Diouk.

2.1.6.4 Women's Craft Cooperatives

There is little information available on the subject, as these cooperatives (or cooperating groups) are often formed spontaneously. The Mauritanian Office of Crafts (OMA) has given sporadic help and encouragement to women's craft cooperatives. Only in the case of the CFAT (rug-weaving training center) and the Women's Training Centers have there been government efforts to train women in craft skills and cooperative management skills.

Skills

Rug-weaving, using hand looms (CFAT and certain Women's Training Centers);
Tie-dyeing;
Sewing;
Embroidery;
Reading and writing in French and/or Arabic;
Arithmetic.

Clients

800 women in Women's Training Centers (various crafts, according to local traditions). 50 young women in the CFAT (rug-weaving).

Staff

About 10 to 12 out of about 40 instructors in Women's Training Centers.

Technicians in 22-member staff of CFAT.

Location

The Women's Training Centers are located in most regional capitals (see table no. 8).

The CFAT is in Nouakchott.

Three rug-weaving cooperative groups formed in Nema, Tijikja and Akjoujt in the mid-1970's. They comprised a total of 330 women. Because the OMA could not provide supplies and marketing facilities, the cooperative groups had disintegrated by 1977.

Existing women's craft cooperatives exist in Boutilimit, Atar, Rosso, Akjoujt, Kaedi and Nouakchott. The number of members is unknown.

2.1.6.5 A Note on Foreign Donor-Sponsored Cooperatives

Cooperative formation is a large element of most private foreign donor projects. Realizing that individual efforts are insufficient to overcome the obstacles in the way of increased production and improved living conditions, COSOC, Lutheran World Relief, ADAUA, War on Want and CARITAS have organized or are organizing peasants into cooperatives of various sort. There is much concern about stimulating a democratic decision-making process in the cooperatives and care is taken to include representatives from various casts and social classes (CARITAS and War on Want in particular).

The AID-funded vegetable project also emphasizes producer's cooperatives.

Government cooperatives Service agents are part of the staff at the State Farm, COSOC and SONADER/Kaedi.

2.1.7 Fishing

2.1.7.1 Traditional Fishing

Apprenticeships in the family are the main type of nonformal education among both continental and ocean fishermen. Observation and eventually participation are how the young learn how to fish.

Skills

River and ocean fishing:

- Making and repairing of nets, fishing lines;
- Selection of appropriate hooks and bait;
- Casting nets;
- Manoeuvring fishing cannoes;
- Hauling in the catch;
- Selecting salable types of fish;
- Locating areas where fish are;
- Cleaning and preserving fish by drying.

River Fishing:

- Constructing weirs;
- Setting fish traps;
- Setting stationary nets.

Ocean Fishing:

- Sailing in rough water;
- Operation and maintenance of outboard motors.

Clients

The Wolof coastal fishermen work in more dangerous conditions than the river fishermen and do not seem to take their young sons with them. The sons are often Koranic students before becoming full time fishermen.

There is a tendency among Wolof coastal fishermen to train young men who are not their own sons how to fish. Along the river, however, fishing remains very much a family business. Sons and apprentices help in repairing the equipment used in fishing. The coastal Wolofs seem to have a more remunerative occupation, and they often pay their apprentices in cash rather than in kind. Female participation is limited to drying and selling fish.

Location

Ocean Fishing:

The Atlantic coast from the Senegal River to Nouadhibou.

Inland Fishing:

The Senegal River, its tributaries; various inland lakes and ponds.

2.1.7.2 Modern Fishing - The Fishermen's Training Center

Most modern industrial fishing is done by foreign

vessels and crews. There is no Mauretanian government institution in charge of training persons for the fishing industry. There is, however, a Japanese-financed training center for fishermen that is expected to train fishermen to work in small diesel-powered fishing boats starting in 1981.

Skills

- sailing and navigation;
- maintaining and using an internal combustion motor;
- using appropriate lines and nets;
- sorting and preserving fish;
- physical education.

Clients

Up to 10 trainees every three months.

Staff

An undetermined number of Japanese specialists; at least one for each type of skill above.

Location

The center will operate in Nouadhibou.

2.1.8 Vocational and Industrial Training

Apprenticeship and on-the-job training are the two most frequent forms of nonformal education in the modern private economic sector. Data on the type and duration

of these forms of learning were not available for this report.

Vocational and industrial training are sponsored by at least two autonomous public agencies.

In terms of specialized training the National Mining Company (SNIM) maintains a training center in Nouadhibou and another in Zouerate. These two centers, described in detail in the report on formal education, have characteristics of nonformal education in that they are employment skill-oriented rather than diploma-oriented. The length of training depends on the particular job the trainee is to have.

SONELEC, the national utilities company, has its own training center in Nouakchott.

2.1.9 Tertiary and Government

2.1.9.1 The Professional Training and Upgrading Center (Centre de Formation et de Perfectionnement Professionnels) (CFPP)

Although formal in setting and structure, the Centre de Formation et de Perfectionnement Professionnels (CFPP) has a nonformal approach to learning. The

center, which will open in Nouakchott in 1981, will conduct refresher-upgrading courses for employees of modern sector business and the government.

Goals

Part of its role is to identify training needs by contacting companies, organizations, and government agencies. Although focussed initially on the formal modern economic sector, the CFPP intends to play a role in creating jobs in small private businesses, especially in the non-structured sector. In addition, the CFPP will play a role in the eventual planning and creation of other professional training centers in Mauritania. In working towards developing a system of continuous general professional training, the CFPP will study and coordinate with the curricula at the Soumare commercial school, the ENFVA and Mamadou Loure.

Skills

The CFPP will train workers to operate machines and tools they will actually use on the job. (Some training will take place in workshop and factories, some in the CFPP classrooms.) In all cases, training will be oriented to giving workers functional competence in a given skill or set of skills. Training will be done on the basis of contract either to train new workers or to upgrade the skills of existing workers for a given enterprise of agency.

- construction - masons, tile-layers, painters; electrician; draftsmen;
- industry - diesel engine mechanics, gasoline engine mechanics;

- tertiary sector - executive secretaries, stenographers-typists, typists, accountants;
- planned specialization - electronicus, refrigeration

The curriculum and the length of training for each specialization are based on task analysis studies carried out by CFPP trainers in selected industries, agencies and businesses.

Teaching methods are to be active, encouraging student participation and problem-solving. The students will submit written evaluations of their training as a kind of feedback for the Centre. The competency-based modular instruction will emphasize practice rather than theory. A body of outside specialists will examine the students at the end of their training program. A certificate of attendance rather than a diploma is awarded at the end of studies.

Clients

At its present center, the CFPP could train up to 350 people a year with its staff of thirteen instructors. The instructors could also train eight to twelve employee-trainees at a time outside of the CFPP, in the client organizations themselves. The trainers could also train thirty to forty young skilled workers.

The CFPP programs will initially concern lower- to middle-level employees in the modern sector in Nouakchott who already have a certain level of skills and experience. There are plans to expand the CFPP program to unskilled and unemployed persons, particularly youth. Such persons would be recruited and trained to fill vacancies in

particular firms, agencies and projects. This category of skills, the rules of the place of work, the schedules to be followed, the pace of work and the maintenance of tools will be taught. Literacy may be added to the training program.

The CFPP trainers have been carefully selected according to the professional specializations deemed to be the most necessary.

The thirteen trainers have as a background:

- C.A.P. (Certificat d'Aptitudes Professionnels), a vocational degree and studies at a technical high school (college, lycée technique);
- three years or more of work experience, preferably with supervisory experience as well.

The CFPP plays an innovative role in its nonformal education program for its trainers. Because technical competence itself is not enough to ensure a viable training program, a six-month instructor training program (November 1979 - May 1980) has been set up to give the future instructors the pedagogical means of transmitting their skills and knowledge. The training process includes:

- presentation of individual exposes on a given topic with evaluative feedback from the group;
- learning about the training policy of the CFPP;

- learning about the types and numbers of Mauritanian enterprises;
- understanding the role of a trainer;
- understanding psychological and technical variables in matching workers and jobs;
- learning of interview and survey techniques;
- undertaking on-site job analysis in actual work situations;
- learning methods of data collection and use;
- understanding methods of on-the-job training;
- understanding principles of human relations;
- learning to use audio-visual aids;
- practice teaching of skills.

Periodic refresher courses for the trainers will be given according to needs. The effectiveness of the CFPP program will be modified in response to feedback from employers whose employees have been trained there as well as from the employee-trainees themselves.

Location

The CFPP is located in Nouakchott and began its first training program in 1981.

2.1.9.2 Mid-Level Professional Management

This kind of nonformal education is represented mainly by seminars, short term training courses or scholarships and counterpart training designed to prepare Mauritians to plan, execute and evaluate development

related activities in government or private sector organizations. It is a very diverse field of nonformal education on which no coherent and unified data have been gathered. These activities generally:

- prepare Mauritians to replace expatriate advisors, planners, etc.
- sensitize and inform government planners and managers about current development concepts and practices;
- help formulate goals, procedures and policies that are relevant to development planning in the Mauritanian context;
- undertake research in appropriate sectors to produce data that will make informed policy and project decision-making possible.

Skills

- disciplines or applied sciences (economics, sociology, agronomy, hydrology, health and nutrition, education, etc.);
- research methods appropriate to various disciplines;
- data analysis and interpretation;
- inter-disciplinary coordination;
- ability to analyze and synthesize;
- human relations skills;
- organizational management.

Clients

Mid-government administrators and planners and Mauritanian counterparts to expatriates are the people most directly concerned. Middle-level technical cadres are often included in certain phases, as well.

Staff

- Expatriate advisors, managers, technicians in government services, donor projects, autonomous public agencies;
- personnel of research and planning institutes, mainly expatriates;
- Mauritanian specialists in particular fields or disciplines.

Location

- Ministries, services in Mauritania;
- Foreign donor project sites, institutions.

2.1.10 Nonstructured Sector

2.1.10.1 Housing

A pioneering effort to improve the quality and to reduce the cost of housing is being undertaken by ADAUA, a private Swiss development foundation (Association for the Development of Traditional African Urbanism and Architecture). The project is designed:

- to study and implement inexpensive methods of brick-making using locally-available materials;
- to create "micro industries" to fabricate furniture and sanitary fixtures using appropriate technology and responsive to socio-economic conditions in Mauritania;

- to involve disadvantaged populations in building their own homes and in constituting community savings and loan institutions to finance housing and other projects;
- to train traditional masons in new ways of building using locally available tools and technologies.

Skills

By using the traditional apprenticeship system, the new techniques of architecture can be passed on informally from one mason to his apprentice without the need for institutionally based formal training. The materials used are all locally available and said to be affordable by Mauritanian masons.

It takes three to five years to train a fully qualified master mason. Once a master mason is fully trained he does not need the help of an expatriate "expert".

Masons learn to use:

- trowels;
- levels;
- plumb lines;
- mixing trough;
- hammers;
- buckets;
- square rule;
- scaffolding;
- sawhorses;
- arch supports;
- rulers.

Brick-makers learn to use:

- wooden moulds;
- manual presses;
- spades;
- sieves;
- watering cans.

They learn the correct proportions of clay, sand, cement, and chalk to be mixed together. They also learn the right consistency of the mixture before pouring it into the pressure moulds.

In the future, vegetable gardens and windbreaks will be planted by community volunteers from Satara. The community has already built a flood control dike to protect its homes and to retain water for future vegetable gardens

Clients and Staff

The shanty town dwellers of Satara (Rosso) are the first people to participate in ADAUA training. COSOC has sent masons from its villages (near Rosso) to learn the vaulted and domed construction techniques that ADAUA teaches. Expatriate architects trained a group of five Mauritanian masons who are now training thirty others in two stages of training. There is an advanced group of fifteen master masons and twenty beginners. Plans are to train approximately 150 masons by 1985, half of whom are to be from Rosso and half from villages in the region. The number of brick-makers trained will depend on the particular needs of the project.

Location

Satara, the shanty town on the edge of Rosso, site of ADAUA model house, demonstration housing compounds, water tower and brick kiln.

2.1.10.2 Crafts

Crafts, like agriculture, herding and fishing, are essentially traditional inherited occupations passed on from parent to child. In towns and cities, craft production is a part of the nonstructured economic sector and non-family apprenticeships are common.

At present the only governmental training institution specialized in teaching craft production as an economic activity is the Rug Weaving Training Center in Nouakchott (Centre de Formation de l'Artisanat du Tapis), described in the report on formal education. The CFAT has trained women who now work in three "pre-cooperatives", in Nouakchott, Atar, and Boutilimit. (See report on formal education.)

2.1.10.2.1 The Centres de Promotion Féminine (Women's Training Centers)

The most notable activity in the area of women's training outside pregnancy and child-related nonformal education is the varied programs offered in the Centres

Promotion Feminine, operated by the Ministry of Health and Social Affairs. At present, these centers offer several kinds of skill training but are not directly linked to salaried employment, as in the case of the CFPP. The centers have chosen craft skills according to the type of traditional crafts that are prevalent in particular regions where the centres are located. The centers try to teach the more motivated women the basics of organizing and running a cooperative. It is hoped that the centers will have a ripple effect in that once women are working in groups or on their own in their communities, they can train other women or girls informally.

Skills

- sewing, embroidery, layette making knitting, rug weaving;
- cooking;
- child care;
- house-keeping and cleanliness;
- reading and writing in French or Arabic;
- elements of book-keeping and management related to running a cooperative..

Clients

- women (usually poor) who wish to improve their home life and/or learn craft-making. 150 women have been trained and 800 are in training now. Six cooperatives have been established.

Staff

- minimum of four monitrices (educators), one literacy teacher, one health educator, one directrice. (The personnel other than the monitrices are usually full-time employees of health facilities of primary schools who work part-time in Centres de Promotion Féminine). Training is given at thirteen centers located throughout the country mainly in regional capitals. In some centers, such as in Nouakchott, and Rosso, Catholic nuns play a major role in teaching and/or management.

Location

Nouakchott, most regional capitals and large towns. (See Table no. 8)

2.1.11 Evaluation of Nonformal Education Directly Linked to Productive Work.

General

There are few organized systematic educational activities designed to give or improve skills enabling people to engage in productive work in Mauritania beyond apprenticeships in traditional rural occupations. In areas of work involving the modernization of production, nonformal education is usually an accessory activity to a service. There are extremely few institutions and

Table No. 8

Women's Training Centers

Regions	: Sedentary ¹ Women : aged 15 - 49	: Ratio of centers : to sedentary wo-	: Nomadic ¹ Women : 15 - 49	: Theoretical : Ratio of cen : to Nomadic : women
01 Nema (closed)	: 17,329	: 1:17,329	: 20,223	: 1:20,223
02 Aioun	: 14,721	: 1:14,721	: 15,443	: 1:15,443
03 Kiffa	: 21,400	: 1:21,400	: 11,164	: 1:11,164
04 Kaedi	: 29,803	: 1:29,803	: 3,821	: 1:3,821
05 Aleg	: 22,832	: 1:11,416	: 11,927	: 1:5,964
Boghe	: :	: 1:11,416	: :	: 1:5,964
06 Rosso	: 24,392	: 1:24,392	: 24,735	: 1:24,735
07 Atar	: 7,980	: 1:7,980	: 3,680	: 1:3,680
08 Nouadhibou	: 4,039	: 1:4,039	: 1,654	: 1:1,654
09 Tijikja *	: 7,777	: 1:7,777	: 10,408	: 1:10,408
10 Selibaby	: 17,255	: 1:17,255	: 2,149	: 1:2,149
11 Zouerate *	: 4,079	: 1:2,040	: 394	: 1:197
F'Derik	: :	: 1:2,040	: :	: 1:197
12 Akjoujt *	: 2,038	: 1:2,038	: 1,779	: 1:1,779
Nouakchott	: :	: 1:14,238	: -	: -
5th and 1st arrondissement	: 28,476	: 1:14,238	: -	: -

*planned for
1980

11 operating centers, May 1980. Approximately 800 women are being trained nationwide. No figures are available for individual centers. There is no evidence that nomadic women are being trained.

1) 1977 Census of Mauritania: Computer printout tables 22B and NA 05: these data are summarized without adjustment.

programs that are designed to be nonformal education or training activities per se. (The CFPP and the SNIM training centers are among the rare examples.) In most cases, such as the Agricultural Extension Service, non-formal education takes place in a haphazard, irregular fashion, depending on the availability of scarce resources such as transportation, training materials and motivated, appropriately trained personnel.

Few data are available on the organization and finance of nonformal education. In cases where nonformal education is part of a service activity (such as the Livestock Service), records are usually not kept on how, when and where or how many clients are trained. There are important types of economic activity which have no organized nonformal education, apart from the traditional family-based apprenticeships which tend to re-cycle the same skills and primitive technologies. This is the case of inland fishing and non-industrial coastal fishing.

Nonformal education concerning productive work is seriously fragmented and un-coordinated. There appear to be few efforts to harmonize the actions of the Agricultural Extension, the Livestock and the Environmental Protection Services. The latter does not yet have any activities in nonformal education at all, except where involved in foreign donor projects. The absence of a coherent policy or rural development in Mauritania is certainly a major factor in the weaknesses of nonformal education.

The majority of programs and activities covered in this report is too recent an origin to evaluate fully. The lack of data on many aspects of the training also

makes evaluation difficult.

2.1.11.1 Traditional Agriculture

There appears to be little contact between farmers engaging in traditional forms of agriculture and the government extension services. (The latter are involved primarily in vegetable production. There do not seem to be many efforts to modernize these forms of cultivation through teaching the farmers to use new techniques.) Government and foreign donor efforts more often aim at supplanting traditional crops through the introduction of vegetables or irrigated rice cultivation. Indeed, much walo land is to disappear once dams are built on the Senegal River.

2.1.11.2 Rice-Growing: SONADER

The training efforts that SONADER makes are mostly too recent to evaluate (peasant training at the Casier Pilote du Gorgol, pump operators and cooperative officers). The extension work being done on the small village paddies (petits périmètres villageois) is inadequate, from all reports. There seems to be much resentment against SONADER in many villages.

One of the principal problems in the SONADER sectors seems to be an encouragement of production without first undertaking the proper ground work of forming cooperatives and training the peasants in the necessary techniques.

The peasant training center in Kaedi and the pump operator and cooperative officers training should have been the first activities carried out by SONADER.

SONADER now has nine Peace Corps volunteers working as extension agents, five of whom have had one year of experience in the small village paddies (petits périmètres villageois). They receive little support from SONADER, which has not adequately integrated them into its extension and training activities.

The extension personnel have difficulty reaching many of the paddies because SONADER has not provided adequate transportation.

Apart from the organizational and managerial difficulties it suffers from, SONADER's principal difficulties in the field of nonformal education are those concerning the number and quality of its extension agent-trainers, who:

- have training only in the theoretical and agronomic aspects of extension work, gained at the ENFVA;
- give theoretical explanations and vague directives to the peasants;
- resist doing actual demonstrations of rice cultivation in the paddies;
- lack theoretical training in rice cultivation (Peace Corps volunteers particularly);
- show an attitude of superiority or disdain for the peasants;

- do not attempt to organize cooperative activities among the peasants;
- are not sufficiently numerous to train all the peasants.

SONADER is attempting to deal with very difficult situations. It has an ambitious project underway vastly to expand the number of village rice projects as well as its large-scale scheme (Casier Pilote du Gorgol) in Kaedi. The Pular peasants are unused to working in cooperatives, the most viable way of cultivating rice through modern methods. The Soninke peasants (the minority) have traditionally worked together in indigenous cooperative groups and appear to be more open to the skills peculiar to rice cultivation peasants.

Perhaps the brightest light in the otherwise very dark situation of SONADER is the peasant center in Kaedi. Although it opened only in February, 1980, with an initial attendance of about 85 peasants, its non-directive training methods, consciousness-raising dialogues, use of visual aids and flexible scheduling to harmonize with the peasants' other activities make it a likely model for duplication in the other SONADER sectors. Indeed, its methods are applicable to the training needs of other rural populations, such as vegetable farmers, herders, fishermen, craftsmen, women and traders and it is hoped that the Rural Development authorities will borrow its techniques for its own training and extension activities.

2.1.11.3 State Farm at M'Pourié

Supervision and training of new peasant farmers seems to be adequate for at least the first year of cultivation. If one includes the entire team of Chinese rice technicians and agronomists plus the five extension specialists (total of 47), there is a very favorable theoretical ration of one technician or trainer for every 21 peasant families who work in the cooperative fields supervised by the Farm. There are only 3 Mauritanian extension personnel to supervise the peasants after the first year. The availability of transportation and the compactness of the cultivated area make it possible for the extension agents to reach all of the paddies easily.

There are some promising ripple effects from the project. Some of the peasants who have learned to grow rice at the Farm or its peasant paddies have created their own rice paddies near their villages and organized their own successful cooperatives.

The laborers who work the State Farm paddies and the women who assist their husbands in the peasant paddies cultivate the otherwise unused land along the irrigation and drainage canals. They grow sorghum and a variety of vegetables on their own initiative.

2.1.11.4 Vegetable Cultivation

The Government Agricultural Extension Service

The Agricultural Extension Service appears to have little contact with the farmers beyond distributing seeds,

organizing demonstrations of techniques and meetings in the villages. In no case do more than half of the farmers surveyed report having even these contacts. The service is concerned essentially with vegetable production and only 70 out of 389 farmers surveyed say that they grow vegetables. 71 report growing rice, whose cultivation is assisted by SONADER.

The extension service is particularly weak in its technical advice on soil preparation. This information is crucial to the vegetable and rice growers, who risk severe crop losses by untimely or improper cultivation and planting. The experience at the Casier Pilotodu Gorgol run by SONADER in Kaedi shows that careful supervision is essential in the preparation and planting of rice seed beds.

The nearly complete absence of audio-visual aids in extension work is striking. Not only in the Agricultural Extension Service, squeezed for funds, but there is no one at the ENFVA who is capable of developing an appropriate audio-visual media program or teaching future rural development workers how to use these media effectively.

2.1.11.5 Herding

The Government Livestock Service

The Livestock Service appears to be more active than the Agricultural Extension Service in reaching its "clients". The Service-herders contact seem to be mainly once-a-year cattle vaccinating campaigns during which the Service agents perform veterinary rather than pedagogical tasks. Of the 107 herders surveyed by the Qualification study,

only 20, or 19% of the total reported attending demonstrations given by service agents.

The possibility of instructing herders in improved breeding, marketing and pasture conservation methods have not been explored. There seems to be a tremendous variation in Service activity from one region to another: in some areas the Service maintains fairly regular contacts with herders, elsewhere the Service seems to be virtually moribund. The need for a coherent planning and restructuring of the service to expand its outreach and to diversify its activities to more than cattle vaccinating is evident. The extension and animal production training that the younger Livestock Service agents receive at the ENFVA needs to be applied in the Service's field work.

The Livestock Service is concerned with cattle to the exclusion of small livestock, whose encouragement would provide both income and nutritional benefits to the rural (and urban) population. Nonformal education relating to the raising of sheep, goats, chickens and rabbits could be of special benefit to women, who do not generally participate in cattle herding apart from milking.

Donor Projects

Donor activities in herding are in their early stages and data on the results of the DRIG (AID) efforts in herding are not available. The APPAM project, the most ambitious in this area, has not yet begun. There does not appear to be any effort on the part of the peasants to duplicate the experiment in intensive livestock raising that the State Farm is carrying out. The Farm's cattle

seems to be of interest mainly to foreign visitors.

2.1.11.6 Comparisons of the Agricultural Extension and Livestock Services

Some striking comparisons emerge from the data:

1. The Agricultural Extension service is grossly understaffed in relation to the active farming population.
2. The Livestock Service is better staffed than the Agricultural Extension Service, but it does not seem to reach significant numbers of herders in many regions.
3. Both services are narrow in focus and weak in extension methods. The Agricultural Extension Service is mainly concerned with distributing seeds, and to a lesser extent, fertilizer, fungicide and pesticide. The Livestock Service is focussed on cattle vaccinations.
4. Regional disequilibria in services indicate a lack of coherent national planning.
5. There is no evidence that either service has recognized its essential complementarity with the other and their respective activities do not appear to reinforce each other to any noticeable extent.
6. The service aspects of the two agencies are over-emphasized. While vaccinations and seed distribution are necessary, the pedagogical and communications aspects of the agencies' possible role are neglected. Farmers and herders cannot yet

move to the stage of applying improved methods of management and production until the two agencies restructure their activities to include a component of active learning through dialogues, demonstrations and regular contacts.

7. Visits to the Agricultural Extension Service offices in Kiffa and Kaedi reveal that the laborer-assistants (manoeuvres) who work for the extension service are in some cases playing an extension role. They are themselves practising farmers and are respected by their peers. The extension agents themselves are often very young men and do not always command the respect of the farmers, who are much older than they. In the Kiffa area, at least, the manoeuvre is playing the role of a successful model farmer and other farmers go to him for advice on vegetable cultivation. The extent of this informal extension work by manoeuvres is worth investigating further.
8. Neither service does any training of women, as far as the data show. In the areas of vegetable cultivation and small livestock-raising women can play a productive role. Women are probably Mauritania's most neglected human resource.

2.1.11.7 Cooperatives

In theory, a pre-cooperative function on a trial basis for two years before becoming a full-fledged cooperative. Cooperative agents are supposed to carry out surveys on the economic and social factors favoring or disfavoring the cooperative and act as trainers to help

the members evolve a participatory decision-making process. In the early years of the service there had been some workshops organized in Kiffa, Kaedi and the Hodhs to train leaders of peasant cooperatives as well as peasant para-professional trainers, but there was never any follow-up support given to the training. The on-going supervision training and support needed to bring about the transformation of pre-cooperatives into cooperatives seems to be lacking.

The Cooperatives Service was never given the means to carry out its tasks. Discouraged by a lack of financial and material support, most of the agents have left the service. The government has never defined a coherent cooperatives policy or provided the means for carrying one out. The few successful cooperatives in Mauritania seem to be largely independent of the Service and operate on their own initiative. One of the most important missing elements in the cooperative movement is access to credit. Even the successful and well-established independent cooperatives (see below) have been unable to obtain loans.

There are some hopeful indications of improvement in the Cooperatives service in the form of a new cooperatives training center that is opening in Boghé.

There, cooperative officers will receive training in book-keeping and management. FAO funding is expected.

Independent Rice Cooperatives (M'Pourie Plain)

These seem to be dynamic on the whole but they do have some difficulties.

Major Problems:

- lack of skills in topography and irrigation infrastructure;
- lack of mechanical maintenance skills;
- inability (or lack of knowledge) to obtain loans.

The problems are probably in part a result of the fact that the whole hydraulic system at the State Farm was built and is maintained by Chinese specialists. The peasants do not have the skills necessary to select appropriate sites and to plan and install the necessary dikes and canals on their own. The paddies cultivated by the village cooperatives were created with the help of technicians from the Farm.

2.1.11.8 Fishing

Traditional fishing, like traditional agriculture, is essentially ignored by government and donor training efforts. The coastal fishermen at N'Diago, north of St. Louis, Senegal, seem to have acquired modern practices on their own (use of outboard motors, notably) and tend to organize non-family apprenticeships to a greater degree than inland fishermen or practitioners of other traditional rural occupations. The coastal fishermen seem to be more commercially-oriented, perhaps because of their proximity to the markets of St. Louis and Nouakchott. The Qualifications survey indicates that the river fishermen complain of a serious decline in catches. This fact indicates a need for a policy of pisciculture. The expansion of rice growing and its associated hydraulic system in the Senegal River valley would facilitate the development of fish ponds.

Modern fishing is only slightly less neglected than traditional fishing. The Japanese fishing center in Nouadhibou has yet to open and its theoretical capacity of 10 trainees for three-month training programs means that up to 40 fishermen-sailors will be trained each year. This is a very inadequate number if one considers the richness of the waters off the coast of Mauritania and the needs of employment creation.

2.1.11.9 Modern Sector and Autonomous Public Agencies

The report on formal education provides an evaluation of the training activities of the autonomous public agencies (SNIM and SONELEC).

2.1.11.10 Tertiary and Government Sector

The only program of nonformal education in this area that is treated in this report is that of the CFPP in Nouakchott. It is a carefully planned institution whose programs in nonformal education were based on preliminary research in the needs of its clients, the government and the private (urban) sector. Although the center does not help to create jobs or train workers for rural areas, its principles of organization and training for actual jobs constitutes a model that is adaptable for smaller-scale centers in rural areas. Further evaluation data is available in the report on formal education.

2.1.11.11 Non-Structured Sector

The ADAUA housing project is the only important activity in the nonstructured sector. Although initially

an urban housing project, it is branching out into rural development through its cooperation with COSOC.

ADAUA is putting into practice an important pedagogical principle that is of particular value in nonformal education related to strengthening the apprenticeship and training systems of the traditional occupations in the rural or urban nonstructured sector. "Formation en cascade", or the "ripple effect" involves the training of persons in particular skills while at the same time preparing these persons to train others through apprenticeships or on-the-job training, thus expanding the repertoire of skills available in a particular kind of activity. The ADAUA-trained masons and brick-makers are able to take their skills and training methods to other places and train others.

Since the ADAUA project is a comparatively recent one, it is too early yet to tell whether the masons and brick-makers have been sufficiently well-trained to transmit their skills to others without the supervision of the ADAUA architects.

2.1.11.12 Crafts

The CFAT rug-weaving school in Nouakchott is the only craft-training institution in Mauritania (see report on formal education for details and evaluation). The Women's Training Centers (Centres de Promotion Feminine) are multi-purpose centers which offer instruction in literacy, cooking, child care and hygiene in addition to their instruction in crafts and cooperative formation.

The strength of their crafts training apparently varies considerably from center to center, since each is partly dependent upon support from the regional government and donated equipment.

Originally organized to support activities of Mauritania's now-defunct political party, the centers' present focus on training dates only from 1978.

In their present form, the centers reach women in the larger towns and cities only; those in Nouakchott and Rosso are the only ones that have enrollments of over thirty at any one time. The craft cooperatives include fifty women in Nouakchott and twelve in Rosso (twenty-five had been expected in the latter). There is an uncertain number of women in the cooperatives in Akjoujt and Kaedi. In Boutilimit, five groups of five women work in different parts of the town, making it easier for women to stay near home and to involve others in their work. These cooperatives are essentially pilot projects with many difficulties to overcome, but their goals have a particular relevance to development-oriented nonformal education.

- training in a variety of areas, with an emphasis on self-employment;
- craft production based on the kinds of skills and crafts in particular regions;
- ability of each learner to work and progress at her own pace;
- introduction of new skills only after other skills have been mastered;
- moderate cost of operations; partial self-financing through the sale of crafts;

- decentralized management.

The main difficulties involved are:

- irregular attendance of women at training centers;
- lack of coordination and adequate management of some centers due to poorly trained or inexperienced directors;
- inadequate budgets, irregular support from regional governors in many cases;
- disinterest on the part of the national government in creating development activities for women;
- inaccessibility of the centers to rural and nomadic women.

2.2 Non-Formal Education Indirectly Contributing to Economic Productivity

There is a number of institutions and programs in nonformal education that enables clients to live and work better. The main kinds of activities in question are in the domains of 1) public health, which includes preventive medicine, first aid training, mother and child health nutrition, 2) environmental protection and conservation, and 3) literacy.

2.2.1 Public Health

On the whole, top administrators in the public health seem to be in the process of gradually redefining the goals of the health services from a curative to a preventive approach. The recently-created Directorate of Preventive Medicine and the opening of Nutritional Recuperation Centers in the PMI's are significant steps in the

direction of preventive medicine.

Realizing that the present infrastructure and personnel are not adequate for providing curative health services to a scattered rural population, the public health officials have begun developing strategies aimed at reducing mother and child morbidity and mortality and at bringing primary health care to areas without public health facilities.

Doctors, nurses and midwives serve as trainers in various nonformal training programs for traditional and auxiliary midwives, Red Crescent first aid volunteers, women (pregnancy education, nutritional education, child care) and, in one case, men (family education). Administrators from the Public Health Service (Direction de la Santé, Service des PMI) play a major role in training as well.

On-the-job training appears to be a major way for individuals to gain professional competence as health auxiliaries. A great deal depends on the initiative of individual public personnel in particular hospitals, maternity clinics, dispensaries and PMI's to undertake nonformal educational activities.

2.2.1.1 Community Based Preventive Medecine

2.2.1.1.1 Délégués Sanitaires (Volunteer Community Health Workers)

Started in Atar (Adrar), in 1976, the project was designed to extend primary health care to people in the whole of Adrar who were not reached by the government health services, which are based in larger towns and villages. The program is also designed to organize health education classes in outlying communities.

The Délégués Sanitaires are coordinated by the hospital in Atar but are not directly supported by the state. CARITAS, and local fund-raising help to support their activities.

Skills

Training of the Délégués: One month initial training four-to-six month day refresher course-workshops yearly thereafter.

- ability to identify common illness and diseases;
- ability to administer proper medicines to cases which the Délégué is allowed to treat;
- taking temperatures;
- assessing stages of infant dehydration;
- disinfecting and bandaging wounds;
- application of ointments, etc.;
- willingness to contact health authorities upon discovering communicable diseases.

Health education of the people:

- learn the need for vaccinations;
- learn measures to prevent common ailments, particularly diarrhea in young children, infection of wounds.

Clients

There is nonformal education on two levels. First, there is the training of the Délégués themselves. The number had varied considerably over time; in late 1978 there were 29 in active service. The second level of training is that of the general population by the Délégués.

Délégués: the criteria for selecting people to be Délégués are the following: integration with the local milieu, good character, availability and dynamism, stability, willingness to work without remuneration, open-mindedness, able to speak in public, interest in health problems. Literacy is an important but not absolutely necessary qualification. Young unmarried women and civil servants (who tend to be transferred often) are not considered ideal candidates. Salaried persons are preferred.

Candidates for training as Délégués are selected by community committees and approved by the local traditional authorities.

General population: assumed to be the estimated; 70% of the people who do not have access to the government medical facilities in Adrar. The real number of people who are given actual health education lessons is not known and depends largely on the initiative of individual Délégués and the cooperation of their own communities.

Staff

The staff of the hospital in Atar and the dispensaries in the four principal towns of the region outside of Atar did the initial training of the Délégués in 1976. The same people are in frequent contact with the Délégués, who act as the "ambassadors" of the health service out in the villages and nomadic camps. The professional personnel thus assure an on-going informal training of the Délégués, who also benefit from an annual refresher-upgrading workshop. The doctor in Atar, a midwife and five nurses are the professional staff responsible for supervising and training the Délégués.

Location

The Adrar region, coordinated by the hospital in Atar.

2.2.1.1.2 Rural Medical Assistance (Project Trarza)

Inspired partly by the experience of the Délégué Sanitaire program in Adrar as well as by "barefoot" doctor programs in other developing countries, this community-based preventive medicine project is taking shape as an effort to:

- create a system of effective, low-cost primary health care in all villages in Trarza;
- begin a program of community health education as part of a preventive medicine strategy;
- reduce the incidence of disease among rural people in the region.

Clients

- 192 residents, (male and female) of villages and camps to be designated for training by community health committees. Literacy is not required;
- Red Crescent first aid volunteers (if chosen by the community health committee);
- beneficiary population is the people of Trarza, particularly in isolated areas.

Staff

Highest Level

- an American public health specialist;
- an American health education specialist;
- a Mauritanian counterpart to the health education specialist.

Mid-Level

- two Mauritanian public health nurses (infirmiers diplômés) who will train the public health and PMI personnel in Trarza;
- ten Mauritanian nurses from the PMI's and dispensaries in the region who will train the community health committees;
- four Peace Corps volunteers who will be counterparts to the Mauritanian nurses in the areas of training, health education and program support.

Basic Level

- 192 community health workers (in their capacity of public health educators).

- create a system of village pharmacies;
- create a system of volunteer community health workers;
- create program support system including a supervisory and re-training component as well as links to governmental and nongovernmental health-related systems.

Particular emphasis is being given to the health education aspect of the project and the necessary support structures. As in the Delegue Sanitaire program, the community health workers will do a very minimum of curative work (desinfection of wounds, application of ointment for eye infections, etc.). The community health committees themselves will be trained in concepts of preventive medicine and will be able to play a significant role in coordinating health-related activities in their communities.

Skills

Volunteer Health workers are to be taught:

- ability to do simple record-keeping (community health committees);
- ability of community health committees to collect funds to support the actions of the community health workers not covered by the project or by government budgets;
- ability of community health workers to identify causes of illness in people's living conditions and in the environment;
- ability of community health workers to identify various kinds of diseases;
- ability to administer correct doses of appropriate medicines for illness that they are qualified to treat.

Location

All of Trarza, particularly villages and camps.

2.2.1.2 First Aid

2.2.1.2.1 Red Crescent Society

Associated with the International Red Cross, the Mauritanian Red Crescent Society is the largest non-governmental organization in the field of disease prevention and cure in Mauritania. It has an extensive network of volunteers who are essentially concerned with first aid activities, but are sometimes involved in community sanitation and hygiene to some degree, according to local interest and motivation. In addition, there are activities in social work and relief efforts, agriculture and crafts.

The Red Crescent is an autonomous organization, but its activities are closely linked with those of the Ministry of Labor, Health and Social Affairs, Lutheran World Relief and Catholic Relief Services (joint programs). The Red Crescent is the Mauritanian counterpart of Lutheran World Relief. It coordinates its activities through forty-five regional volunteer coordinating committees.

Skills

- basic first aid procedures (for secouristes);
- broader training in social work, health, animation and first aid (for monitors and instructors);

- vegetable gardening (250 families in Nouakchott);
- agricultural extension (10 secouristes);
- sewing and knitting for women (Nouakchott headquarters).

Clients

The population in general benefits according to the degree of local motivation among secouristes. Drought refugees have benefitted from distribution of food and clothing. One notable beneficiary group is the 250 families whom the Red Crescent and Lutheran World Relief helped to settle in Nouakchott and learn vegetable gardening. (Ten Red Crescent volunteers were trained in extension methods to carry the training.)

Staff

- doctors and nurses from regional health facilities donate their activities to train secouristes during school vacation;
- first aid volunteers (secouristes) - approximately 3,500 in the country; 2/3 are students; nearly 1/3 are civil servants;
- "monitors" - approximately forty first aid volunteers with a certain amount of experience and additional more complex first aid training;
- instructors - ten monitors who have experience and further training to coordinate Red Crescent activities.

Location

Headquarters and vegetable gardens in Nouakchott. Network of secouristes in towns where there are civil servants or schools.

2.2.1.3 Maternal Health and Child Care

Nonformal education in this area is designed to reduce maternal and infant mortality by teaching expectant mothers the principles of reproduction and the role of the female anatomy in the process.

Skills or Knowledge

- understanding the menstrual cycle, fertilization, the development of the child in the womb;
- understanding the functions of the female reproductive organs;
- understanding the birth process;
- measures to take in case of difficult pregnancy;
- avoidance of miscarriages;
- pre- and post-partum hygiene.

Clients

Pregnant women in general. Efforts are made to reach poor or uneducated women.

Staff

- midwives (sages-femmes);
- nurses;
- interpreters (when instruction is in a language not understood by local women).

Location

PMI's (Centres de Protection Maternelle et Infantile Mother and Child Protection Centers). 34 centers nationwide, in regional capitals and large towns.

Special Program: Family Life Education

At the Fifth Arrondissement PMI (Centre Medico-Social) in Nouakchott, there is a program of education for fathers. They learn about the reproductive process in women, the development of the child in the womb and a father's responsibility for his children's well-being.

2.2.3.1.1 Traditional and Auxiliary Midwife Program
(Accoucheuses Traditionnelles et Auxiliaires)

Because PMI's are in the larger towns in Mauritania, many women are unable to reach them easily. In order to make basic childbirth assistance available to women unable to go to hospitals or maternity clinics and to reduce the incidence of miscarriages, stillbirths and post-partum infections of mothers, the Ministry of Health and Social Welfare created this para-professional community outreach program.

Skills

- to recognize symptoms of difficult pregnancies;
- to be able to improve the hygienic conditions of childbirth in rural areas, in women's homes;
- to be able to judge when to notify competent health authorities when serious complications arise during pregnancy.

Clients

- village women, preferably with some midwifery experience. Literacy is not required.

Accoucheuses auxiliaires (57) trained for nine months
Accoucheuses traditionnelles (102) trained for one month.

Staff

- two specialists in maternal and child health from the PMI. Department of the Ministry of Health and Social Affairs.
- nurses (infirmiers brevetes) in regional hospitals and PMI's.

Location

Training takes place in Nouakchott for the auxiliary midwives and in regional hospitals, maternity clinics and PMI's for the traditional midwives.

2.2.1.4 Nutrition Education

Nutritional education is conceived both as a curative and a preventive health strategy. Mothers are taught how to bring mal-nourished children back to health as well as how to prevent malnutrition and the ensuing illness.

Skills

- learning causes of malnutrition;
- identification of signs of malnutrition in young children;
- identification of appropriate foods for a balanced diet;

- learning how to prepare appropriate foods for babies and children;
- recognizing changes in a child's health in relation to its weight.

Clients

- Mothers of malnourished children up to six years old.

Staff

- Nutrition educators, auxiliaries, mothers working as health educators, Peace Corps volunteers, Red Crescent volunteers working for Catholic Relief Services.

Location

- 18 Nutritional Recuperation Centers (CRN's) attached to PMI's;
- 16 Catholic Relief food distribution centers;
- Women's homes.

2.2.1.4.1 Nutritional Recuperation Centers

The purpose of these centers is to engage mothers in nursing their malnourished children back to health while learning principles of proper nutrition. The training varies according to the needs of its "clients" in that it is over once a child gains a kilogram. The four daily meals give mothers ample opportunity to learn by participating and discussing.

Table No. 9 Distribution of Nutritional Recuperation Centers/PMI's

Region	City or Town	
01	Nema* Timbedra*	
02	Aioun* Tintane*	
03	Kiffa* Moudjeria* Guerou* Kankossa*	
04	Kaedi M'Bout Maghama Monguel**	Kaedi*
05	Aleg Boghé M'Bagne Magta-Lahjar*	Boghé*
06	Rosso (2 Centers) Merderdra Boutilimit Keur Macene*	
07	Atar*	
08	Nouadhibou	
09	Tidjikja	
10	Selibaby* Ould Yenge*	
11	Zouerate	
12	Akjoujt	
District of Nouakchott	Nouakchott (4 centers) Nouakchott*	Number of functioning Centers: 16
		Number of Centers opening in 1980: 18

*Center opening in 1980.

Training will often last a month or longer as children generally take several weeks to regain their health. This form of nutritional education is thus potentially more effective than other, less intensive ones because it is designed to be:

- an "immersion" process, involving the continuous presence of mothers who can observe concrete results of particular nutritional interventions;
- a process using observation, practice, repetition and emotional involvement as reinforcement of learning.

2.2.1.4.2 Nutrition Auxiliaries

These are women who are trained to help operate the Nutritional Recuperation Centers (CRN's). They work under the supervision of a nurse and are partly responsible for the training of mothers of malnourished children. The nutritional auxiliaries are trained in a 3-month training program. The administrative authorities in towns where there is a CRN send a local women to Nouakchott to be trained. Upon returning, the auxiliary helps the nutritional educator(s) in the CRN. (Nutrition educators are "formally" educated at the ENECOFAS in Nouakchott.)

Skills

- general principles nutrition;
- proper preparation of locally-available foods especially food for very young children and babies;
- basic curative treatment for sick/malnourished children.

Clients

- Literate women residing in a community where there is a CRN. 28 were trained in 1980.

Staff

- Nutritionist from the PMI Service headquarters in Nouakchott, nurses, nutrition educators in Nouakchott.

Location

Training of auxiliaries in Nouakchott. Auxiliaries later work in regional CRN's or PMI's.

2.2.1.4.3 Mères Animatrices (Mothers working as community health educators)

Goals

- to serve as liaisons between the Centres de Récupération Nutritionnelles and the community;
- to identify cases of malnourished children and send them to the CRN;
- to give informal talks on nutrition to women in their homes.

Skills

- general notions of nutrition;
- to identify signs of malnutrition in children;
- training takes about two weeks.

Clients

- usually older women; literacy not required, must have a convincing manner and be respected in the community.

Staff

- nutritional educators and auxiliaries (éducatrices and monitrices nutritionnelles in CRN's and PMI's).

Location

CRN's or PMI's in the regions, where the mères animatrices receive supervised on-the-job training.

2.2.1.4.4 Catholic Relief Services

This American Catholic agency plays a large role in food distribution. As a way of trying to insure that the food is properly prepared, Catholic Relief Services began nutrition education lessons in its distribution centers (some of which are attached to government health facilities).

Skills

Distribution center personnel:

- filling out cards, recording weight gains and losses, keeping track of vaccinations needed, referring mothers to PMI's and dispensaries for vaccinations or medical treatment;
- showing actual examples or pictures of food from various nutritional categories to mothers;
- doing cooking demonstrations with donated and local foods.

Women:

- learning the relationship of food to health and weight of babies and young children;
- learning how to prepare donated soya-sorghum grits and locally available foods by actually participating

- in cooking demonstrations;
- learning the importance of record-keeping and of bringing health booklets to demonstrations.

Clients

- Approximately 35 Red Crescent volunteers women trained as nutritional educators and/or distribution center personnel responsible for checking vaccination records of children, weighing and distributing foods;
- Approximately 32,000 women.

Staff

- Expatriate CRS staff trainer in Nouakchott, PMI/CRN personnel.

Location

- 16 centers set up either in government health facilities (dispensaries, PMI's or CRN's) or apart. Located in Nouakchott, Trarza, Brakna, Gorgol, Inchiri Adrar and Tiris Zemmour.

2.2.2 Environmental Protection and Conservation

2.2.2.1 Lutheran World Relief and the Environmental Protection Service

One of the most ambitious conservation efforts involving nonformal education to date has been a project to plant a "green belt" in order to:

- stabilize the increasingly active sand dunes;
- employ nomadic drought refugees;
- create a tree nursery.

Skills

- ability to identify and collect prosopis chilensis seed pods;
- extraction of the seeds from the pods;
- planting of seeds in "jiffipots" or plastic bags;
- watering of young trees at their permanent location;
- building of fences at nursery;
- rodent and pest control in nursery.

Clients

- 35 nomadic drought refugees trained to work in the nursery;
- 165 nomadic drought refugees trained to maintain the "green belt";
(the workers were recruited by the Red Crescent Society).

Staff

- 10 trainer-agents lent by the Environmental Protection Service.

Location

The area just north and north-east of Nouakchott.

Other Conservation Activities

Very similar projects have been organized by Lutheran World Relief in Barkoul (Mid Region) and at rice-growing villages in the Rosso area.

2.2.2.2 COSOC (Communication Sociale) (Private Swiss Project in Integrated Rural Development)

Village Reforestation Project:

The villages participating in the project will plant nurseries to provide trees for firewood, windbreaks around the rice paddies and for stabilization of sand dunes. The nursery will be used explicitly as an educational tool for school children.

Skill

- seed collection;
- creation of tree nurseries;
- regular watering;
- transplanting;
- installation of fencing;
- selective pruning and eventually tree cutting.

Clients

Theoretically the entire active populations of the four participating villages, but with particular emphasis on school children.

The villages have about 1,000 total population.

Staff

The agents from the Environmental Protection Service in Rosso will undertake the training.

Location

The four COSOC-assisted villages near Rosso.

2.2.3 Adult Literacy (secular)

There is a variety of institutions and programs in secular adult literacy. Some are run by the Women's Training Centers, others by the SNIM training centers, or small private "literacy schools". The government operates a number of adult literacy centers as well.

2.2.3.1 The Government Adult Literacy Centers

The government centers are operated by the Ministry of Fundamental and Secondary Education. Students enroll to improve whatever literacy skills they may have in order to prepare for jobs requiring literacy. Others wish to prepare to take the examination for a primary school diploma. Others wish to read the Koran.

Skills

- ability to read and write in French or Arabic.

Beyond "reading and writing", specific skills are not defined by the program. The two levels (beginners and intermediates) are established by a test. Beginners take two to three years to gain effective literacy. Intermediates take one to two years. There does not appear to be any well-defined curriculum or any special literacy materials used. Arabic seems to be the major language studied.

Clients

- 1,731 in 1977-78. The majority seems to be women. (in Kiffa, for example, there were six men and 45 women in attendance in 1980).

Staff

- primary school teachers with no special preparation for teaching adults; books for primary schools are commonly used.

Location

18 centers operational in 1977-78. 6 in Nouakchott, others in regional capitals or administrative towns except Nema and Aioun. (See report on formal education for details.)

2.2.3.2 Other Literacy Programs

The best known are the Ben Aneur and Fellahia schools, but no data on them are available. However, a brief analysis of the "transitional" El Ahrar school in Nouakchott is to be found in the Lecourtois report.¹ Together these schools taught 246 students (El Ahrar) at least 1,016 (Fellahia) and 2,000 (Ben Aneur) in the mid 1970's.

According to Lecourtois, the El Ahrar school may be the most fruitful example of a "traditional" school to be studied from a developmental point of view. It demonstrated:

- self-financing through fees;
- elementary through college-level instruction;
- Koranic as well as "modern" subjects;
- co-education for unemployed youth, drought refugees;
- morning as well as evening hours;
- preparation for entry into formal education, primary, secondary, normal and professional education

¹ Lecourtois, op.cit.

A number of private nonformal schools operates in the major urban areas, concentrating on adolescents and adults who seek to gain literacy, pass examinations for entry into formal or professional education. These non-formal schools are self-supporting and offer instruction in morning, afternoon and evening hours year round. No information on their "development potential" has yet been gathered.

The fact that the formal school system educates few students at a high cost and that this system has little to do with Mauritania's development needs suggests that the private nonformal schools should be studied in the order to assess their potential role in development.

There is anecdotal evidence of privately-organized literacy classes in African languages (Poular, Wolof and Soninke).

2.2.4 Evaluation of Non-Formal Education Indirectly Linked to Productive Work

Just as in the area of nonformal education directly linked to productive work, there is a scarcity of organized programs and activities related indirectly to productive work. In this sector, most nonformal education is a secondary activity within some kind of service organization. In the health area, for example, doctors, nurses and midwives are essentially concerned with curative medicine. According to local interest and motivation, certain ones will participate in nonformal education of para-professionals or community health workers of various kinds, such as the Délégués Sanitaires or the Red Crescent secouristes.

The fragmentation of programs is partly overcome in the area of maternal health, child care and nutrition in which PMI's (Mother and Child Protection Centers and CRN's (Nutritional Recuperation Centers) have begun taking a wholistic approach to the problem of high mortality rates among mothers in childbirth and of infants and young children. The traditional and auxiliary midwives and the mères animatrices (volunteer mothers working as community health educators) are new community outreach programs that are designed to reach women and children who do not go to PMI's, CRN's or dispensaries either because they are unaware of their services or because they live too far.

These activities have been helped by the Red Crescent and by foreign donor agencies, notable Catholic Relief Services and Lutheran World Relief, who work closely with the Mauritanian Ministry of Health and Social Affairs. Nevertheless, the training and coordination of the nutritional education, pregnancy-related training and the community outreach programs depend too often on poorly motivated health care personnel who do not have any pedagogical training of their own.

"Hard" data on the training of the para-professionals and how well client women are trained are not kept in most cases. Numbers of women who come for check-ups, numbers of children vaccinated and amounts of food distributed are the main statistics kept.

2.2.4.1 Public Health

Community Based Preventive Medicine.

2.2.4.1.1 Délégués Sanitaires

The Délégué Sanitaire program seems to be a positive experience on the whole. Its most serious shortcoming appears to be the health education aspect for which the Délégués are the least prepared. They are not trained in the use of audio-visual aids and have no pedagogical training. For the most part, they give advice on health and disease prevention to individuals and groups through informal discussions.

Through further training, their role as liaisons between the health services and the people can be strengthened, particularly in keeping records of major health problems and alerting health professionals before illness come too serious or widespread.

It is hoped that the Délégués will eventually be able to play a wider role in a preventive medicine strategy tied to development activities. These would include development adequate potable water supplies, nutrition education linked to agricultural development (in oases) and general hygiene measures such as household community cleanliness. The Délégués could also play a role in school-based health education.

2.2.4.1.2 Rural Medical Assistance (Project Trarza)

Since this project is just beginning, it is too early to evaluate it, but its organization and planning demonstrate positive features that, if applied, will strengthen the pedagogical role of the community health workers. It is hoped that the personnel (village health committees and community health workers) will eventually be able to play a wider role in development work, as suggested above (see Délégués sanitaires evaluation).

2.2.4.1.3 First Aid

The Red Crescent Society

The society's goals are strongly relief and charity-oriented with an emphasis on emergency first aid care. Since the drought of the 1970's, however, the society's activities have become more linked with the development work and concomittant nonformal education through its collaboration with Catholic Relief Services and Lutheran World Relief.

In certain cases the society's mode of organization shows important strengths that could be reinforced in order to give the society a more development focus:

- regional coordinating committees;
- local fund-raising capability;
- links with the national health services;
- close ties with development-oriented foreign agencies.

The Red Crescent Society's secouristes (first aid volunteers) seem to be mainly civil servants, teachers and students. In order for the Society to play a more positive role in development it will be necessary to broaden membership to include a wider range of people to involve itself in more diverse kinds of activities. These might concentrate on preventive medicine including health education and community sanitation, which would fit into the context of the organization's present structure

2.2.4.1.4 Maternal Health, Child Care and Nutrition

Data are not available on results of training accoucheuses traditionnelles and mères animatrices, which are recent programs. However, in the realm of nutrition, more information exists. The goals of nutrition education are consonant with development priorities in reducing mortality and in improving the nutritional status of the population. By introducing vegetables and fish into the diet, nutritional education can stimulate a demand for easily-produced indigenous foods, whose increased production is an important development goal.

There are, however, serious obstacles to implementing these goals because of the way the Nutritional Recuperation Centers tend to be run and because of the attitudes of most mothers.

The nutritional educators and auxiliaries are not always very motivated and may insure that meals are prepared, but little else. The women themselves

do not understand the purpose of the centers and see them as a service rather than as a participatory institution. They tend to wait passively for meals to be prepared by someone else. In the case of at least one PMI sponsoring nutritional education, there are efforts to do cooking demonstrations with local vegetables in the oases that produce them. These are done in conjunction with the local agricultural extension office which is linked to the AID vegetable production project.

The better motivation of personnel in Nutritional Recuperation Centers and the active involvement of mothers in a learning process are the two best ways to make these institutions part of an integrated development strategy. Beyond the personnel and motivational difficulties, the centers are located in urban areas or in regional capitals. They are therefore unable to reach mothers and children in rural areas unless the mothers are able and willing to find their own way to the centers.

Although the system of Nutritional Recuperation Centers is expanding, there will still be regional imbalances, although the populous southern regions will have the most. The first and second will have only two each.

Table 10 gives data that enable certain conclusions to be drawn about the degree of congruence between the program of 3 major organizations involved in nonformal nutritional education and the needs of Mauritania. The left hand column gives the basic categories of program characteristics by which the three types of centers (listed horizontally at the top) are compared.

- location:

Nonformal nutritional education is largely an urban phenomenon. Only Catholic Relief Services reaches women in villages of under 1,000 inhabitants.

- participants:

On the whole, women appear to be passive spectators of cooking demonstrations. Catholic Relief Services appears to make the most systematic effort to involve women directly in the demonstrations.

- frequency:

The CRN's offer by far the most intensive instruction in nutrition. In the Women's Training Centers and in the Catholic Relief Services food distribution centers instruction of any one woman is once or twice a month.

- links to other forms of training:

The Women's Training Centers offer the widest variety of training for women. In particular, they offer training in income producing activities. The other two institutions are essentially concerned with health and nutrition.

- links to (other) health services:

The Centres de Récupération Nutritionnelle have the closest ties to other health services in that they are an integral part of PMI or dispensary or maternity clinic services. Catholic Relief Services reinforces the work of PMI's by checking on children's vaccination cards and referring mothers and children to PMI's (or CRN's) when necessary.

- personnel:

ENECOFAS - trained nutrition educators work in most Women's Training Centers and CRN's. The Catholic Relief Services food distribution centers rely on nonformally-trained Red Crescent volunteers. In CRN's there may be a variety of personnel in addition to health educators. Mères animatrices, for example, provide referral services as a link between CRN's and homes.

- links with other development goals and agencies:

The Women's Training Centers have a more balanced range of services and training than the other two institutions. The Women's Training Centers may have the greatest development impact on the women who are trained through their training in craft production and cooperative management. The other two agencies are not linked to any economic development goals.

2.2.4.2 Environmental Protection and Conservation

At present, foreign donor activities are the only educational efforts in this domain. Lutheran World Relief's Green Belt project involved training persons to carry out tree planting and nursery maintenance but the project itself has stimulated few indigenous Mauritanian efforts. The conservation work in Barkeol (Assaba) and the COSOC villages is being undertaken with donor supervision.

In spite of the fact that environmental degradation and ensuing desertification are proceeding at an alarming rate, the activities of the Environmental Protection Service (Service Protection de la Nature) are essentially police actions in which people are fined for cutting down trees without permission. The rural population is not yet fully aware of possibilities of human intervention to halt or at least control the advances of the Sahara through controlled grazing practices or reforestation. The Environmental Protection Agency's personnel should play a role in informing people about methods of environmental protection and in training people in how to apply these methods.

The Service's personnel are spread thinly over the country with at least one person in each region except Tiris Zemmour. The largest concentration of personnel is in Nouakchott (17), Gorgol (13, including 4 stationed at the ENFVA) and Trarza (9). The other regions have 7 fewer agents each.

Although it is a part of the Ministry of Rural Development, the Environmental Protection Service does not coordinate its actions with the other main divisions of the Ministry; the Livestock Service and the Agricultural Extension Service. The three Services' mid-level agents are all trained at the ENFVA, where there is training in extension methods, but the graduates in environmental protection have no way of applying these skills in their professional work.

The seventy-five agents in service could provide a valuable complement to the other rural development services in the regions, (the Agricultural Extension Service is particularly understaffed). A comprehensive rural development strategy would be the first meaningful step in planning a collaborative effort of nonformal education in rural areas.

2.2.4.3 Adult Literacy (Secular)

There are essentially token efforts to spread literacy on a mass basis. The government literacy are concentrated in urban areas (particularly Nouakchott) and the rural masses are in effect excluded from training in literacy in these institutions. Like most other government efforts in nonformal education, adult literacy is an accessory to a larger institution, the primary school system. The literacy teachers are primary school teachers who teach adults on days and during hours when the school children are free. The teachers have not been trained to teach adults and there are no materials designed for adult use.

The absence of Pular, Soninké and Wolof in the literacy program limits its usefulness to the Development process in southern Mauritania, where these languages dominate. Experience has shown that it is very difficult to teach literacy to adults in a language that is not their own.

The absence of data prevents an evaluation of private programs in secular adult literacy. There exists a number of private schools offering instruction in Arabic or French literacy, but it is not known whether their enrollments are larger than those of the government centers. The fact that they exist without any support beyond student tuition suggests that they are successful in meeting a felt need.

Development will be severely hampered unless a vastly enlarged program in literacy is launched using all available means. Printed and broadcast media are needed in order to carry out national efforts of a truly mass nature.

2.3 Non-Formal Education Linked to Social and Cultural Integration

2.3.1 Religious Education

The principal goal of nonformal religious education is to transmit the fundamental concepts and beliefs of Islam to the rising generation. Islam is an important

unifying and integrating force in Mauritania, whose ethnic and linguistic divisions make national unity a problem. Apparently all Mauritians receive some kind of Islamic education, although relatively few become functionally literate. There appear to be three major forms of Islamic education.

- 1) The 1977 census refers to "Koranic education at home" (as opposed to Koranic education in a school setting). More than 73,000 Mauritians had received no other education besides Koranic education at home. This seems to be particularly important for women, 31,000 of whom had received Koranic education at home only, compared to 25,900 who had a partial or complete (formal) primary education and 2,200 who had attended a mahadra and no other kind of school.

Table No. 11

Education: National Totals*

	Koranic Education (at home only)	Mahadra (only)	Partial or Complete Primary Education
Male	42,120	17,670	56,570
Female	30,940	2,210	25,970
Total	73,060	19,880	82,540

* 1977 census computer printout table TC 22. These data are summarized without adjustment.

- 2) The Department of Islamic Affairs distinguishes between ketatib and mahadras. The former are non-formal "schools" that teach children to recite and memorize the Koran. It is not clear from the census data or the Lecourtois report¹ whether this form of education is part of "education at home" or a preparatory level of education in mahadras, as it is not uncommon for women, rather than the more learned sheikhs, to instruct children in their homes.

- 3) The mahadras appear to be concerned mainly with adolescents and young adults. In addition to teaching students to read and memorize the entire Koran, the mahadras instruct more advanced students in Arabic grammar, mathematics, Islamic law and other subjects of traditional Islamic education.

2.3.1.1 Islamic Education and Development

Only fragmentary information is available on the results of the World Bank-funded experiment to make the mahadras more modern institutions providing functional mass literacy.

1) Andre Lecourtois, "Etudes Expérimentale sur l'Enseignement Islamique Traditionnel en Mauritanie", Paris: SEMA Entreprises et Développement, 1978. pp. 46-56.

The obvious advantages of the Mahadras are their:

- availability in urban as well as rural areas;
- self-financing and low cost;
- instruction of children, adolescents and adults
- development of literacy in Arabic among significant numbers of people;
- flexibility of scheduling and pace of learning.

Lecourtois indicates that many sheikhs in the mahadras were open to the idea of teaching "modern" school subjects in their classes, but a thorough retraining of instructors, a vigorous system of supervision and refresher courses would be needed in order to successfully implement a completely new kind of teaching in mahadras. In addition, new curricula with books, notebooks, supplies and other pedagogical material would have to be provided to the mahadras in adequate quantities.

The World Bank project was ended before its goals were fully implemented. It is not clear whether the mahadras which participated in the project have continued their modernization efforts. Lecourtois indicates that they are increasingly common in urban areas.

To state whether or not traditional Islamic education contributes to more than social integration through a common religious culture is yet to be discovered. It is probable, however, that changes in its curriculum and methods in view of teaching secular or vocational subjects are not possible if these changes threaten the essentially religious nature and purpose of these schools.

2.3.2 Arts, Literature and Sports

These activities, whose potential role in the development is great, are neglected by planners in Mauritania. The modern institutions concerned with the arts and literature are concentrated in Ndiakchott and cater to the educated national elite and expatriate communities. These include the National Museum and Library, the Office National du Cinéma (National Cinema Bureau), the national radio station and a number of foreign cultural centers. The training of sports teams is a further activity in this area.

The present range of activities in the arts, literature and sports has little effect on development in terms of assisting mass literacy campaigns, health and hygiene efforts or community-benefit-fund-raising. Radio forums for farmer training, rural newspapers and posters for adult literacy and health campaigns are lacking. The possibilities of drama, for instance, have contributed significantly to health and family planning efforts in countries like India and Bangladesh.

Part Three

Needs in Non-Formal Education Concerning the Enhancement and Creation of Productive Work and Social Well-Being in Traditional Occupations and Groups.

Introduction

The 1979 RAMS Qualifications survey was designed as a means of gathering data to constitute part of the basis of a strategy to improve and create employment in towns and in rural areas. Most efforts to date in the area of creating employment have been in the urban modern sector and there is a lack of data on the situation of the traditional rural sector, particularly from the point of view of modes of skill analysis and needs for skill innovation required for greater productivity and expansion of employment.

3.1 The Goals of the Survey

The Qualifications survey comprises a series of questionnaires designed to assess the qualifications or skills of people in traditional occupations and was administered to over 1,000 farmers, herders, women, shopkeepers, artisans and fishermen in villages in ten regions of Mauritania. The results give a general idea of what skills were possessed by which ethnic, occupational and age groups, how the skills were acquired, what degree of modernization exists in these occupations and what the main educational needs in each group are.

The resulting socio-professional profiles constitute base-line data on which planners can base strategies for nonformal education designed to increase the productivity of six groups concerned and to enable the creation of new jobs in these areas.

In order to create appropriate strategies in non-formal (or formal) education, it is important to know

- 1) what the general nature of existing skills is, including levels of technology used, management procedures and financing;
- 2) the means by which skills are gained and transmitted, including the influence of family background, schools, training centers and extension services;
- 3) the felt needs of the members of each socio-professional group.

These three broad categories of information will allow the education/development planner to determine what kinds of training are desirable or possible in each group and to quantify in a general way the kinds of skills to be attained given particular development and employment goals. Regional differences in types of skills possessed, relative degrees of modernity in attitudes and practices and in felt needs are additional information made available to facilitate the creation of regional training and education strategies.

3.1.1 Skill

The working definition of skill in this report is the level of ability that an individual demonstrates in performing a given task. This level of ability can be classified, according to its relative refinement or crudeness, complexity or simplicity. An individual's skill can be further analyzed according to the means (tools, equipment) by which he produces material results.

The report seeks to establish a general idea of the knowledge and skills that are necessary and sufficient to raise the level of productive (or non-productive) activity to a given technical level. The factors that determine a particular type or level of skill are as the following:

- 1) the influences of the person's milieu in his formative years, particularly those of his family;
- 2) the amount of experience in a given activity;
- 3) the impact of influences from outside the person's milieu, especially schooling, training and learning outside of the family;
- 4) the person's attitudes and expectations, which partially determine his willingness to learn new skills and methods.

Thus, a person who has gradually assimilated the skills of a particular trade or activity during his childhood and adolescence without any formal training from "outside" agents may not adapt well to training derived from school-based instruction, which supposes

a certain teacher-learner relationship and a particular way of encoding, transmitting and assimilating information. Knowledge of the basic modes of skill-acquisition in traditional occupations and the influence of outside agents will then help define ways of structuring new forms of learning or of re-vitalizing traditional forms.

3.1.2 Methodology of the 1979 RAMS Qualifications Survey

This survey is based on a two-stage sample. The first stage consisted of a random sample of 32 villages and a purposeful sample of 1,079 workers in selected professions in these villages. Persons interviewed were distributed in the following occupations:

<u>Agriculteurs</u>	(Farmers)	-	389
<u>Artisans</u>	(Artisans)	-	181
<u>Commerçants</u>	(Shopkeepers)	-	42
<u>Éleveurs</u>	(Livestock Herders)	-	107
<u>Femmes</u>	(Women)	-	318
<u>Pêcheurs</u>	(Fishermen)	-	22
	Total		<u>1,079</u>

The sample was stratified by occupation and included villages with at least 1,000 and less than 15,000 people. Hence, it excluded three cities (Nouakchott, Rosso and Nouadhibou), and all nomads and camps and towns of less than 1,000 population.

Data elements analyzed in this report for most groups except women are:

- . Functional description of occupation;
- . Manpower employed;
- . Duration of apprenticeship without pay, when applicable;
- . Number of apprentices trained;
- . Business/work-relation difficulties
- . Means of knowledge acquisition;
- . Secondary activities
 - why practised
 - how learned.

2. Data elements analyzed for women are:

- . Responsibility for children's education;
- . Types of Schools, to which children are sent;
- . Family education;
- . Secondary activity;
- . Commercial activity;
- . Acquisition of knowledge.

Selection of Village Sample

Initially the universe for this sample was to be every village with 1,000 or more people whose professional population equalled or exceeded the regional average for the group of professions under study. This technique was chosen so that the study would focus on the structure of professions in towns of sufficient size, so that professional specialization would exist; that is, in smaller towns, persons in specific professions would often be found performing tasks of persons in other professions as well as their own.

Later, a decision was made to use a sampling universe of all the villages of the country. Villages were coded by region and village number.

A decision was made to sample 2 percent of those 2,328 villages with a population of 5,000 or less. Hence, the sample was to consist of 45 villages. The task was to select villages throughout the country, so that an equal proportion of the population was sampled in each agro-ecological zone.

The villages finally selected were those which contained a variety of occupational groups whose members were at least as numerous as the regional average for those groups.

3.2 Occupations and Groups Studied

3.2.1 Farmers

As seen in Part Two, there are four traditional types of agriculture that are practised in Mauritania: bottom-land, rain-fed, recessional and oases and dams. The modern forms that have been introduced are (urban) vegetable cultivation and irrigated crops (rice). The range of skills that are typical of each is shown in Table 12. Table 13 shows which types prevail in which regions, according to the responses given by the farmers in the survey.

3.2.1.1 Predominant Types of Agriculture

Bottom-Land Agriculture

That is the most primitive kind of agriculture in terms of the level of skills used to farm it. It is a comparatively rare form of agriculture in the survey sample and only in Hodh Oriental did as many as 19% of the farmers say that they had fields on this kind of land.

Rain-fed Agriculture

Most Mauritanian farmers have dieri, or rain-fed crops. Guidimakha and the Hodhs are the regions where this form of cultivation prevails over all others.

Table 12

Types of Agriculture and Associated Skills, Practices

Activities	: Bottom-land; : Agriculture	: Rain-Fed : Agriculture (Dieri)	: Recessional; : Agriculture (Walo-oued)	: Urban : Vegetable : Cultivation	: Irrigated or : (Oases, Dams)	: Watered Ag : (Irri. Cro
Selection of Soils	X	X	X	X	X	0
Preparation of Soil	X	X	X	X	X	X
Construction of low dikes	0	0	X	0	X	X
Seed beds	0	0	0	X	0	X
Levelling of ground	0	0	0	X	X	X
Sowing	X	X	X	X	X	X
Transplanting	0	0	0	X	X	X
Weeding	twice	twice	twice	three times	three times	three times
Fertilizer use	0	0	0	X	0	X
Pesticide, herbicide or fungicide	0	0	0	X	0	X
Drainage, irrigation	0	0	X	X	X	X
Watering	0	0	0	X	X	0
Chasing away birds	X	X	X	0	X	X
Harvesting	X	X	X	X	X	X
Threshing	X	X	X	0	0	X
Winnowing	0	X	X	0	0	X
Storage, bagging	X	X	X	X	X	X
Sale of produce	0	X	X	X	0	X
Use of hand tools	X	X	X	X	X	X
Use of machine or animal traction	0	0	X	0	0	X
Farm management	0	0	X	X	0	X

X = usual practice

0 = rare or absent

Qualifications Survey

Table 13

Group or Occupation : Farmers

Predominant Activities, Practices
or Skills: Regional Analysis

% Affirmative Answers : No. of responde

	Types of Agriculture						:	:
	Bottom-land	Rain-Fed	Recessional Walo, Oued	Urban Veg. Cultivation	Oases, Dams	Irrigated Crops-rice		
Hodh (1) Oriental	19	65	10	6	0	0	0	11
Hodh (2) Occidental	1	59	36	0	3	0	0	26
Assaba (3)	3	11	0	34	52	0	0	18
Gorgol (4)	1	40	36	0	0	23	0	74
Brakna (5)	15	38	43	4	0	1	0	78
Trarza (6)	5	36	57	0	0	1	0	29
Adrar (7)	> 1	29	0	27	43	0	0	21
Tagant (9)	6	53	0	8	33	0	0	21
Guidimakha (10)	6	88	2	1	0	3	0	90
Inchiri (12)	4	8	12	76	0	0	0	11
National Total	6	43	19	16	13	3	0	38

Recessional Agriculture in Oueds and Walo Land

This is particularly common in the south, along the Senegal River (Gorgol, Brakna and Trarza). In Hodh Occidental, it is practised in oueds, or seasonal river beds.

Urban Vegetable Cultivation

Vegetable growing is the commonest form of modern agriculture in the sample of farmers. It is the main kind practised in Inchiri (76%), where the market gardens of Akjoujt are well-established. It is also quite common in Assaba. None of the farmers in the sample in Trarza, Gorgol or Hodh Occidental grew vegetables, although there are urban areas in the first two regions (Rosso and Kaédi) where there are ready markets.

Oasis and Dam Agriculture

This seems to be a northern speciality, dominating in Assaba and Adrar. It is common in Tagant, as well.

Irrigated Agriculture

Outside of Gorgol, where there is a major SONADER rice growing project, this form of agriculture is rare. It is certain that rice-growing is common along the river in Trarza and Brakna, but few farmers in the samples of those regions grew any.

3.2.1.2 Skill Content of Activities

The summary profile table of Farmers (Summary Table 1) shows that the tools used by farmers in general are traditional. Most farmers use little more than a simple hoe. Garden tools seem to be common items only in Adrar and Inchiri. Animal traction is a rarity outside of Hodh Oriental, where just over half of the farmers use plows.

Fertilizers and insecticides are generally uncommon. Farmers seem to understand the need to maintain soil fertility, because the use of manure is widespread in half of the regions studied.

Farmers seem to be autonomous in their decisions of when to prepare the ground. Village chiefs or other persons rarely seem to advise farmers on when to cultivate.

The majority of farmers store crops in granaries. Assaba is the exception, where "other" storage facilities seem to prevail.

Given this background of traditional practices, there are many skills and practices to introduce in an effort to improve productivity of existing practices:

- Animal traction and associated equipment;
- Fertilizers, fungicides and insecticides (as environmentally appropriate);
- Access to and proper use of credit;
- Cooperatives or professional associations;
- Listening to agricultural radio broadcasts.

Summary Table 1

Profile of Farmers	REGIONS																					
	Hadh : : Oriental : %		Hadh : : Occidental : %		Assaba : : %		Gorgol : : %		Brakna : : %		Trazza : : %		Adrar : : %		Tagant : : %		Guidimaka : : %		Inchiri : : %		National : : %	
Tools																						
. Traditional - Hoe		91	100	61	95	100	97	96	100	99	92	96										
-Spade		0	19	39	23	6	52	92	67	11	100	28										
. Garden tools		0	0	22	3	8	10	60	1	11	92	16										
. Others		18	4	56	17	28	14	52	48	52	15	32										
Animal traction																						
- Plow		55	0	0	18	0	17	4	0	9	0	20										
- Seeder		0	0	0	1	0	0	4	0	7	0	2										
- Cultivator		18	0	0	0	0	0	4	0	1	0	1										
- Cart		0	0	0	12	0	3	4	0	4	0	4										
Work																						
. Use of - Manure		79	15	56	20	13	7	76	52	10	77	25										
- Fertilizers		0	4	0	41	8	17	20	5	5	46	15										
- Insecticides/ Fungicides		0	0	11	46	17	17	12	5	39	0	24										
. Best period to prepare the ground indicated by:																						
- yourself																						
to sow		100	88	100	85	100	97	100	100	83	92	92										
to hoe		82	69	67	82	96	28	92	71	68	85	76										
- village chief																						
to sow		4	19	0	8	0	0	0	0	16	0	7										
to hoe		9	4	0	5	0	0	0	0	17	0	6										
. Storage of crops - granary		91	73	11	55	53	31	0	19	67	8	49										
- bags		27	31	11	41	49	14	36	10	1	0	25										
- silo		9	8	0	1	3	0	0	0	0	0	2										
- others		0	0	72	18	8	17	20	81	2	31	17										
Finance - Professional Organizations																						
. Use of receipt and expense book		0	0	0	0	6	0	4	14	0	8	3										
. Cooperative		9	0	11	12	22	7	48	81	36	85	27										
. Professional group		0	0	0	3	3	10	24	5	13	8	7										
. Production association		0	0	0	1	1	0	8	5	11	8	4										
. Know the agricultural savings bank (BMDC)		0	19	33	1	1	17	44	24	13	21	13										
. Know how to obtain a loan		0	0	0	0	0	0	12	4	3	8	3										
Acquisition of Knowledge																						
. Have a radio set		55	23	39	62	50	48	40	71	39	92	49										
. Listen to agricultural programs		45	23	44	41	63	38	20	71	45	85	47										
. Apprenticeship																						
- with parents		91	73	61	93	90	83	76	95	100	8	87										
- working alone		9	19	44	4	22	24	76	14	23	92	25										
. Agricultural extension services																						
- demonstrations in village		18	12	0	5	14	3	0	10	4	8	7										
- talks in village		0	0	0	5	9	3	4	5	3	8	5										
- meetings in the village		18	4	0	3	4	3	0	14	3	46	5										
- films or slides in the village		0	0	0	0	1	0	0	0	0	0	0										
Felt Needs and Wants																						
. Technical Advice		73	88	67	72	67	62	68	95	59	92	69										
. Fertilizers		45	81	74	74	86	52	80	81	66	92	72										
. Commercial Organizations		45	58	39	46	19	21	24	86	15	40	32										
. Training/Education		36	58	33	30	27	17	20	71	24	41	31										
. Modern Tools/Materials		55	46	94	96	88	76	88	100	90	92	87										
. Credit made easier		45	18	72	93	71	38	7	95	63	100	70										
. Cooperatives		45	21	33	74	29	31	0	90	34	77	42										
No. of Respondents		11	26	18	74	78	29	25	21	94	11	389										

3.2.1.3 Change and Development in Agriculture

Table 14 indicates the exterior influences on farmer's knowledge and skills from the Agricultural Extension Service, cooperatives, professional associations and the Mauritanian Development and Commerce Bank (BMDC).

The Agricultural Extension Service

On the whole, this service contributes little to the development of the farmers' knowledge and skills. On a nation-wide basis, no more than 7% of the farmers reported that extension agents gave demonstrations or held demonstrations of techniques or gave talks in their villages. Meetings are just as rare and there is a nearly total absence of any kind of visual media. Only in Inchiri did as many as 46% of the farmers indicate that extension agents held meetings in their villages.

Credit and Cooperative Association

This is certainly one of the bottlenecks in the development of Mauritanian agriculture. Almost no farmers seem to use a receipt and expense book or know how to obtain loans. In no region do as many as a quarter of the farmers belong to a production, or professional association. The area of cooperatives is somewhat brighter, with most farmers in the Tagant and the Inchiri samples indicating that they are members of cooperatives. Nearly half of the Adrar sample appears to belong. It is not clear whether these are government-recognized or independent cooperatives. In any case, there are few institutional means of introducing farmers to new skills.

Table 14

Services, Organization and Activities Concerning the
Development Process of Agriculture

Types of Service	: Regions: % Respondents giving affirmative answers												
	: Hodh	: Hodh	: Oriental	: Occidental	: Assaba	: Gergol	: Braġna	: Tfarza	: Adrar	: Tagant	: makha	: Inchiri	: Total
Best Period to Prepare the ground indicated by:													
- the farmer himself: - to sow	100	88	100	85	100	97	100	100	83	92		92	
- to hoe	82	69	67	82	96	28	92	71	68	85		76	
- The village chief - to sow	4	19	0	8	0	0	0	0	16	0		7	
- to hoe	9	4	0	5	0	0	0	0	17	0		6	
Finance:													
Professional Organizations													
- Cooperative	9	0	11	12	22	7	48	81	36	85		27	
- Professional group	0	0	0	3	3	10	24	5	13	8		7	
- Production association	0	0	0	1	1	0	8	5	11	8		4	
- Know the agricultural savings bank (BMDC)	0	19	33	1	1	17	44	24	13	23		13	
-Know how to obtain a loan	0	0	0	0	0	0	12	14	3	8		3	
Agricultural Extension Services													
-Demonstrations in the village	18	12	0	5	14	3	0	10	4	8		7	
-Talks in the village	0	0	0	5	9	3	4	5	3	8		5	
-Meetings in the village	18	4	0	3	4	3	0	14	3	46		5	
- Films or slides in the village	0	0	0	0	1	0	0	0	0	0		0	
No. of Respondents	11	26	18	74	78	29	25	21	94	13		389	

3.2.1.4 Acquisition of Skills

Table 15 presents the principal means of skill acquisition among farmers. Some striking conclusions emerge:

- The overwhelming majority of farmers learned their occupation while working with their parents. Learning agriculture is part of the traditional socialization process. The exception to the rule is Inchiri, where the farmers seem to have learned on their own. (Many of the Akjoujt vegetable growers have migrated there from elsewhere).
- No farmer learned anything about agriculture in a school or training center.
- In most regions the majority of farmers indicated that they own radios and substantial numbers listen to agricultural broadcasts.

3.2.1.5 Felt Needs

Table 15 also indicates what percent of the farmers indicated an interest in particular ways of improving their work. By far the most popular choice is modern tools. Substantial percentages opted for seeds and fertilizer and for technical advice as well. Less popular but not neglected were commercial organizations, cooperatives, easier credit and training or education.

Table 15 : Farmers

Regions	No. of Respondents	Acquisition of Skills Knowledge								Felt Needs										
		% Affirmative Responses								% Affirmative Responses										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
Hodh Oriental	11		91	9				55	45	73	55	45		36	45	45	45			
Hodh Occidental	26		73	19				23	23	88	46	38		58	23	58	81			
Assaba	18		61	44				39	44	67	94	72		33	33	39	44			
Gorgol	74		93	4				62	41	72	96	93		30	74	46	74			
Brakna	78		90	22				50	63	67	88	71		27	29	19	86			
Trarza	29		83	24				48	38	62	76	38		17	31	21	52			
Adrar	25		76	75				40	20	68	88	76		20	0	24	80			
Tagant	21		95	14				71	71	95	100	95		71	90	86	81			
Guidimakha	94		100	23				39	45	59	90	63		24	34	15	66			
Inchiri	13		8	92				92	85	92	92	100		31	77	46	92			
Nation	389		87	25				9	47	69	87	70		31	42	32	72			

Legend : a- observation of parents
 b- working with parents
 c- working alone
 d- in a training center
 e- in a school
 f- with a master (as an apprentice)
 g- own a radio
 h- listen to agricultural broadcast

i- technical advice
 j- more modern material
 k- credit
 l- professional organization
 m- training or education
 n- cooperative
 o- private commercial organization
 p- seeds/fertilizers
 q- better yearlings
 r- more kinds of services
 s- rational methods of management

From the statements of felt needs, one can conclude that most of the above skills are probably assimilable since so many farmers seem to solicit modern tools and technical advice. The fact that they are unenthusiastic about education and training suggests that formalized farmer training centers and agricultural schools would not succeed as well as less formal methods (note the interest in radio broadcasts). If the Agricultural Extension Service had the means of carrying out village-level meetings, demonstrations and talks to a greater extent, it would appear to have a willing audience.

If the Extension Service wishes to encourage vegetable and rice growing ("modern" kinds of agriculture), it must give the greatest attention to skill development in:

Vegetables

- seed bed making;
- ground levelling;
- transplanting;
- fertilizer use;
- drainage and watering;
- pesticide use;
- use of credit and farm management.

Rice Growing (additional skills)

- construction of dikes;
- animal traction machines.

3.2.2 Herders

There are three types of herding in Mauritania: nomadic, simple transhumant and transhumant with pasture use. (The last is essentially a more developed form of the second). The Qualifications survey covered "sedentary",

or the two types of transhumant herding, which are the subject of analysis here. Table 16: Types of Herding and Associated Skills and Practices compares the basic skills of these types and their relative importance in each.

3.2.2.1 Predominant Types of Herding

On the whole, the simpler type of transhumant herding without significant pasture management and control of herd size predominates in Mauritania (see Table 17 for regional variations). The figures represent the highest percentage of herders practising key skills typical of one kind or the other. Knowledge of herd control and simple pasture management seems to be stronger in Trarza and Guidimakha than elsewhere. In general, however, nearly equal percentages of herders practise simple and "improved" transhumant herding.

Herding, unlike agriculture, remains a fairly homogenous occupation throughout Mauritania with no groups practising the more modern forms shown on the Table of Types of Herding and Associated Skills and Practices. As seen in Part Two of the report, only a few donor projects are trying to improve herding.

3.2.2.2 Skill Content of Activities

The summary profile table of herders (Summary Table 2) shows that the herders who give the most care to fattening cattle for sale are in Gorgol, Brakna, Guidimakha and Inchiri (over 50%). Even more herders sell fattened bulls for meat in some regions (100% in Brakna).

Table 16

Types of Herding and Associated Skills, Practices

Skills, Knowledge of Equipment	Nomadic Herding	Transhumant Herding	Transhumant plus Pasture-Based Herding	Ranching	Improved Pastures	Code
Knowledge of Climate	+	-	=	-	-	(+) = Predominant or necessary
Understanding the quality of Pastures and Water Resources	+	+	+	+	-	(=) = Usual or possible
Choice of trek routes	+	+	+	0	0	(-) = Rare or not needed
Acceptance of veterinary intervention	+	+	+	+	+	(0) = Absent
Knowledge of pasture maintenance and improvement	0	-	=	+	+	
Methods of marketing animals	=	=	=	+	+	
Traditional care of animals (including milking)	+	+	+	+	+	
Understanding modern zootechnical methods (feeding, production, growth)	-	-	=	+	+	
Knowledge of simple modern medical treatment	0	-	-	+	+	
Herd management (controlling size)	-	-	=	+	+	
Understanding commercial value of animals	-	-	=	+	+	
Use of credit	-	-	.	+	+	

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Table 17

Qualifications Survey

Group or Occupation: Herders

Predominant Activities, Practices
or Skills: Regional Analysis

	% Affirmative answers		No. of Respondents
	Transhumant Herding	Transhumant Herding and Range management	
Hodh Occidental (1)	60	57	14
Hodh Oriental (2)	50	50	4
Assaba (3)	100	79	14
Gorgol (4)	67	67	12
Brakna (5)	87	82	5
Trarza (6)	50	66	20
Adrar (7)	100	73	3
Tagant (9)	71	64	14
Guidimakha (10)	77	78	16
Inchiri (12)	68	68	5
National Total	68	63	107

Summary Table 2	Regions	1	2	3	4	5	6	7	9	10	12	National
Profile of Herders		%	%	%	%	%	%	%	%	%	%	Total
Meat Production												
Unfattened Slaughter-aged animals		64	25	14	17	60	30	66	0	81	60	33
Fattened		21	25	14	58	80	20	33	7	75	60	35
Unfattened uncastrated males		0	50	7	0	20	10	66	7	69	20	20
Fattened castrated		14	0	79	67	100	40	66	21	12	80	42
Methods of Fattening												
Complementary feeding		7	25	29	25	40	30	100	36	25	0	27
Use of natural forage		14	0	57	67	100	55	0	50	62	100	52
Sale of Animals												
to the butcher		14	0	93	25	40	55	33	50	69	20	48
private persons		79	50	43	58	60	60	100	71	94	80	68
Setting of Price												
estimated weight		7	50	14	50	100	85	66	36	75	80	52
measured weight		0	0	7	0	0	0	0	0	0	0	1
other means of appraisal		100	0	29	67	20	30	66	43	44	0	45
Exploitation and Organization Degree:												
herding only		71	50	29	50	100	50	0	43	88	100	60
supplementary feed		0	0	21	17	80	10	33	14	13	0	15
production of human food		14	0	43	42	80	35	100	71	50	0	42
Professional organizations Credit												
membership in a professional organization		21	0	7	0	0	25	66	21	12	0	15
knowledge of the Mauritanian Development (BMD)		7	0	7	8	0	5	33	21	0	0	7
access to representative of the BMD		7	0	0	0	0	0	0	0	0	0	1
knowledge of how to obtain a loan		7	0	0	0	0	10	0	21	0	0	6
use of a ledger to record income and expenses		7	0	0	0	20	5	33	7	0	0	5
Acquisition of Knowledge												
observation of parents (in childhood)		79	50	86	83	100	65	100	93	56	60	75
alone		14	0	7	8	0	20	0	29	12	40	15
with parents		7	0	14	25	100	60	100	21	88	0	40
training center or school		0	0	0	0	0	0	0	0	0	0	0
livestock service agent		0	0	0	0	0	0	0	0	0	0	0
Actions of Livestock agents												
visits by livestock agents												
- once a month		14	0	0	0	20	0	0	7	6	0	5
- once a year		64	25	79	58	80	70	0	57	94	40	67
- never		21	25	29	25	20	25	67	36	6	60	26
new techniques brought by agents												
- yes		52	0	21	25	60	40	0	29	0	0	27
- no		43	50	79	67	80	50	100	57	81	100	63
- demonstrations		36	0	0	25	60	25	0	29	0	0	19
- conferences		0	0	0	0	40	15	0	0	0	0	5
- talks		21	0	21	0	40	5	0	0	0	0	8
- useful advice - yes		57	0	21	33	80	55	0	36	12	0	35
- no		0	0	0	0	20	15	100	43	19	0	15
Herders applying these techniques		57	0	14	25	60	35	0	29	0	0	25
Vaccination												
modern medicine received		21	0	29	25	20	50	0	21	19	0	25
herders who own vaccinated cattle		50	50	100	67	80	90	33	71	94	40	75
herders believing in efficiency of vacc.		0	0	43	67	80	90	0	86	94	80	63
herders believing in efficiency of med.		14	0	21	17	20	15	0	21	12	0	15
Felt needs												
improved yearlings		21	0	43	25	20	55	0	0	56	0	31
means of improving the herds (technical advice)		86	50	79	41	40	50	33	0	69	100	53
producers organizations (cooperatives)		50	0	50	0	20	15	0	0	37	20	23
more services		100	0	50	41	40	50	33	0	62	80	50
training		0	0	21	8	0	5	33	0	37	0	11
No. of respondents		14	4	14	12	5	20	3	14	16	5	107

Cattle are usually not weighed when sold and are bought by individuals rather than by butchers.

Natural forage is the means of fattening cattle. Forage crops are generally not grown.

There is a tendency for sedentary herders to engage in farming as well. In the Hodhs, Assaba, Gorgol and Trarza, Guidimakha and Inchiri over half of the samples engaged exclusively in herding.

Given these types of essentially traditional practices, efforts to introduce more modern forms of herding must emphasize a number of skills. The transition from simple to pasture-based transhumance requires:

- a better knowledge of climate;
- knowledge of pasture maintenance and improvement;
- a better understanding of zootechnical methods;
- notions of controlling herd size;
- understanding the commercial value of animals.

The transition from pasture-based transhumance to ranching is more complex, requiring:

- a significantly more sophisticated knowledge of pasture maintenance and improvement;
- a better understanding of how to market animals;
- a significantly better understanding of zootechnical methods;
- a much greater knowledge of modern medical treatment;
- improved methods of controlling herd size;
- a much better understanding of the commercial value of the animals;
- the ability to obtain and use credit.

3.2.2.3 Change and Development in Herding

Table 18 indicates exterior influences on herder's knowledge from the Livestock Service, the BMDC, from professional organizations.

The Livestock Service

The Service's main activity seems to be annual visits to herders and vaccinations of cattle. Very few herders in Mauritania receive monthly visits and over a quarter receive no visits at all. 20% of the sample in Brakna indicated that monthly visits take place. Outside of Brakna and Hodh Occidental, demonstrations of useful techniques and giving of useful advice by Livestock Service agents appears rare to moderately common. Very little seems to happen in Adrar.

Professional Organizations

There do not seem to be many herding organizations in Mauritania. The Adrar region is the only area where most members belong to a professional organization, and theirs is a very small sample. (3)

Credit

Herding seems to be even less commercialized than agriculture; only in Hodh Oriental do as many as 7% of the herders have access to the BMDC.

Table 18

Services, Organizations and Activities Concerning
the Development Process of Herding

Types of Service	: Regions: % Respondents giving affirmative answers																					
	: Hodh : : Oriental:		: Hodh : : Occidental:		: Assaba:		: Gorgol :		: Brakna :		: Trarza :		: Adrar :		: Tagant : makha:		: Inchi: : Total					
Livestock	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:				
- monthly visits	:	14	:	0	:	0	:	0	:	20	:	0	:	0	:	7	:	6	:	0	:	5
- annual visits	:	64	:	25	:	79	:	58	:	80	:	70	:	0	:	57	:	94	:	40	:	67
- no visits	:	21	:	25	:	29	:	25	:	20	:	25	:	67	:	36	:	6	:	60	:	26
- demonstrations	:	36	:	0	:	0	:	25	:	60	:	25	:	0	:	29	:	0	:	0	:	19
- talks	:	0	:	0	:	0	:	40	:	15	:	0	:	0	:	0	:	0	:	0	:	5
- conversations	:	21	:	0	:	21	:	0	:	40	:	5	:	0	:	0	:	0	:	0	:	8
- useful techniques shown	:	57	:	0	:	21	:	25	:	60	:	40	:	0	:	29	:	0	:	0	:	27
- useful advice given	:	57	:	0	:	21	:	33	:	80	:	55	:	0	:	36	:	12	:	0	:	35
Receive Modern medicine	:	21	:	0	:	29	:	25	:	20	:	50	:	0	:	21	:	19	:	0	:	25
Own vaccinated cattle	:	50	:	50	:	100	:	67	:	80	:	90	:	33	:	71	:	94	:	40	:	75
Member, Professional Organization	:	21	:	0	:	7	:	0	:	0	:	25	:	66	:	21	:	12	:	0	:	15
Access to Credit (BMDC)	:	7	:	0	:	0	:	0	:	0	:	0	:	0	:	0	:	0	:	0	:	1
No. of respondents	:	14	:	4	:	14	:	12	:	5	:	20	:	3	:	14	:	16	:	5	:	107

3.2.2.4 Acquisition of Skills

Table 19 (Herders) represents the principal means of skills acquisition among herders. Conclusions:

- Herders start learning very young by observing their parents taking care of and driving the herds. Somewhat smaller percentages indicate that herders also learn by working with their parents. Very few learn on their own.
- Herders learn nothing about their occupation in schools or training centers.
- None learned from the Livestock Service Agents. Evidently children and adolescents do not attend demonstrations or talks given by the Service agents, or at least not in the childhood of the 107 herders in the national sample.

3.2.2.5 Felt Needs

The most commonly expressed need was for means of improving their herds, including better management, ways of feeding the animals, etc., classified as technical advice in Table 19. The herders are also interested in more kinds of services. They are less interested in better yearlings and cooperatives. Very few seem to care about education or training.

From the statements of felt needs, one can conclude that most of the pasture-based transhumance skills are more easily learned than the ranching skills. Particular interest is manifested in the area of technical advice

Table 10 - Herders

Regions	No. of Respondents	Acquisition of Skills Knowledge																	
		% Affirmative Responses								% Affirmative Responses									
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
Hodh Oriental	14	79	7	14	0	0			86				0	50			21	100	
Hodh Occidental	4	50	0	0	0	0			50				0	0			0	0	
Assaba	14	86	14	7	0	0			79				21	50			43	50	
Corsol	12	83	25	8	0	0			41				8	0			25	41	
Brakna	5	100	100	0	0	0			40				0	20			20	40	
Trarza	20	65	60	20	0	0			50				5	15			55	50	
Adrar	3	100	100	0	0	0			33				33	0			0	33	
Tagant	14	93	21	29	0	0			0				0	0			0	0	
Guidimakha	16	56	88	12	0	0			69				37	37			56	62	
Inchiri	5	60	0	40	0	0			100				0	20			0	80	
Nation	107	75	40	15	0	0			55				11	23			31	50	

Legend : a- observation of parents
 b- working with parents
 c- working alone
 d- in a training center
 e- in a school
 f- with a master (as an apprentice)
 g- own a radio
 h- listen to agricultural broadcast

i- technical advice (management, feeding, etc...)
 j- more modern material
 k- credit
 l- professional organization
 m- training or education
 n- cooperative
 o- private commercial organization
 p- more veterinary care
 q- better yearlings
 r- more kinds of services
 s- rational methods of management

(management, feeding), although the herders are less interested than the farmers. The lack of enthusiasm for cooperatives would make it difficult to encourage the development of cooperative ranching or other group activities. Formal education seems to be out of the question for most herders. The Livestock Service has a less interested audience than the Agricultural Extension Service and will have to work harder, it seems, to bring about change. A strengthening of pasture-based transhumance through nonformal education may be the most feasible activity to undertake. The sophistication required for ranching or irrigated pastures will make them difficult for Mauritania's tradition-loving herders to accept.

3.2.3 Artisans

Artisans comprise a very diverse group of people, but they are analyzed here in terms of the general degree of modernity in each region. On the whole, craft production is a traditional operation in terms of technology, production methods and entrepreneurial development. Traditional craft production is typically done by an isolated artisan who makes consumer goods on an individual order basis. A more modernized form of craft production involves using more modern tools, permitting greater production and sale in local markets. Modernized crafts are not only made with modernized tools, but are produced in small to medium-size enterprises; tools and equipment for productive work are often made rather than decorative consumer items. (See Table 20: Types of Craft Production and Associated Skills, Practices).

Table 20

Types of Craft Production and Associated Skills, Practices

	A	B	C	Code
Skills, Knowledge, Practice; Equipment	Traditional methods, consumer goods, individual orders	Modernized methods; Production related equipment made. Sale in local markets	Modernized tools, methods small non- structured sector enterprises. Production-related equipment made.	(+) = Predominant necessary (=) = Usual or possible (-) = rare
<hr/>				
<u>Tools, Equipment</u>				
- traditional hand tools	+	+	=	
- modern hand tools	-	+	+	
- machines	-	+	+	
<u>Manpower</u>				
- artisan working alone	+	-	-	
- family help	-	=	=	
- non-family help	-	+	+	
<u>Management</u>				
- modern book-keeping, stocking professional organization	-	+	+	
- access to loaned materials and tools	-	+	+	
- use of credit	-	+	+	
<u>Production</u>				
- specialization	=	=	+	
- production of				
. decorative items	=	=	=	
. tools	=	+	+	
. household items	=	+	+	
<u>Marketing</u>				
- membership in a marketing organization	-	+	+	
- individual orders	+	=	-	
- large orders	-	=	+	

3.2.3.1 Predominant Types of Craft Production

Table 21 shows which type of craft production prevails in which regions. The figures represent the highest percent of artisans engaging in a key traditional or a modern productive practice. The only region with a tendency towards modernized methods is Hodh Oriental, where 81% of the artisans in the sample were members of a professional organization that lends materials. In the other regions, the highest percentages were in categories of traditional production such as "working alone" or using traditional hand tools.

3.2.3.2 Skill Content of Activities

Summary Table 3 shows that although artisans are interested in learning how to use modern materials and gaining access to credit, and although they are often member of professional organizations, their tools are nearly always traditional hand tools. Even modern hand tools are comparatively scarce. Machines are still very rare.

Given these practices, efforts to improve the productivity of existing craft production will require:

- increasing introduction of machines;
- rapid introduction of modern hand tools;
- strengthening existing professional organizations;
- rapid expanding the use of credit;
- introducing modern book-keeping and stock control methods;
- emphasizing the production of items with a wider market;

Table 21

Qualifications Survey

Group or Occupation: ArtisansPredominant Activities, Practices
or Skills: Regional Analysis

	% Affirmative answers		:	No. of Responses
	Traditional	Intermediate Modernization		
Hodh (1) Oriental	77	81	:	26
Hodh (2) Occidental	100	50	-	2
Assaba (3)	88	47	:	17
Gorgol (4)	87	15	:	52
Brakna (5)	64	29	:	14
Trarza (6)	75	38	:	8
Adrar (7)	89	29	:	17
Tagant (9)	84	13	:	19
Guidimakha (10)	73	10	:	11
Inchiti (12)	100	35	:	15
National Total	54	20	:	187

- enabling increases in output to meet demand;
- improving the pedagogical ability of artisans;
- encouraging apprenticeship training;
- government policy favoring tools and equipment made by small-scale craft industries.

3.2.3.3 Change and Development in Crafts

Table 22 indicates exterior influences on artisans' knowledge and skills coming from professional organizations and loan organization. The table shows that in some regions the craftsmen are very un-organized whereas in others they are fairly active in professional and loan organizations. Hodh Oriental is the best-organized region. Most of the 26 artisans there are involved in one or more kind of professional organization (except for loan organizations). Tagant is apparently the least-organized region with no kind of professional or loan organizations for artisans. Guidimakha, Gorgol and Inchiri are also very weak. Hodh Occidental has too few artisans to be correctly judged. On the national level, less than one third of all artisans seem to belong to a professional or loan organization.

3.2.3.4 Acquisition of Skills

Table 23 presents the principal means of skill acquisition among farmers. Conclusions:

- As with other traditional occupations, crafts are learned mainly in the family starting in childhood.

Table 22

Services, Organizations and Activities Concerning the Development Process of Crafts
(Artisans)

Type of Service	: Regions: % Respondents giving affirmative answers											
Professional organizations	: 1 Hodh : Oriental	: 2 Hodh : Occidental	: 3 : Assaba	: 4 : Gorgol	: 5 : Brakna	: 6 : Trarza	: 7 : Adrar	: 9 : Tagant	: 10 : Guelimim	: 12 : Inchiri	: National : Total	
- Know they exist	: 85	: 0	: 59	: 4	: 29	: 38	: 41	: 0	: 0	: 7	: 27	
- Mutual Aid	: 42	: 0	: 47	: 2	: 14	: 13	: 18	: 0	: 0	: 0	: 14	
- Supply of materials	: 58	: 0	: 53	: 2	: 14	: 38	: 35	: 0	: 0	: 0	: 20	
- Training	: 15	: 0	: 41	: 0	: 0	: 0	: 18	: 0	: 0	: 0	: 8	
- Loan of materials	: 81	: 0	: 12	: 0	: 21	: 38	: 24	: 0	: 0	: 0	: 18	
- Marketing Products	: 73	: 0	: 53	: 0	: 29	: 0	: 29	: 0	: 0	: 0	: 20	
- Other Services	: 54	: 0	: 0	: 0	: 13	: 29	: 0	: 0	: 0	: 0	: 11	
Specialized (Loan organizations)	:	:	:	:	:	:	:	:	:	:	:	
- Know they exist	: 0	: 50	: 0	: 0	: 7	: 38	: 0	: 0	: 0	: 0	: 3	
- Loan of Money	: 0	: 50	: 0	: 0	: 0	: 38	: 0	: 0	: 9	: 0	: 3	
- Loan of materials and supplies:	: 0	: 0	: 0	: 0	: 7	: 38	: 0	: 0	: 0	: 0	: 2	
No. of Respondents	: 26	: 2	: 17	: 52	: 14	: 8	: 17	: 19	: 11	: 15	: 181	

Table 23 : Artisans

Regions	No. of Respondents	Acquisition of Skills Knowledge								Felt Needs										
		% Affirmative Responses								% Affirmative Responses										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
Hodh Oriental	26	38	42	46	0	0	19			59	88	38	77	54		81				
Hodh Occidental	2	50	50	0	0	0	0			0	100	100	50	0		50				
Assaba	17	82	41	6	0	0	12			82	88	88	76	76		76				
Gorgol	52	29	15	17	4	0	37			44	69	42	33	15		69				
Brakna	14	57	57	14	0	0	36			43	93	71	50	28		21				
Trarza	8	75	75	25	0	0	0			25	62	37	37	25		12				
Adrar	17	47	76	59	0	0	12			82	82	94	35	24		82				
Tagant	19	89	47	5	0	0	0			89	95	84	84	84		84				
Guidimakha	11	64	82	18	0	0	18			27	63	36	45	27		36				
Inchiri	15	80	0	20	0	0	0			60	100	93	13	66		66				
Nation	181	54	40	23	1	0	19			59	82	62	50	41		66				

Legend : a- observation of parents
 b- working with parents
 c- working alone
 d- in a training center
 e- in a school
 f- with a master (as an apprentice)
 g- own a radio
 h- listen to agricultural broadcast

i- technical advice
 j- more modern material
 k- credit
 l- professional organization
 m- training or education
 n- cooperative
 o- private commercial organization
 p- more veterinary care
 q- better yearlings
 r- more kinds of services
 s- rational methods of management

- Gradually, the child begins to participate in adult work;
- It is not uncommon to learn on one's own. (This is not the case in herding, by contrast).
- Apprenticeships outside the family are not uncommon and are prevalent in most regions. This presumably represents a more regularized or formalized kind of training in crafts than elsewhere in traditional occupations.
- Crafts seem to be the only type of traditional occupational group that has training centers. A few craftsmen in Gorgol have attended one (or more). See Part Two of this report for data on Women's Training Centers, CFAT.
- Schools do not play a role in crafts training.

3.2.3.5 Felt Needs

Table 23 also indicates what percent of the artisans in the survey selected particular items as desirable. The craftsmen seem to be actively seeking new knowledge and trying to expand their business. Credit is sought by most as are more modern materials. Education and training were chosen more frequently than among herders and farmers.

The generally activist attitudes expressed by the artisans suggests that they would be more open to training than herders. Their concern for modern materials appears to indicate a willingness to innovate as well as a commercial sense. While training centers may be inappropriate for herders, they may be better

for artisans, given their non-family apprenticeships and training role, which imply a more conscious awareness of pedagogy. In cases where craftsmen are sedentary town dwellers, cooperatively-run workshops might be a means of providing modern tools and materials at group savings. These workshops could also serve as training centers for apprentices under the supervision of the craftsmen themselves.

3.2.4 Shop Keepers

Small-scale retail commerce is a relatively homogenous kind of activity and there do not appear to be significant differences in skills, knowledge and practices among Mauritanian shop-keepers. The typical range of skills and practices of traditional commerce is presented in Table 24: Types of Commerce and Associated Skills, Practices.

3.2.4.1 Predominant Types of Commerce

Table 25: Regional Analysis, gives a general idea of commerce in the regions of Mauritania. The percentages shown are the maximum percentages for key items indicating modern or traditional practices. Indicators of modern practices are basically book-keeping of various kinds, use of bills, drafts, checks, calculators, cash registers. Indicators of traditional commerce are an absence of book-keeping, checks, calculators and cash registers.

Types of Commerce and Associated Skill, Practices

Skills, Knowledge or Practices	Traditional Retailing	Modernized Retailing	Code
<u>Equipment</u>			
- measuring equipment	+	+	(+) = Predominant or necessary
- calculating equipment (calculator, cash register)	-	+	
<u>Book-Keeping</u>			
- general ledger or other books used	-	+	(=) = usual or possible
- ability to keep books onself	-	+	
<u>Financial Management</u>			
. cost plus profit	=	+	(-) = rare
. according to demand	-	=	
. according to prices changed by other traders	-	=	
- calculation of cost to retailer . wholesale price plus additional cost	=	+	
- use of banks			
. use of bank accounts:			
checking	-	+	
drafts	-	+	
savings	-	+	
obtaining loans	-	+	
- Billing			
. use of bills, receipts	-	+	
. use of cash	+	+	
<u>Stockings</u>			
- keeping of stocks in a store-room	-	+	

Table 25

Qualifications Survey

Group or Occupation: Shopkeepers
 Predominant Activities, Practices
 or Skills : Regional Analysis

	% Affirmative answers		: No. of respondents
	Traditional Commerce	Modernized Commerce	
Hodh (1) Oriental	100	13	8
Hodh (2) Occidental	100	100	1
Assaba (3)	100	60	5
Gorgol (4)	50	50	12
Brakna (5)	100	50	2
Trarza (6)	50	75	4
Adrar (7)	71	65	17
Tagant (9)	40	60	5
Guidimakha (10)	100	33	3
Inchiri (12)	100	60	5
National Total	65	39	62

The 100% traditional category for the Hodhs, Assaba, Brakna and Inchiri shows that none of the shopkeepers in these regions kept books or did any accounting. The most "modern" region, Trarza, is so because 75% of its shopkeepers reported that they kept books. Trarza shopkeepers do not, however, use drafts which are fairly common elsewhere (especially Guidimakha). Checks are not apparently used by the Trarza sample.

3.2.4.2 Skill Content of Activities

Summary table 4 shows that although the shopkeepers want access to credit, few of them do the necessary book-keeping that goes with the use of credit. Many do not seem to make out bills or keep stocks in store rooms. Calculating equipment is far from being in general use. If the type of modernized commerce described in Table 24 is to be attained, the necessary training must focus on skills to close the gap between the two types:

- use of calculating equipment;
- use of general ledgers and other books;
- ability to do simple book-keeping;
- ability to assess demand (to a degree);
- improved ability to calculate basic costs;
- understanding of and ability to use banks (checking and savings accounts);
- understanding how to obtain loans;

Summary Table 4

Profile of Shopkeepers	Regions										Total Percentage
	North : Oriental	North : Occidental	North : Assaba	North : Gorgol	North : Brakna	North : Trarza	North : Adrar	North : Tagant	North : Guelimim	North : Inchi	
Materials Used in the Trade											
• scales	100	100	100	100	100	100	71	100	33	100	89
• meter stick	100	100	40	83	100	75	100	80	100	100	86
• calculator	0	100	0	17	0	0	29	40	0	0	16
• cash register	0	100	0	17	0	0	12	0	0	0	8
Accounting											
• yes	0	0	0	33	50	75	65	0	0	0	31
• no	100	100	100	33	0	25	29	40	0	80	48
• day-book	0	0	0	0	50	50	6	0	0	0	6
• daily transactions record	0	0	0	25	0	25	47	0	0	0	19
• ledger	0	0	0	8	0	0	0	0	0	0	2
• stock control book	0	0	0	0	0	0	24	0	0	0	6
Accounting Expenses											
• yes	0	0	60	50	0	50	18	60	0	0	27
• no	100	100	40	50	100	50	71	40	0	100	65
• done by themselves	0	0	60	50	0	50	12	60	0	0	25
• done by another person	0	0	20	0	0	0	6	0	0	0	3
Calculation of Selling Prices											
• cost price and profits	100	100	60	0	50	25	76	20	100	80	56
• in relation to prices charged by other shopkeepers	13	0	0	0	0	50	47	0	0	0	18
• according to demand	0	0	40	0	0	0	4	0	0	0	6
• others	0	0	0	0	0	0	0	0	0	20	2
Calculation of the cost price											
• buying price + expenses	38	100	20	8	50	25	35	20	0	100	32
• others	0	0	0	0	0	0	0	0	67	0	3
How do you buy											
• without a bill - cash	100	0	40	33	0	25	76	0	0	40	48
- check	0	0	0	0	0	0	0	0	0	0	0
- drafts	0	0	20	8	50	0	35	0	67	0	18
- other	50	0	0	0	0	0	0	0	0	0	6
• with a bill - cash	0	100	40	50	0	50	53	0	33	60	39
- check	0	0	0	17	0	0	18	0	0	20	10
- drafts	0	0	0	0	0	0	41	0	0	0	11
- other	0	0	0	0	0	0	0	0	0	0	0
Acquisition of Knowledge											
• working with parents	0	0	40	8	50	25	35	80	33	0	27
• observation of parents	12	0	60	8	100	25	35	40	0	20	27
• working alone	75	100	60	58	0	50	65	20	67	100	61
• in a school	0	0	0	0	0	0	0	0	0	0	0
• as an apprentice	0	0	0	0	0	0	0	0	0	0	0
• other means	13	0	0	33	0	0	18	0	0	0	13
Aid Received During Training											
• by the state	0	0	0	0	0	0	0	0	0	0	0
• by employer	0	0	0	0	0	0	12	0	0	0	3
• by parents	0	0	20	0	100	0	12	0	67	20	13
• scholarship	0	0	0	0	0	0	0	0	0	0	0
• salary	0	0	0	0	0	0	0	0	0	0	0
• payment in kind	0	0	0	0	0	0	0	0	0	0	0
Complementary Activities											
• yes	0	0	0	33	0	50	41	80	100	20	34
• no	100	100	100	50	100	50	47	20	0	80	48
• herder	0	0	0	0	0	0	0	40	0	0	9
• farmer	0	8	0	33	0	50	41	40	67	20	29
• artisan	0	0	0	0	0	0	0	0	0	0	0
• others	0	0	0	0	0	0	0	0	33	0	2
Felt Needs											
• technical advice	0	0	40	33	50	50	53	80	0	60	40
• more modern material	0	100	60	50	50	50	41	80	0	0	39
• rational methods of management	0	0	40	25	0	75	53	80	0	0	34
• credit	88	100	60	83	100	75	76	100	100	100	81
• improved delivery of supplies	100	100	80	67	50	75	76	100	100	60	79
• professional organization	0	0	40	33	0	50	53	80	0	0	34
• training	0	0	40	0	0	25	35	80	0	0	21
No. of Respondents	8	1	5	12	2	4	17	5	3	5	62

- understanding how to make out bills and receipts;
- ability to file documents;
- keeping of stocks in store-room.

3.2.4.3 Change and Development in Commerce

The questionnaire did not ask whether the shopkeepers were members of any professional organization or whether the shopkeepers had any relations with marketing and price-subsidizing organizations like SONIMEX (National Import and Export Company) or OMC (National Cereals Office).

Few appear to have bank accounts (see Summary Table 4) or other relations with financial institutions.

There were, however, questions about support or assistance received during training (Table 26). On the whole, shopkeepers seem to have been either self-sufficient or aided by their parents (67% in Guidimakha, 100% in Brakna). There are no scholarships or government supports for apprentices in commerce. Exactly how some apprentice shopkeepers lived during their "training" is not always clear because none received either a salary or payment in kind, according to the responses to the questionnaires. In certain regions though, they were supported by their parents.

3.2.4.4 Acquisition of Skills

Table 27 shows that shopkeepers have certain unique characteristics:

Table 26

Services, Organizations and Activities Concerning the
Development Process of Commerce

Type of Service	: Regions: % Respondents giving affirmative answers											
Aid received during training	: Hodh:	Hodh	:	:	:	:	:	:	:	:	:	: National
	: Oriental:	Occidental:	Assaba:	Gorgol:	Brakna:	Trarza:	Adrar:	Tagant:	Guidimakha:	Inchiri:	Total	
by the state	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0
by the employer	: 0	: 0	: 0	: 0	: 0	: 0	: 12	: 0	: 0	: 0	: 0	: 3
by parents	: 0	: 0	: 20	: 0	: 100	: 0	: 12	: 0	: 67	: 20	: 13	
scholarship	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0
salary	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0
payment in kind	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0	: 0
	:	:	:	:	:	:	:	:	:	:	:	:
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	:	:	:	:	:	:	:	:	:	:	:	:
No. of respondents	: 8	: 1	: 5	: 12	: 2	: 4	: 17	: 5	: 3	: 5	: 62	

Table 27 : Shopkeepers

Regions	No. of Respondents	Acquisition of Skills Knowledge % Affirmative Responses								Felt Needs % Affirmative Responses										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
		Hodh Oriental	8	12	0	75		0	0			0	0	88	0	0	100			
Hodh Occidental	1	0	0	100		0	0			0	100	100	0	0	100					0
Assaba	5	60	40	60		0	0			40	60	60	40	40	80					40
Gorgol	12	8	8	58		0	0			33	50	83	33	0	67					25
Brakna	2	100	50	0		0	0			50	50	100	0	0	50					0
Trarza	4	25	25	50		0	0			50	50	75	50	25	75					75
Adrar	17	35	35	65		0	0			53	41	65	53	35	76					63
Tagant	5	40	80	20		0	0			80	80	100	80	80	100					80
Guidimakha	3	0	33	67		0	0			0	0	100	0	0	100					0
Inchiri	5	20	0	100		0	0			60	0	100	0	0	60					0
Nation	62	27	26	61		0	0			40	39	81	34	21	79					34

Legend : a- observation of parents
 b- working with parents
 c- working alone
 d- in a training center
 e- in a school
 f- with a master (as an apprentice)
 g- own a radio
 h- listen to agricultural broadcast

i- technical advice
 j- more modern material
 k- credit
 l- professional organization
 m- training or education
 n- improved delivery of supplies
 o- private commercial organization
 p- more veterinary care
 q- better yearlings
 r- more kinds of services
 s- rational methods of management

- most of them are self-taught (100% in Inchiri and Hodhs Occidental learned their skills mainly this way). Just over a quarter, on the average, learned by watching their parents work or by working with them;
- No shopkeeper mentioned learning his skills in a school or as an apprentice. There are several schools offering business and accounting courses, but they are in Nouakchott and their graduates go into modern urban sector business and government work (see Part Two of this report and the report on formal education).

3.2.4.5 Felt Needs

Table 25 (Shopkeepers) shows that access to credit is the most keenly felt need, often cited by 100% of the shopkeepers. Improved supply systems are also of great concern. Less than half of the shopkeepers seemed interested in technical advice, modern material, better management methods or professional organizations. Only a little over 20% expressed an interest in training.

The ability to use credit implies mathematical knowledge, an ability to plan and do simple accounting. The appropriate educational means of meeting this need must begin in school. Schools should structure their curricula according to the skill needs of their community. Calculating interest and prices is an excellent mathematical exercise for school children and is applicable to all occupations.

The appropriate financial means to meeting the need for credit is basically a vastly expanded banking system with local representatives. Community savings and loans institutions are another way of accumulating the capital needed to extend credit.

By constructing or renting storage space, shopkeepers can at least partially overcome their supply and delivery problems.

3.2.5 Fishermen

There are three modal types of fishing practised in Mauritania: traditional inland, traditional coastal and deep sea industrial. The last category is essentially the domain of foreign fleets that fish off the Mauritanian coast and only the first two are of concern here. The sample of fishermen studied comprised 11 river fishermen in Brakna and Gorgol and 11 coastal fishermen in Trarza, on the coast at N'Diago. The three kinds of fishing cited above plus modernized forms of inland and coastal fishing are described in Table 28: Types of Fishing and Associated Skills, Practices.

3.2.5.1 Predominant Types of Fishing

Table 29 shows that a more modern type of fishing is prevalent on the coast of Trarza than along the river in Brakna and Gorgol. 64% of the coastal fishermen use outboard motors (a modern trait) while only 9% of the river fishermen present a modern trait, in the form of

Types of Fishing and Associated Skills, Practices

Skills Knowledge or Equipment	Traditional Maritime (Coastal)	Traditional Inland	Modernized Maritime	Modernized Inland	Deep Sea Industrial	Code
<u>Equipment</u>						(+) = Predominant or necessary
- weirs	0	+	0	+	0	
- fishing lines						(=) - Usual or possible
. hooks	=	+	=	+	-	
. bait	+	+	+	+	+	
- casting nets	=	+	+	+	+	
- square nets	0	-	+	+	0	(-) = Rare
- other nets	+	-	+	+	+	
- canoes - use	+	+	+	+	0	(0) = absent or unnecessary
<u>Outboard motor</u> operation and repair	+	0	+	+	-	
<u>Small trawler</u>						
- sailing, general maintenance of boat, engine and/or sails.	0	0	=	0	+	
<u>Pisciculture</u>						
<u>fish pond</u>						
construction and maintenance	0	0	0	+	0	
fish nursery	0	0	0	+	0	
<u>Fish</u>						
selection of fingerlings, feeding	0	0	0	+	0	
<u>Equipment</u>						
- pumps	0	0	0	+	0	
- fish cages	0	0	0	+	0	
<u>Treatment of fish</u>						
- sorting	+	+	+	+	+	
- cleaning	+	+	+	+	=	
- drying in the sun						
. on rack	-	-	+	=	=	
. on the sand	+		-	-	0	
- charcoal or other driers	0	-	+	+	+	
- packing for shipment	0	0	+	+	+	

Table 29 Qualifications Survey

Group or Occupation : Fishermen
 Predominant Activities, Practices
 or Skills : Regional Analysis

	% Affirmative answers		:	No. of respondents
	Traditional Types	Modernized Types		
Hodh Occidental (1)			:	
Hodh Oriental (2)			:	
Assaba (3)			:	
Gorgol (4)			:	
Brakna (5)	73	9	:	11
Trarza (6)	55	64	:	11
Adrar (7)			:	
Tagant (9)			:	
Guidimakha (10)			:	
Inchiri (12)			:	
National Total			:	

charcoal fish dryers. (The figures indicate the maximum percentages of affirmative responses to a given question, classified as a "traditional" or "modern" indicator).

3.2.5.2 Skill Content of Activities

Summary Table 5 shows additional factors to be considered in training or nonformal education. Large percentages of fishermen train apprentices -- more than in any other occupation. By improving the fishermen's skills and pedagogical role, these skills can be transmitted to others in a ripple effect. Skill acquisition can undoubtedly be favored by the existence of a reinforced program in the training-oriented professional organization cited by coastal fishermen.

There are some major skills to be acquired by river fishermen if their work is to be modernized to include pisciculture:

- constructing, maintaining fish ponds;
- constructing, maintaining fish nurseries;
- using pumps;
- making, setting out fish cages in the river.

Traditional coastal fishermen must learn to improve their preserving of fish (here, the river fishermen are slightly more modernized, using charcoal dryers in a few cases). Both groups need to learn more about drying racks, salting and packing fish.

Summary Table 5

	Region		Total
	Trarza 6 in %	Brakna - Gorgol 4 + 5 in %	
Profile of Fishermen			
Fishing Methods			
	Coastal Fishing	Continental Fishing	
- Fishing materials			
. net or weir	0	73	36
. fishing line	27	82	55
. seine	73	18	45
. casting net	55	64	59
. square net	0	18	9
. canoe	82	73	77
. canoe with outboard motor	64	0	32
. other means	45	0	23
Acquisition and Maintenance of Fishing Materials			
. personal production	55	73	64
. bought from a craftsmen	0	0	0
. bought from a trader	82	72	77
. recycling	18	10	14
. personal work	100	91	95
. recourse to a specialist	73	0	36
Methods of Drying Fish			
. on the sand under the sun	9	82	45
. on wire screen	27	9	18
. in charcoal dryers	0	9	5
Training of Apprentices			
. Yes	82	64	73
Means of Determining the end of Apprenticeship			
. after a test	18	0	9
. after a pre-determined time	18	0	9
. others	45	36	40
Existence of Professional Organizations			
. yes	36	0	18
. no	45	81	64
. don't know	18	18	18
. membership	36	0	18
. supplies	9	0	5
. training	27	0	14
. loans of money or materials	27	0	14
. marketing	18	0	9
. other uses	9	0	5
Acquisition of Knowledge			
. watching a relative work	55	55	55
. working with parents	64	55	59
. working alone	0	0	0
. in a training center	0	0	0
. in school	0	0	0
. with a master	9	0	5
. other means	0	0	0
Complementary or Supplementary Activities			
. trader or trader's assistant	9	0	5
. artisan	0	9	5
. farmer	45	45	45
. herder	9	0	5
. worker in a city	9	0	5
. others	18	18	18
Fishermen Felt Needs			
. technical advice	27	18	23
. modern materials	64	90	68
. credit	64	73	68
. commercial organizations	45	64	55
. practical training/education	27	9	18
No. of Respondents	11	11	22

3.2.5.3 Change and Development in Fishing

Table 30 indicates the prevalence of outside influences in fishing. In this case, it is the existence of professional organizations capable of providing inputs that individual fishermen cannot easily obtain otherwise. In no case does a majority of fishermen belong to a professional organization, but those who do belong are exclusively coastal fishermen. The 30% who belong benefit from supplies, training, loans and marketing of fish.

3.2.5.4 Acquisition of Skills

Table 31 shows that just over half of the fishermen in each sample learned their trade by observing their parents and by working with them; in other words, a gradual assimilation and socialization process. It is notable that:

- no fishermen learned on his own;
- no fishermen learned in schools or training centers (which do not yet exist in this domain);
- a small percent of coastal fishermen learned via-nonfamily apprenticeships.

3.2.5.5 Felt Needs

As shown in Table 31, more modern material is in great demand on the river, whereas credit is the greatest need on the coast. This reflects the material deprivation of river fishermen on one hand and the

Table 30

Services, Organizations and Activities Concerning
the Development Process of Fishing

Types of Service	: Regions : % Respondents giving affirmative answers									
Professional Organiza- tion	Hodh :Occidental:	Hodh :Oriental:	: Assaba:	: Gorgol - Brakna:	: Trarza:	: Adrar:	: Tagant:	: Guidimakha:	: Inchiri:	: National :Total
- Know they exist	:	:	:	0	36	:	:	:	:	18
- Membership	:	:	:	0	36	:	:	:	:	18
- Supplies	:	:	:	0	9	:	:	:	:	5
- Training	:	:	:	0	27	:	:	:	:	14
- Loans of money or materials	:	:	:	0	27	:	:	:	:	14
- Marketing	:	:	:	0	18	:	:	:	:	9
- Other uses	:	:	:	0	9	:	:	:	:	5
	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:
No. of respondents	:	:	:	11	11	:	:	:	:	22

Table 31 : Fishermen

Regions	No. of Respondents	Acquisition of Skills Knowledge % Affirmative Responses								Felt Needs % Affirmative Responses										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
Hodh Oriental																				
Hodh Occidental																				
Assaba																				
Gorgol & Brakna	11	55	55	0	0	0	0			18	90	73		9		64				
Trarza	11	55	64	0	0	0	9			27	45	64		27		45				
Adrar																				
Tagant																				
Guidimakha																				
Inchiri																				
Nation	22	55	59	0	0	0	5			23	68	68		18		55				

Legend :

- a- observation of parents
- b- working with parents
- c- working alone
- d- in a training center
- e- in a school
- f- with a master (as an apprentice)
- g- own a radio
- h- listen to agricultural broadcast

- i- technical advice
- j- more modern material
- k- credit
- l- professional organization
- m- training or education
- n- cooperative
- o- private commercial organization
- p- more veterinary care
- q- better yearlings
- r- more kinds of services
- s- rational methods of management

expanded commercial orientation of coastal fishermen on the other. Technical advice is not nearly as sought after as in other occupations.

The interest in more modern material implies a need for training related to its use and maintenance. Given the potential of income and employment generation offered by fishing, a training-oriented fisheries service is needed. In cases involving the introduction of outboard motors, small repair shop-training centers are desirable.

Savings and loan institutions, as in the situation of shopkeepers, can complement the role of an expanded banking system. The mathematics of credit management could be taught as part of the functioning of savings and loans institutions.

3.2.6 Women

Women, although not an occupational group, were studied because of their important roles as mothers, wives, housekeepers and eventually income earners. The women surveyed were sedentary town or village dwellers and had easier access to modern medical and educational facilities than nomadic or sedentary country women. Table 32: Women's Roles, presents and contrasts traditional women's skills and practices with those of more modern women.

Traditional Modern
: Rural : Rural :

Role as Wife and Mother

	A	B
- Health and hygiene		
use traditional healers	+	=
use of modern medical facilities, personnel	-	+
give proper treatments for common illnesses.	-	+
bathe and dress children properly	=	+
- Cooking		
clean foods properly before	-	+
Use: traditional cooking implements	+	=
modern cooking implements	-	-
- Household		
able to launder	+	+
iron	+	+
sew	+	+
- Education of Children		
At Home		
boys	-	=
girls	-	+
Send boys to Koranic school	+	=
primary school	=	+
no school	+	-
girls to Koranic	-	-
primary	+	=
no school	+	-

traditional role of women
(present situation)

B

Skills and activities enabling
women to participate, in
contribute to development
(to be gained or improve)

(+) Predominant or necessary

(=) Occasional or possible

(-) rare

Income, Production, Budgeting

Income from:

- resale of purchased items	-	=
- sale of items made at home	-	=
- income from agricultural produce	-	=

3.2.6.1 Predominant Types of Women

Of all the groups studied in the Qualifications survey, women seem to exhibit the most modern traits: the figures in Table 33 represent maximum percentages of affirmative responses to questions indicating a traditional or modern outlook. Women appear to have more modern skills and practices than traditional in all regions but the Hodhs, Assaba and Tagant. Key modern practices are use of modern medical facilities and personnel and sending boys and girls to primary school. Key traditional practices include use of traditional healers and not sending boys or girls to primary school.

3.2.6.2 Skill Content of Activities

Summary Table 6 indicates that the women in the sample did very little in the way of non-household work besides working in the fields. There is some tendency to sell home-grown items. Thus, there is a need to develop women's roles in productive work.

In the health domain, substantial numbers of women go to modern health facilities in most regions, but few indicate that they give anything beyond extra water when their children have diarrhea. Nonformal education must focus on health and preventive medicine since women play a central role in a family's health. A positive sign is their generally positive attitudes towards PMI's.

Table 33

Qualifications Survey

Group or Occupation: Women

Predominant Activities, Practices

or ills: Regional Analysis

	% Affirmative answers		:	No. of respondents
	Traditional Rural	Modern Rural		
Hodh Occidental (1)	75	62	:	32
Hodh Oriental (2)			:	
Assaba (3)	67	44	:	9
Gorgol (4)	18	68	:	139
Brakna (5)	24	69	:	29
Trarza (6)	36	48	:	40
Adrar (7)	-	-	:	-
Tagant (9)	90	60	:	10
Guidimakha (10)	41	45	:	22
Inchir (12)	65	73	:	37
National Total	31	58	:	318

Summary Table 6

Profile of Women	Regions		Hodh									
	Eastern	Western	Assaba	Corgol	Brakna	Trarza	Tagant	Guidimakha	Inchiri	National		
	1st%	2nd%	3%	4%	5%	6%	9%	10%	12%			
Child Care												
Illness	:	:	:	:	:	:	:	:	:	:	:	:
take children to a traditional healer	:	66	67	14	24	10	90	41	65	31	:	:
PMI	:	47	44	24	10	48	30	9	54	31	:	:
doctor	:	25	22	29	69	38	40	45	73	40	:	:
hospital	:	9	22	32	0	13	10	27	30	23	:	:
for diarrhea give:	:	:	:	:	:	:	:	:	:	:	:	:
extra water	:	44	11	36	7	45	60	23	57	35	:	:
ganidan	:	0	22	35	0	23	20	0	0	19	:	:
charcoal	:	0	22	16	0	15	20	0	3	10	:	:
other remedy	:	94	78	40	7	90	80	91	95	61	:	:
Daily Care												
have water to bathe children	:	:	:	:	:	:	:	:	:	:	:	:
bathe children daily	:	62	22	68	45	32	50	95	38	58	:	:
Education of Children												
responsible for raising girls	:	75	61	68	79	81	55	87	54	70	:	:
boys	:	78	55	65	52	76	65	50	56	64	:	:
educate girls at home	:	8	0	11	11	0	0	8	0	5	:	:
educate boys at home	:	7	0	8	11	0	0	10	0	5	:	:
do not send girls to school	:	9	28	7	14	5	12	13	21	11	:	:
do not send boys to school	:	7	19	6	15	5	17	12	15	9	:	:
send girls to Koranic school	:	17	39	15	9	36	35	9	10	17	:	:
send boys to Koranic school	:	14	13	18	20	35	28	20	17	20	:	:
send girls to primary school	:	9	28	21	7	22	18	9	29	18	:	:
send boys to primary school	:	12	19	20	11	23	33	8	45	22	:	:
Non-Household Tasks												
- Teach the Koran	:	3	0	1	0	2	0	0	0	1	:	:
- Work in the fields	:	19	0	12	100	57	20	36	8	28	:	:
- Craft Production	:	6	10	4	0	10	21	4	18	7	:	:
Commercial Activity												
- Commerce	:	:	:	:	:	:	:	:	:	:	:	:
- Sale of: home-made goods	:	0	0	0	0	2	5	0	1	1	:	:
home grown items	:	34	11	18	23	11	12	6	15	18	:	:
purchased items	:	14	4	5	0	2	7	4	6	5	:	:
Skills Acquisition												
Family	:	19	33	29	93	73	60	90	35	36	:	:
Alone	:	19	56	21	7	18	30	5	19	19	:	:
School	:	0	0	1	0	0	0	0	0	1	:	:
Training center	:	0	0	1	0	0	0	5	43	6	:	:
No. of Respondents	:	32	9	139	29	40	10	22	37	318	:	:

While few women keep their children at home, surprisingly low percentages (33% or less) said that they sent their children to primary school. Koranic school is about equally popular. The limited space in primary schools may account for the low figures. (See report on formal education for school statistics).

3.2.6.3 Change and Development Among Women

There are few data on the subject in the Qualifications questionnaire on women, but their contact with modern and traditional health services are an important source of ideas, attitudes and knowledge about health in general, child care and nutrition (see Table 34). Summary Table 6 shows that women in Tagant frequent traditional healers the most. Nearly two thirds go to them for help and advice in the Hodhs, Assaba, and Inchiri. Less than half go to them in other regions. Only 10% of the Trarza sample go to healers.

The PMI's, which have a training function, are as popular as traditional healers on the average, but the regional ranges of percentages are not as wide as with the traditional healers.

Doctors seem to enjoy the most confidence in terms of numbers of women who go to see them. 40% nation-wide and up to 73% of the women in Inchiri said that they took sick children to see a doctor.

Table 34

Services, Organizations and Activities Concerning
the Development Process of Women

Type of Service	: Regions: % Respondents giving affirmative answers									
Health Care Services	Hodh :Oriental	Hodh :and Occidental	:Assaba	:Gorgol	:Brakna	:Trarza	:Tagant	:Guidi- :makha	:Inchiri	:National :Total
Take children to:	:	:	:	:	:	:	:	:	:	:
- traditional healer	66	67	14	24	10	90	41	65	31	
- PMI	47	44	24	10	48	30	9	54	31	
- doctor	25	22	29	69	38	40	45	73	40	
- hospital	9	22	32	0	13	10	27	30	23	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
	:	:	:	:	:	:	:	:	:	
No. of Respondents	32	9	139	29	40	10	22	37	318	

3.2.6.4 Acquisition of Skills

Table 35 shows that women for the most part learned their skills at home in their families. In Assaba over half learned on their own, although 20 to 30% is the usual range. In only one region did any women say that they had learned their skills in school (Gorgol) and they amount to less than 1%. A surprisingly 43% of the sample in Inchiri reported learning their skills in a training center (very probably the Women's Training Center in Akjoujt).

Table 32 presents the skills, knowledge and attitudes of women in a comparative fashion: traditional and modern. Nonformal education for women must give particular attention to:

- proper treatments for common illness;
- bathing and proper dressing of children;
- proper cleaning of food;
- income-producing skills, especially in crafts and agriculture;
- financial management of household income.

When considered appropriate, efforts must be made to include women in a wider variety of productive activities. The rural development services should include women in instructional programs. It may be necessary for social reasons to have separate training activities for women.

Table 35 : Women

Regions	No. of Respondents	Acquisition of Skills Knowledge % Affirmative Responses								Felt Needs % Affirmative Responses										
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
		Hodh Oriental and Hodh Occidental))) 32		19	19	0	0												
Assaba	9		33	56	0	0														
Gorgol	139		29	21	1	<1														
Brakna	29		93	7	0	0														
Trarza	40		73	18	0	0														
Adrar																				
Tagant	10		60	30	0	0														
Guidimakha	22		90	5	5	0														
Inchiri	37		35	19	43	0														
Nation	318		36	19	6	<1														

Legend : a- observation of parents
 b- working with parents
 c- working alone
 d- in a training center
 e- in a school
 f- with a master (as an apprentice)
 g- own a radio
 h- listen to agricultural broadcast

i- technical advice
 j- more modern material
 k- credit
 l- professional organization
 m- training or education
 n- cooperative
 o- private commercial organization
 p- more veterinary care
 q- better yearlings
 r- more kinds of services
 s- rational methods of management

Coordinating and training institutions such as cooperatives, savings and loan associations and self-help activities are further means of providing training for women, whether with or apart from men. Felt needs were not part of the women's questionnaire.

3.3 Conclusion

The five most important traditional occupations in Mauritania are generally rather primitive in terms of their level of skills, type of tools and typical practices. It is only a partial picture because no nomads or persons residing in very small villages were interviewed. The largest "modern" group was women; the largest "modern" occupational group was coastal fishermen. The populations studied do have certain basic similarities when viewed from the perspective of modes of skill acquisition, access to sources of modern ideas and skills and felt needs.

3.3.1 Modes of Skill Acquisition

In all cases, members of traditional occupations and women learn most of their skills in their families, usually starting in childhood when they observe their parents. This kind of apprenticeship essentially reproduces the occupation (or sex role) by transmitting the same set of skills, attitudes and knowledge that parents received from their parents. Outside of shopkeepers, few persons seem to be self-taught. Nonfamily based apprenticeships are rare outside of coastal fishing, according to the Qualifications Data. Besides

women in Inchiri, virtually no members of any sample had learned their occupational skills in schools or training centers. Thus, the traditional occupations seem to be stagnating by perpetuating basically the same skills and practices from one generation to another. The general rarity of apprenticeships outside of the family discourages the creation of new jobs and cannot affect problems of un- and underemployment to any significant degree. Primitive tools resulting low productivity and income also limit the employment potential of the traditional occupations.

3.3.2 Services and Organizations Concerned with Development

Given the rather static nature of the traditional occupations, new ideas, skills and practices will have to come mainly from outside the closed circuits of the occupations themselves. Thus, the role of extension services, media, professional organizations, cooperatives, banking and credit facilities, etc. should be one of innovation through training in new methods of production, the use of different tools and equipment and new methods of planning and management. These will facilitate the increased production, income and investment that are necessary for the expansion of employment and upgrading of manpower.

The results of the surveys show that only two of the occupations in question have extensive governmental organizations that are concerned with the improvement of these occupations. The budgets, materials and personnel

of the Agricultural Extension Service, the Cooperatives Service and the Livestock Service are too limited to be able to provide the amount of training and support needed to bring about significant expansion of employment in agriculture and herding.

Cooperatives and professional organizations are the exception rather than the rule in all groups studied except eastern artisans and northern farmers. Thus there is an absence of structures that could serve as means to develop the occupations concerned. The apparent differences in skills and practices among the peasant in the independent rice cooperative at Diouk (Trarza) and the average dieri farmer are striking.

Although data are available for farmers only, broadcast media are under-utilized in Mauritania. The numbers of farmers who listen to agricultural broadcasts is encouraging, but the existence of organized listening fora is necessary to bring about the changes in methods of cultivation that are desirable.

Financial management with the assistance of local savings and loan associations or the BMDC is generally absent. The members of traditional occupations seem to live a hand-to-mouth existence, unable to save money or obtain loans. Credit is not readily available. Very few farmers, herders or even shopkeepers possess receipts and expenses books. The questionnaires did not ask any direct questions about literacy, but census data reveal that literacy in any language is very limited, particularly in rural areas. Responses to certain questions about what

people did before beginning full time work in their present occupation (not analyzed here) show that a substantial percent of coastal fishermen were Koranic students. Whether or not this experience has contributed to functional literacy and numeracy is not known.

In the case of women, a "modern" classification in this report depended largely on their preference for modern health care and schooling for their children, but the fact that most of the women in the sample appear to live in towns with PMI's or dispensaries and schools may give a false impression of modernity among women in general, most of whom live in villages and nomadic camps with no access to modern medical facilities. As noted in Part Two, Women's Training Centers are all in the larger towns and may have served to give "modern" coloring to the women in the sample (this is very probably the case in Inchiri). In any event, their income-producing activities, particularly outside of agriculture, are limited and unassisted by any government service besides the Women's Training Centers. The Agricultural Extension Service seems to work with male farmers only and the large proportion of women in Brakna (100%) and Trarza (57%) who work in the fields do not seem to benefit directly from any extension advice.

3.3.3 Felt Needs

Certain themes emerge from the responses on the questions about wishes and aspirations. In most cases, the lowest percentage of affirmative responses was for education and training. This seems to indicate that

formal schooling as understood by people in traditional occupations, has little to offer. However, a substantial majority of responses favorable to "technical assistance" in all occupations except commerce and fishing leads one to conclude that members of these occupations are open to the idea of some kind of nonformal training that could show them how to apply different methods of production. The general interest in credit and "more modern materials" also implies an openness to learning how to use financial management and different kinds of tools to increase quality of improve quality of production.

Members of certain occupations seem to realize what some of the key elements are that would help them improve their production. Over 3/4 of the shopkeepers want improved means of receiving supplies and of obtaining credit; farmers badly want more modern material (agricultural implements?) seeds and fertilizers; herders seem to prefer technical advice and a greater variety of services; fishermen realize that primitive material and lack of credit are holding them back. This implies that the creation of new services, training programs or other forms of assistance to these occupations must be flexible and closely tailored to needs and be able to produce concrete results in production and income. These are some of the characteristics of nonformal education (see Part One, Basic Concepts).

3.3.4 Complementarities Among Traditional Occupations

A successful strategy of nonformal education for the traditional occupations and women must somehow overcome the fragmentation of the Rural Development Services,

Social Affairs programs and the Public Health Department programs. A judicious policy of stimulating import-substitution coupled with training programs for artisans could result in the production of useful tools for the traditional occupations. Blacksmiths are capable, if properly trained, of making a wide variety of tools and equipment that farmers, fishermen and other artisans could buy more cheaply than imported equipment. Women, ever conscious of household economy, would be ready customers for locally-made inexpensive, useful and attractive implements for cooking and cleaning.

Women are probably the nation's most neglected human resource and could learn profitable income-producing skills either in the area of crafts, vegetable gardening, or small livestock raising, according to local and ethnic preference. Women could produce useful items such as sacks for storing grain for farmers or dried fish for fishermen. Women weavers could learn to shear animals more skillfully and make a wider variety of woolen goods in herding communities. While it may not be socially acceptable for women to fish, they could play a productive role in the stocking and maintaining of fish ponds and in the drying, salting, packing and marketing of fish. Nutrition education for women, including instruction in the cooking and preservation of foods can encourage local agricultural production, particularly of fruits and vegetables. Thus, an expanded system of Women's Training Centers and CRN's could cooperate with the Agricultural Extension Service.

Shopkeepers could play a vital rôle in marketing craft and agricultural products. At present, they tend to sell largely imported goods, but they could also buy and sell locally-produced goods. Shopkeepers could also be hired as managers of cooperatively-run shops in villages. They must also be encouraged to supply spare parts for locally useful equipment, such as plows, pumps, carts, vehicles and outboard motors.

3.3.5 The Community as an Integrated Learning Resource

The community and its corresponding social system is a means of informal education (see Figure 2 in 1.1.2). A successful strategy of nonformal education that aims to revitalize traditional occupations and expand employment within them as well as to create new types of jobs must integrate all possible services and learning resources, including formal schools, cooperatives, health facilities and extension services.

The pedagogical resources of formal schools and the nonformal training resources of an expanded and coordinated system of rural development services can and should complement one another. The creation or expansion of the apprenticeship system would be a way of giving practical part-time work experience to literate youth and increase the educated manpower available to shopkeepers, farmers, craftsmen, fishermen and herders. The gaining of management and bookkeeping experience by student-apprentices would be valuable to them in their own future work.

The creation of nonformal training programs (outreach extension activities at people's work sites) or training centers (which would draw people to a central place for training) can be linked with formal education. In order to give children and youth a practical education oriented to productive work, they should be included in practical demonstrations, talks and practice sessions of different techniques, first as observers, later as participants. (This follows the pattern of first observing and later being integrated gradually into work in traditional occupations). Older, literate youth could play a role in supervising younger children and in teaching literacy to adults.

It would be useful, as suggested in Part One (1.1.3), to include adults members of traditional occupations and agents of corresponding service organizations as para-professional part-time staff in formal schools. Mères animatrices, village health volunteers, Livestock Service agents and others are important resources for school to draw upon.

Development activities of donor projects are potential resources for strengthening traditional occupations, creating new employment and assisting formal schools as long as there is a significant degree of coordination of basic training and supervision resources and activities.

Most projects cover a single activity or sector at present and do not have a direct impact on the traditional occupations other than farming of one kind or another. COSOC and ADAUA are virtually the only ones with a concern for creating new employment.

There are still tremendous efforts to be made before a life-long process of learning can be created that would strengthen the traditional occupations through both formal and nonformal education. Without these efforts there will be only increased migration to the cities, a growing number of formally-educated youth who are unemployable in traditional and modern occupations for a lack of practical vocational skills and a shrinking of traditional occupations.

The learning and ultimately the employment needs of children, youth and adults are interconnected and cannot be met by only one kind of institution. The need for a community-wide integrated learning system to train for employment a growing age-cohort of youth and unemployed adults can be solved through a multi-sectoral effort harmonizing the complementarities of traditional occupations, with their traditional apprenticeships, a cooperating system of training-oriented rural development services and the formal school system.

Appendix 1

Data Collection - Persons Interviewed for the Study
One or More Times

Government of Mauritania

A. Ministry of Culture

1. Mr. Moktar Ould Hamidoune, National Library, Nouakchott.

B. Directorate of Islamic Affairs

1. Mr. Mohamed Moctar Gagueh, Director of Islamic Affairs.

C. Ministry of Primary and Secondary Education

1. Mr. Abderahmane ould Sidi El Moctar, Director of Adult Literacy, Kiffa;
2. Mr. Ly Djibril, Director of Planning and Training Institute of National Languages, Nouakchott;
3. Mr. Maouloud ould Ahmed Khadim, Regional Director of Primary Education, Kiffa;
4. Mr. Gerard Turpin, Researcher, National Pedagogical Institute (I.P.N.), Nouakchott;
5. Mr. Abdoul Sow, Educational Planner.

D. Ministry of Public Health, Labor and Social Affairs

. PMI

- a. Mme Ba, Service Director, Nouakchott;
- b. Mme Carlier, Director PMI, 5e Arrondissement, Nouakchott;
- c. Mlle N'Diaya Dembélé, Head Matron, PMI/CRN, Kiffa;

- d. Mr. Diouf Ibrahime, PMI Service, Nouakchott;
- e. Mlle Fatimatou Sy, PMI/CRN Service, Nouakchott.
- 2. Directorate of Preventive Medicine
 - a. Dr. Hassan, Director, Nouakchott.
- 3. Public Health
 - a. Mr. Wane Amadou Bocar, Nurse at the Hospital of Atar.
- 4. Social Affairs
 - a. Sister Jeanette, Director of the Centre de Promotion Féminine, 5e Arrondissement, Nouakchott;
 - b. Mme Khadadja mint Emir, Director of Social Affairs, Nouakchott.
- E. Ministry of Rural Development
 - 1. Agricultural Extension Service
 - a. Mr. Yero Bathily, Sector Head, Kiffa;
 - b. Mr. Lam Hamedy, Director of the Agricultural Extension Service, Nouakchott;
 - c. Sector Head, Kiffa.
 - 2. Cooperatives Service
 - a. Mr. Diallo Adama, Service Head, Nouakchott.
 - 3. ENFVA, Kaédi
 - a. Mr. Lamine Abdi, Instructor in extension methods;
 - b. Mr. Pierre Gence, Director of the FAO project;
 - c. Mr. Alain Legall, FAO Instructor in extension methods;
 - d. Students, 2nd, 3rd year;
 - e. Mr. Adama Sy, Director of the ENFVA.

4. Environmental Protection Service (Protection de la Nature)
 - a. Mr. Diak Taleb, Director, Nouakchott.
5. Livestock Service (Direction de l'Élevage)
 - a. Dr. Limame, Service Director, Nouakchott;
 - b. Dr. Gaye Malik, Head Office, Nouakchott;
 - c. Mr. Wane, Head Inspector, Kiffa.
6. Hydraulic Service
 - a. Mr. Moulaye Abdellahi, Director, Nouakchott.
7. SONADER
 - a. Mr. Claude Drouot, Agronomist - Extension Agent, Casier Pilote du Gorgol, Kaédi;
 - b. Mr. Pierre Fotti, Training Specialist, SONADER, Nouakchott;
 - c. Mlle Pierrette Vuti, sociologist, SONADER, Nouakchott;
 - d. Mr. Peter Werbrouck, SONADER, Nouakchott.
8. State Farm, M' Pourié
 - a. Mr. Abdoul Kane Ciré, Director of the Farm;
 - b. Mr. Mamadou Diarra, Head of Technical Services.

II. Indigenous Non-Governmental Organizations

A. Independent Cooperatives

1. Mr. Moustapha N'Diouk, President of the Rice Cooperative, Diouk, Trarza;
2. Mr. Madiagne, President of the Rice Cooperative, Brenne Guyer, Trarza.

B. Mauritanian Red Crescent Society

1. Mme Fatimatou Hamidou, Administrator, Headquarters, Nouakchott;
2. Mr. Sy Mamadou, Chief Trainer, Nouakchott.

III. International Agencies

A. European Development Fund (FED)

1. Mr. Blonde, Head of Training, Nouakchott.

B. FAO

1. Mr. Ben Khader, Director, Nouakchott.

C. ILO

1. Mr. Jacques Frémy, CFPP;
2. Mr. Medimagh, CFPP;
3. Mr. Sambo, CFPP.

D. FAC (French) Aid and Cooperation Fund

1. Mr. Fiorese, French Embassy, Nouakchott;
2. Mr. Stéphan, French Embassy, Nouakchott.

E. Peace Corps

1. Ms. Rebecca Brooks, Associate Director for Health, Nouakchott;
2. Mr. Roger Conrad, Associate Director for Agriculture and Rural Development, Nouakchott.

F. Projet de Développement Rural Intégré du Guidimakha

1. Dr. Max Goldensohn, Project Director, Selibaby;
2. Mr. Paul Guinette, Nouakchott Office Coordinator.

G. RAMS

1. Mr. Moustapha Tahar, Geographer (interviewed about mahadras).

IV. Private Foreign Agencies

A. APPAM

1. Peter Quartel, Veterinarian Consultant.

B. ADAUA

1. Mr. Serge Theunynk, Project Director, Nouakchott;
2. Mr. José Esteven, Architect, Rosso.

C. CARITAS

1. Mr. G. Blom, Director, Nouakchott.

D. Catholic Relief Services

1. Ms. Josie Harder, Training and Logistics,
Nouakchott;
2. Mr. Richard Slacum, Director, Nouakchott.

E. COSOC

1. Mr. Rawane Gueye, Project Administrator, Rosso.

F. Lutheran World Relief

1. Mr. Gerrit ten Velde, Director, Nouakchott.

Appendix 2

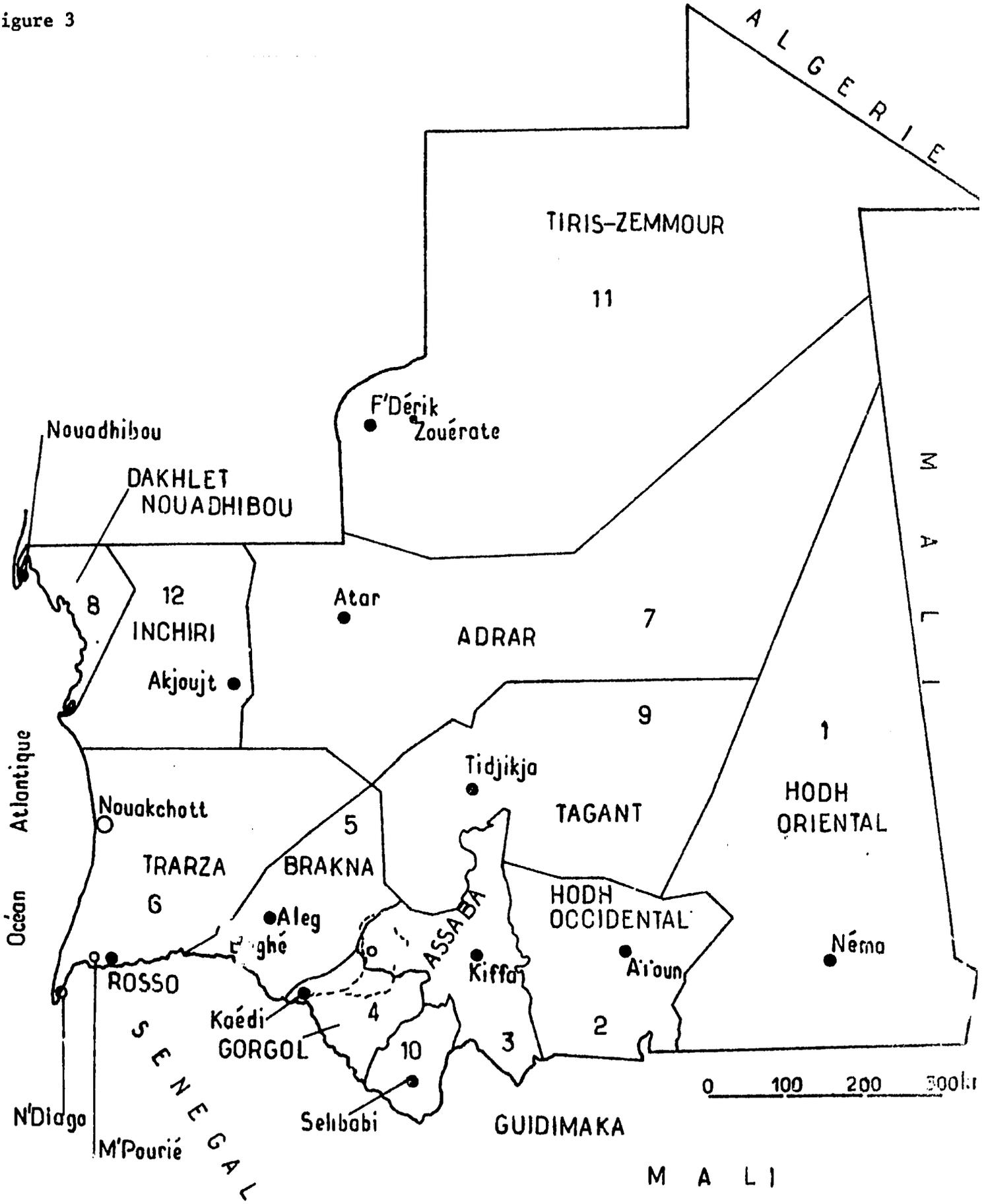
List of Acronyms Appearing in the Report

- ADAUA - Association pour le Développement de l'Architecture Urbaine en Afrique. Association for the Development of Urban Architecture in Africa (private, Swiss).
- AID - Agency for International Development (governmental, US).
- APPAM - Amélioration des Pâturages et de la Production Animale en Mauritanie. Improvement of Pastures and Animal Production in Mauritania (governmental, Dutch).
- BMDC - Banque Mauritanienne de Développement et de Commerce. Mauritanian Development and Commerce Bank (governmental, Mauritanian).
- CAP - Certificat d'Aptitudes Professionnelles. Certificate of Professional Skills . . . secondary vocational diploma.
- CFAT - Centre de Formation de l'Artisanat du Tapis. Center for Training in Rug-Weaving (governmental, Mauritanian).
- CFPP - Centre de Formation et de Perfectionnement Professionnelles. Center for Professional Training and Skills, Upgrading (UNDP-ILO).
- CNRADA - Centre National de Recherches en Agronomie et de Développement Agricole. National Center for Research in Agronomy and Agricultural Development (governmental, Mauritanian, FAC-funded).
- COSOC - Communication Sociale. Social Communication (private, Swiss).

- CRN - Centre de Récupération Nutritionnelle. Nutrition Recuperation Center (governmental, Mauritanian).
- DRIG - (Projet de-) Développement Rural Intégré en Guidimakha. Project for Integrated Rural Development in Guidimakha, (AID).
- ENECOFAS - Ecole Nationale d'Enseignement Commercial, Familial et Social. National Commercial, Familial and Social Training School (governmental, Mauritanian).
- ENFVA - Ecole Nationale de Formation et de Vulgarisation Agricole. National Agricultural and Extension Training School (governmental, Mauritanian).
- ENI - Ecole Normale des Instituteurs. National Training School for Primary School Teachers (governmental, Mauritanian).
- ENISF - Ecole Nationale d'Infirmiers et de Sages-Femmes. National Nursing and Midwifery School (governmental, Mauritanian).
- FAC - Fonds d'Aide et de Coopération. Aid and Cooperation Fund (governmental, French).
- FAO - (United Nations) Food and Agricultural Organization.
- FED - Fonds Européen de Développement. European Development Fund (inter-governmental, Common Market).
- ICA - International Communication Agency (governmental, US)
- ILO - (United Nations) International Labor Organization.
- IPN - Institut Pédagogique National. National Pedagogical Institute (governmental, Mauritanian).

- OMA - Office Mauritanien d'Artisanat. Mauritanian Crafts Organization (governmental, Mauritanian).
- OMC - Office Mauritanien des Céréales. Mauritanian Cereals Office (governmental, Mauritanian).
- ONC - Office National du Cinéma. National Cinema Office (governmental, Mauritanian).
- PMI - (Centre de-) Protection Maternelle et Infantile. Mother and Child Protection Center (governmental, Mauritanian).
- RAMS - Rural Assessment Manpower Survey (governmental, US).
- SONADER - Société Nationale pour le Développement Rural. National Rural Development Company (governmental, Mauritanian).
- SONELEC - Société Nationale d'Electricité. National Electric Company.
- SONIMEX - Société Nationale d'Importation et d'Exportation. National Import and Export Company (autonomous public agency, Mauritanian).
- UNDP - United Nations Development Program.
- UNSO - United Nations Sahelian Organization.

Figure 3



Legend of the map of administrative regions
and agro-ecological zones

Major agro-ecological zones

- 1 - Senegal river valley
- 2 - Rain-fed cultivation
- 3 - Oued floodland cultivation
- 4 - Palm groves (oases)
- 5 - Pastoral zone

desert limits (Majabat Al Koubra)

Limits of administrative regions

Administrative regions number

450mm Isohyetal line.

Figure 4

