



# ISLAMIC REPUBLIC OF MAURITANIA

Honor — Fraternity — Justice

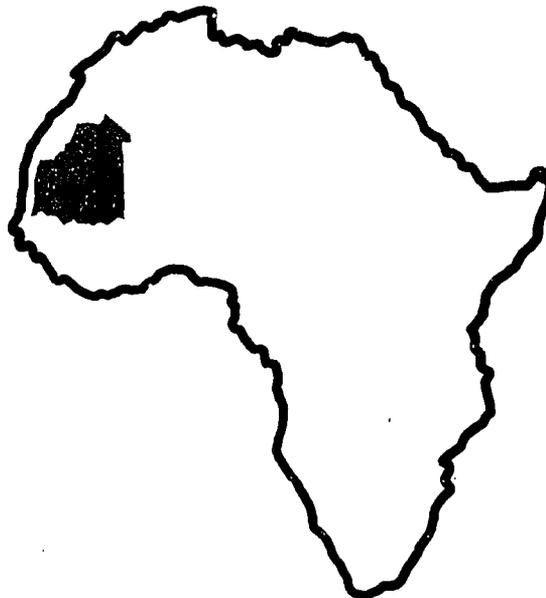
Ministry of Economy and Finance

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## RAMS PROJECT

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Basic Human Needs as a Concept in  
the Formulation of a Development Strategy  
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## Introduction

This paper on Basic Human Needs (BHN) is one of a series of Option Papers. It should be viewed as a presentation in summary fashion of a concept which Mauritanian planners may wish to consider in formulating development objectives and plans. It should not be viewed as a strategy in and of itself but rather as a means of establishing objectives to determine strategies.

A number of countries, such as India, Indonesia, Sri Lanka and Kenya, have in recent years adopted BHN considerations as integral elements of their national development plans. Mauritania has not to date. Mauritanian leaders have, however, set forth a growth with equity philosophy, the elucidation of which could find reflection in BHN principles. This paper attempts to offer some preliminary notions in the Mauritanian context along these lines.

The content of BHN is essentially confined to the basic necessities of life -- food, health and shelter. Their satisfaction may mean survival though, more often, meeting basic needs is a step beyond the survival stage. A brief word about the elements that comprise BHN:

- food - should be regarded in terms not only of the adequacy of basic foods (especially grains) but also "balanced" food that satisfies an adequate diet. The combination of such a diet is dependent on many variables as discussed in WHO and UNICEF publications and will not be dwelled upon in this paper.
- health - can be viewed from two different aspects: accessibility of primary health care capable of providing basic health services to the population at large; and accessibility to sufficient amounts of water (20 liters per day per person). Providing "safe" drinking water has proven to be less critical than the quantity available per person.
- shelter - while this factor represents a problem of different dimensions comparatively in tropical as contrasted with temperate climates, it should be recognized that its basic needs can take different forms of government assistance: the provision of simple housing units, the availability of low-cost building materials, or the provision of a hygienic environment such as in-house water supply and sewage disposal system.

BHN can also extend beyond the foregoing factors. For example, it can be considered as the availability of basic education for children or of literacy programs for adults. In either case the aim is to prepare children and adults for productive life. In essence, education in BHN terms (not training in this case) is limited to basic reading and writing sufficient to qualify a person for a variety of job opportunities, a step ahead of the illiterate who can normally qualify only as a general laborer. Prospective skills of the literate can lead to a progressive up-grading of his ability: Implicit in the term "education", therefore, is the principle of enhancing a person's earning capacity in his society in order to enable him to support himself and his family. In this sense BHN can be considered as providing a floor on poverty to the extent, of course, that employment can be provided. Hence, an important by-product of education should not be over-looked: its impact on labor productivity. It is generally recognized that a literate person produces more and in a more efficient manner than an illiterate person; further, the former is able to learn new techniques and innovations faster than the latter. The literate person's contributions to his country's economic life is, therefore, more significant. (The Option Paper on Employment Implications of Alternative Development Strategies goes into this theme.)

In general, BHN can be defined as the availability of primary services, facilities, and commodities necessary for a population to achieve a productive life. In low-income societies the State is called upon to provide many, if not all, the ingredients of such needs. Financial and other resources make it difficult, perhaps impossible, to do so on a nation-wide basis. Many governments, therefore, face the dilemma of deciding which limited measures to take and determining which segments of the population are to benefit therefrom. The BHN policy can afford alternative means of selecting programs and projects which can reach the largest number of beneficiaries, or "targeted population".

Budgetary considerations necessarily weigh heavily in a government's decision to adopt or alter policies. The concept of BHN should not be summarily dismissed in the belief that, in order to extend certain benefits or programs to larger numbers of the population, supplementary outlays are required. Increased investments are not necessarily inherent in such efforts. Available resources can be redistributed either through the budgetary process or by structural reform. Moreover, a focus on quality, as contrasted to quantity, aspects of a program may afford a higher return in terms of the number of people who are embraced or who benefit its outreach. Medical services or educational institutions, as but examples, may be more effective depending on the quality (competence) of health workers and teachers. Programs may be restricted internally

rather than extended geographically for greater impact. The education sector, discussed below, is a case in point in Mauritania where school enrollment could be made to increase at no additional cost by combining two classes under a single teacher and enlarging the size of classes.<sup>1/</sup> Decision-makers, therefore, can optionally consider different courses of action within available financial ceilings depending on established priorities and objectives.

Determining the category of "target" beneficiaries depends on an interpretation of who the neediest may be. For example, families whose diets fall below an accepted nutritional level, adults who are illiterate, children who are not enrolled in schools, farm communities that do not have access to drinking water, urban residents who do not enjoy disposable waste systems -- all, or any segments thereof, can be addressed. A dissection of the Mauritanian population to reveal what components of the population suffer from such identified felt needs would probably reveal that the same people fall into the disadvantaged category of more than one sector. The implication of this observation is that simultaneous inter-sector actions could effectively address a number of BHN-related problems at the same time. There are, however, practical limitations to such inter-sectoral actions given, say, the broad expanse of Mauritanian territory and the relatively low population density in rural areas.

Obviously, not all segments of a population need be targeted. Some people enjoy a relatively high per capita income and can meet their basic needs from their own resources. Others may be capable of having a healthy diet but may be illiterate. Still others, in a lower income bracket may exist at a mere survival level. Meeting total needs of the total population can be regarded as utopic.

The definition of BHN elements in any country must, of course, be dictated by strictly local considerations. The situation in no two countries is alike; hence, drawing comparisons or conclusions from the experience of other countries can result in a false understanding. The social complexity of Mauritania is sufficiently different from other countries and regions of Africa and elsewhere to question the transplantation of successful approaches of other countries to a Mauritanian setting.

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<sup>1/</sup> This proposal is recommended in the RAMS report on Education as a Development Tool, 1981.

The incorporation of BHN considerations in a planning exercise must perforce be based on country-specific economic, social, cultural and political facts, figures and processes. Specific objectives must be established, specific programs formulated and costed out, and specific time frames set. On the basis of such a detailed review it can be determined if a government's estimated financial envelope for the period being considered is capable of supporting and meeting its objectives. Obviously, constraints other than financial must also be weighed to determine a program's reasonableness or viability.

The intent of this paper is to follow the process indicated for selected BHN sectors, making certain hypotheses, identifying "targeted" populations, and calculating investment and recurrent costs. The sum of these costs are presented in summary form. (In a separate exercise, these costs would be reviewed in the light of macro projections on GDP. The Option Paper "Macro Economic Simulation Model for Assessing Development Priorities" provides the framework for such a review.) A 20-year horizon is used in this paper in accordance with the long-term planning range set by the GIRM, with a 5-year breakdown to conform to the GIRM's planning cycle. The three major components of the Mauritanian population (the nomads, the rural sedentary and urban residents) are dissected with a view to determining which elements are the most disadvantaged in each of the selected sectors.

For the purpose of this paper, the elements that the World Bank considers as the "common core" of goods and services (nutrition, health, education, water and sanitation and shelter<sup>2/</sup>) have been adopted in the Mauritanian setting for brief examination. Energy as defined herein as the wood and charcoal requirements for cooking purposes, has been added because of the peculiar importance it plays in Mauritanian daily life.

No attempt is made herein to link the various sectors to one another, either in terms of suggesting inter-actions, establishing relative priorities, or discussing spatial considerations. These various elements, all important especially in an operational sense, are divorced from consideration to focus attention on BHN as a concept. Similarly and in the interest of brevity, the issues of a policy nature which can be expected to be raised by Mauritanian officials considering this concept are not dwelt upon herein.

(Note: The relationship between BHN as discussed in this paper and as presented in other Option Papers is reviewed in Chapter 5 of the "Consolidated Statement on Overall Development Strategies".)

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<sup>2/</sup> World Bank, "An element of the Attack on Absolute Poverty: Meeting Bank Needs, an Overview Paper", April 1980, p. 6.

### General

The Mauritanian Government (GIRM) has cited as one of its long-term objectives the raising of living standards and the increasing of income levels. The BHN concept could serve to help determine the type of strategies or alternative approaches to meet these objectives and to forecast their costs. By proceeding in this fashion the GIRM would, in policy terms, depart dramatically from its earlier development and economic growth with their emphasis on capital-intensive investment programs. It is noteworthy in this respect that the "trickle down" impact of these programs has been marginal; estimates show in fact that, despite Mauritania's average annual growth rate of 6%, the rural sector's contribution to GDP declined from 65% to 21% over the past 20 years. The living standards of 90% of the population who continue to live in rural areas have, therefore, deteriorated in this period. Migration to the cities has contributed to the decline of rural production. Significantly, the quality of life of the urban migrants has also deteriorated.

The GIRM's experience over the past 10 years in particular, when large-scale capital expenditures were made on a number of projects, demonstrates clearly that growth in the aggregate is no guarantee of raising individual living standards and, as a result, meeting the basic needs of the population at large. The figures cited above indicate the apparent divergence between "average" growth and the deterioration in living standards of a significant proportion of the population.

In pursuing a growth with equity policy, the GIRM would not, however, have to abandon its focus on the modern sector but rather devise an approach aimed at simultaneously benefitting the traditional sector. "The (BHN) strategy strikes a balance between policies aimed at economic growth and poverty-oriented policies"<sup>3/</sup>. A balance, in other words, could be struck between overall growth in GDP and employment, as well as in improved income distribution; prospective investment programs could be judged as much for their impact on employment, as well as on the general well-being of the affected population groups, not on growth potential per se.

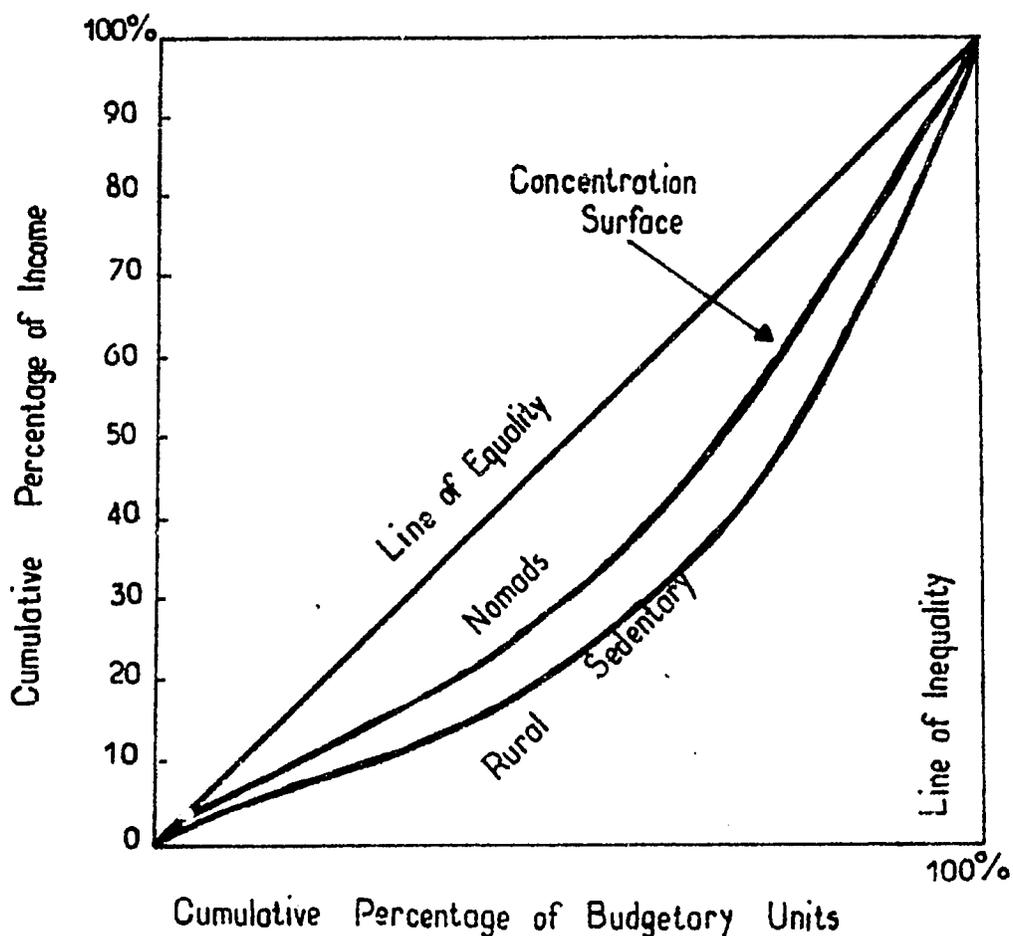
Inherent in the aim of improving income distribution is the reallocation of budgetary resources to provide basic essentials and improved facilities to lower income groups, in particular for the identified "target" population. These include a more balanced diet, accessible water supplies, extended education facilities and improved housing and health facilities.

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<sup>3/</sup> Citation in Agency for International Development document entitled "Evolution of the Basic Human Needs Concept".  
March 1979, p.2.

It is interesting to note the income disparities between the population groups of Mauritania taken as a whole as indicated in the tables below. Table 1 shows graphically the distribution of income. Satisfying BHN objectives will result in an alternation or straightening of the Lorenz curve, which measures the inequalities in the distribution of wealth.<sup>4/</sup> (The coefficient of the Gini is 0.46 for the rural sedentary population and 0.41 for the nomads, indicating that there is less income disparity among the nomads than among the rural sedentary.)

Table 1  
Lorenz Curve



<sup>4/</sup> RAMS, Rural Income, 1981, p.45.

Table 2 shows comparative income levels between population groupings. The relatively lower per capita income of the nomads is apparent, but this need not necessarily be interpreted as a lower standard of living. The nomad's way of life is much simpler than those of sedentary populations, and such costs as housing, as but one example, do not figure as an important element of their consumption pattern.

Table 2  
1980 Estimated Population Groupings and Income Levels

	1980 Population (000) (% of total) <sup>5/</sup>	Annual Per Capita Income Levels (UM) <sup>6/</sup>
Nomads	409 (28)	9,280
Rural Sedentary	680 (47)	13,494
Urban Sedentary	354 (25)	Not available
Total	1,443	

The rate of sedentarization in recent years has been staggering. In 1965, the GIRM census labeled 65% of the population as nomads; in 1977 the percentage had fallen to 36%.<sup>7/</sup> By the end of the century, on the basis of current rates of sedentarization, it will be 28%.<sup>8/</sup> Policy-level officials may well consider the extent to which improving BHN levels for nomads might retard sedentarization. Would the provision and/or improvement of school and medical facilities, as well as construction of rural wells, effectively act as retardants?

<sup>5/</sup> RAMS, Demographic Projections, 1980.

<sup>6/</sup> RAMS, Rural Income, 1981, p.16.

<sup>7/</sup> Demographic Projections, p. 21.

<sup>8/</sup> Op. Cit., p. 121.

It could be hypothesized that improving health and school facilities in urban areas might hasten the population drift from the rural areas. From the standpoint of reaching the maximum numbers of the population, urban sites are understandably more attractive than rural ones since they are easier to reach. Hence, government policy in centralizing or decentralizing institutions and facilities can impact directly on population movements.

The major functional components of the analysis which follows are health and nutrition, education, shelter and energy. The target population varies with each component, essentially because of differing needs; whereas each of the separate population groupings require improved education and shelter facilities, the rural segments of the population (both nomads and sedentary) are especially disadvantaged in health and nutrition (particularly lactating mothers and infants), as well as in primary education facilities.

#### Health/Nutrition

In 1980, the GIRM operating budget for national health services was 387 million UM, or 268 per capita. Health services, however, reached an average of only about 20% of the population. On the basis of standards established by the UN World Health Organization for African countries, Mauritania has a serious deficiency in trained manpower in the health sector. In 1980, there were only 97 doctors -- 1,800 were needed; 317 auxiliary nurses, as compared to a need for 2,500; only 27 trained practicing midwives, whereas 700 were required; 200 State nurses were on the Government payroll, but there was a requirement for 5,000.

In all, 141 rural villages of over 600 population (making up 8% of the country's population) had no health facilities in 1980. Nearly one-third of Mauritania's villages are inaccessible for three months of the year. Under 16% of the population has access to potable water; only 2.6% of these have direct access at home. Mauritania suffers a mortality rate of 22 per thousand; infant mortality is 20 per 1,000 -- 1 out of every 5 infants dies before attaining one year.

#### Nutrition

Overall, food availability levels in Mauritania compare favorably with other Sahel countries. This, however, can be attributed to large-scale food imports, resulting from donations and commercial transactions. Problems of internal distribution, nonetheless, place

the nomads at a particular disadvantage. Table 3 provides a comparative view of the situation as it affects the country's different population groups. Note should be taken that these figures show average per capita consumption and do not take into account the magnitude of differences from one consumption unit to another even in the same context (e.g., in the same village).

Table 3

Daily Caloric Intake and Requirements by Population Groupings

Population Grouping	Daily Caloric Intake <sup>9/</sup>	Daily Requirement <sup>10/</sup>	Percentage Satisfied
Nomads	1,720	2,000	86
Rural Sedentary	2,147	2,200	97
Urban	1,885	1,900	97
(Weighted Average)	1,947	2,089	94

Estimated cereal consumption patterns are shown in Table 4. Again, the disadvantaged situation of the nomads is demonstrated.

<sup>9/</sup> RAMS, Consumption Survey, 1980.

<sup>10/</sup> RAMS, Nutrition Strategy, 1981, Annex

Table 4

Yearly Consumption Requirements by Population Groupings

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	Yearly Consumption (kg) <sup>11/</sup>	Yearly Requirements (kg) <sup>12/</sup>
Nomads	115	153.7
Rural Sedentary	149	152
Urban	120	123

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BHN Approach for Health/Nutrition

A limited effort is proposed to improve health/nutrition conditions. The population "target" consists of the poorest 20% of the Mauritanian population living in 570 villages which are now without any type of organized health service support<sup>13/</sup> Most of the actions recommended are aimed at aged 15-64 (principally pregnant and lactating mothers) and to children aged 0-6. Overall, 335,000 persons, or about 23% of Mauritania's estimated 1980 population, are involved.

The BHN program is based on a comprehensive approach (including birth spacing, nutrition, supply of water and health education), concentration at the village level (with local participation) and emphasis on preventive health (hygiene, supplemental feedings, improved water supply, improved child care and health/nutrition education). It is estimated that this proposed program could by the year 2000 result in infant mortality in the 570 participating villages being reduced from 20 per 1,000 to 8 per 1,000 through supplementary feeding, sanitary water and access to village health centers.

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<sup>11/</sup> RAMS, Rural Consumption, 1981.

<sup>12/</sup> Op. Cit.

<sup>13/</sup> Based on Option B2 in the Option Paper "Health System in Mauritania's Analysis of Problems and Alternative Solutions".

Table 5

Health/Nutrition BHN: Budget Estimates 1982-1999<sup>14/</sup>  
(Million UM in 1980 constant prices)

Type of Costs	1982/85	1986/90	1991/95	1996/200	Totals
Investment	85	415	685	145	1,330
Recurrent	60	290	660	885	1,895
Supplementary Food	15	230	850	-	1,095
Totals	160	935	2,195	1,030	4,320

Note: The pattern of anticipated expenditures noted above, wherein recurrent costs ultimately exceed investment costs, conforms to the experience found in World Bank BHN activities worldwide.

Education

Mauritania suffers from a high (73%) illiteracy rate. In 1980, only 24.5% of the school age population (6-14 years of age) were enrolled. There was, however, a large disparity in school enrollment throughout the country (see table below): only 2 regions and the city of Nouakchott had an enrollment rate in excess of 50%; many rural areas had rates as low as 14%.

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<sup>14/</sup> Op. cit., p. 75.

Table 6

Primary Level Enrollment Rate by Region 1979-80

Region	Enrollment Rate (%) 1979-80
Hodh El Charqui	14.4
Hodh El Gharbi	16.4
Assaba	14.6
Gorgol	20.3
Brakna	21.4
Trarza	23.1
Adrar	36.2
Dakhlet-Nouadhibou	84.3
Tagant	19.7
Guidimaka	17.5
Tiris Zemmour	49.9
Inchiri	51.1
Nouakchott District	54.4
Weighted Average	24.8

Source: National Census Bureau and the Ministry of National Education.

Overall, 17% of the 1980 national budget is in the education sector, with a significant proportion being devoted to secondary and higher education. Of the 571 million UM 1980 operating budget, 35% was earmarked for primary education accomodating 81% of enrolled students; 27% was budgeted for secondary education which covers 12% of the country's total students; and 31% was programmed for higher education which involves 3% of the students. Other categories of education accounted for the remaining 7% of the budget. Relatively small amounts are budgeted for professional and vocational training, areas which directly impact on labor productivity.<sup>15/</sup> As a general rule, course content at all levels is ill-adapted to the needs of the society and to the country's development.<sup>16/</sup> A major reform of the formal education system is clearly in order.<sup>17/</sup>

#### BHN Approach for Education

If Mauritania's education system is to undergo a major reform, measures would have to be taken to correct deficiencies in adult literacy, vocational education, professional education and other areas. Opening up educational opportunities to populations now devoid of school facilities and thereby increasing enrollment will obviously require substantial change. Cost implications could be minimized if, for example, a teacher were to be assigned to two classes instead of the one he/she teaches today, or if classes were enlarged to establish a higher pupil-teacher ratio. The extent to which villages would construct local schools, as many presently are doing, would alleviate such costs in the national budget.<sup>18/</sup>

For the purpose of this paper and as but an illustrative case, only the primary level is targeted, for which two basic assumptions are made by the year 2000. (1) The education sector would receive 20% of the operating budget (which contrasts with 17% in 1980), and (2) 40% of the education budget (as compared with 35% in 1980) will be earmarked for primary education. The goal would be to at least double enrollment in primary levels by the end of the century.<sup>19/</sup> (Obviously, this goal falls short of attaining 100%

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<sup>15/</sup> Virtually all of Mauritania's intitutions of higher learning are financed outside of the education budget.

<sup>16/</sup> RAMS, Formal Education, 1980.

<sup>17/</sup> Op. Cit., p.223.

<sup>18/</sup> This proposal and the foregoing assumptions emerge in the report on Education as a Development Tool.

<sup>19/</sup> Op. Cit.

enrollment and satisfying the BHN education objectives of all school age children aged 6-14.) It should be noted that at current enrollment levels 140,000 students would be in primary schools by year 2000. By doubling the rate, however, about 350,000 will be enrolled.

Table 7  
Estimated National Budget Allocation for Primary Schools<sup>20/</sup>  
(Million UM in 1981 prices)

Type of Costs	1981/85	1986/90	1991/95	1996/2000	Totals
Investment	-	115	115	115	345
Recurrent	570	680	800	2,970	5,020
<b>Totals</b>	<b>570</b>	<b>795</b>	<b>915</b>	<b>3,085</b>	<b>5,365</b>

Shelter

The total number of households (or shelter units) for each group of the Mauritanian population is shown below:

Table 8  
Number of Households by Population Grouping<sup>21/</sup>  
(in thousands)

	1980	1985	1990	1995	2000
Nomad	81.8	73.0	67.0	62.6	59.6
Rural Sedentary	121.4	157.1	195.5	239.1	290.0
Urban	63.2	71.6	80.9	91.6	103.6
<b>Total</b>	<b>266.4</b>	<b>301.7</b>	<b>343.4</b>	<b>393.3</b>	<b>453.2</b>

Note: RAMS field surveys have found the average size of a shelter unit to be 5 for the nomads and 5.6 for the sedentary population.

<sup>20/</sup> Calculations of the author of Education as Development Tool, Dr. E. Raymaekers.

<sup>21/</sup> Calculated by RAMS based on national census data.

The shelter component varies significantly among each of the three groups:

<u>Nomads</u>	The basic unit is a tent and poles. A qualitative variation exists between sheep-hair woven tents (vlige) and the less desirable but cheaper cloth tent. The former lasts twice as long as it is more protective against the elements (sun and wind) because of its tight weave. Availability and price are dependent on the size of sheep herds.
<u>Rural Sedentary</u>	The basic unit is a hard-walled structure.
<u>Urban</u>	The basic unit is a permanent structure with kitchen and toilet facilities.

Shelter standards are sub-normal for large segments of the population. It is estimated that 60% of the nomads live in tents of relatively poor quality, 85% of the rural sedentary population are sheltered in units non-accessible to water within 500 meters, and 80% of the urban population live either in tents, huts or shacks (50%) or in cramped temporary shelter (30%).

It should be noted that permanent structures in urban areas are not authorized in the absence of title to a parcel of land issued by the Prefecture, although construction continues nonetheless. (No such requirements exist for nomads obviously and rural sedentary groups) In Nouakchott, where 75% of new housing requirements are generated in Mauritania, building lots are attributed slowly, forcing large segments of the population to live in temporary shacks, tents or huts. Inadequate shelter is thus most prevalent in this population group. Present government policy favors private construction on recently distributed parcels.

#### BHN Approach for Shelter

For illustrative purposes a program to improve the condition of the shelter units of 20% of the poorest segment of the urban population, or about 21,000 households, is discussed. (It is assumed that at least 20% of the rural sedentary population will benefit similarly under the village project mentioned above under Health/Nutrition.) For this purpose, a scheme limited strictly to site improvement to provide

water and sewage disposal is proposed. The government's intervention would be limited to investment costs, recurring costs being met by subscriber billings. Budgetary estimates are to the end to the century set forth in the table below:

Table 9  
Urban Site Improvement Scheme  
(Million UM in 1980 constant prices)

Type of Costs	1981/85	1986/90	1991/95	1996/2000	Totals
Investment <sup>22/</sup>	21	42	44	17	154
Recurrent	-	-	-	-	-
Total	21	42	44	17	154

Energy

Firewood and charcoal for cooking purposes are an essential ingredient in the lives of every Mauritanian. In addition, charcoal consumption is significant because of the tradition of drinking tea on the average of three times daily, and the intense high heat needed to achieve a rapid boil of the tea leaves.

The estimated per capita annual consumption of firewood and charcoal for cooking and tea preparation by population grouping is as follows:

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<sup>22/</sup> Based on water and sewage costs of 2,250 UM/household.

Table 10  
Estimated Per Capita Consumption of Firewood and Charcoal<sup>23/</sup>  
(kg)

	Firewood	Charcoal	Wood Equivalent <sup>24/</sup>
Nomads	275	34 (170) <sup>25/</sup>	445
Rural Sedentary	271	53 (275)	536
Urban Sedentary	-	138 (690)	690

The production of 1 kg of charcoal requires 5 kg of wood, and in the process about one-half of the initial energy content is lost. The remaining energy, however, is much more highly concentrated in charcoal, which makes it convenient to use though the manufacturing process is wasteful of energy.

In 1980, it is estimated that nearly 300,000 tons of firewood and about 80,000 tons of charcoal were consumed.

Based on the foregoing consumption pattern and using the 5-1 conversion rate of wood to charcoal, the cooking demand on the woodlands is calculated at:

400,000	MT for charcoal
300,000	MT for firewood
<u>700,000</u>	<u>MT total</u>

Mauritania currently satisfies its total needs from local production.

On the basis of existing requirements, the projected need of the population by year 2000 in terms of wood equivalent will be about 1,350,000 MT. (Population estimate for year 2000: 2,335,6000.) In terms of kg/person/year, this comes to nearly 580 kg, an increase of about 100 kg due to the anticipated faster growth of the urban population.

<sup>23/</sup> Based on RAMS Household Consumption Survey, 1980.

<sup>24/</sup> Average about 480 kg/person/year.

<sup>25/</sup> The wood requirement in the making of charcoal is in ( ).

The BHN for this sector is based on maintaining the status quo, i.e., no alteration of the existing consumption pattern. In light of the deterioration of its forest, Mauritania will have to initiate urgent efforts aimed at reconstituting its forest reserves. It has been estimated that Mauritania will even find it difficult to meet its own firewood and charcoal needs in 5-10 years at the current rate of forest devastation.<sup>26/</sup>

There is a general consensus among forestry and environmental experts of CILSS, FAO, UNSO, RAMS and elsewhere that the Mauritanian Government should undertake two types of actions: one to create permanent nurseries and the other to establish "village forest", i.e., forested areas accessible to rural village. Such a program, which would benefit 1,200 villages and provide for six permanent nurseries, is costed out below.

Table 11

Forestry and Nursery Planting Program<sup>27/</sup>  
(Million UM in 1980 constant prices)

Types of Costs	1981/85	1986/90	1991/95	1996/2000	Totals
Investment	40	70	70	60	240
Recurrent <sup>28/</sup>	-	-	-	-	-
<b>Totals</b>	<b>40</b>	<b>70</b>	<b>70</b>	<b>60</b>	<b>240</b>

<sup>26/</sup> CILSS "Field Mission Report, March 19 - April 14, 1980", R. Winterbottom, April 18, 1981, p. 4

<sup>27/</sup> Based on recommendations contained in FAO report "Livestock and Forest in Mauritania", Rome, July 1975, p. 35.

<sup>28/</sup> Voluntary labor assumed.

Summary and Conclusions

The series of program proposals discussed in this paper would benefit over 1,200,000 people by year 2000, distributed by sector as follows:

Table 12  
Target Population by Sector, 1981-2000  
(in thousands)

Sector	Target Population	1981/85	1986/90	1991/95	1996/2000
Health and Nutrition	Rural Sedentary	88.7	100.0	112.3	126.2
	Women 15-64	88.7	100.0	112.3	126.2
	Children 0-6	61.9	68.8	76.7	85.7
Education	Rural Sedentary	121.5	169.0	250.0	345.0
Shelter	Urban	71.6	80.0	91.6	103.6
Energy	Rural Sedentary <sup>29/</sup>	100.0	200.0	300.0	420.0
Totals		532.4	718.7	942.9	1,206.7

Aggregate budgetary costs to the government to implement the illustrative project discussed above would total over 10 billion UM, distributed by sector and by five-year periods as shown below:

<sup>29/</sup> Based exclusively on 1,200 villages having access to new forests by year 2000.

Table 13

Investment, Recurrent and Other Costs by Sector, 1981-2000

(Million UM in 1980 constant prices)

Type of Cost	1981/85	1986/90	1991/95	1996/2000	Totals
<u>Investment</u>					
Health/Nutrition	85	415	685	145	1,330
Education	-	115	115	115	345
Shelter	21	42	44	47	154
Energy	40	170	170	160	540
<u>Recurrent</u>					
Health/Nutrition	60	290	660	885	1,895
Education	570	680	800	2,970	5,020
Shelter	-	-	-	-	-
Energy	-	-	-	-	-
<u>Other</u>					
Health/Nutrition <sup>30/</sup>	15	230	850	-	1,095
Education	-	-	-	-	-
Shelter	-	-	-	-	-
Energy	-	-	-	-	-
<u>Totals<sup>31/</sup></u>	791	1,842	3,224	4,222	10,079

30/ Supplementary food.

31/ Inasmuch as both the assumptions and approach underlying these estimates are different from those presented in the Option Paper on "Macro Economic Simulation Model for Assessing Development Priorities", there is no basis of comparison between the totals shown and the figures used in the latter paper.

The foregoing estimates, as previously noted, are based on a series of assumptions which, of course, can be made to vary depending on specific priorities and objectives which the GIRM may wish to establish. The financial capacity of the Mauritanian Government to fund the total package of illustrative programs discussed can be measured against GDP macro projections, the framework for which, as previously indicated, is in the Option Paper on "Macro Economic Simulation Model for Assessing Development Priorities".