

REPUBLIC OF NIGER  
MINISTRY FOR RURAL DEVELOPMENT

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HEALTH AND NUTRITION  
IN THE PASTORAL ZONE :  
PROPOSALS

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Projet Gestion des Pâturages  
et Elevage

Niger Range and  
Livestock Project

Some definitions :

- AES : "Auto-Encadrement sanitaire" - National Primary Health Care Programme. This programme in Niger is based on the Village Health Teams (VHT).
- CM : "Centre médicale" - Medical Centre. A health care unit of referral at the district ("arrondissement") level.
- DDS : "Direction départementale de la Santé" - Office of Departmental Health.
- EDHMM : "Equipe départementale d'Hygiène et de Médecine mobile" - Departmental Mobile Team for Hygiene and Medical Care. Service responsible for vaccinations at the department ("département") level.
- Health auxiliary ("secouriste") : "A man or woman of medium age, in good physical condition and, if possible, literate, a native of the village, an unpaid volunteer, chosen for his or her good moral character and great availability." \*
- The health auxiliary is recruited from among the local population and does not receive any remuneration. He (or she) is given one week of training at the Medical Centre where he learns how to treat common diseases and complaints. He is equipped with a wooden crate containing the following drugs and medical supplies : chloroquine, aspirin, charcoal, sulfaguanidine (Ganidan), ophthalmic ointment of chlortetracycline (Aureomycine), ophthalmic drops of Argyrol, methylene blue, mercurochrome, nose drops, gauze bandages and cotton wool.
- He is also given a notebook in which he records the consultations.
- Herders : This term refers specifically to nomadic herders.
- ILP : Integrated Livestock Project. Successor project to the Niger Range and Livestock Project.
- PMI : "Protection maternelle et infantile" - Maternal and Child Care (MC ). The national Maternal and Child Care Programme includes antenatal consultations and consultations for newborns.
- TBA : Traditional birth attendant ("matrone"). Usually she is an already experienced TBA who follows one week of training at the Medical Centre. She learns to deliver babies and to make cord dressings. She is equipped with a UNICEF kit to which she adds thread and a razor blade which are purchased by the mother before delivery.
- VHT : Village Health Team ("Equipe de Santé villageoise - ESV"). Each VHT is composed of 2 health auxiliaries and of 2 traditional birth attendants (TBA).

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\* L'Auto-Encadrement sanitaire, Méthodes de Formation des Agents de Santé de Village, Republic of Niger, 1980



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## BACKGROUND DATA

Population	5,687,000
Surface area	1,267,000 km <sup>2</sup>
Population density	0.2-25.9 : 4.4
Urban population	12%
Population under 5 years of age	19%
Population under 15 years of age	45%
Population of working age (15 to 64 years)	52%
Percentage of people having attended school	17%
Literacy rate	10%
Inflation rate over last 5 years	12%

### Health

Life expectancy at birth	42 years
Birth rate (1,00 people/year)	51
Mortality rate (1,000 people/year)	23
Annual population growth rate	2.77%
Percentage of women of childbearing age.	41%
Infant mortality rate (per 1,000 live births)	200
Juvenile mortality rate (1 to 4 years)	300

## HEALTH RESOURCES

Public expenditure on health care (net of international aid)	1,675,900,000 CFA
As a percentage of the national working budget	6.5%
Investment in plant	1,200,000,000 CFA
As a percentage of national investment budget	4.6%
Credit allocated to health care per head of population	820 CFA
Percentage of population with public water supply	27%
Daily calorie intake per head of population	2,139 (1979)
As a percentage of requirement	91%
Value of the CFA franc : 100 CFA 2 French frs.	\$US 0.33

Sources : Five Year Plan 1979 - 1983 - Republic of Niger  
"Annuaire statistique" - 1978 - 1979 - Republic of Niger  
"Plan d'exécution des années 1979 - 1981", secteur Santé  
"Ministère du Plan" Republic of Niger 1982

which have been made to the Ministry of Health and the offices in the départements (DDS).

## 2. Organisation of health care

The health services are organised in the manner indicated in the administrative flow chart, with three distinct administrative hierarchies,

- at national level :

The Ministry of Public Health and Social Affairs comprises 5 central offices and a vertically-organised mobile medical service with responsibility for vaccinations (cf. Annex I). It is the Office for Health Facilities (DES) which has responsibility for the operation and expansion of existing infrastructures and which is in charge of the National Primary Health Care Programme (AES).

- at département level :

Each of the 7 départements has a département health office (DDS), with overall responsibility for all health care activities in the various arrondissements within the département.

- at district (arrondissement) level :

In each of the 35 districts which make up Niger there is a Medical Centre (CM) in charge of the dispensaries and medical posts\* in the arrondissement.

### The Medical Centre (CM)

This is the reference centre for the district. It comprises a consultation room, a pharmacy, a Mother and Child Care unit (PMI), and a maternity unit. Each CM is equipped with an average of 12 beds for hospitalisations of brief duration. It is administered by a director, who is a qualified ENSP\* nurse. The latter is responsible for the curative and preventive activities carried out at the CM and in all the dispensaries within the district.

- curative activities : out-patient consultations, hospitalisations, deliveries, evacuations

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\* A medical post is a dispensary situated in an administrative office.

\*\* ENSP = Ecole Nationale de Santé Publique

## I. HEALTH SERVICES IN THE NIGER

### 1. Health care policy\*

#### The basic option

"In Niger, medical care should be total, permanent and integrated (coordinating preventive, curative and educational activities), for all the population, the aim being, through their participation, to achieve self-sufficiency. This will be brought about by competent and motivated staff, operating in the context of carefully organised, improved and adapted structures, using rational methods with a view to achieving the ultimate objective of health for all by the year 2,000". (Journées de la Santé, Agadez, December, 1977.)

#### Major areas of activity

- Expansion of the health infrastructure
- Development of the National Primary Health Care Programme (AES)
- Strengthening of health personnel training at all levels
- Reorganisation and rationalisation of health services operations
- Preliminary studies for the establishment of a sickness insurance scheme

#### Specific policies

In those sectors where basic statistics are available, quantifiable objectives have been planned. Hence, in the fields of personnel training, infrastructure development and the expansion of the National Primary Health Care Programme at village level, per ratio objectives have been used. In other fields, such as maternal and child care, nutrition, hygiene and sanitation, drug supplies, and disease control, very general proposals have been formulated.

#### Programmes

Apart from the creation of infrastructures, personnel training and control of tuberculosis, there are as yet no programmes for the implementation of policies; there are only recommendations

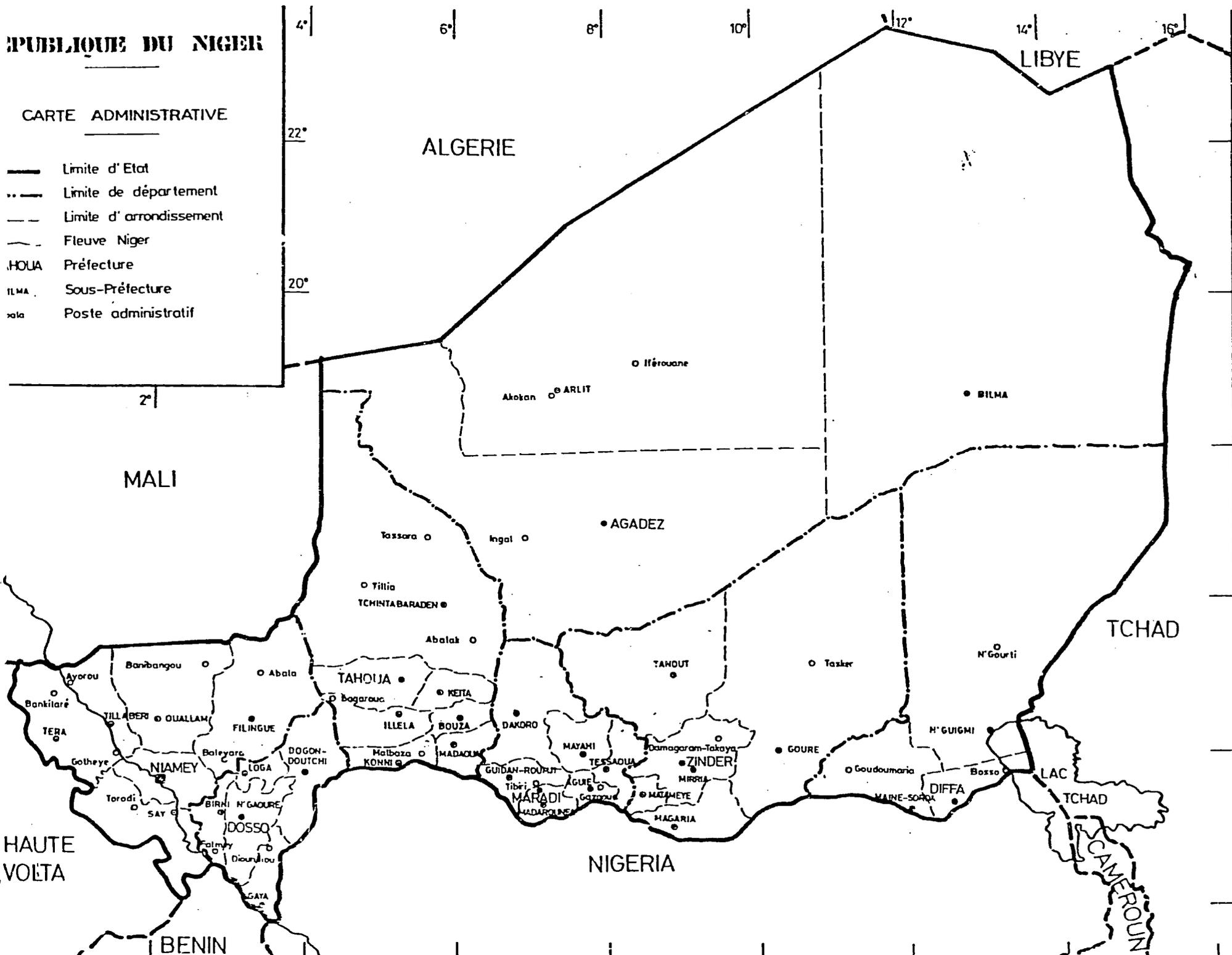
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\* J.M. Lamotte, 1981.

# REPUBLIQUE DU NIGER

## CARTE ADMINISTRATIVE

- Limite d'Etat
- - - Limite de département
- - - Limite d'arrondissement
- Fleuve Niger
- HOUA Préfecture
- ILMA Sous-Préfecture
- xala Poste administratif



- preventive activities : Maternal and Child Health (PMI): prenatal consultations, health and nutrition education. practical demonstrations of food preparation, malaria prophylaxy; training of health auxiliaries and birth attendants.
- management : epidemiological monitoring, supervision of dispensaries.

### The dispensary

The dispensary is administered by a State nurse (ENSP) or by a certified nurse (ENICAS\*), who deals with outpatient consultations and evacuations if he has a vehicle, and supervises the health auxiliaries and birth attendants (VHT) attached to the dispensary. Some dispensaries have a few beds and hold MCH consultations.

### 3. Available resources : trends

The overall health budget quadrupled between 1975 and 1980, subsequently stabilising at 4,675.9 million CFA in 1981, in other words at 820 CFA per head of population. The share of expenditure on public investment has held up (5% in 1975 and 4.6% in 1981) and a determined effort to create an infrastructure may be noted, with expenditure rising from 11% to 33 % in 1980; in 1981 expenditure was 25%. However, to this should be added the construction of the University Hospital Centre and the Health Sciences School, the cost of which was 2 thousand million CFA.

The share of expenditure on health in the national working budget, which had remained steady at 8% from 1975 to 1979, has since begun a downward trend (1980 - 7%; 1981 - 6.5%). The working budget for the health services rose by 32% between 1978 and 1981, whereas the general working budget rose by 45% during the same period. It is evident that less money is being allocated to the health services.

Expenditure on drugs accounted for 44% of the working budget (56.4% in 1980 including vaccines). Vaccine was not purchased

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\* ENICAS = Ecole Nationale d'Infirmiers Certifiés et d'Assistants Sociaux.

from public funds until 1978. It is only since 1979 that Niger has allocated 200 million CFA for the purchase of vaccine. However, this sum has not increased since.

Allocations for the various categories of service indicate that half of the budget goes to rural areas (47% in 1980). But hospitals are gaining ground, their share rising from 41% to 44% between 1978 and 1980. The allocation of working credit displays a trend towards concentration of expenditure in the urban areas. In the départements of Niamey and Zinder, over 60% of the working budget is absorbed by the hospitals. This tendency results in an unequal distribution of credit among the various départements. In 1980, the départements of Niamey and Zinder absorbed 42% and 18% of the budget respectively; in other words a total of 60%. although their population amounts to less than half of the national total.

In 1980, foreign aid represented 30% of running costs and 20% of infrastructural activities undertaken between 1979 and 1980. Voluntary organisations financed the building of 11 dispensaries in 1980, which is to say 16% of infrastructure development.

Whilst a general decline in the available budgets may be observed, the Hygiene and Mobile Medical Service seems to be particularly affected, its budget having been reduced by 6% in 1978 and 4.2% in 1981.

#### 4. Development of health cover

As regards fixed health care training establishments, health cover has, on the whole, improved, rising from 26,600 inhabitants per dispensary (or CM) in 1978 to 24,000 in 1981. The number of inhabitants per bed fell from 1,700 to 1,500 and the number of inhabitants per doctor from 49,400 to 42,100. However, this favourable trend does not apply to all areas and varies greatly from one département to another. Départements such as Agadez or Diffa which have a low population density are either not experiencing any improvement or are actually worse off. Niamey, Maradi and Dosso have experienced the most significant improvement (cf. Annex III).

The disparities between départements are also striking as regards vaccinations. In 1980 for example, 54% of the 570,841 doses of meningitis vaccine distributed were in the département of Niamey. Much the same applies to measles vaccine, 40% of which was distributed in the département of Niamey.

The great efforts which have been made to develop the infrastructure are illustrated by a 15% increase in the number of dispensaries and MC's over a period of three years, reaching a total of 233 in 1981.

As regards the National Primary Health Care Programme (AES), the number of health auxiliaries (4,238) and birth attendants (4,323) has doubled in three years, raising the number of villages covered in 1981 to 2,913 or 33.8% of all the villages in Niger. This means that throughout the whole country there is one health auxiliary or birth attendant for every 600 inhabitants.

Numbers of nursing personnel rose by 27% between 1978 and 1981 to reach a total of 994 certified nurses and 494 State nurses in 1981. However, the increase in the number of nurses is far below that achieved in the village health teams (VHT's). Hence, the number of VHT's per nurse rose from 3.7 in 1978 to 5.8 in 1981. Naturally, this ratio should be analysed more precisely to take account of the whereabouts of the nurses and VHT's. However, this growing disparity could quickly develop to such an extent that supervision of the VHT's by nurses might become increasingly difficult.

## 5. Conclusion

Since 1980 the health budget has remained steady or even begun a slight downward trend which is particularly marked in the working budget. Expenditure on personnel is increasing, and, insofar as it represents half of the total, is making increasing demands on running costs at the same time as the recurring costs of health care units are on the increase.

A gradual urbanisation of expenditure is therefore taking place, the hospitals absorbing a greater share of the budget. This trend is sure to become more marked after the inauguration of the University Hospital Centre at Niamey, which is scheduled for July 1982.

Great efforts have been made over the last few years in two areas : expansion of the infrastructure with the opening of 36 dispensaries since 1978 and the National Primary Health Care Programme (AES) which has been greatly extended, the number of VHT's having more than doubled in two years. But this rapid expansion raises the problems of financing the increase in recurrent costs arising from these new structures and of training for the necessary personnel and its supervision. The same applies to the VHT's, whose personnel numbers are increasing rapidly.

Health cover has improved, although there continues to be disparities between regions and départements, the urban populations and large urban centres being the principal beneficiaries.

As regards preventive activities, the Hygiene and Mobile Medical Service budget has shrunk continually since 1978. This affects all its activities, especially vaccination, since this is not yet carried out at the fixed health care units. Vaccination is concentrated above all in the département of Niamey and in the population centres. It is encouraging to see that the State is financing the purchase of vaccine and thereby ceasing to remain dependent solely on foreign gifts which are by nature erratic. However, the budget allocation for vaccine has not increased since 1979.

The sizeable proportion of the budgets which are absorbed by the urban areas, the stagnation of the immunisation campaign and the almost exclusively foreign financing of the National Primary Health Care Programme raises the question of how far the fundamental option of providing total health cover for all the population, wherever they are located is still a priority.

The planned increase in the national budget for the Five Year Plan (1978 - 1983) was based in large measure on revenues from uranium (27.7% in 1979). However, the price and quantity of uranium exports have dropped significantly since.\* This leaves the State with sources of revenue which are considerably below

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\* Of the 2,300 tonnes forecast, only 1,300 tonnes should be mined in 1982.

what was forecast. The development programme envisaged in the Plan will therefore have to be adjusted and the health sector will be no exception.

In this period of budgetary restraint, activities within the health field are being assessed with a view to streamlining them and increasing the use which is made of them.

On 15 April, 1982, the Head of State of Niger, Colonel Seyni Kountche, addressed the nation. He stressed the "urgent need for a period of overall consolidation of the foundations upon which it is our aim to build a sound and integrated national economy." Raising the question as to "whether we should continue to build rural dispensaries which are then forced to remain closed owing to a lack of competent staff", he went on to say "our policy in the area of health care must be first to strengthen the training component in order to adapt it and bring it into line with the rate of progress in health care infrastructure. A second Nursing School (State nurse) will be opening at Maradi in the autumn and the level of the entrance examination in the existing training establishments will be raised. As regards investment, efforts will be concentrated on raising the standard of equipment within the basic health care training establishment and refurbishing those which are in a state of total delapidation owing to a lack of adequate maintenance. The Minister of Public Health and Social Affairs should use this phase of consolidation in order to restructure the various services along sounder lines and to inject into them a new spirit of dynamism, a more realistic and pragmatic view of the development options open to us in the field of health care".\*

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\* Message addressed to the Nation by His Excellency, Colonel Seyni Kountché, Sahel hebdo, spécial 15 April, 1982, pp.12-13.

## II. PRESENT SITUATION IN THE NRL PROJECT AREA

### 1. Population

It is difficult to assess population numbers in the project area. The existing administrative data are based on the 1977 census adjusted on the basis of a 1.4% annual increase.\* This gives a figure of 103,770 Twareg and 15,000 Wodaabe in 1982. The two serial surveys which have been made within the project found a far larger number of camps than anticipated, suggesting that the overall population in the area covered by the project should be put at somewhere between 175,000 and 200,000 herders\*\* and agro-pastoralists. Comparing these two sources of information in the knowledge that the administrative data greatly underestimate the population in the area\*\*\* and making enquiries among the chiefs of the Wodaabe tribes, the figure arrived at is 150,000 Twareg, Bouzou and Arabs and 35,000 Wodaabe and Fulani, in other words, a total population of 135,000 herders.

When one attempts to estimate the population in the villages, the same difficulties are encountered. The villages include a large proportion of herders already counted within the nomadic administrative groupings. However, the non-pastoral population is on the increase, particularly in population centres to which access is easy (Tchin Tabaraden, Kao, Abalak). The data obtained from the local authorities (Tchin Tabaraden) appear to seriously underestimate the increase which has taken place over the last few years. For example, the population of Tchin Tabaraden and Kao

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\* This annual increase recorded in the administrative data is very small. The Demographic and Economic Study of the Nomad Area (SEDES, 1966) gave a rate of 1.8% for the Twareg and Bouzou nomads, 2.5% for the Twareg as a whole and 1.9% for the Fulani. Another study carried out among the Twareg in Mali (A. Hill, 1982) gives an increase of 1.8%, which suggests that the 1.4% adjustment per annum is too small.

\*\* The term "herders" refers specifically to nomadic herders.

\*\*\* Many herders report that they were never counted in 1977. Furthermore, many of them gave an under-estimate of the numbers of their tribe or families, fearing that they would have to pay more tax, which is based on the number of adults. This is particularly true of the Wodaabe.

was said to be 1,377 and 863 respectively in 1982 (source : Sous-préfecture at Tchín Tabaraden). Making a reasonable adjustment to take account of the more rapid increase within the population in the villages as compared with that in the bush, an estimate of 8,000 inhabitants is arrived at for the four villages covered by a dispensary in the district of Tchín Tabaraden and 6,000 for the five villages with a dispensary in the district of Agadez which are included in the project (Agadez town being excluded) (source : Département Planning Service, Agadez).

## 2. Health policy in the pastoral zone

The health policy described above applies to the pastoral zone, without any particular variations.

In the area covered by the project, the focus of attention has been the expansion and renovation of the dispensaries currently serving most of the main population centres.

The National Primary Health Care Programme (AES) is lagging markedly behind the agricultural areas. The approach and the method are identical to those employed in the villages. For the time being no adaptations or changes have been made in the programme as regards the pastoral zone other than to make the drugs distributed by the herder health auxiliaries free-of-charge.\* This is regarded as a temporary measure which the health authorities consider will promote the development of primary health care in the pastoral zone.

The kinds of activity carried out by the health services are peculiar to this area: the "Cure Salée" at In Gall and the Bororo festival near Abalak. These two events take place during the rainy season. The DHMMT's (EDHMM)\*\* of several départements are involved in these activities, vaccinating and giving treatment to the herders within the region.

However, the organisation of the health services, the services they provide and, to a certain extent, the means available to them

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\* In the agricultural areas, the health auxiliaries sell the drugs.

\*\* DHMMT - Département Hygiene and Mobile Medical Team.

are identical to those in the units within the agricultural zone, hence the considerable difficulties encountered in the pastoral zone and the serious obstacles to the effectiveness of the measures taken.

The authorities with responsibility for health care are aware of this, although no appropriate strategy has yet been developed. The seminar held at Tchín Tabaraden in June 1981 on the National Primary Health Care Programme in the pastoral zone was a first step towards recognition of the special characteristics of this area of the country and a first attempt to identify the problems and find fitting solutions.

### 3. Infrastructure

Nine dispensaries and two medical centres (CM) are distributed throughout the area covered by the NRL project (cf. map), which covers three districts falling within three administrative départements.\* The dispensaries are attached to three different département centres. One of these, Agadez, is situated within the actual area covered by the project. It is the headquarters of the Département Health Office (DDS) and has a CM and a département hospital centre (CHD) with 92 beds (hospital plus maternity unit). Agadez is also where the EDHMM is based. Tahoua, which is situated outside the southern limit of the project, covers the dispensaries in the district of Tchín Tabaraden. The hospital and maternity unit at Tahoua have a total of 205 beds. Finally, a dispensary at Bermo is attached to the district of Dakoro in the département of Maradi.

The administrative divisions in this region seriously complicate activities carried out over the area as a whole and make it more difficult to coordinate them. An example is that when the movements of the herder health auxiliaries have to be monitored during transhumance between Tchín Tabaraden and In Gall in order to provide them with supplies during the rainy season, activities cannot in theory be coordinated directly between the CM at Tchín Tabaraden and the medical post at In Gall. This has to be

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\* The district of Tonout is situated within the area covered by the Niger Centre-Est project, based at Zinder.

done through Tahoua and then Agadez before reaching In Gall. Contacts between the different départements must go through the DDS. Similarly, the isolation of the medical post at Tassara is reinforced by a lack of communication with the post at In Gall, owing to the fact that it belongs to the département of Tahoua, whereas In Gall comes under Agadez.

#### Geographical distribution of medical centres and dispensaries

The dispensaries and CM's within the project area are as follows (see map 2) :

Ar. Of Agadez : Agadez, Aderbissinat, Assouas, In Gall, Marendet, Tchintaborak.

Ar. of Tchín Tabaraden : Tchín Tabaraden, Abalak, Kao, Tassara.

Ar. of Dakoro : Bermo.

As they are situated in most of the population centres and markets within the project area, the health care units are distributed relatively evenly, although scattered over a wide area. Distances between the various dispensaries are considerable. In the project area, the average distance between the nearest dispensaries is 72 km and the distance between the dispensary and its reference CM is 105 km.\* If this geographical distribution is compared with the southern agricultural zone, it emerges that the distances are 3 to 5 times greater in the pastoral zone. For example, throughout the département of Maradi, the distances are 25 km and 38 km and 13 km and 17 km respectively in the district of Madarounfa.

The density of the infrastructure over the territory as a whole varies enormously. In the project area, which is 80,000 km<sup>2</sup>, there is one dispensary (and CM) for every 7,273 km<sup>2</sup>. In 1980 the density of the département of Maradi was one dispensary for every 1,135 km<sup>2</sup>, and likewise as regards the 6 agricultural districts in the département of Tahoua, where there is one centre for every 1,227 km<sup>2</sup> (excluding the district of Tchín Tabaraden). Thus, in the pastoral zone, each dispensary covers an area six times as large as in the agricultural zone.

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\* Distances calculated for the 11 dispensaries and CM's in the area.

Access to the dispensaries is provided by tracks which are passable all the year round except for a few days during the rainy season. However, the use of four-wheel-drive vehicles is a necessity.

Since the tarmac road was opened between Tahoua and In Gall, this part of the pastoral zone has become much more accessible, which is not the case as regards the pastoral zone in the départements of Zinder and Diffa.

All the CM's are equipped with a Landrover, as are all the larger or very isolated medical posts. This is also true of In Gall, Tassara and Abalak.\*

Of the 11 dispensaries and CM's in the project area, six have a vehicle. There is one vehicle for every 1.8 dispensaries, whereas in the six southern districts of Taboua, there are 1/3.1 dispensaries. The number of available vehicles in the pastoral zone is thus slightly greater than in the agricultural zone.

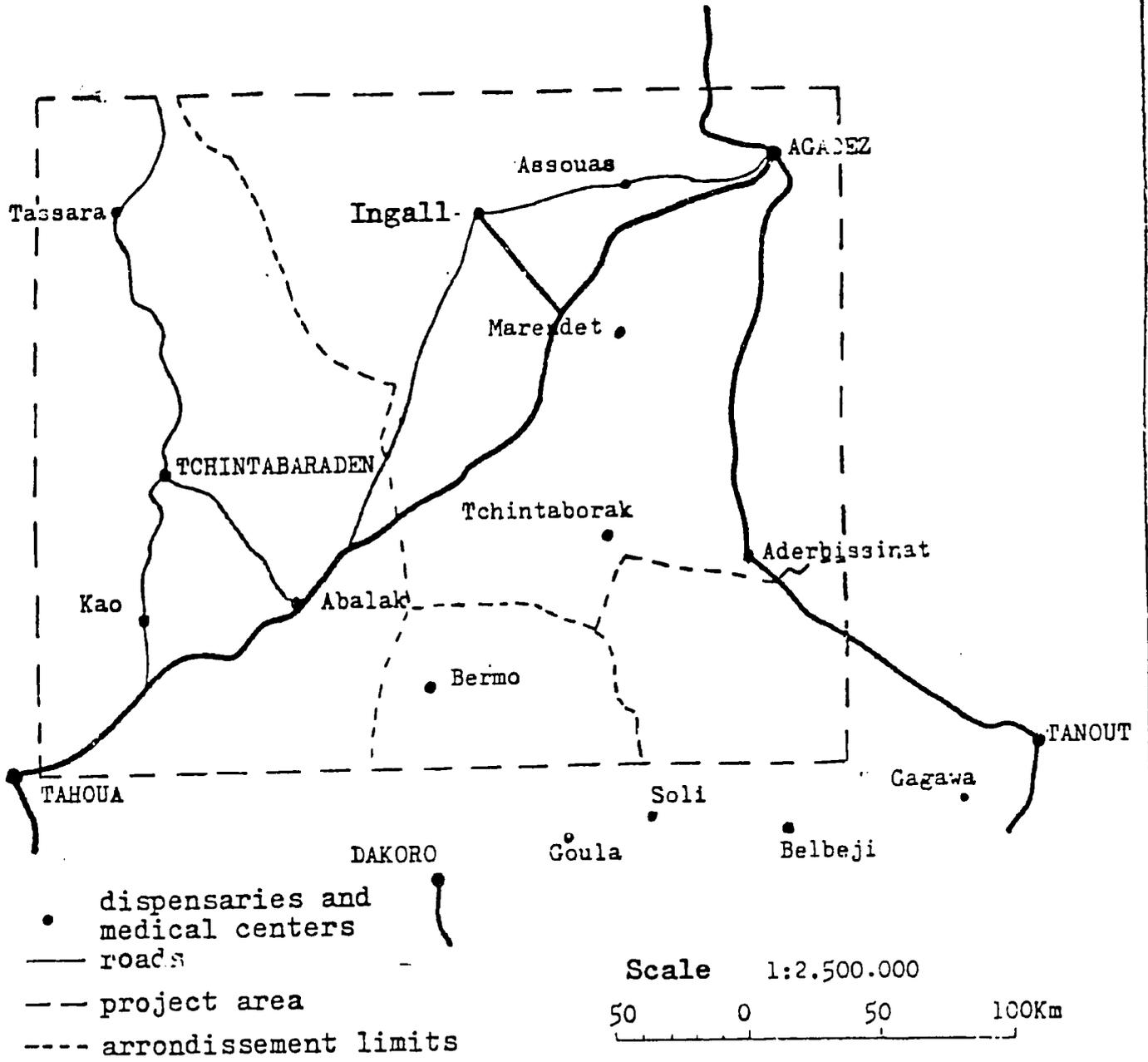
The quarterly fuel allocation is 1,000 litres of petrol for medical posts and 1,650 litres for CM's. The allocation is the same for all the regions in Niger. Thus, the CM in the small district of Keita (4,860 km<sup>2</sup>) receives the same allocation as the district of Tchén Tabaraden with an area 15 times greater (73,540 km<sup>2</sup>) and situated 160 km away from the DHC at Tahoua, whereas Keita is only 60 km away. This geographical disparity penalises the dispensaries in the pastoral zone heavily and is a definite obstacle to their operations (fewer supervision rounds, isolation, etc.).

Supplies of fuel are issued once or twice every quarter at Tahoua or Agadez, sometimes in combination with an evacuation to the DDS or when stocking up on drug supplies. But such journeys, some of which are very considerable, alone absorb a sizeable part of the allocation. Supplies distributed from a tanker to all the services in one area would certainly be beneficial and would leave more time for operations in the bush.

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\* Bermo is able to use the vehicle belonging to the Catholic mission.

Map 2 - Dispensaries and Medical Centers in the NRL zone



In dispensaries without a vehicle, it is more difficult to maintain communications, using passing vehicles or traditional means of transport (camel, horse). Radio can also be used where there is one, in other words, at the administrative posts (In Gall, Tassara and Abalak). However, it is not used systematically.

4. Health personnel

The 10 dispensaries and CM's in the project area have 19 State nurses and certified nurses, a midwife and three auxiliaries (not counting personnel at Agadez). Each dispensary has one or two unskilled staff capable of applying dressings. Of the 19 nurses and the midwife, three speak a local language (Tamasheq). Some others have to operate with the help of an interpreter or through the medium of Hawsa. None of the nurses was born in this region and most of them are from farming or urban backgrounds. Posted to a dispensary by the Ministry of Health, they spend an average of two years there and are then transferred to another post. This regular rotation system is based on the principle of distributing nurses from different backgrounds throughout the whole country so that nurses posted to very isolated regions are not forced to stay there too long.

But those frequent changes pose a threat to the continuity of activities especially the preventive (MCH) and primary health care programmes (health auxiliaries and birth attendants), which depend on the establishment of regular personal contacts between the nurse and the local population. This problem is particularly acute in the pastoral zone where it is harder for the nurses who, on the whole, do not speak the language of the herders and cannot use their own background as a point of reference since they are not of pastoral origin, to understand the herders' customs and way of life. Thus, many of the training courses for herder-health auxiliaries operate while the nurse instructor is staying there, but are then abandoned by his or her successor, who does not know the health auxiliaries and does not know how to contact them. The danger of dropping out is rendered even greater by the fact that the process of transferring nurses from one service to another is often very rapid - a matter of two or three days - which does not allow time to introduce the new nurse to the health auxiliaries.

The level of training of the nurses varies widely. Until 1982, certified nurses ("infirmiers certifiés") were trained in one year at ENICAS\* in Zinder, after two or three years of secondary education. The training period now lasts two years.

State nurses ("infirmiers diplômés") are trained at ENSP\*\* in Niamey, in a course which lasts three years. All candidates have passed their BEPC\*\*\* and some of them have spent several years at the "lycée". As a rule, state nurses are appointed to responsible posts (the larger CM's, medical posts and dispensaries).

## 5. Health care activities and health cover

### 5.1 Curative activities

The number of consultations registered in the districts of Tchintabaraden and Agadez (Agadez town excepted) in 1980 was 173,000 and 165,000 respectively, that is, 1.6 and 2 visits per inhabitant. These figures correspond to the national average of 1.6 or are even slightly lower.\*\*\*\* The chief reasons for consultations were fever, cough, diarrhoea, conjunctivitis, colds and throat infections.

Although the volume of activity corresponds to the national average, this does not in any way reflect the true cover of the population which inhabits the pastoral zone. As indicated below, these figures are much more representative of the population which lives in the villages where the dispensaries are located. Two surveys conducted in the districts of Tchintabaraden provide a better picture of the true situation.

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\* Ecole Nationale d'Infirmiers et d'Assistants Sociaux (National School for Certified Nurses and Social Aides).

\*\* Ecole Nationale de Santé Publique (National School of Public Health)

\*\*\* BEPC = Brevet d'études du premier cycle (approx. G.C.E. "O" Level).

\*\*\*\* The population figures used are taken from administrative data, which underestimate the population in the pastoral zone, whence the optimistic figure.

During the nutrition and health survey conducted in a group of Wodaabe herders over a period of 1 year (L. Loutan, 1982), an average 298 herders were questioned every three months on the number of times they had visited the dispensary, the average being 8%. There was no clear evidence of any seasonal variation. It was especially the adults who attended for consultations (12% of the herders aged 15 years or over as compared with 45% of the children below 5 years of age). The reasons for consultations, beginning with the most common, were osteoarticular pains, fever and skin complaints. For example in February, although 29% of the total population took to bed on account of a cough, only 2% attended the dispensary for this reason. The dispensaries within the project area are thus very seldom attended by the Wodaabe herders.

Another survey conducted in three dispensaries situated within the project area (at Tchín Tabaraden, Abalak and Kao) was concerned with the origin of those attending for consultations. Records were kept for 9 market days or days following market days and 5 ordinary days, the total being 800 consultations. Each new or returning patient was asked where he had been living the day before visiting the dispensary. The distance was then calculated on the map. The results are summarised in Tables 1 and 2.

Table 1 : The origin of new patients on market days in the district of Tchín Tabaraden, 1981.

Distance from Village in km	0-5	5-10	10-20	20-40	>40	Total from outside village	Total
Number	174	6	15	28	58	193	367
%	47%	1.6%	4%	7.6%	15.8%	53%	100%

Table 2 : The origin of new patients on ordinary days in the district of Tchín Tabaraden, 1981.

Distance from Village in km	0-5	5-10	10-20	20-40	>40	Total from outside village	Total
Number	106	1	2	2	6	10	127
%	83.5%	1%	1.5%	1.5%	4.5%	8%	100%

Of 367 new patients on market days or the day following, 53% came from the bush, and 47% were living in the village where the dispensary was located. Three quarters of the patients from the bush were living more than 20 km from the dispensary and very few were living less than 10 km away (11%).

On ordinary days in contrast, the proportion of patients from outside the village fell to 16.5%. These figures clearly show that the herders visit dispensaries above all on market days. On ordinary days, the dispensary serves the population of the villages almost exclusively.

The proportion of Twareg herders who attended the dispensary for consultation (73%) is markedly higher than that found among the Wodaabe and other Fulani (22%). Eighty percent of patients were adults ( $\geq 15$  years of age) and the proportion of men and women was approximately equal.

It is interesting to compare these results with findings in villages within the agricultural zone. A similar survey was conducted at Ouallam, in the Département of Niamey (J.M. Lamotte : 1978). Table 3 gives a summary of the findings.

Table 3 : The origin of new patients - Ouallam, December 1977

Distance in km	0-5	5-10	>10	Total
Number	2,916	188	136	3,240
%	90%	5.8%	4.2%	100%
Population	5,200	6,800	40,000	52,000
Consultations per day per 100 inhabitants	1.87	0.09	0.011	

Even in the agricultural zone, where the distance between villages is smaller, 90% of the new patients travelled less than 5 km to reach the dispensary. At a distance of over 5 km, the attraction of the dispensary is less strong, although over 80% to 90% of the population within the district were living there. The distance between the medical centre and the homes of the patients plays an essential role in the use which is made of health services.

In the pastoral zone, the limiting factor of distance plays an even greater role, so much so that the dispensary serves the local village population only on 5 to 6 days out of 7. It is only on market day that the herders visit the dispensary, although even then they account for no more than half of the new patients.

The distances between the camps and the centres of population are always large. In fact, the herders do not live in the immediate vicinity of the villages. The reasons for this are simple. Firstly, the grazing land surrounding the villages is used by the herders who live in the villages and, furthermore, the villages are very often surrounded by fields, which means that the herders cannot use these areas until the harvest is over, and lastly, the boreholes situated in the villages are

closed until January or February. When they are opened, the pasture land in the neighbourhood of the village has already been grazed.

Table 4 shows the positions of 52 Wodaabe camps in the course of 1 year.

Table 4 : The positions of 52 Wodaabe camps in relation to the nearest dispensary.

Distance km/month	< 10	10-20	20-40	> 40	Total
November	0(0%)	1(2%)	44(85%)	7(14%)	52 (100%)
February	0(0%)	5(10%)	40(77%)	7(14%)	52 (100%)
May	0(0%)	11(21%)	26(50%)	15(29%)	52 (100%)
September	0(0%)	8(15%)	42(80%)	2(4%)	52 (100%)

No camp is less than 10 km away from a dispensary. The majority are situated at a distance of between 20 and 40 km (50%-85%). It is easy to understand why the herders seldom visit the dispensaries when one considers the distances which have to be covered. In addition, it is not easy for the herder to get away. The herd requires daily attention.

It is also important to know which persons attend the dispensary for consultation. The survey conducted at three dispensaries in the district of Tchín Tabaraden shows that these are principally adults (see Table 5).

Table 5 : Distribution according to age of patients from the bush attending for consultation on market days.

Patients/Age	0-4	5-14	15	Total
New patients	20(10%)	20(10%)	154(80%)	194 (85%)
Returning patients	2(6%)	1(3%)	31(91%)	34 (15%)
Total	22(10%)	21(9%)	185(81%)	228 (100%)

On 8 market days, with 555 consultations recorded, 80% of new patients from outside the village were over 15 years of age. Only 10% of children below five years of age visited the dispensary, whereas it is they who are the most at risk and who should have priority access to health care units.

These observations indicate that the actual cover provided by the dispensaries is very limited and is restricted to the population of villages where there is a dispensary rather than embracing the population within the project area too.

For purposes of comparison, the ratios generally employed as regards the pastoral zone covered by the project are listed below.

<u>Health cover</u>	<u>Pastoral zone covered by NAL Project 1981</u>	<u>Niger (1981)</u>
- area covered by project	80,000 km <sup>2</sup>	1,267,000 km <sup>2</sup>
- population*	185,000	5,687,000
- number of health care units	11	233
- number of inhabitants per health care unit (CM disp.)	1/16,800	1/24,400
- population in villages with health care units *	14,000	
- ratio of population in villages with health care units/total population *	7.6%	
- number of inhabitants per nurse	1/10,300	1/3,822

\* Agadez town is not included.

(Contin.)

<u>Health cover</u>	<u>Pastoral zone covered by NRL Project 1981</u>	<u>Niger (1981)</u>
- number of inhabitants per trained midwife *	1/185,000	1/36,930
- number of health auxilia- ries and birth attendants *	77	8,561
- number of herder-health auxiliaries and birth attendants *	34	
- number of inhabitants per member of VHT *	1/2,400	1/600
- number of inhabitants per member of herder VHT *	1/5,400	
- population less than 5 km from a health care unit	<10%	30%

The use of vehicles

Six<sup>\*\*</sup> of the eleven health care units within the project zone are equipped with a Landrover. Their petrol allocation is admittedly limited, but it is nevertheless adequate to significantly extend the area covered by the medical post.

Since the necessary information was not available for a precise description of the utilisation of vehicles over a period of 1 year, the following observations are based on analysis of a three-month period with respect to three medical posts within the district of Tchén Tabaraden and a six-month period for the medical post of In Gall, i.e. a total of 5 three-month dispensary periods.

Table 6 illustrates the use of vehicles in 4 medical posts within the pastoral zone (an average of 5 three-month dispensary periods).

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\* Agadez town is not included.

\*\* Including the vehicle used by the dispensary at Bermo, which belongs to the Catholic Mission.

Table 6 : Average use of vehicles per three-month period at 4 medical posts in the pastoral zone - (Tchin Tabaraden, Abalak, Tillia, In Gall).

Evacuation from bush to dispensary km	(n)	Evacuation from dispensary to CM-DDS km	(n)	Total km covered	% km for evacuation
1672	(17)	1,610	(4)	4,604	71%

Source : Quarterly Reports from the CM at Tchin Tabaraden and the medical post at In Gall.

65-78% of the kilometres covered each quarter stem from evacuations. The average distance for an evacuation in the bush (both ways) is 100 km (calculated on the basis of 83 evacuations). The average cost of an evacuation is 4,375 CFA, which is solely the cost of petrol.\* It is unfortunately impossible to calculate the cost/benefit ratio of such operations, as the reason for the evacuation (sickness or accident) is not given in the reports consulted. It would be most useful if it were possible to calculate the "effectiveness" of these costs and see how far they coincide with the observations made in a survey of the mobile medical services in Botswana (O. Gish and E. Walker, 1977). The survey considered the cost and the result of each operation and examined the probable outcome of the illness if the health care services had not been involved and the probable effectiveness of the diagnosis and treatment provided. Three types of operation were compared : an aerial mobile health service ("flying doctors"), a mobile land service (Landrover) and fixed units (dispensaries). This survey shows that operations carried out by the mobile land health team cost eight times more than the care provided at the dispensaries for the same degree of effectiveness; the "flying doctor" system was 14 times more expensive.

If a mobile health service is to be effective, its involvement must radically alter the prognosis of the complaint in question

\* This calculation is based on a price of 175 CFA per litre of petrol and a consumption rate of 25 litres/100 km in the bush.

or else provide treatment once only. However, such situations are rare. The illness or accident concerned frequently require protracted care or else the complaint is not sufficiently serious for a mobile team to be called out. An analysis of this question in the pastoral zone would make it possible to reach a better assessment of the real impact and cost of operations of the kind mentioned above and to judge how to reallocate priorities in the use of vehicles. For instance, at In Gall during the first quarter of 1982, 1,535 km were covered during 10 curative expeditions into the bush, which works out at 6,650 CFA in petrol per expedition, that is for each person treated. During the same quarter, 951 km were covered on two visits to 15 herder-health auxiliaries. Visits to herder-health auxiliaries worked out at 1,385 CFA each, that is 4.8 times less expensive than an evacuation. However, a visit to a health auxiliary is not a matter for the health auxiliary alone but is also quantified by the number of herders benefiting from the care the auxiliary provides. Although based on a small amount of data, this shows nevertheless that it is essential to establish priorities as regards the use of available resources, especially if these are limited.

## 5.2 Preventive activities

At the present moment, there are three types of preventive care :

- chloroquinization campaigns
- Mother and Child Care (PMI) activities
- vaccination

### 5.2.1 Chloroquinization campaigns

It is planned to organise chloroquinization each year for children and pregnant women during the rainy season. The success of this kind of programme organised from the dispensaries naturally depends upon the nurse and the availability of the required drugs. Often, although intended to last two months, they are curtailed or even terminated owing to a lack of funds or faulty organisation. In the area covered by the project, the chloroquinization campaigns only cover the towns. However, chloroquinization is (or was) carried out at Bermo and in the district of Agadez during the rainy season through the medium of the health auxiliaries (Bermo) or herder "chloroquinization agents" trained for this purpose (Agadez).

5.2.2 Maternal and child care (MCC)

At present the health services aim to cater for the needs of women and small children chiefly through the activities of maternal and child care (MCC) and the traditional birth attendants.

Maternal and child care units (MCC)

Most dispensaries usually set aside two half-days per week for MCC curative and preventive activities. These consist of pre-natal consultations with a view to detecting complications of pregnancy, and consultations for infants, at which the children are weighed and advice is given to the mothers. Some nurses organise health and nutrition consultations with demonstrations on how to prepare baby food and a properly balanced diet. Home visits are also made, usually by an "aide assistante" or the social worker in large population centres.

Since 1982 the dispensaries at Tchín Tabaraden and Abalak have carried out a certain number of vaccinations in their respective localities within the context of MCC. A limited number of vaccinations (measles and DPT) have been given to children aged 6 months to 3 years at clinics held on Saturdays. The medical post is equipped with a refrigerator. Unfortunately this programme was very quickly abandoned owing to the lack of available vaccine.

The regular implementation and success of these activities naturally depends on the competence and dynamism of the nurse in charge. Some MCC units function well while others are seldom visited by the women at all.

In the area covered by the project, there are two maternal units, one at Agadez and the other at Tchín Tabaraden. Each unit has a midwife ("sage-femme") or midwives (Agadez).

In the pastoral zone, language is a serious problem. Of the 13 male and female nurses and 3 health auxiliaries in service within the area covered by the project, only 3 speak Tamasheq. However, in the MCC context, the ability to speak Tamasheq

and Fulfulde, which are the languages used by the herders, is an essential requirement. There is also the fact that the number of nurses is small and in many dispensaries the nurse is forced to provide maternal and child care himself or herself.

Women are infinitely preferable for this type of work. The fact of being a man is only an additional obstacle which has to be overcome.

### Birth attendants ("matrones")

In Niger, the National Primary Health Care Programme is based on the concept of the village health team (VHT). "A village health team is a health unit in the village consisting of at least two health auxiliaries ("secouristes") and two birth attendants" ("matrones").\*

The birth attendant is "a traditional midwife ("accoucheuse") of mature years, born in the village, working on a voluntary basis, chosen and accepted by the people. She is trained to:

- detect pregnancy
- monitor pregnancy
- provide care to the mother and new-born infant
- refer pregnancies at risk
- provide advice about hygiene
- promote health education
- provide nutritional guidance
- provide information on family planning
- provide information on problems related to infertility."\*

The training and subsequent supervision of the birth attendants is usually carried out by the nurse at the dispensary to which he or she is attached or by the trained midwife ("sage-femme"), if there is one.

In the pastoral zone, and especially in the area covered by the project, a number of birth attendants have been trained, but most of them live in the villages.

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\* Auto-Encadrement Sanitaire, "Méthodes de formation des agents de santé de village", (National Primary Health Care Programme, "Methods of Training Village Health Workers"). Republic of Niger.

Of the 25 birth attendants trained in the area covered by the project, only 2 live in the bush (in a camp of Twareg agro-pastoralists north of Kao).

Traditional habits still largely prevail and most women give birth at home. In 1981 for instance, the 3 birth attendants ("matrones") in the In Gall area helped with 240 deliveries, while 32 deliveries took place at the dispensary.\* Whereas the birth attendants play a far from negligible role in the larger population centres as regards the supervision of deliveries, their influence is only felt in the area where they are resident and does not reach as far as the surrounding pastoral population.

MCC activities and the activities of the birth attendants are concentrated in those places covered by the project which have a dispensary and do not therefore cover the herders. There are serious limitations as regards the expansion of this kind of activity with respect to the pastoral population, stemming from the lack of female staff, linguistic differences and the rare occasions when women coming from the bush meet nursing staff. Indeed, the women journey to market less than the men. A clear distinction should, furthermore, be drawn in this respect between the Wodaabe and the Twareg. The Wodaabe occasionally go to market accompanied only by their new-born infant. It is rare for a child of 3-4 years old to go to market. In traditional Twareg society, and especially among the imageren (nobles), ineslemen (marabout) and imrad (vassals) tribes, women very seldom, if ever, go to market. This activity is limited almost exclusively to the wives of blacksmiths (inaden) and former servants (eklan). Contacts with the health services are therefore rare and if a Twareg woman comes for a consultation, she comes accompanied by her husband.

If the pastoral population are to benefit from health care, and women are to have access to it, the services must be taken out of the population centres and a programme will have to be designed which takes account of the prevailing custom and practices in this society.

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\* Source : Quarterly reports from the medical station at In Gall, 1981.

5.2.3 Vaccination : The Département Hygiene and Mobile Medicine Team  
(EDHMM)

Each département possesses a service of this type which is equipped with four-wheel-drive vehicles and operates throughout the territory within the département. Its functions are :

- to provide assistance in cases of epidemics
- to assume responsibility for all vaccinations
- to provide health care at all large public meetings
- to provide curative and preventive care for venereal and skin diseases
- to detect and treat leprosy.

For many years the EDHMM has travelled to In Gall for the "Cure Salée" in the month of August and undertaken expeditions into the bush to the main camps in order to vaccinate and treat the herders. The campaign, which is organised from Niamey, gathers together the EDHMM's from Agadez, Diffa, Niamey and Zinder. Whereas previously the teams stayed for one or two months, their operations have been limited to periods of two weeks over the last three years. Since 1977 the EDHMM at Maradi has provided health cover for the "Bororo Festival", which is a large gathering of Wodaabe organised by the Government services. This meeting takes place at the beginning of September. For two weeks, vaccinations and other forms of health care are provided for the herders.

Each year vaccination campaigns are organised. They are mainly aimed at the schools and towns within the area.

In the district of Tchín Tabaraden, the vaccination campaigns follow a precise itinerary (towns and wells). From the wells, the teams visit the camps.

At Agadez, the EDHMM seems to operate more through the important chiefs, who place a guide at its disposal who indicates where the camps are. The vaccinations carried out within the project area which falls within the district of Agadez are given in Table 7.

Table 7 : Vaccinations carried out in 1980 and 1981 in the southern portion of the district of Agadez (excluding the town itself) and the proportion of the population covered

Vaccines	1980		1981	
	Doses	%	Doses	%
Measles	4,091	9	868	19
Meningitis	4,306	9.5	8,111	18
BCG	2,136	4.7	1,386	3

Source : EDHMM at Agadez

The population in this area is estimated to be 45,000 herders. Whereas in 1980 the 9% measles vaccination covered the number of yearly births (5%), it fell far below it in 1982 (1.9%). The same is true of the BCG vaccine. As regards meningitis vaccine, the goal of reaching 15% of the population appears according to these data to have been achieved in 1981. Figures for the district of Tchén Tabaraden were unfortunately unobtainable.

Side by side with the vaccination campaigns, localised measures are organised, for example, during outbreaks of measles epidemics.

From these figures it is difficult to obtain an idea of the true vaccination cover with respect to the population at risk, in view of the fact that re-vaccinations are always possible. Two surveys provide a better view of the situation.

In 1978, a survey conducted by the National Antituberculosis Centre (NCAT) (J.L. Pestiaux, 1978), observed a total cover of 59% of children vaccinated (BCG). In the schools, 90% of the children were vaccinated. In the département of Taboua, 40% of the children below 15 years of age bore vaccination scars.

110 herder children were examined during this survey, 21% of whom bore scars. It should, however, be noted that, in the pastoral zone, the team carrying out the survey followed much-used access roads and that the sample of herder children examined was selected

at the wells bordering them. In all probability the 21% coverage noted is higher than it is in reality, as it is these water points which are located near the major tracks, that the vaccination teams visit most often.

The nutrition and health survey conducted by the NRL (L. Loutan, 1982) also provides an idea of vaccination cover. Out of all the Wodaabe herders over five years of age who were examined, only 15% bore a vaccination scar from a vaccination carried out by the health services. The percentage is even lower where children are concerned. Only 3% (2 out of 66) of the children below 5 years of age and 5% (7 out of 130) of the children below 10 years of age bore vaccination scars.

These two surveys reveal very restricted vaccination cover. The scattered population and the difficulties involved in finding the camps undoubtedly constitute a major obstacle to the expansion of vaccination cover, but these are not the only reasons. The active participation of the populations concerned and the re-organisation of the operational strategy of the vaccination teams could certainly increase the effectiveness of the vaccination campaigns.

### 5.3 The National Primary Health Care Programme (Auto-encadrement sanitaire - AES)

The VHT's comprise health auxiliaries and birth attendants recruited from the local people and working on a voluntary basis. After a week's training at the medical centre, the health auxiliary is able to treat fever, simple diarrhoea, conjunctivitis, wounds and sores. The auxiliary is provided with a kit containing four kinds of tablets (aspirin, chloroquine, charcoal, ganidan), eye ointment and bandages.

At present in the pastoral zone medicines are obtained at the dispensary and distributed free-of-charge. The medical knowledge of the health auxiliaries is very limited. All serious cases have to be evacuated to the dispensary or medical centre.

At present, most of the VHT's trained in the pastoral zone live in the villages. However, the amount of herder-health auxiliaries

who have been trained over the past few years has greatly increased. They are attached to the following medical posts :

- In Gall (District of Agadez)	15 health auxiliaries
- Ichintaborak (District of Agadez)	1 health auxiliary
- Bermo (District of Dakoro)	5 health auxiliaries
- Abalak (District of Tchín Tabaraden)	2 health auxiliaries
- Tchín Tabaraden (District of Tchín Tabaraden)	9 health auxiliaries

In some villages without a dispensary or VHT, the leaders take a ten-day training course at the medical centre. They are given a kit similar to the one the health auxiliaries are provided with, and are authorised to deliver health care to the pupils at the school.

A more detailed analysis of the National Primary Health Care Programme in the pastoral zone is provided below.

## 6. Conclusion

The health policy pursued by the Government of Niger applies to the country as a whole, and it makes small allowance for the individual aspects of the different regions. At least this is the case as regards the pastoral zone, where the approach adopted by the health services is identical to that employed in the agricultural zone. It is a classical approach according to which health care is "delivered" to the population concerned. There is no doubt that it is beneficial, but the population is not actively involved in it.

This observation is valid both as regards the health care delivered by the dispensaries and the EDHMM's.

These approaches and methods of organising health care in the dispensaries are already showing that they have serious limitations in areas with a high population density, such as the agricultural zone, for instance. 90% of the patients attending for consultation come from a distance of less than 5 km away. Consequently, the dispensaries actually cover only 30% of the rural population who live less than 5 km from the health care units.

In the pastoral zone, the geographical characteristics, the geographical distribution of the population and its nomadic way of life, considerably reduce the accessibility of the health services. The result of this is that the dispensary is actually used only once a week, on market day.

However, in the pastoral zone covered by the NRL project, the Government has made a serious effort to expand the existing infrastructure. Almost every village or market of any size is equipped with a dispensary, which together make up a relatively evenly distributed, although widely dispersed, health care network in this region.

Although at first sight health cover appears to be satisfactory or even superior to that found in the rest of the country, when the number of villages with a dispensary is calculated in relation to the total number of villages, it becomes evident that health cover with respect to the pastoral peoples who live in the bush is very scanty. On the other hand, the population living in villages with a dispensary and their adjacent areas (up to 5 km) represent less than 10% of the total population living in this area (as against 30% in the agricultural zone).

The other indicators of the health cover provided for the people are equally poor, vaccination cover in particular. The PMI programmes virtually reach only villages with a dispensary and the proportion of births which are medically supervised is negligible.

The National Primary Health Care Programme, faced with problems of population dispersal and the remoteness and nomadic ways of the herders, has not experienced the rapid development witnessed in the agricultural zone. Whilst it is true to say that the proportion of dispensaries equipped with a vehicle is slightly greater than that in the agricultural zone, the fuel allocation is the same, even though the distances to be covered are far greater. This results in a smaller number of expeditions, three quarters of which are evacuations which are costly in relation to the benefit derived from them by the people.

The vaccination campaigns come up against the same problems. Added to this there is the fact that since 1978 the budget of the EDHMM's has continually declined and the fund for the purchase of vaccine has been frozen since 1979. This is all the more keenly felt in the pastoral zone, insofar as the cost of operations has increased in relation to the agricultural zone on account of the low population density and the large distances which have to be covered.

The situation in the area covered by the project is of a pastoral people with little access to health care, even though the services to deliver it already exist. Efforts will have to concentrate not on the actual infrastructure but on the way it operates and possible ways and means of making it accessible so that the herders can use it.

In this period of limited economic expansion through which Niger is passing and which is characterised by a fall in revenue from uranium, and consequently by a reduction in available resources, existing structures and the available means will have to be used more effectively. It would seem perfectly feasible to extend the field of action of the health care units in this region of Niger at an acceptable cost. It is less a question of increasing the means of action than of coordinating and integrating some of the measures which have already been undertaken, of training existing health personnel in the area, of getting the herders to participate and develop a sense of responsibility as regards health care via the National Primary Health Care Programme.

### III THE HEALTH NEEDS OF THE HERDERS

It has been seen that despite an established infrastructure and a certain number of measures implemented in the bush, the health coverage of the herders remains low and the utilisation of health units minimal. This situation makes it necessary to ask two questions :

- What are the health needs of the herders and the type of health care they require?
- How can health care be made accessible?

#### 1. The context

The pastoral zone has four seasons : a short rainy season from July to the end of August; a short hot season from September to the end of October; a cold season from November to February and a hot season from March to June.

The irregular and low rainfall makes this region unsuitable for cultivation. Only the breeding of livestock is feasible and is practised on a transhumant basis in which the men and their herds must move according to the availability of pastures and water.

Most of the herders in the pastoral zone are Twareg and Fulani. In the north there are also Arab herders and in the east of the country Tubu herders. Herders, whose number was estimated at more than 750,000 in Niger in 1979 (Five Year Plan), represent 14% of the country's population and are distributed over large areas, hence the low population density (2.5 inhabitants/km<sup>2</sup>).

The extreme climatic variations registered in the course of a year profoundly modify the environment and mark the lives of the men and their herds by the constraints which they impose. As a result, the movements, the work and the diet of the herders vary greatly from one season to another.

2. The movements

The movements of the transhumance during the rainy season vary from one community of herders to another. Although the general tendency is to go from south to north, it is far from being the rule for everyone. At the same time as they seek better pastures for their animals, herders will follow preferred routes year after year. As soon as the rains stop, they return to the regions where they habitually spend the dry season.

Should the pasture-lands prove to be inadequate, they can then change places. However, each community has a region to which it is attached and to which it returns each year.

The changing of camp sites with respect to the wells is primarily conditioned by their surrounding pastures. During the rainy season, the camps are sited near the ponds which constitute the source of water supply for both man and his livestock.

During the dry season, the water is drawn from the wells and the camps are set up a few kilometers away. As the pasture-lands near the wells disappear, having been grazed on by the animals, the camps are placed further away from the wells. This centrifugal movement is particularly noticeable with the Wodaabe herders. In May, 60% of the camps are situated at more than 10 km, and some as much as 20 km, away from the wells. Consequently, the camps and communities become far more scattered at the end of the dry season.

3. The work - the activities

A herd needs to be watched over and attended to every day. The herder cannot go away and leave his animals for they must have food and water. These constraints are particularly strong in the months from March to June. During this period, the heat and the distance of the camps from the wells place a heavy burden on the herders who have to ensure the regular watering of the animals. The animals are thirsty and the task of drawing water, therefore, becomes more demanding; shallow sand wells must be bored and regularly cleaned out. The women and children are responsible for supplying the camp with water.

- fever (presumably malaria)
- diarrhoeas
- pulmonary diseases
- conjunctivitis
- Vitamin A deficiency.

At the same time epidemiological surveys should be undertaken in the pastoral zone to determine to what extent measles, meningitis and tetanus are prevalent diseases against which measures should be taken.

Health problems which the herders feel are important and which reduce their working capacity are:

- fever (malaria)
- pulmonary diseases
- rhumatic complaints
- gonorrhoea (affects particularly the Wodaabes)
- Vitamin A deficiency.

Among the diseases associated with the livestock, tuberculosis, brucellosis, anthrax, salmonellosis and rickettsioses should also be the object of preliminary epidemiological surveys with a view to their control. These surveys should be conducted for both the animal and the human population in order to define the existing inter-relationships.

Finally, the programme will address itself more specifically to the women in order to be able to:

- ensure hygienic conditions of childbirth
- promote adequate health care for newborns
- reduce the nutritional stress of the children towards the end of the dry season.

This list has been deliberately limited and highly oriented towards curative measures. This choice was guided, on the one hand, by the observation that prophylactic measures are extremely difficult to apply under the conditions prevailing in the pastoral zone and would most probably give disappointing results, and on the other hand, by the wish to meet and satisfy the demands of the herders, i.e. to have access to basic health care.

This "inhibitory" effect obtained from a purely milk diet, and attributed by some to the low PABA (para-aminobenzoic acid) content of milk, may also operate in man (F. Hawking : 1953).

On the other hand, as the lives of the men and the animals are closely linked and as they share certain common diseases, it is possible that a favourable adaptation gradually develops, drawing benefit from the biological defense mechanisms transmitted through the milk.

A study made among Masai herders showed an "inhibitory" effect of milk on the development of amoebae due to the low iron content of milk and to its partially saturated binding proteins which compete with the amoebae for the iron in the intestines (M.J. Murray, 1980).

If a reduction in the quantity of milk available for the diet of the herders were to occur as a result of their impoverishment or subsequent to the development of a livestock policy exclusively aimed at meat production, this would probably have serious consequences on the health of the herders.

4. The selection of measures to be applied

The needs are many but the capacity of the existing services to meet them is limited, hence the necessity of concentrating efforts on specific objectives. In the pastoral zone where the health coverage is poor, it is essential to satisfy first of all the priority health requirements of the herders, that is to say common diseases known to endanger the life of children, diseases affecting the working capacity of the adults and those diseases considered to be important by the herders themselves. The selection of the diseases against which measures would be taken will be based on their frequency and on their potential consequences as well as on the means available to combat them. Among the priority health problems of children, the ones selected are:

5. Nutrition

Seasonal changes in the environment, the diet and the activities of the herders, together with variations in disease prevalence, have repercussions on the nutritional status of the herders. Towards the end of the dry season, loss of weight in adults and increased malnutrition in children are observed.

Between the months of February and May men lose, on average, 3.1 kg and women 2.4 kg. Some lose as much as 8 kg in three months, i.e. 13% of their body weight. Recuperation is slow, extending from the rainy season until the end of the cold season (February).

The growth of children under 5 years of age is also affected. Although the mean gain in weight for a three-month period is 847 grams for 9 months out of 12, there is a weight loss of 113 grams for the three-month period between February and May. As a result of this, acute malnutrition (weight/height is less than 80% of the standard) rises from 7% to 17%. Clearly, the critical period comes towards the end of the dry season (April-June) and lasts until the new pastures have grown and a sufficient production of milk has been reached.

Milk plays an essential role in the nutrition of the herders by providing good quality proteins, vitamins and fats. It also seems to increase the immunological defenses of those who, like the herders, drink it in large quantities. It is very possible that milk plays an important role during the rainy season. Indeed, during the 10 months of the dry season when mosquitos are not present, the herders receive no immunogenic stimulation from repeated infections with Plasmodium and they enter the following rainy season with greatly diminished defense capacities. They have consequently become more susceptible to an attack of malaria. However, it is possible that this lowered resistance to Plasmodium is counterbalanced by the beneficial effect obtained from the consumption of milk which is particularly high in this season. It has, in fact, been shown in monkeys that milk reduces the multiplication of the parasite (B.G. Maegraith, 1952).

through the consumption of meat : taeniasis (Taenia saginata), toxoplasmosis; or through infected insect vectors : rickettsioses. To this should be added rabies and foot-and-mouth disease.

Epidemiological data being scarce and the herders being little inclined to visit the health services, it is difficult to estimate the prevalence of these different diseases. Epidemiological surveys in the pastoral zone would probably indicate that these diseases are not rare. For instance, a high proportion of the cases of non-pulmonary tuberculosis (of the lymphatic glands or of the bones) seen at the Antituberculosis Centres (CAT) is found in herders. On the other hand, a survey made of persons in contact with the livestock (i.e. personnel from the ranches, slaughter houses and OLANI dairy) in the Department of Niamey, showed that over 10% were serologically positive for brucellosis and that 13% of the ranch animals were positive. Such observations should stimulate the Livestock and Health Services to take joint measures which could be coordinated by the ILP project.

The herders are hard hit by disease. Indeed, the system of production in the pastoral zone relies essentially on the working capacity of the herders, and on this work depends the survival, the health and the development of the herds. Apart from the rare exception, each member of the production unit has a specific and necessary function. In contrast with agriculture which leaves the farmer certain periods of rest, the herd requires daily attention and chores. When a member of a family falls sick, not only must his work be done by someone else, but the functioning of the family as a whole can also be seriously disrupted (e.g. inability to leave their camp site and move with the others, impossibility of gaining access to the good pasture-lands, etc.) and the productivity of the herd reduced. This is felt all the more strongly the more the family size is small and the tasks of each family member numerous. The high rate of working incapacity observed in a Wodabe population sample is most revealing of the heavy price disease exacts from the herders and of the existing health needs.

A longitudinal survey conducted for a period of one year under the auspices of the Niger Range and Livestock Project has clearly shown the importance of the seasonal factor on the distribution of common diseases.<sup>1</sup> With the appearance of mosquitos during the rainy season and the months that follow, fever is the predominant complaint. In August, fever represents 55% of reported illness in children under 5 years of age. Malaria is rare during the rest of the year, for as soon as the surface waters disappear, so do the mosquitos. In the cold season one observes a recrudescence of pulmonary diseases (59% of the children cough) related to the small amount of protection the herders have against the cold. With the heat and the low availability of water during the months from March to June, the prevalence of diarrhoea increases (44% in May compared to 12% in November). Skin diseases and conjunctivitis are present throughout the dry season. Measles occur in relatively limited epidemics. Thus only 15% of the children under 10 years of age are reported by their parents as having contracted the disease.

The various diseases contracted by the adults present a similar variation in prevalence, and the proportion of men and women of working age (12 years and over) confined to bed due to illness varies between 25% and 45% per three-month period. Working incapacity reaches its peak during the cold season and is mainly due to pulmonary diseases.

Night blindness, or Vitamin A deficiency, appears towards the end of the dry season. It affects primarily pregnant or lactating women. It is linked to the low concentration of Vitamin A in cow's milk during this season. Close contact with the animals increases the risks of contracting certain diseases. Transmission can occur through direct contact : anthrax, leptospirosis, tetanus; through the consumption of milk : tuberculosis, brucellosis, salmonellosis, Q fever;

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\* Refer to the survey made of 54 Wodaabe families visited at three-month intervals over a period of one year (1980-1981) : "Health and Nutrition in a Group of Wodaabe (Bororo) Herders in Central Niger", L. Loutan 1982.

the herders comes from the sale of their animals which, in this season, are undernourished and emaciated. Their selling price on the markets is greatly reduced. The herders thus find themselves in the unfavourable situation of having to sell their animals at a low price in order to buy cereals at a high price.

Meat is not a staple food of the herders. It is eaten only occasionally, in particular during the rainy season at celebrations for marriages and naming ceremonies. Meat consumption also increases towards the end of the dry season when the animals are sick or exhausted. The herders become obliged to slaughter some of the animals before they die so as not to lose the meat.

6. The diseases

Epidemiological data regarding the herders are practically inexistent and this had led to a number of preconceived and erroneous ideas regarding their health and nutrition. Although their mobility protects them against certain diseases related to crowded living conditions and permanent dwellings, they are nevertheless affected by epidemics. The transmission of diseases from one camp to another takes place at meeting points such as the wells or the markets. Measles and whooping cough regularly affect the children. Only some years ago, smallpox was still so well known that the herders practised traditional variolation; and the spread of cholera into West Africa in 1970 and 1971 did not spare the herders.

However, the fact that the camps are scattered probably delays and limits the progression of epidemics, particularly those, such as meningitis and measles, which are related to a certain seasonal environment. Nevertheless, the gradual opening up of the region, as a result of the development of the road network, and the increase in seasonal emigration towards the countries on the Coast have accelerated the movement and intermingling of populations with undeniable epidemiological effects.

Every day the women make the trip to the wells. As there is a lack of milk, a greater quantity of cereal (millet or sorghum) must be ground and the work of the women is therefore increased.

This increase in the work load of the adults reduces their free time. Consequently, they can give less attention and care to the children.

During the rainy season, camp sites are changed more frequently but the animals are watered at the ponds, which does not require any work. The camps are sited near the ponds and the availability of water is at its maximum. Milk is abundant and it is no longer necessary to grind millet. It is the best time of the year, a time when families meet, when ceremonies are held for marriages and the naming of children.

#### 7. The diet

The diet of the herders is based on milk and cereals (millet, sorghum, fonio, rice). During the two months of the rainy season, it may include only milk. As soon as the pastures become dry (September), milk becomes less abundant and cereals are gradually introduced. As the dry season progresses, the production of milk diminishes and the consumption of cereals increases. In April-May, the cows<sup>\*</sup> no longer give milk. The diet of the herders is then composed almost entirely of cereals. Because they are used to eating millet mixed with milk, they find it difficult to ingest sufficient quantities of millet paste to meet their nutritional requirements, which are greatly increased because of the amount of work during this season.

The prices of cereals bought on the local markets undergo important fluctuations. For example, the price of a 100 kg sack of millet on the Tchén Tabaraden market rose from 7,000 CFA (\$24.00) in November 1980 to 30,000 CFA (\$103.00) in June 1981. The herders are thus forced to buy cereals at a high price and at a time when their consumption is at its highest. On the other hand, the main source of revenue of

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\* However, camels and goats continue to give appreciable quantities of milk during this season.

This programme in no way excludes prophylactic measures; on the contrary, it is a necessary preliminary step to the eventual adoption of a preventive approach. To make health care accessible to the herders will lend credibility to the programme and will permit the gradual development and application of prophylactic measures. These objectives should, in the main, be achieved through the National Primary Health Care Programme (AES) and Maternal and Child Health (MCH) programme, with the support of the health units and the Departmental Mobile Team for Hygiene and Medical Care (EDHMM).

Improvements in the area of nutrition depend in part on nutritional guidance given through the MCH programme, but even more on the standard of living and the economic means of the herders. However, these last are dependent on the general circumstances and economic situation prevailing in the zone. It is to be hoped that the activities of the project will contribute to an improvement and that the surveillance system will allow the early reporting of critical situations.

IV PROPOSED STRATEGY

1. How can access to health care be provided in the pastoral zone?

In regions with a low population density, and especially if this population is nomadic, the classical approach adopted by numerous countries has been to develop mobile medical services (Botswana, Kenya, Zambia, etc.). These services have at their disposal four-wheel drive vehicles and sometimes even airplanes and operate either according to a specific need or on a systematic basis. Means of transportation are used by the health services in the following areas of activity (O. Gish & G. Walker : 1977) :

1. Emergency ambulance, evacuation of patients,
2. Specialist clinical rounds on a scheduled basis,
3. Primary patient care, visiting : (a) permanently staffed facilities, or (b) unstaffed facilities and/or "stops",
4. Scheduled visits not necessarily including direct patient care,
5. Special (vertical) health campaigns,
6. Comprehensive patient care for very scattered or nomadic populations.

This approach, which at first sight seems appealing, proves to be very costly compared to the benefits obtained. The investigation carried out in Botswana showed that motorised (Land Rover) health services cost eight times more than those dispensed from fixed health units (dispensaries); the use of airplanes makes them fourteen times more expensive (O. Gish & G. Walker : 1971).

The population density of a region also influences the cost of the health operations. In Mali, during a smallpox vaccination campaign which covered both sedentary and nomadic populations of the Gourma region (1968-1969), the cost per person vaccinated was eleven times higher for each vaccinated nomad (P.J. Imperato : 1974). This high cost is largely due to the transportation costs incurred as a result of the long distances covered for visiting a relatively small number of persons.

Another disadvantage of the mobile services resides in their very mobility : there is no permanent presence in a region or in a particular place. The patient-health service relationship becomes a one-way relationship : the patient is passive; he can but await the arrival of a mobile unit and cannot go himself to seek out health care. In short, an approach which is primarily based on mobile health services is neither desirable nor viable in a time of budgetary restrictions.

An integrated approach combining three types of health care would seem to be more appropriate. Indeed, the three complementary components of such an approach, i.e. the fixed health units, the health auxiliaries (AES) and the mobile health teams, would make it possible to combine the advantages of each, and at the same time reduce the disadvantages and constraints that each would have if taken alone. Since an infrastructure already exists, what remains to be done is to organise around the health units the activities to be carried out by the two other components. Such an approach combines the permanency of health services at the level of the dispensary, the active participation of the pastoral population through the National Primary Health Care Programme (AES) and the mobility required for certain mass campaigns which is provided by the mobile team.

Although these three types of services already exist in Niger, their integration into a global programme has not yet been achieved. The departmental mobile team (EDHMM), even though it is located at the level of the DDS with which it maintains close relations, is primarily dependent on its headquarters in Niamey. Vaccination of the population is mainly carried out by a mobile service structure and only rarely by a fixed one. Primary health care through the AES is not yet very developed and would need to be strengthened by an appropriate methodology and by adequate means not only in equipment and supplies but also in personnel. The fixed health units are destined to constitute the frame, as well as become the focal point, for all the activities conducted in the respective areas of coverage.

2. Participation of the herders : the National Primary Health Care Programme (AES)

2.1 Three training programmes for health auxiliaries/herders

A few training courses for health auxiliaries have already been held in the pastoral zone. However, all had to face difficulties associated with the geography of this region, the life-style of the herders and the very structure of the health services. It seems worthwhile to describe here three programmes for the training of herders as health auxiliaries in order to identify the problems encountered by these programmes and to determine to what extent it is possible to resolve them. The Tchín Tabaraden programme is described in greater detail as the author was able to participate in setting it up and carrying it out.

2.1.1 The Bermo-Dakoro training programme

In 1975, 12 Wodaabe (Bororo) and 4 Twareg herders were trained as health auxiliaries. Later, refresher training was organised at Dakoro. These health auxiliaries are supplied with drugs which are the same for all the training programmes and which they carry in leather satchels. They go to the Bermo dispensary to get fresh supplies. The drugs are sold at a low price without substantial profit (e.g. 2 chloroquine tablets for 5 CFA<sup>\*</sup>).

Every three months a supervision round is organised by the Director of the Mission of Bermo.

At the end of 1980, only 5 Wodaabe herder-health auxiliaries were still active, all of them based near Bermo. The reasons given by those who had dropped out were the following :

- The health auxiliary derives no material benefit from his work. He gets no financial advantages and frequently finds himself at the end of the year with a loss of 1,000 to 2,000 CFA because he has not been paid for the drugs distributed. Moreover, in the pastoral zone the health auxiliary is sometimes obliged to offer hospitality to

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\* \$1.00 = 300 CFA

consultants who have come from far away and this gives rise to additional expenses.

- He receives neither compensation nor favours from either the government services or the herders for whom he works.

Chloroquinisation campaigns have been organised around the health auxiliaries and dispensary. The herders recognising the value of these campaigns come each year at the beginning of the rainy season to fetch a supply of the drug.

#### Comments

- This was one of the first training programmes for health auxiliaries among herders and despite the high percentage of drop-outs, it has nevertheless continued to function for 6 years.
- The chloroquinisation campaign during the rainy season meets a need of the herders and it is organised each year with success.
- The lack of recognition and benefit attached to the function of health auxiliary is the principle cause of abandonments.

#### 2.1.2 The In Gall training programme

Some years ago, herder-health auxiliaries had been trained at In Gall but none of these health auxiliaries was still active when a new training programme was organised in 1980. After a first day devoted to discussions concerning the diseases and the wishes of the herders, the remainder of the training deals with the main diseases, hygiene and nutrition.

The drugs are distributed free of charge to the health auxiliaries and fresh supplies can be obtained at the dispensary or when the supervision round is made every three months.

In 1981, a second training course was held for 8 health auxiliaries, bringing to 15 the number in activity. After two years of activity, no abandonments have been registered.

This programme works well thanks to the nurse who has shown both motivation and interest for the AES and thanks to the support given the nurse by the head of the administration

post and the DDS, which placed at his disposal additional staff so that he could devote more of his time to the health auxiliaries. A form of compensation was established. Each health auxiliary is registered at the OPVN\* as a member of the dispensary staff and is entitled once a month to buy cereals sold at the official price. The status of health auxiliary is certified by an individual health auxiliary card issued locally.

### Comment

This programme clearly shows how important are the motivation of the nurse on the one hand and collaboration and support of the DDS and other government services on the other hand.

Primary health care demands time, availability and means. Recognition of the status of health auxiliary and the introduction of a form of compensation for the work accomplished by him have certainly played an important role in the success of this training programme.

### 2.1.3 The Tchín Tabaraden training programme

At the end of February 1981, 9 health auxiliaries were trained at Tchín Tabaraden by the head of the Medical Centre and the nurse from Abalak. Six of them are nomadic herders and 3 are sedentary agro-pastoralists. All live in the bush far away from the villages. An information and recruitment tour had been made four weeks earlier and, since the end of the training course, supervision and supply rounds have followed each other at three month intervals.

This programme is the result of a close collaboration between the DDS of Tahoua and the Niger Range and Livestock Project. The Project played a supportive role by providing a certain amount of guidance at the Medical Centre level, without much changing the normal functioning of the programme. It also offered an opportunity for further reflection by organising in collaboration with the DDS of Tahoua, a seminar at Tchín Tabaraden on the AES in the pastoral zone (June 1981). All

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\* OPVN : a government department which sells cereals at a fixed price throughout the year; this price is generally lower than the current market price.

the phases of this training programme (information, training, supervision) were entirely insured by the Head of the Medical Centre. The programme was the same as the one generally followed in the other rural regions of Niger. The aim of this training programme was to see to what extent primary health care as it is organised in the villages can be extended to the pastoral zone and to determine what modifications would need to be made.

The following pages describe each phase of the programme and indicate the constraints and difficulties which arose.

The information phase - the selection of health auxiliaries

At the beginning of 1980, the previous Head of the Medical Centre of Tchín Tabaraden had offered to train Twareg herders as health auxiliaries. He had made a tour of the chiefs of the Twareg group of tribes and had visited certain important wells. Unfortunately, it proved impossible to realise this programme.

When in November 1980 a new training programme was proposed, it was decided to use the previous list of candidates, but to limit the number to 10 and to include also Wodaabe herders. The herders would be chosen from the tribes and various factions residing in the Tchín Tabaraden area.

In most of the training programmes carried out in Niger, the information phase consists of a tour of the villages and camps where the nurse wishes to train health auxiliaries. The nurse convenes the village chiefs together with the entire community concerned and describes to them the functions and activities of the health auxiliary. Afterwards, the people will discuss the matter among themselves and propose a candidate. A fortnight later, a vehicle comes to fetch the candidate and drives him to the dispensary where the training takes place. This pattern was the one followed at Tchín Tabaraden.

A three-day tour in the bush made it possible to choose 7 candidates. Two more volunteered on the occasion of meetings organised at the market and a last one was contacted by the person in charge of the organising. Finally 9 showed up for the training programme.

### The training

The training was carried out at the Medical Centre at Tchin Tabaraden and lasted 9 days. The health auxiliaries were driven from their camps to the Medical Centre and at the end of the training course they were driven back to their homes. They were given room and board during the course.

The programme was established by the Head of the Medical Centre and agreed to by the DDS. Based on the recommendations set out in the manual of the Auto-Encadrement Sanitaire, the programme dealt with the following main subjects : principles of nutrition and hygiene; disease transmission; recognition and treatment of common complaints (fever, diarrhoea, cough, conjunctivitis, trauma, wounds); drug dosages; identification of epidemic diseases (measles, whooping cough, meningitis) and of tuberculosis; and the recording of consultations.

The Head of the Medical Centre and the Twareg nurse from Abalak lectured on these various subjects in the mornings in a meeting room. The afternoons were devoted to practical exercises (e.g. making splints and bandages, dressing wounds, etc.). The evenings, spent in common around the traditional tea, were devoted to reviewing what had been taught during the day and to discussion.

At the end of the training course the Head of the Medical Centre organised a visit to different government departments (Livestock Service, OFEDES, OPVN) and the health auxiliaries were presented to those in charge of these departments. Each health auxiliary received an individual card with his name, photo and the name of the dispensary to which he would be attached. They also each received a wooden crate containing the various drugs in sufficient quantities and a leather satchel to enable them to carry small quantities of drugs to the wells or during visits to the more distant camps.

### Supervision

In the villages, supervision is mainly carried out by the nurse during visits to the home of the health auxiliary. At Tchin Tabaraden the Head of the Medical Centre followed a similar mode

of supervision while trying at the same time to find a less costly alternative.

From the very beginning it proved necessary to develop a method of supervision by which the health auxiliaries could be rapidly located and contacted. Both petrol and time for making these rounds in the bush are limited and should not be wasted uselessly in searching for hours for the camps of the health auxiliaries. A plan of supervision based on the markets was adopted. On market day, the Head of the Medical Centre obtains news of the health auxiliaries from herders belonging to the same group of tribes, the same lineage or the same camp. Once each health auxiliary has been located, he decides in which order to visit them and seeks out a "guide" (i.e. a herder residing in the same camp as the health auxiliary or one nearby) to lead him to the place indicated. The health auxiliary is informed of the visit by the herders returning from market the same evening.

The day after market the nurse begins his tour, accompanied by the guide. They leave early in the morning, if possible, so as to arrive at the camp before the health auxiliary has left to go to the wells, for example.

At Tchin Tabaraden market day is Sunday, while at Kao it is Tuesday. It is therefore possible to visit the health auxiliaries around Tchin Tabaraden on Monday, then go to the market at Kao on Tuesday and finish the round of visits on Wednesday.

Certain tours of supervision have been carried out differently. Instead of visiting all 9 health auxiliaries in 2 to 3 days, several short successive outings were made over a period of one to two weeks.

Whichever plan of supervision is adopted, both are dependent on information obtained in the villages, mainly on market day from the market merchants and the herders. It is therefore essential that the nurse establish a network of information or rather of "informers" who can rapidly tell him of the whereabouts of the different health auxiliaries.

On the first tour of supervision 360 km were covered to visit the 9 health auxiliaries (i.e. 40 km per health auxiliary) and 90 litres of petrol were used. Of the 25 hours spent in the bush, two thirds of them were spent travelling. A third of the time only was passed with the health auxiliaries (i.e. one hour per health auxiliary).

The second tour was made during the rainy season; a total of 520 km were covered (i.e. 65 km per health auxiliary) and 130 litres of petrol were used. The health auxiliaries were visited in the course of 5 successive trips and for a total of more than 32 hours spent in the bush, only 8 health auxiliaries were seen! This time, three-quarters of the time was spent in travelling. The most "costly" visit took 6 1/2 hours including the two hours spent in disengaging the vehicle bogged down in a ravine! When the camp was at last reached, the health auxiliary was absent, having gone to fetch his camel!

These few figures allow a better evaluation of the time, money and effort involved in visiting the health auxiliaries in their homes. This type of supervision is exhausting, to the extent that, on arriving at the camp, no one has the energy to engage a discussion of the problems encountered by the health auxiliary or to give some further training. The hour is spent in counting the consultations recorded in the notebook and in distributing the drugs needed.

Considering the substantial investment in time and money which these monthly tours of supervision represented, it was decided at the seminar on "Primary Health Care" in the pastoral zone, held at Tchin Tabaraden in June 1981, to reduce the frequency of these tours to every three months. In order to maintain a continuity of contact between the visits to the bush, a system of supervision at the dispensary was developed.

In general each herder goes to market once a month to get supplies. The health auxiliaries are no exception. If the wooden crate is replaced by the easy-to-carry leather satchel, the health auxiliary, when he goes to market, can on the same occasion go to the dispensary with his satchel and notebook

and get new drug supplies. In this way, no additional travelling is required of the health auxiliary and a regular contact is maintained between him and the nurse. This implies, of course, that the nurse be welcoming and available when the health auxiliary comes to visit him. He must not forget that often his visitor has travelled 30 to 40 km by camel to come to see him. At Tchin Tabaraden this system has worked extremely well thanks to the warm personality of the nurse.

#### Who are the voluntary health auxiliaries?

Three of the health auxiliaries are sedentary Twareg agropastoralists living in the bush; the other six are nomadic herders, three Twaregs and three Wodaabes (Bororo).

The Twaregs speak Tamasheq and Hawsa, and the Wodaabes, in addition to these two languages, also speak Fulfulde. In this region, Tamasheq is clearly the common language. Hawsa is understood by a majority of the herders but is correctly spoken by only a few.

Of the 9 health auxiliaries only one had been to school and knew how to read and write in French. Four Twaregs wrote Tifinar, which is written Tamasheq. The literacy rate is therefore very low. This must be taken into account at the time of the training and the teaching must be adapted accordingly. The system of notation for recording the consultations must also be very simple.

All the health auxiliaries are 30 years old or more. They have a family and children of working age and are themselves herders. They can therefore devote only a limited amount of time to health care as this comes on top of their normal activities as herders.

#### The health auxiliary at work

The health auxiliaries say that most of their consultations are given early in the morning in their camps. The people come to see the health auxiliary as they would the marabout\*.

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\* A traditional Muslim practitioner who dispenses treatment by reciting verses from the Koran and by making charms.

The latter rarely visits his patients in their homes. Although the health auxiliary has the use of a satchel, he rarely gives treatment at the wells and only in particular circumstances will he go to the camp of a patient (e.g. one of his relatives has been injured, an important person is sick, etc.). The camps are far away from one another so that any visit to a patient's home will entail long hours of travelling. As no means of transportation and no compensation for the time lost are offered to the health auxiliary, an expansion of the scope of his activity cannot be expected.

An evaluation of the health auxiliary's work is rendered difficult by the incorrect notation of his consultations in his notebook; and yet the recording system is very simple, each consultation being indicated by a mark in the column corresponding to the drug distributed.

When all the consultations between two tours of supervision have been added up, their number per day comes to 73 in March and 45 in June. Clearly, too many consultations are marked. In order to get a more exact idea of the real situation, each health auxiliary was questioned on the number of consultants he had seen in the 3 days before the nurse's visit. At the end of March, one month after the training course, the health auxiliaries were seeing on average 9 consultants a day and at the end of June, 5 a day. By asking the health auxiliaries who had consulted them during the three preceding days, the figures reached for 7 health auxiliaries (i.e. a total of 21 days of consultation) were 26 men, 34 women and 34 children. The origin of the consultants was not precisely indicated, but the health auxiliaries affirm that they are consulted by herders from different tribes and lineages.

In view of the irregular intervals at which fresh supplies are obtained from different dispensaries, the exact consumption of the different drugs by each health auxiliary, and in particular the seasonal variation in this consumption, is not known. It would be necessary to develop an accounting system which would centralise the data and make it possible for the Head of the Medical Centre to foresee accurately the needs of each season.

The number of patients referred to the dispensary by the health auxiliaries has not been recorded, but it is probably very low, given the little tendency herders have of going to the dispensary and considering the fact that this part of the health auxiliary's work was not given priority during the training course.

After more than one year of activity, none of the health auxiliaries has dropped out.

## 2.2 Difficulties encountered and lessons

As demonstrated by the three training programmes for herder-health auxiliaries, the AES in the pastoral zone is a perfectly feasible enterprise. It offers a unique possibility of providing access to primary health care to the pastoral populations far removed from the population centres, and this at a reasonable cost for the Government of Niger. However, these three training programmes reveal the limitations of the AES practiced in the villages when it is applied to the pastoral zone. It is these limitations and constraints, encountered at each phase of the training programme for health auxiliaries, which form the topic of this chapter.

### 2.2.1 Identification and localisation of the communities

At the present time, the administrative services have difficulty in identifying the different lineages and tribes of herders residing in the region. Only the camps of the chiefs of Administrative Groups of tribes are well known and regularly visited. It is this lack of familiarity with the zone which prompts the nurse to choose candidates only from the camps of important chiefs, or to propose training to the first herder encountered in the place selected, or again to give up the attempt of training herders and choose sedentary farmers instead.

Even when the communities are known, they remain difficult to locate. The people move around, the bush is vast and the camps are scattered. A method needs to be developed for visiting the herders in their homes.

Within the same tribe, groups of families who live together during most of the year are formed. It is these families who benefit the most from the health auxiliary. It is they also who encourage and motivate him in his activities. It is not easy to identify these families for they are often scattered over several kilometers around the camp of the health auxiliary, not all the heads of families are there at the time of the visit and it is difficult to bring them together during a rapid tour.

However, their role of support to the health auxiliary is of first importance and consequently they should be associated with the programme already at the information phase and made aware of their responsibility towards the health auxiliary.

It is important to test the real interest of a community in having a health auxiliary. At present, no financial or other kind of participation is asked of the communities as a sign of their interest and active concern in health. Perhaps the community could bear the cost of purchasing the satchel of the health auxiliary?

### 2.2.2 The receptivity of the herders

On the whole the herders are very receptive to the idea of having a health auxiliary in their community. However, this interest is accompanied by a certain mistrust - fear of being implicated in a system which is alien to their way of life and which would escape their control? - fear of working in a government service, or simply fear of the unknown? Often, the herders do not perceive any clear difference between one government service and another and all are seen as being involved in one way or another in the taxation of livestock\* and the collection of income taxes. For others their reticence may be explained by the fear of being different and of being considered by the rest of the community as belonging to a government service. Finally, a good number do not see how they could do the work of a health auxiliary in addition to their activities as a herder. This is especially true for heads of families whose children are not yet old enough to help them.

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\* The tax per head of cattle has been abolished since the drought of 1973.

Two very religious communities refused the offer of having a health auxiliary, and yet the members of these tribes frequently go to the local dispensary for a consultation. Therefore, there is no refusal of modern drugs, but the presence of a health auxiliary is perhaps perceived as a form of dependence on a government service, or perhaps the health auxiliary is regarded as potential competition for the traditional healing practices of the marabout? It will be interesting to see, if after being in contact with other health auxiliaries, these communities will want to propose a health auxiliary of their own.

Certain herders, on the contrary, realise right away the potential value and benefit of a health auxiliary. They also see in the health auxiliary an opportunity for social advancement. This is reflected in the strong proportion of health auxiliaries who are related to tribal chiefs (4 out of 9).

### 2.2.3 The training

#### The location

In general the training courses are held at the Medical Centre. However, in the pastoral zone the Medical Centre can be at a great distance from the dispensary to which the health auxiliaries are attached. For example, in the zone of the Project the average distance between the dispensaries and the Medical Centre is 105 km. Therefore, it would be preferable for the training course to be held in the referral dispensary as was the case at In Gall.

#### The season

In Niger most of the training courses are held in March-April, which is the season when the farmers have little or no agricultural work. For the herders, however, the end of the dry season is the hardest time of the year and a time when they are the least available. No one during that period wishes to or is able to leave his camp, for each person is needed for carrying out the numerous tasks which the care of the herds requires. Consequently, it would be preferable to hold the training courses after the rainy season, between November and January.

### The duration of the course

For the health auxiliaries 10 days of training are too long. The herders cannot leave their camp for any length of time because the animals require daily care and attention. For the nurse, however, 10 days of training are too little! If the quality of the training is to be improved and if the health auxiliaries are to be given the management of drugs such as antibiotics, then the duration of the training will have to be lengthened to two weeks and each year there should be, in addition, a week devoted to refresher and complementary training.

On the other hand, the herders do not like to stay for long in the villages where they feel that they are strangers and prefer to live in the bush. The prospect of spending a week in a locality does not go without certain apprehensions. Sometimes the necessity of a training period is not always understood by the family and friends of the health auxiliary and they therefore try to discourage him from participating. For example, during the training course at Tchin Tabaraden, the wife of one of the health auxiliaries left her husband's camp and went back to her parents, for she was convinced that her husband had gone to Tchin Tabaraden for unavowable reasons!

### The teaching method

In the three training programmes described, the simultaneous training of Twareg and Wodaabe herders did not seem to pose any special problem. At Tchin Tabaraden, the language used was Tamasheq. The nurse in charge of the training was a Twareg who was familiar with the life of the herders in the bush and with their proverbs; he could therefore teach in a way that was the most understandable possible.

When the teacher-nurse speaks neither Tamasheq nor Fulfulde, it is imperative that he have an interpreter who speaks Tamasheq fluently. Hawsa is not sufficiently well understood by many herders for it to be the only language used during a training course.

In the bush, news is transmitted orally and not by pictures or texts. Teaching must be based primarily on discussion and verbal exchanges, and not on pictures, posters or the flannelograph.

Being based on explanation and discussions, this type of teaching does not require any special teaching material. Nevertheless, the use of tape recorders can certainly be most helpful, by making it possible to record the health auxiliaries in a group or individually and thus to review later on certain important points.

The evening sessions spent on going over the day's lessons while drinking tea constitute an ideal setting for discussing and completing the teaching, for the herders are in the habit of spending their evenings in this way. They feel more at ease in such a setting than in a classroom.

#### The objectives of the training programme

In Niger, the health auxiliary is trained to<sup>\*</sup>:

- Treat common diseases and traumatisms,
- Promote measures of hygiene,
- Give advice on nutrition, the maintenance of the wells, the treatment and conservation of water,
- Promote health education,
- Act as a liaison between the village and the health services and
- Manage the drugs and products which are entrusted to him.

The recommended programme is vast and the candidates would find it difficult to assimilate it in only one week, while the nurse, who has never taken any course for trainers and group leaders, would be unable to deal with all the subjects in such a short time.

When the herders are asked what it is they expect from a health auxiliary, their reply is : someone who can give us treatment when we are ill. This is very understandable, for they are far away from the dispensaries and consequently access to drugs

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\* Auto-Encadrement Sanitaire, Méthodes de formation des agents de santé de village, Republic of Niger, 1980

is difficult. This demand must be met and the health auxiliaries trained accordingly. To achieve this objective, the training should primarily deal with the diseases which are recognised as priority health problems because of the risks they entail and the incapacities they cause. The health auxiliary should be able to treat the following ailments :

- fever (presumed malaria)
- diarrhoeas
- pulmonary diseases
- rheumatic pains
- conjunctivities
- Vitamin A deficiency
- wounds and sores
- gonorrhoea

Regarding the pulmonary diseases, these constitute one of the most important causes of working incapacity, especially during the cold season. At present, the health auxiliary does not have any drugs against these diseases at his disposal and his training on preventive measures for the protection of children is nil. A simple treatment plan could be established to allow the health auxiliary to distinguish between an ordinary dry cough requiring symptomatic treatment and a cough with fever, yellow expectorations and an intercostal pain, requiring the oral administration of an antibiotic (penicillin, ampicillin). The same applies to gonorrhoea which is considered to be a priority health problem by the Wodaabe herders and which may lead to serious complications when it is insufficiently treated, as is often the case in the pastoral zone. Appropriate training of the health auxiliaries, making them aware of the need to treat both partners with a strong oral dose of chloramphenicol or ampicillin would allow more hope of seeing complete treatment given to both partners, compared with the present situation.

In wanting to develop primary health care in the pastoral zone, three facts must be kept in mind :

- the great distances to be covered,
- the dispersion of the population and
- the importance of the seasonal variations.

These facts make it important to :

- Give to the health auxiliary the greatest autonomy possible, for in view of the long distances to be covered, he cannot constantly go to consult the nurse and obtain fresh supplies from him.
- Supply the health auxiliary with sufficient quantities of effective drugs which will allow him to treat an optimal number of complaints without having to refer the patient to the dispensary (which is often too far away for the patient to visit). It must be noted that the herders are willing to travel long distances to see the health auxiliary if they know that he has effective drugs.
- Concentrate the means made available to the health auxiliary and orient his action towards the complaints which are the most prevalent in each season (e.g. cough during the cold season, fever during the rainy season).

The task of the health auxiliary will consist primarily in dispensing curative treatment and health education. To change the ancestral customs of the herders in the areas of hygiene and nutrition seems to us to be far beyond the power and the competence of a health auxiliary, all the more so as the constraints imposed by the environment are such that often no alternatives to the usual practices exist.

The health auxiliary will also be a health educator who teaches the other herders how they themselves can use the common drugs and who encourages them to get vaccinated either in the bush or at the dispensary.

### The trainers

The Head of the Medical Centre is in charge of the training programme. He assumes this responsibility in addition to his normal duties of administering the dispensaries in his district and of dispensing health care at the level of the Medical Centre. At Tchih Tabaraden, the Head of the Medical Centre was able to obtain the assistance of a Twareg nurse. The latter was relieved of all other tasks at the dispensary and devoted himself exclusively to the training programme. It is essential that

the nurse responsible for the training have no other duty during that period. As the duration of the course is short, the nurse must be available at all times for the health auxiliaries (morning, afternoon and evening).

The nurse may be doing his best but the fact remains that he has received no teacher training and that certain useful teaching techniques are unknown to him. Each year, before the health auxiliary training period, the nurses should follow a course on methods for the teaching of health auxiliaries. Such a course could be organised locally by the ILP Project and would seem to be particularly recommended and necessary for the nurses of the pastoral zone who are often unfamiliar with the realities of the herders' life.

#### 2.2.4 The movements of the health auxiliaries in relation to the dispensaries to which they are attached

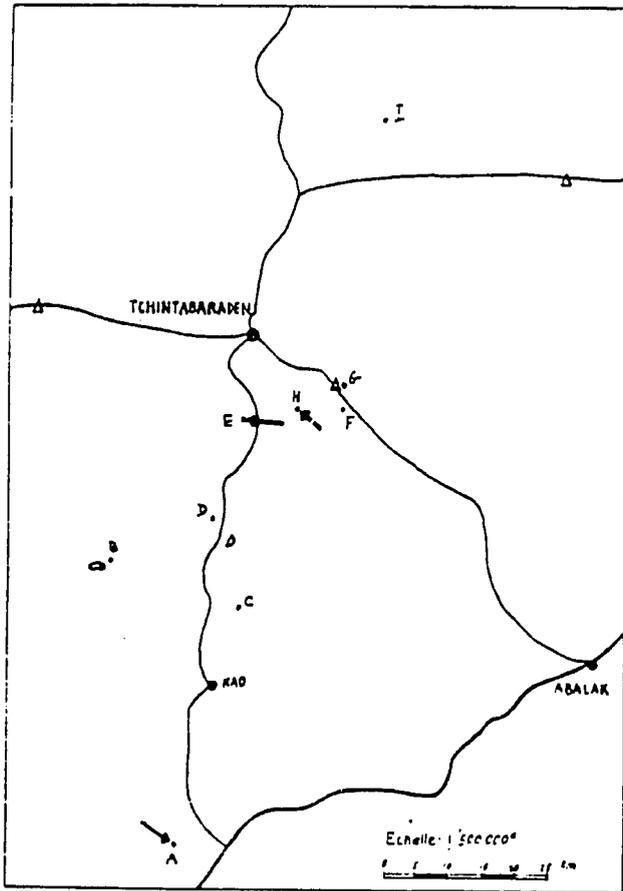
Three maps indicate the positions of the health auxiliaries and their movements between visits to the dispensary.

In February and March the movements are slight, whereas between March and June, the positions of the health auxiliaries clearly change as a result of movements linked with the end of the dry season when many of the wells are dry and pasture-land is scarce. During the rainy season the movements increase in number and extent. However, the map for June 1981 is not representative of the usual movements of the three Twareg health auxiliaries (D,F,I) who normally go to In Gall during the rainy season. That year, the rains were less abundant at In Gall and the pasture-lands insufficient, therefore the herders remained at Tchín Tabaraden.

These maps also show that the dispensary closest to the health auxiliary may change. For example, the health auxiliary E who had depended on Tchín Tabaraden in March, moved closer to Kao in June and therefore visited the dispensary at Kao. In September, A, D and E went back to the north and from that time they fetched their supplies at Tchín Tabaraden. These movements can, to a certain extent, be foreseen. Consequently, it is possible and necessary to organise the supervision and supply of the health auxiliaries accordingly.

The health auxiliary card becomes especially important for identi-

Positions of the health auxiliaries, end March 1981

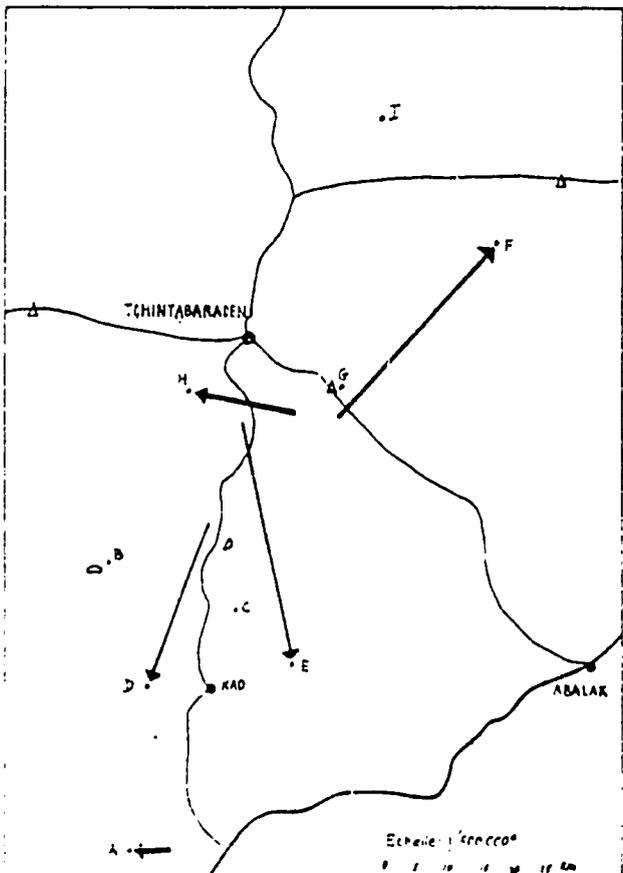


The Positions and Movements of the 9 Health Auxiliaries/ Herders in the District of Tchintabaraden (1981)

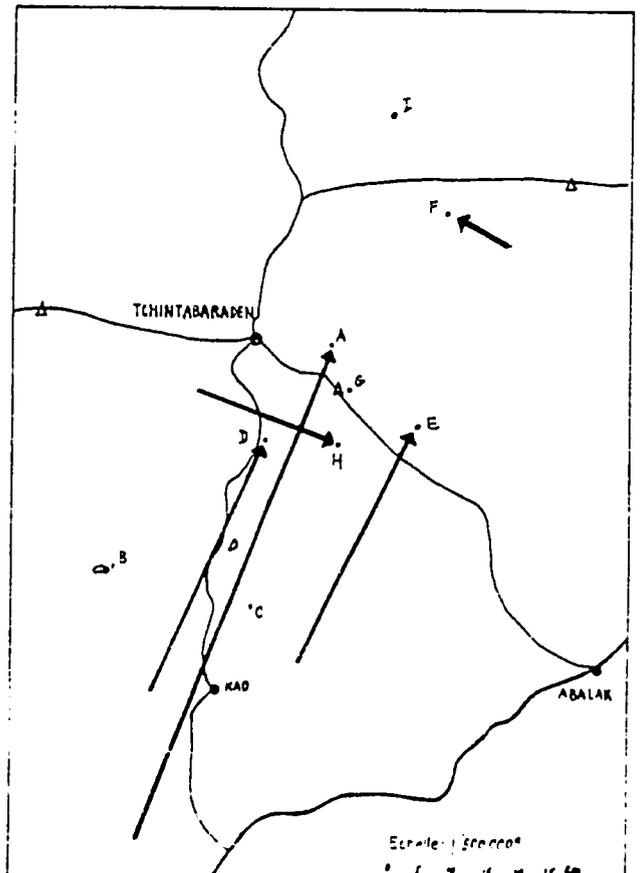
(The arrows indicate the movements that occurred since the previous visit)



Positions of the health auxiliaries, mid-June 1981



Positions of the health auxiliaries, September 19



important to ensure the smooth operation of the supply system. Sometimes a health auxiliary may change Districts or Departments, for example, when he goes up from Tchir Tabaraden to In Gall during the rainy season.

This underlines the importance which should be given to cooperation and coordination between the different DDS and the District and Departmental dispensaries. It also stresses the importance of promoting the generalised use of health auxiliary position mapping and standardisation of the drug supply system.

#### 2.2.5 The supplying of drugs

##### The supplying of drugs to the dispensaries

In Niger, the dispensaries are supplied twice a year. At the District level the Head of the Medical Centre establishes the needs of the different dispensaries and sends to the DDS an order for drugs to cover the needs for the next 6 months. The DDS countersigns the order and forwards it to the DES\* at the Ministry of Health in Niamey which centralises all the orders coming from the Departments. The DES in turn forwards them to the ONPPC\*\*. The drugs are then directed towards the different Offices of Departmental Health which distribute them to the Medical Centres.

In the pastoral zone, the dispensaries are regularly supplied and are rarely out of stock. However, the quantities available are limited and need to be carefully managed by the nurse. The dispensaries do not pay for the drugs distributed to them.

##### The supplying of drugs to the health auxiliaries

In the villages, the health auxiliaries sell the drugs at cost price (2 tablets of chloroquine = 5 CFA). The health auxiliary gets his supplies either from the dispensary or from the people's pharmacy (located in the important towns). He buys the drugs with the money received from the previous sales.

In the pastoral zone, the drugs are distributed to the health auxiliary free-of-charge. Supplies are obtained uniquely from the dispensary where a stock specially reserved for the health

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\* DES : Direction des Etablissements de Soins (Office of Health Care Establishments).

auxiliaries has been constituted by the nurse in accordance with the number of health auxiliaries dependent on his dispensary. This is a quite separate stock whose cost can be covered by the Rural Health Improvement Project (USAID)\*.

In the pastoral zone, the provision of supplies is made more complicated by the movements of the health auxiliaries and it happens that a health auxiliary who goes to a new dispensary cannot receive supplies because there are no drugs available for him. At each dispensary there should be a reserve stock set aside for unexpected visits of health auxiliaries, or else a reserve should be kept at the Medical Centre from which deliveries could be made to the dispensaries when new health auxiliaries arrive. The organisation of such a reserve stock would be particularly important at In Gall where numerous herders converge during the rainy season.

#### Control of the supplies

As supplies may be obtained from different dispensaries or at the time of visits to the bush, it is essential that a central accounting be kept so as to be able to control and estimate the consumption of different drugs by the health auxiliaries. Each dispensary should keep a record of the drugs distributed to the health auxiliaries, recording both in its account book and in the health auxiliary's notebook the quantity distributed. This double entry would allow the rapid detection of any possible embezzlement and an estimate of the needs of each health auxiliary in each season.

Management of the drug supply and distribution system should be based on the WHO publication "On Being in Charge : A Guide for Middle Level Management in Primary Health Care", (1980).

#### The supplying of drugs at no cost

In the pastoral zone, the herders do not pay for the drugs they receive from the health auxiliary. This situation encourages a

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\* At present, USAID finances 90% of the training programmes and refresher training courses for health auxiliaries and traditional birth attendants in Niger. The Agency also covers the expenses entailed by supervision (e.g. petrol, mopeds).

needless consumption and deprives the herders of a sense of responsibility. The drugs should in fact be sold at a moderate price as is the case in the villages. This adjustment, however, should be accompanied by identical measures at the level of the dispensaries. If the drugs are obtained free-of-charge from the dispensary but at a cost from the health auxiliary, this puts the health auxiliary at a disadvantage. Moreover, such a situation places a double penalty on the rural populations living far away from population centres. Not only is their access to the dispensary difficult but also the drugs obtained from the health auxiliary must be paid for. A policy decision of this kind regarding health would tend to favour the development of the National Primary Health Care Programme (AES) and to ease the financial burden of public expenditure for health.

#### Transportation

It is not realistic to envisage tours of supervision in the bush, using traditional means of transportation such as the camel or the horse. They are too slow and also considered unacceptable by most of the nurses concerned. Supervision in the bush requires a vehicle.

At present, 5 out of the 10 dispensaries in the Project have a Land Rover at their disposal. The allocation in petrol for a dispensary is 1,000 litres every three months, that of a Medical Centre is 1,650 litres. The vehicle is used to fetch the supplies for the dispensary, to evacuate patients and to carry out the tours of supervision of the health auxiliaries.

For the past two years, the Rural Health Improvement Project (USAID) provides the petrol necessary for the quarterly supervision tours of the health auxiliaries in the bush, provided a request has been lodged by the nurse via the DDS.

If the AES is to be developed in the pastoral zone, then priorities will have to be established for the use of the vehicles, together with a stricter control of the petrol allocation. On the other hand, each health unit should have a vehicle for the quarterly tours of supervision at its disposal on a permanent or periodic basis. The use of motorcycles or light vehicles like the Suzuki jeep should also be envisaged.

## 2.2.6 Motivation and due recognition of the health auxiliary

In Niger, the health auxiliary is defined as "a man or a woman born in the village, a non-remunerated volunteer ...". This implies that the health auxiliary carries out his health care activities in addition to those of herder or farmer and that therefore the time he devotes to them is limited. However, it is evident that the health auxiliary accepts this work because he finds in it an interest and advantages which make up for the additional work and the inconveniences.

During the training course, the health auxiliaries take an evident interest in what they are learning. However, to maintain this interest, their training must be pursued, for example, during the supervision rounds. Unfortunately, this further training is often not provided, and the risk of a rapidly diminishing interest of the health auxiliaries in their health care activities is to be foreseen.

Interest in his work is not a sufficient motivation for the health auxiliary; he must also find a certain benefit in it : a social advancement, the respect and esteem of the administrative services, compensations, financial advantages, etc.

If it is difficult to evaluate the social benefits which the health auxiliary receives from the herders; it is easier to estimate the advantages he receives from the administrative services. In the three training programmes described, the nurses recognised the importance of giving to the health auxiliaries a sense of their value and in the case of In Gall, the health auxiliaries have obtained indirect compensation for their work by having access to the cereals of the OPVN as members of the dispensary staff.

Unfortunately, this is not always the case and frequently the health auxiliary is considered as the lowest step in the hierarchy and receives no special consideration. A concrete expression of recognition of the status of health auxiliary and appreciation of his work by giving the health auxiliary a privileged access to the benefits enjoyed by the staff of the administrative services, is a sine qua non condition to the success of the AES.

Moreover, the health auxiliary must feel that he has the support and guidance of the nurse. This implies the regular delivery of supplies, instructive and encouraging supervision and the availability of the nurse when the health auxiliary visits the dispensary.

Furthermore, inconveniences in the health auxiliary's work must be reduced to a minimum : the wooden crate should be replaced by a more practical leather satchel and the glass bottles by plastic ones, the drug quantities to be transported should be adapted to the needs of the different seasons, etc.

The example of Bermo shows that the work entails expenses for the health auxiliaries and that, if no compensation is given, a strong proportion of the health auxiliaries drop out.

In fact, the health auxiliaries do not ask for a salary, but for recognition of the usefulness of their work and a gesture on the part of the health services as a compensation for the work accomplished. Access to the millet of the OPVN seems to be a particularly appropriate solution.

During discussions with the health auxiliaries in the bush, it became apparent that the herders who benefit from their care do not reward or recognise the work accomplished by the health auxiliary and often consider him as a mere distributor of drugs which he has received from the Government. This attitude is highly revealing of the lack of participation and responsibility accorded to the communities serviced by the health auxiliaries at the time of the information phase of the training programme. In future, special importance should be given to identifying the communities truly desirous of having a health auxiliary and to involving them actively in the programme. In this connection, the Pastoral Associations would offer an ideal framework for the AES, because the health auxiliary is integrated into a clearly defined and responsible community.

2.2.7 The relations between the health auxiliaries and traditional practitioners

When a herder falls sick he treats himself with plants whose beneficial effects are known to him or his near relations. Each herder is familiar with a more or less extensive pharmacopoeia. Some are particularly knowledgeable in one field or another. One will be well versed in the plants and the methods which cure eye diseases, another in those which cure stomach illnesses, etc. Each can consult a "specialised" practitioner according to his illness.

It is only when the plants have failed that he will go to the dispensary or a marabout<sup>\*</sup>. Generally, the marabout is consulted for diseases for which a supranatural cause is suspected, for chronic ailments for which all other treatments have failed, or for illnesses occurring in a context which lets one suspect the influence of an ill-intentioned person. When a patient consults a marabout, he expects him to have a favourable action on the forces which are at the root of his illness.

Dispensaries and modern drugs have no magic power. Consultations at the dispensary are for an ordinary illness or for one for which the nurse is known to be equipped : an injection of penicillin for urethritis, an aspirin for headaches, etc.

In the mind of the herders, the health auxiliary belongs to this same category of healers. He does not enter into competition with the marabout, and is consulted for other reasons. It is also probable that the marabout will not want to become a health auxiliary, knowing that he would be included in a hierarchical system over which he has no control and in which he would occupy a subalternate position. The marabouts enjoy great esteem in the bush and are obviously keen on keeping this privileged status.

It is important that the position of health auxiliary be proposed to the marabouts and the traditional practitioners at the same time of each training course so as not to exclude them and to show

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\* A man of the Muslim faith who has studied the therapeutic practices of Islam.

can benefit. It is more important that activities such as the MCC should be adapted to the realities of the pastoral zone, rather than the training of birth attendants.

Naturally, the objectives laid down by the National Primary Health Care Programme still remain valid (Auto-encadrement sanitaire, 1980). However, although the latter represent the long-term aims, the area for action should be limited at the outset. It seems too much to attempt to cover pregnancy, delivery, care for the new-born, nutrition and hygiene all at once.

The women's education programme in question should concentrate on one single topic which coincides with the wishes and needs of the women concerned, for example, acceptable standards of hygiene for childbirth. The various aspects of childbirth would be discussed, including personal hygiene, the importance of breathing, synchronisation of bearing down with contractions, ligation and disinfecting of the umbilical cord, the cleanliness of the place where the mother gives birth, the use of a clean mat, observation of the placenta after delivery of the child, cleansing of mother and infant and toilet thereafter.

The approach should always be based on traditional practices, reinforcing the positive aspects and suggesting alternatives to those practices which are unsuitable. The basis for the success of a programme of this kind is winning the confidence of the women, and this is achieved by recognising the validity of most of the current practices and attitudes.

The National Primary Health Care Programme is based on the participation of the rural population, which means that those concerned assume responsibility for their own health care.

The traditional practices and concepts of the population concerned are used and applied daily. They are this society's way of assuming responsibility for the health care it developed long before the advent of the health services. The National Primary Health Care Programme, supported by the health services, therefore has no chance of succeeding unless the traditional practices and concepts are respected and integrated. It is only in the second stage that those practices and concepts which prove unsuitable can be adapted.

them respect as well as a desire to integrate them into the programme. In this way confrontations will be avoided and maybe one day their participation obtained.

## 2.3 Towards an MCC programme adapted to the pastoral zone

### 2.3.1 Traditional practices

Among the Twareg and Wodaabe there are no traditional birth attendants ("matrones"). On the occasion of her first pregnancy, the woman leaves her husband's camp and returns to her family, where she gives birth, assisted by her mother or sisters. Subsequent pregnancies generally take place in the husband's camp, although in many cases the woman returns to her mother. In some large Twareg camps, certain experienced women help with most deliveries, but as a general rule there are no birth attendants. After one or two deliveries, in which they are assisted by their mothers, women in the pastoral zone quite often give birth with no assistance from anyone. They continue their daily activities until pregnancy reaches its term, so that it is not unusual for a woman to give birth when the group is on the move or while on the way to market. This independence seems particularly appropriate in societies where the members of one clan may be scattered over wide areas. It would be ill-advised to be dependent on the help and know-how of a handful of women experts in view of the small likelihood of their being present at the moment of birth. It is essential that this situation is kept in mind and that the national birth attendant training programme is tailored accordingly.

### 2.3.2 Objectives

In view of the absence of traditional birth attendants in the pastoral zone, the national primary health care programme approach adopted in the villages must be modified. Moreover, the efforts undertaken along traditional lines at Tchín Tabaraden for example, proved ineffective. The candidates did not register for training.

The general aim of the programme will not be to train a handful of qualified birth attendants who will then be under-employed, owing to the dispersal of the population. On the contrary,

For example, the diet of the pregnant woman in Tamasheq society is of great importance. The greater part of what is traditionally recommended has some justification and can serve as the basis for discussions aimed at reaching a better understanding of the nutritive value of the various foods and for promoting alternative balanced foods, when the supply of milk runs out, for instance.

### 2.3.3 Which women should be contacted and how is this to be achieved?

The potential obstacles to a programme of this kind are far from negligible. A start should therefore be made in those areas where the chances of success are greatest. The pastoral associations provide an ideal setting, because the community in question is clearly defined and contacts with the government services (including the health service via the health auxiliaries ("secouristes")) are more developed. The camps of the important tribal chiefs will also be contacted in order to secure their participation and cooperation. Subsequently it will be possible to include other tribes and lineages within this programme, according to the amount of interest shown in it by the herders.

In our view, the interest and the need already exist. They have not been expressed because no solution suited to the herders' way of life has yet been proposed. It is out of the question for the herders to attend the dispensary for a delivery or for a prenatal consultation.

Initially, meetings will be held in camps in the bush, in order to reach as many of the women as possible and to show the men the usefulness of this training. Subsequently, it is quite possible that some women, who are more competent and more interested than others, may be designated to undergo more intensive training. The training will, furthermore, be designed to train group leaders ("animatrices"), or relay-women ("femmes-relais"), able to pass on the teaching and the new techniques they have learned.

### 2.3.4 Training

The topics proposed by the National Primary Health Care Programme constitute the basis of the teaching. They should be adapted and above all should be few in number. Days of instruction in

the bush will not make it possible to cover all the topics. It would be preferable to reduce the scope of the programme and concentrate training on the areas the women are interested in. In this connection, infertility is a serious problem in some pastoral societies. The fertility rate in these societies is lower than that observed in sedentary populations. The cause or causes are not fully understood. It may be that social factors play an important role (prolonged post-natal abstinence), although certain diseases causing secondary sterility or miscarriages may also be the cause (gonorrhoea, syphilis, tuberculosis, rickettsiosis, toxoplasmosis, etc.) (M.A. Belsey, 1976). The fact remains that childlessness is seen as a great misfortune, and is often a cause of divorce. The women are therefore very alive to this problem, whose consequences affect themselves first and foremost. Useful work could be undertaken, in conjunction with epidemiological surveys, for example, to encourage women whose husbands are suffering from urethritis to undergo treatment.

The "Guide de formation des Matrones" (Birth Attendant Training Guide), published by the Ministry of Health in 1982, should include a supplement to adapt it for use in the pastoral zone.

Instruction should take place during a season when the women are available, for instance in the period between the rainy and the cold seasons. Furthermore, it is not advisable to teach Wodaabe and Tamasheq together at the outset.

It is important for the women to have access to certain medicines, such as chloroquine for new-born infants and pregnant women during the rainy season, mercurochrome to disinfect the umbilical cord, ferrous sulphate if anaemia is common in women with a lot of children. These can be distributed by the health auxiliary, although it would be preferable if all the women were supplied with small bottles of mercurochrome and cotton wool when receiving instruction or if some women who had assumed responsibility themselves distributed the drugs suggested later.

### 2.3.5 Supervision

Supervision is based on the same principles as for the health auxiliaries, that is to say using the markets to cover the women who go there and visits in the bush every three months by the nurse responsible for the primary health care programme within each dispensary.

### 2.3.6 Support for the programme

Ideally, the basis for a female education programme of this kind should be female nurses with a knowledge of the local languages. The reality is far from this. The nurse in charge of the health auxiliaries at each dispensary will therefore be made responsible for it. The nurse will be assisted by a male interpreter (no female interpreters being available), and if possible, by a female instructor ("animatrice") from the health education service. The lack of female staff able to speak the local languages clearly creates a serious obstacle. It is therefore essential that the few nurses who speak Fulfulde or Tamasheq are assigned to the pastoral zone and that relay-women able to speak both a local language and Hawsa are identified without delay and trained to provide an acceptable channel of communication between the herders and the nurses. The nurses in charge of this programme will receive additional training in instruction techniques and matters related to the herders, which will be reorganised by the ILP project each year. The person in charge of the primary health care programme part of the project will be responsible for coordinating these activities with those undertaken in the context of the pastoral associations and also for training the existing nurses in close cooperation with the "DDS" (Departmental Health Office).

Financing should be the responsibility of the Rural Health Improvement Project, which provides all training for health auxiliaries and birth attendants within the area covered by the ILP project. The ILP project will provide training support and vehicles. (See 2.2 - Difficulties encountered and lessons.)

3. Mobility of the health services : vaccination

The Expanded Programme for Immunisation (EPI) proposed by WHO plans to concentrate efforts on children from 0 to 2 years of age and pregnant women. The vaccines given to the children are BCG, DPT, polio, measles, and tetanus for pregnant women.

In the pastoral zone, where it is difficult to reach the herders and even more difficult to reach their children, it is best at the outset to concentrate on vaccines providing satisfactory cover in one injection, i.e. measles, BCG and tetanus (the latter provides 80% immunity in one single injection (Dr. Delas, WHO official responsible for the sub-region of West Africa : personal communication)).

The target age group should be extended to 5 years, in order to provide cover for children at risk, especially as the first contact with measles, for example, seems to be delayed. The nurses carrying out vaccination campaigns report that they have encountered adults suffering from measles and only 15% (20/137) of the children below the age of 10 are reported by their parents as having had measles (L. Loutan, 1982).

However, an epidemiological survey is required before implementing a vaccination programme. The systematic dosage of measles antibodies to different age groups in a random sample of herders would give a clearer picture of the age at which sero-conversion takes place. Thanks to the techniques of collecting blood specimens on blotting paper, such as those recently used in Cameroon (D.L. Heyman, 1982), a survey of this kind can now be undertaken with limited resources. If it were shown that in a majority of cases sero-conversion occurred later than five years of age, the need for a systematic vaccination campaign would be thrown into question, since the serious complications of measles appear in young children. Greater emphasis would therefore have to be placed on very localised measures in areas where the risk of epidemics was greater (areas which had escaped epidemics for many years, etc.). The same applies to the other diseases such as poliomyelitis, yellow fever or meningitis, whose distribution in the pastoral zone is unknown.

How can the herders be reached?

Hitherto, several methods have been employed. All of them attempt to identify times or places when the people assemble, the health services intervening on such occasions and thereby reducing the need for long journeys and making it possible to reach a greater number of herders in a shorter time.

The interventions of OMNES and then the EDHMM's during the salt cure in the In Gall area are examples. Some groups have used the markets to vaccinate all the herders present (P.J. Imperato, 1969), and others have used the crossing places during the seasonal transhumance movements, where there is a large concentration of people (passes, valleys, etc.) (S.S.R. Haraldson, 1973). Lastly, there is the method employed in Niger during the vaccination campaigns, which is based on visits to the wells and water points during the dry season. Operations of this kind also require the cooperation of the traditional tribal chiefs, who indicate where the surrounding camps are sited.

None, or very few of these approaches requires the participation of the pastoral peoples, whence the difficulty of achieving satisfactory vaccination cover. For instance, in the dry season, when the camps are very remote, children under 5 years of age seldom visit the well, and even more seldom journey to market. Furthermore, the herders water their herds only once every two days. If the herders are not informed in advance of the visit from a vaccination team, only half of them will be at the well and the camps will have to be visited one after the other in order to vaccinate the children.

A new approach, which involves the herders themselves via the health auxiliaries, is required, such as the one advocated by the EPI 5-Point Action Programme (35th World Health Assembly, 1982).

Initially, an information network would be created in the bush using the herder health auxiliaries, which would be able to inform the nurse at the nearest dispensary. The latter would serve as the link between the health auxiliaries and the EDHMM. The EDHMM would intervene in collaboration with the nurse and the health auxiliaries with a view to determining and identifying what measures

to take. The traditional tribal chiefs should also be involved.

Attempts would have to be made to obtain the active participation of the herders by asking them to bring their children to certain vaccination points (such as wells, roads, villages) in order to facilitate the task of the vaccination team.

The EDHMM should concentrate on limited action when outbreaks of epidemics are announced or else prevent epidemics by taking action in areas which have not been affected for a long time and which are therefore more at risk. It should above all concentrate on achieving rapid and regular implementation of the appropriate measures immediately these are required. Links between the health auxiliaries and the nurses should be close with a view to gradual integration of vaccination into the activities of the dispensary. This type of integration with a view to reaching the herders might, for example, initially concentrate on anti-tetanus vaccination of pregnant women at the dispensary.

Subsequently, when the network of herder-health auxiliaries has been expanded and the channels for communication and the reporting of epidemics have been created, more extensive campaigns could be organised, introducing vaccines requiring 3 injections.

Furthermore, it is to be hoped that the herders would gradually come to have their children vaccinated at the dispensary without prompting. It is thus essential to implement a simultaneous set of measures in the bush and develop vaccination at the local dispensaries.

The pastoral associations will fulfil the role of pioneers in this new approach, helping, together with their auxiliaries, to create an ideal context for intervention.

#### 4. Towards integration of activities

In the project area, the required infrastructure already exists for all practical purposes. By the end of the Five Year Plan (1983), a dispensary will have been built at Chadawanka. A dispensary might also be built at In Waggar or Amatalal in order to fill the gap between Abalak and In Gall.

It makes no sense to build dispensaries outside the villages. On the other hand, the curative and preventive activities of the fixed health care units could be extended by organising weekly consultations outside the villages at meeting points, such as wells or markets.

Moreover, the fixed health care training establishments are destined to assume greater and greater importance as they become the geographical points where the different activities are integrated and coordinated, in particular vaccinations and the national primary health care programme. In the long term, most vaccinations will be undertaken at or from the dispensaries, and vaccination campaigns will be limited to emergencies.

Development of the National Primary Health Care Programme (AES) on a much wider scale than in the agricultural areas would also be based on the dispensaries. It presupposes the development of a system of training and supervising nurses by the DDS's.

Furthermore, in view of the variety and the importance of the tasks carried out by nurses in the pastoral zone, a greater proportion of State nurses will be assigned to this region. A supplementary training course to prepare them more specifically for the problems peculiar to the pastoral zone should be arranged.

Parallel to this, a rapid effort should be made by the Ministry of Health and the DDS's to promote the integration of health programmes, in particular between the EDHMM's at present carrying out vaccination and the officials in charge of health care training. This need for greater coordination of activities is particularly acute in the pastoral zone, but applies to the rest of the country as well, whence the importance of initiating a process of consultation between the various services at a national level. This kind of expansion in the operations of the health services cannot be achieved rapidly. In the immediate term, efforts should therefore be concentrated on the AES, responsibility for which falls to the same administrative office as health care training, namely the DES.\*

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\* DES (Direction des Etablissements des Soins) = Division of Health Facilities.

Once the infrastructure is created, health cover will be extended between the dispensaries by a network of herder-health auxiliaries. Much greater priority should therefore be given to the National Primary Health Care Programme (AES) in the pastoral zone.

The AES can, indeed, make basic health care accessible to herders who are remote from the centres and, making use of the structure which already exists in Niger, they can be given a sense of responsibility and an active role in health care.

It is accepted that, in the agricultural zone, 10 health auxiliaries per dispensary is an ideal number permitting the nurse in charge of the running of the dispensary to carry out regular supervision of the health auxiliaries.

If the AES is to be given greater emphasis in the pastoral zone, a larger number of health auxiliaries per dispensary should be envisaged (20 to 40). The nurse will no longer be able to undertake these various activities at the same time as training and supervising the health auxiliaries. As the AES gradually develops in the pastoral zone, the nurses responsible on a full-time basis for the health auxiliaries will be posted to the dispensaries concerned. This presupposes additional training and adequate means of transport (motorbikes and light four-wheel-drive vehicles). Eleven nurses will have to be assigned to the dispensaries in the project area over the next five years. The ILP Project and the Rural Health Improvement Project (USAID) could provide a portion of the finance (transport and training) and training for the personnel involved, in cooperation with the DDS's concerned.

This task of adapting the AES and the back-up structures to the particular characteristics of the pastoral zone, should be undertaken rapidly, in order to satisfy a need which will quickly increase with the establishment of 100 pastoral associations in this region over the next few years.

The target of 20 health auxiliaries per dispensary in the project area should be achieved within the next 5 years. Priority should be given to the pastoral associations, each of which will have a health auxiliary.

With the expansion of the AES in the area, health care units (dispensaries) will be used more often, which will necessitate the development of a reference system between the bush and the dispensaries, the dispensaries and the département hospital, which is more elaborate than at present. The health care delivered at the dispensaries should also be diversified and its quality improved.

Lastly, a system of this kind will only operate effectively if the DDS's provide regular supervision of the health care training establishments, and if nurses' training becomes a constant and developing process.

5. Development of a monitoring and assessment programme

Each year, certain areas are affected by localised drought which renders their inhabitants dependent on food supplies from other more fortunate areas. Sometimes the lack of rainfall is more generalised and may affect far greater areas. This was the situation in 1973, when the area affected by drought stretched from Senegal to the Sudan.

In 1973, the number of head of cattle in Niger was halved, thousands of herders lost everything and were obliged to leave the pastoral zone to work in the towns, the women and children remaining in camps set up in numerous places.

The herders are especially vulnerable as they depend on cereals for their diet without actually producing any themselves. Accordingly, their principal source of supply is the markets, of whose price fluctuations they are the victims. During periods of drought, the price of cereals rises owing to a strong increase in demand at the markets and speculation, both stemming from the crisis. The herders can no longer obtain any milk from their underfed animals and are solely dependent on cereals. When the situation worsens and the animals begin to die, many herders sell them in order to recoup at least something. In view of their poor condition and the sharp increase in supply on the markets, the sale price for the animals collapses, and the purchasing power of the herders is drastically reduced. The lower the price for the animals, the more of them have to be sold

in order to purchase cereals at a high price. The herder can no longer afford to buy enough cereals to cover his food requirements and a famine situation develops, which affects the children above all.

An analysis of a number of famines, including the one in the Sahel in 1973, shows that the cause is not a lack of cereals but their inaccessibility in financial terms to those who need them. In Niger in 1973 although a drop in the production of cereals can be observed, consumption of cereals per head in the country as a whole remained at normal levels. (A. Sen, 1982). A similar situation was observed at the same time in Ethiopia. In regions most affected by famine, cereals were available on the markets, but at a price much too high for people who had lost everything to be able to afford it.

In 1973, the countries affected by famine appealed for help to the international community and received massive food aid. In many places, however, help came too late.

To prevent such economic and human catastrophes as these or to limit them in scale, many people have proposed the establishment of early warning systems which would quickly signal the development of famines. At present, Ethiopia is one of the few countries with a system of this kind which evaluates cereal production province by province and makes a regular record of the availability of cereals on the local markets.

In a development project within the pastoral zone it is important that this type of alarm system should be established. The aim would be to make it possible to detect poor years, identify population groups at risk and monitor a number of indicators sufficiently sensitive to signal when crisis points requiring intervention have been reached.

The development of an early warning system presupposes the creation of a centralised body able to take in the data from the various sectors monitored. A department of this kind could be set up within the Ministry for Rural Development, covering the agricultural and livestock sectors as well as the development projects in the pastoral zone.

Identification and prevention of potential famine situations depends on the monitoring of indicators in the climatic, agricultural, pastoral, economic and social, demographic, health and nutrition fields. Only if these various indicators are integrated will it be possible to determine and forecast a catastrophe in the making, whence the need for a centralised body.

A pastoral development project such as the ILP can contribute to the development and operation of a monitoring system by setting up a continuous monitoring programme within the area it covers.

This programme should make it possible to identify a bad year and the most critical period within that year as well as the groups at risk. To achieve this, a number of indicators should be monitored, namely :

- (1) Environment -
  - availability of grazing
  - adequacy of water supply
- (2) Economy (markets in the area) -
  - ration of livestock sale price to cereal purchase price
  - categories of animals sold (sex, age)
  - number and origin of animals sold
- (3) Food/nutrition -
  - availability of cereals on the local markets
  - reserves of cereals at OPVN<sup>\*</sup>
  - reduction in or lack of milk production
  - consumption of famine foods (cram-cram)
  - increase in malnutrition among children less than 5 years of age (anthropometric measurements)
- (4) Social factors -
  - unusual movements and concentrations of herders
  - increase in the emigration of herders
- (5) Demography -
  - fall in the proportion of men (emigration)
  - fall in the number of children below the age of 5 (mortality)

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\* OPVN = a government department which sells cereals at a fixed price throughout the year; this price is generally lower than the current market price.

(6) Epidemics -

- the appearance of cattle epidemics
- the appearance of epidemics among the herders (measles, etc.).

It is also important to identify which groups of herders are at risk. It is particularly those with few animals, or living off animals not their own or whose animals are mostly affected by an epidemic who are most at risk. Lastly, the size of the family in relation to the number of animals is also a factor. Those most at risk in a society are the children, especially those under 5 years of age, pregnant and breast-feeding women and old people.

Monitoring the nutritional status

The reasons for measuring malnutrition in a monitoring programme are as follows.\*

1. Nutritional monitoring of the population : repeated measurements of entire communities make it possible to identify the differences between the various population groups and the changes which may occur in the course of time.
2. Initial evaluation : in the case of a disaster, a rapid survey of the population concerned makes it possible to identify the groups most affected before launching an aid programme.
3. Individual screening : measurements can be used to identify those suffering from malnutrition who would benefit from food aid.

It is difficult to establish a system for constant monitoring of the nutritional situation which is able to provide quality data. The more observations are taken on a routine basis, the greater is the risk that they will decline in quality.

In a project such as the ILP, the nutrition monitoring component should be cut to a minimum. The official in charge of the health component as a whole should be given responsibility for it.

This programme will have to be integrated with the other activities in the project. As most of the data comes from anthropometric measurements (weight, height, arm circumference) carried out

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on children below 5 years of age, personnel should be trained to deal with this type of measurement. The herder-health auxiliaries themselves could be trained and especially those attached to each pastoral association (PA). The PA's provide a framework which facilitates the development of a programme of measurement on a regular basis.\*

It is unrealistic to ask the herders to carry out measurements the whole year round. Efforts therefore should be concentrated on the "soudure" period from March to July. Children below 5 years of age will be measured (weight and height) at the end of February to obtain reference values. Then they will be weighed every two months until the start of the rainy season. Training and supervision will be provided by the nurses with responsibility for the health auxiliaries, with the support of the coordinator for the health care component in the ILP project.

By carrying out the above series of anthropometric measurements during the critical period at the end of the dry season, it will be possible to obtain basic data (to complete the data obtained during the nutritional survey), which will enable a more precise assessment to be made of variations during a critical period. If a potential famine situation develops, measurements will be taken more often and a larger sample will be covered by a motorised mobile team, in line with the method developed during the nutritional survey.

Other parameters should also be recorded (epidemic, child mortality, change in diet, signs of Vitam A deficiency, pretibial oedema). It is important to classify malnutrition and determine danger levels, in order to be able to assess the prevailing nutritional situation. The weight/height ratio compared with standard values is an excellent indicator because independent of the age of the children (under 5 years). The children under 70% of the standard can be said to be suffering from severe malnutrition and presenting a much higher mortality risk than those with higher than 70% (L.C. Chen, 1980). The threshold of 70% should be regarded as the critical point.

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\* However, it if emerges that the PA's derive greater benefit from the Government services and have improved access to cereals, it will be important to include herders from outside the PA's in the

An example of the classification of malnutrition

	Circumference of arm (cm)	Circumference of arm/ height (% of norm)	Weight/height (% of the norm)
Zero malnutrition	$\geq 13.5$	$> 85\%$	$> 80\%$
Relative malnutrition	12.5-13.5	70-85%	70-80%
Severe malnutrition	$< 12.5$	$< 70\%$	$< 70\%$

Source : de Ville de Goyet, 1978.

The arm circumference presents certain practical advantages as it calls for very little equipment and is easy to carry out. However, the results obtained are less representative than measurement of weight and height combined. Yet it is still a useful measurement, particularly in rapid surveys which have to cover a large number of children. The critical level used is 12.5 cm. When the circumference of the arm can be precisely compared with the child's age, the resulting ratio is a very sensitive risk indicator (the critical threshold is below 75%) (L.O. Chen, 1980).

A nutritional monitoring system is an integral part of a disaster early warning system. The data it provides must necessarily be compared and integrated with the data obtained at the markets, in order to reach a precise assessment of the gravity of the situation and to avoid sending out false alarms. The conclusions are then communicated to the competent government service and the bodies concerned in order to organise rescue activities (food aid, intervention on the local markets to prevent speculation on cereals and prevent livestock prices from collapsing, etc.). The original contribution the project would make in this field would be to forecast and perhaps prevent disasters in the pastoral zone, the effects of which would destroy the achievements and gains stemming from the project.

The monitoring component should be integrated into all the different sectors of the ILP Project - veterinary, grazing management, health, socio-economic - in order to limit the costs and to make it possible to use it also as a tool for assessing the impact of activities within the project.

It is important that the activities of the project should be regularly assessed so that they can be adapted and modified on the basis of their results. A large number of the indicators in the monitoring system can be used, adding more specific criteria for each area of activity assessed. One of the critical aspects of the evaluation will be to estimate what proportion of the herders within the project area derives benefit from its activities and to what extent in the long term the herders can ensure the continuity of such activities (veterinary care, access to basic medicines, operation of pastoral associations, etc.).

V. CONCLUSION

1. Health care policy

Health care policy in Niger is based upon the principle of "total, permanent and integrated health care (coordinating preventive, curative and educational activities) for all the population, the aim being through their participation to achieve self-sufficiency...".

To achieve the long-term objective of "health care for all in the year 2,000" the Government has given its approval to a serious effort to develop an infrastructure in rural areas, to expand the National Primary Health Care Programme (AES) and train nursing personnel.

However, the sudden expansion in the construction of dispensaries and the training of numerous village health teams (VHT's) has taken place more rapidly than the existing health system could cope with. Some health care units and many VHT's have not operated satisfactorily.

Furthermore, the health budget has stabilised or even shown a downward trend since 1980. A greater part of the budget is absorbed by the towns and hospitals, whereas the vaccination sector has not experienced any expansion since 1979.

All of this is situated against the background of a less favourable economic situation, in which the price of uranium, which is the principal source of national revenue, and the amount exported, have fallen markedly.

It is therefore imperative during this period of budgetary restraint to undertake an evaluation of activities in the field of health care with a view to streamlining them and improving their efficiency and making health care services more accessible.

2. Health cover in the pastoral zone

Although for the country as a whole health care cover has improved and now reaches 30% of the population (living less than 5 km from a dispensary), serious regional disparities still exist.

In the pastoral zone very little use is made of the health services by the herders. Only 8% of a sample of 300 herders stated that they visited a dispensary once every three months, and when the origin of patients attending dispensaries within the project area for consultation was recorded, it was found that only 15% of first-time patients came from the bush, on ordinary days and 53% on market days. Thus, the dispensaries are in fact only visited by herders on market days, i.e. one or two days per week.

Vaccination campaigns which depend solely on mobile health teams (EDHMM) do not succeed in providing adequate vaccination cover. Out of a sample of 130 Wodaabe children below 10 years of age only 5% bore vaccination scars. The PMI programmes and chloroquinization of children and pregnant women do not reach further than villages with a dispensary and the number of births which take place under medical supervision is negligible.

The National Primary Health Care Programme (AES) has fallen seriously behind. In the area covered by the NRL project, there were, in 1981, 77 health auxiliaries and birth attendants for an estimated population of 185,000 and half of those were living in villages. The ratio of health auxiliary or birth attendant per head of population is 4 times lower than in the country as a whole.

However, the existing infrastructure in the project area is well developed. The great majority of the towns in the area have a dispensary and 6 of the 11 dispensaries have a Landrover.

There are many reasons for the fact that the health services are not used. The dispensaries are scattered,\* the camps are remote in relation to the dispensaries, the population is mobile and widely dispersed, communication between the herders and nursing personnel is difficult, etc. But one major obstacle preventing access to health care is bound up with the actual organisation of the health services. The health services provide services to the people without the latter participating or being involved. It is a classical approach according to which health care

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\* Each dispensary serves an area 6 times larger than dispensaries in the agricultural zone.

is "delivered" to the population concerned, but which frequently fails to take account of the specific characteristics and constraints in the pastoral zone. The result is that it is impossible to reach the herders and provide them with satisfactory health cover and that the health services are under-used.

The situation in the project area is one of a pastoral people with little access to health care, even though the services to deliver it already exist. Efforts will have to concentrate not on the actual infrastructure itself, but on the way it operates and possible ways and means of making it accessible so that the herders can use it. The existing structures and the available means will have to be used more efficiently, and some of the measures already undertaken will have to be coordinated and integrated rather than increasing the types of activity. Efforts should be concentrated on training of existing health personnel in the project area and on getting the herders to participate, giving them a sense of responsibility as regards the health services via the National Primary Health Care Programme.

### 3. Proposals

#### 3.1 Meeting priority health requirements

Priority should be given to the common ailments which endanger the lives of children, and affect the working capacity of adults and sicknesses which are regarded as important by the herders themselves.

The health auxiliaries should be trained to treat the following health problems :

- fever (presumed malaria)
- diarrhoea
- pulmonary problems
- Vitamin A deficiency
- conjunctivitis
- rheumatic complaints
- gonorrhoea

Appropriate action should be taken on the basis of the results of epidemiological surveys on the distribution of diseases linked with animals (tuberculosis, brucellosis, anthrax, etc.).

A MCC programme should be addressed more specifically to women with a view to the promotion of :

- childbirth in hygienic conditions
- health care for new-born infants
- improved nutrition for children towards the end of the dry season.

As regards measles and the other epidemic diseases of childhood, epidemiological surveys should be conducted before vaccination programmes are organised. Only this type of approach will show which type of vaccination programme to launch and which age group should be targeted.

### 3.2 Participation of the herders and delegation of responsibility to them for some aspects of health care

The importance traditionally attached to the mobile health services in regions with low population density should be abandoned in favour of the National Primary Health Care Programme based on the dispensaries. The mobile health services should still be involved in the field of vaccination. But vaccination should be carried out more and more at the dispensaries or from fixed locations in the bush (wells, markets, etc.).

The National Primary Health Care Programme as organised in the villages should be adapted to the pastoral zone and should take account of the dispersal of the local populations, the large distances which have to be covered and seasonal variations.

- Consequently, the health auxiliary should be given as much independence as possible, should receive more advanced training and should be equipped with effective drugs the quantity and variety of which should be adapted according to the seasons. The health auxiliary should also be an instructor ("animateur"), able to promote the use of medicines such as chloroquine, Vitamin A, etc. by the herders so that they can obtain and use them if they are remote from the dispensaries or the health auxiliaries.
- Training should be organised accordingly, and extended to a minimum of two weeks with a week's refresher course each year.
- The number of health auxiliaries per dispensary should gradually be raised from 20 to 40, the aim being to achieve a target of 200 health auxiliaries or 20 per dispensary within the project area in the next five years.

- For a programme of this kind to be able to function, adequate backup structures will have to be developed. One nurse in each dispensary will have to be responsible for the health auxiliaries and the DMI programme, which presupposes the assignment of 11 nurses for the area covered by the project (they should preferably be State nurses). The nurses should receive additional training concerning knowledge of the herders' way of life, traditional practices and nutrition, instruction and supervision techniques, primary health care management at dispensary level, etc. This sort of training could be achieved in repeated courses organised jointly by the DDS and the project.
- Supervision and training of nurses in charge of the National Primary Health Care Programme should be strengthened. The official in charge of this section of the ILP project should be requested to provide support at the level of the DDS's and the nurses and should act as coordinator for the other activities carried out by the project, in particular those concerned with the pastoral associations (PA's).
- The available means of transport should be placed at the disposal of the nurses either temporarily or permanently. The use of low-cost vehicles (motorbikes and Suzuki) should be promoted. Responsibility for this should initially lie with the ILP Project or the Rural Health Improvement Project (USAID). It would subsequently be seen to what extent the herders, via the PA's, could stand part of the costs.
- Government policy of providing drugs free-of-charge should be changed; the drugs should be paid for from the health auxiliaries and from the dispensaries.
- A PMI programme should gradually be developed. As traditional birth attendants do not exist among the pastoral peoples in Niger, women's instruction classes will have to be organised in the pastoral associations to promote a number of priority activities according to their wishes and interests, such as care for the new-born, nutrition of new-born infants and young children, childbirth, hygiene, etc.

The programme should be organised in such a way that the new techniques and practices suggested are passed on to as many women as possible rather than training a small number of very knowledgeable birth attendants. Responsibility for the training and supervision of the above-mentioned "relay-women" will be in the hands of the nurse in charge of the health auxiliaries at each dispensary. The training of the nurses will be provided by the DDS supported by the official responsible for the health care component of the ILP Project.

As regards vaccination, a system for providing information on and reporting epidemics should first be developed via the PA's and health auxiliaries, to provide a clearer idea of epidemiology in the pastoral zone. Parallel to this, serological surveys should provide information on the distribution and the average age of children's contact with measles and the other common diseases for which vaccination could be carried out.

Although in the first phase, vaccination by the mobile teams should be continued - though limiting themselves to precise sectors according to the diseases reported - subsequently the herders should be vaccinated above all at the dispensaries or in places where there is a concentration of population (wells, markets, etc.).

The ILP project should include a monitoring and assessment sector, the aim of which should be to rapidly identify the development of potentially critical pre-famine situations within the project area, by regularly monitoring a number of economic, epidemiological and nutritional indicators. A component of this kind would possess the dual advantage of attempting to warn against and, if possible, prevent disasters such as the 1973 famine, while providing the project with a system for assessing the impact of its own interventions on the herders. Each section of the project would be entrusted with the task of monitoring certain parameters (veterinary, nutritional or economic), the comparative analysis of which would be undertaken by the official responsible within the project, before communicating the results to the Ministry for Rural Development. Nutritional surveillance would be dependent above all on anthropometric measurements (weight, height, arm

circumference) which the health auxiliaries should be able to carry out on a routine basis during the dry season, in order to provide basic data. If a crisis were involved, a mobile team would carry out a rapid survey on a larger sample.

4. Role of the ILP Project in the fields of health and nutrition

The ILP Project should operate on two levels : locally, within the area covered by its activities, and at Niamey in the Ministry of Health.

In the area covered by its activities, the project should perform an introductory task vis-a-vis the herders; it should provide a certain amount of material but chiefly methodological support to the health services and undertake to coordinate the health sector with the other activities affecting the pastoral associations and training. The focus of attention should be the additional training of nurses in charge of the health auxiliaries and the PMI programme, including documents, training courses, joint supervision rounds, meetings of the various officials in the pastoral associations, etc. The approach should always be to seek economically viable solutions which could be taken over entirely by the Government services, with some financial participation on the part of the beneficiaries, i.e. the herders.

At the middle level and in close cooperation with the Rural Health Improvement Project (USAID), the official in charge of the health component should be given the task of developing a health care development strategy in the pastoral zone at a national level, while participating in the creation and subsequently the activities of a joint commission in the Ministry of Health. In view of the degree of centralisation in the health system of Niger and the control which the Ministry of Health wishes to maintain on activities within its sector, this work at the middle level, which extends beyond the boundaries of the project, is essential.

The health care component of the project should consist of an expatriate official and a counter-part from Niger, who would be a State nurse with additional public health training and who would be assigned to the project by the Ministry of Health.

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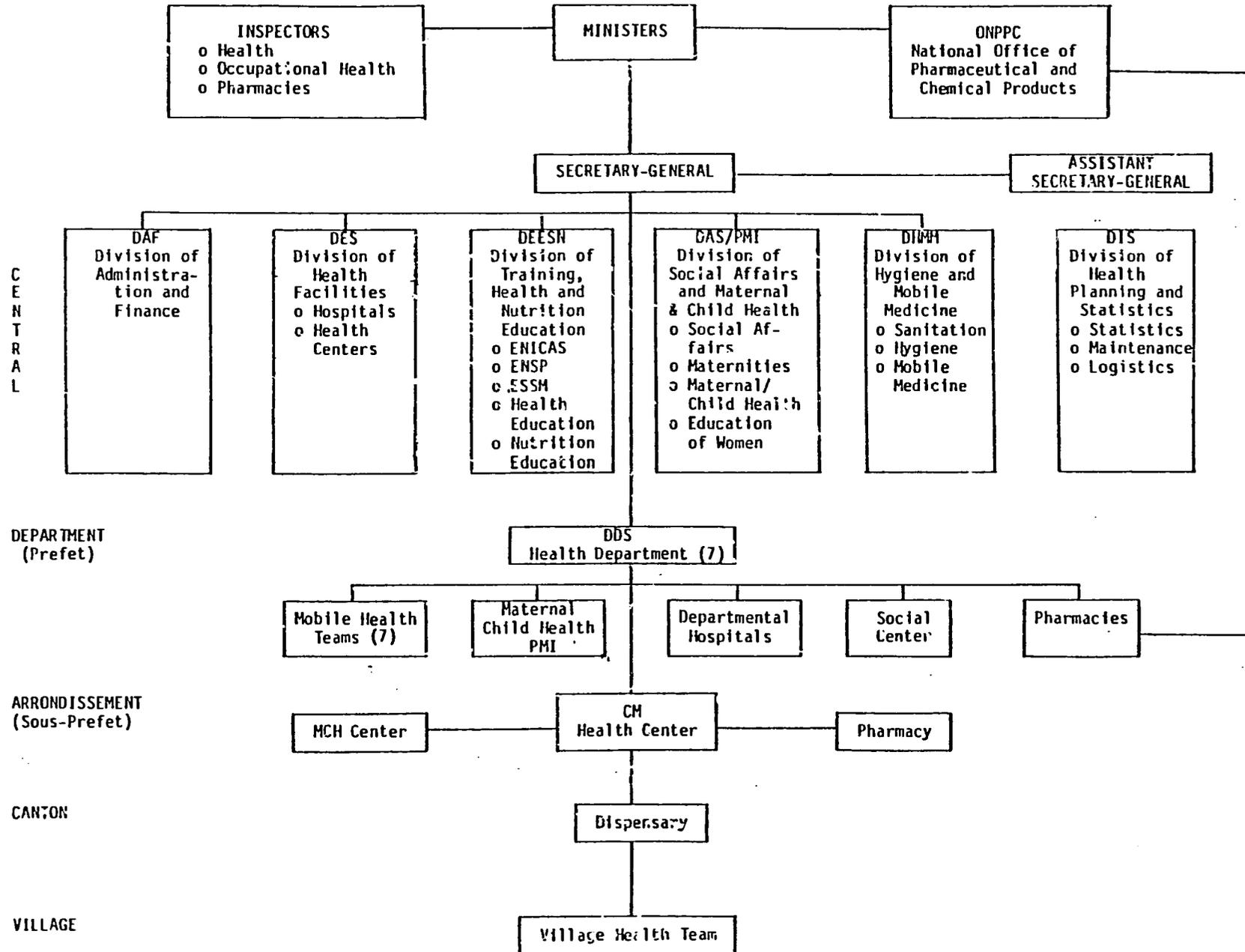
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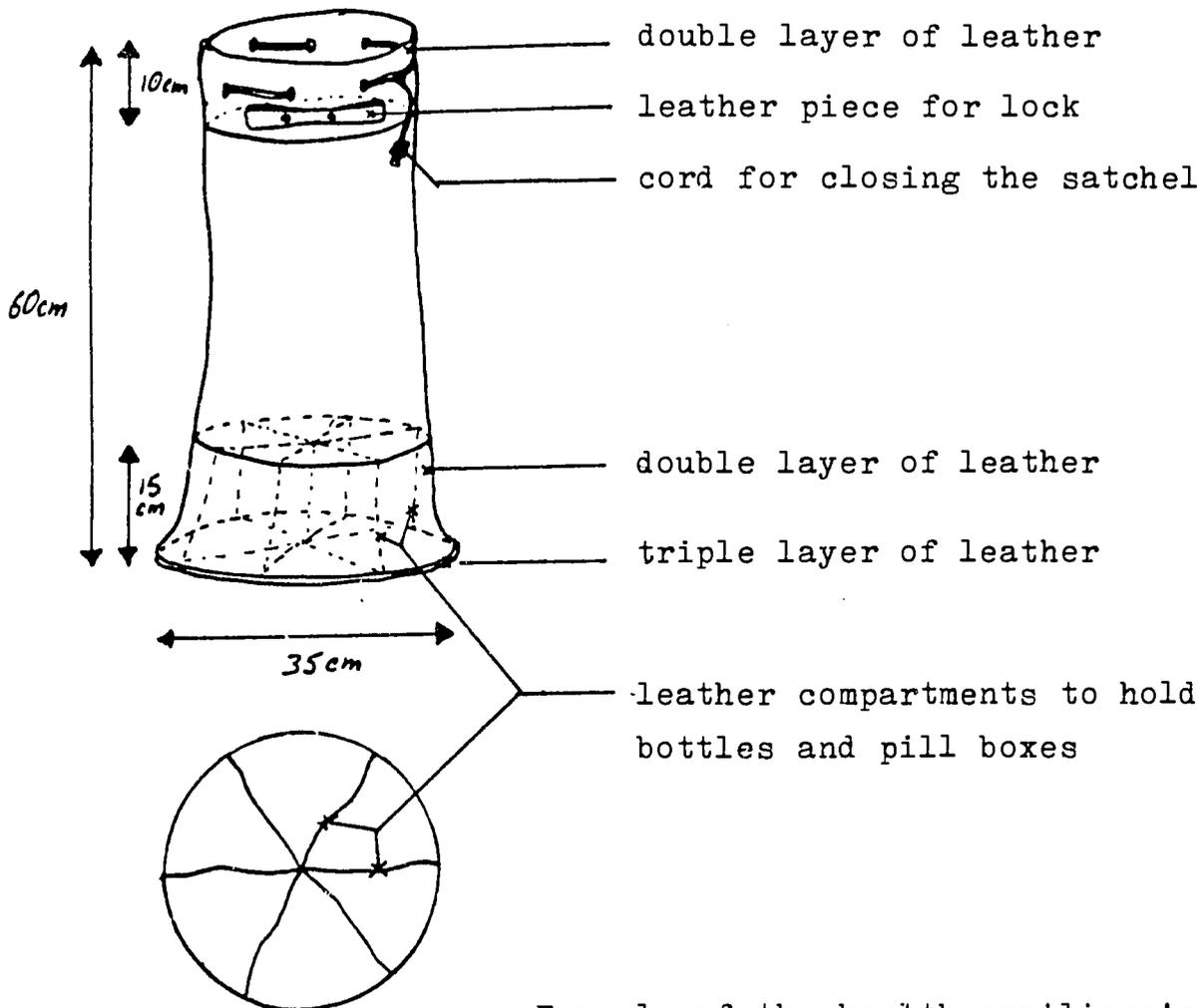
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ORGANIGRAM OF THE  
MINISTRY OF PUBLIC HEALTH  
AND SOCIAL AFFAIRS



Example of a health auxiliary's satchel



Example of the health auxiliary's card

REPUBLICQUE DU NIGER  
 DÉPARTEMENT DE TAHOUA  
 DIRECTION DÉPARTEMENTALE DE LA SANTÉ

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**CARTE DE SECOURISTE**

NOM \_\_\_\_\_

Village \_\_\_\_\_

Dispensaire de \_\_\_\_\_

Rattachement \_\_\_\_\_

Arrondissement \_\_\_\_\_

VISA DU CHEF DE C M;

PHOTO

Année de Formation : \_\_\_\_\_

Année du Premier Recyclage : \_\_\_\_\_

Année du Deuxième Recyclage : \_\_\_\_\_

Contents of the health auxiliary's satchel

Proposals:

- One oral antibiotic  
( penicillin/ampicillin/chloramphenicol )
  - Aspirin
  - Aureomycine eye ointment
  - Chloroquine
  - Cough suppressants: tablets, syrup
  - Oral rehydration powder
  - Vitamin A
  - Mercurochrome solution
  - Cotton wool, bandages
  - Scissors
  - Notebook and pencil
-

EVOLUTION DE LA COUVERTURE SANITAIRE AU 30/12/81

Départements	Médecins		Habitants par médecins		Lits CHN/CHD CM/Maternité		Habitants par lits		Lits de Maternité	Femmes par lits de maternité	Dispensaires + CH		Habitants par Dispensaire CH	
	1978	1981	1978	1981	1978	1981	1978	1981	1981	1981	1978	1981	1978	1981
AGADEC	8	10	16500	15700	156	223	850	700	52	610	16	18	8300	8700
DIFFA	6	6	28300	29900	139	206	1220	870	39	920	14	14	12100	12800
DOSSO	5	8	141900	195200	1246	337	12900	2260	95	1600	28	34	125300	122400
MARADI	13	14	74700	75500	427	575	2270	1840	91	2320	27	37	36000	28600
NIAMEY	49	69	124700	119300	1079	11297	11120	1030	199	1340	51	64	123700	120900
NIAMEY (ville)	(47)	(56)	(5300)	(7900)	(899)	(1043)	(1170)	(320)	(120)	550	(8)	(12)	(34000)	27500
TANDJA	9	12	112800	190000	1512	1596	11920	14810	123	1760	32	34	131700	131800
ZINDER	16	16	64400	69800	603	618	1710	1010	103	270	29	32	35500	34900
NIGER	(1) 106	(2) 135	49.400	42.100	3.122	3.852	1.700	1500	702	1.620	197	233	26600	24400

(1) Non compris les 15 médecins affectés à des services ministériels ou la formation - ainsi que les 4 médecins des 2 cliniques privées de Ny.

(2) Situation provisoire (et également non compris 13 médecins administratifs ou enseignants)

N.B. Si l'on défalque du nombre total de médecins, le chiffre des médecins concentrés à Ny, la couverture réelle du pays est de 1 médecin pour 59700 habitants. Elle était de 52.000 en 1978, mais zone urbaine de Niamey non comprise.

Le nombre de femmes par lits de maternité correspond aux femmes en âge de procréer.

(15 - 45 ans).

Bilan d'exécution des années 1979-1981 : le secteur Santé. Ministère  
du Plan - République du Niger



EVOLUTION DES DEPENSES DE SANTE - BUDGET PREVISIONNEL

(millions de F. CFA)

	1975	1976	1977	1978	1979	1980	1981
<b>TITRE III : Moyens des services</b>							
- Personnel	599,60	717,6	863,30	1.072,4	1.190,3	1.372,0	1.703,9
- Matériel							
fonctionnement des services et matériel technique	467,1	792,6	811,2	905,8	1.209,0	1.363,1	1.434,2
(dont médicaments et vaccins)	(315,0)	(454,0)	(476,7)	(530,0)	(800)	(940,0)	(1.000,0)
Transports	74,0	155,4	208,0	228,40	262,4	300,4	306,4
Au titre des pouvoirs publics (titre II)	0,8	0,80	0,80	0,9	1,1	1,1	1,1
<b>Total Matériel</b>	<b>541,9</b>	<b>948,8</b>	<b>1.020</b>	<b>1.135,1</b>	<b>1.472,5</b>	<b>1.664,6</b>	<b>1.741,7</b>
<b>Total titre II</b>	<b>1.141,5</b>	<b>1666</b>	<b>883,3</b>	<b>2.207,5</b>	<b>2.662,8</b>	<b>3.036,6</b>	<b>3.445,6</b>
<b>TITRE IV: Interventions Publiques</b>							
Budget MSP/AS-Délégation OMS	-	-	-	-	3,0	3,0	3,0
Budget Finances							
Action sociale	1,5	1,5	141,5	160	160,0	85,0	20,0
Délégation OMS	6,9	6,9	7,3	7,3	7,3	7,3	7,3
<b>Total titre IV</b>	<b>8,4</b>	<b>8,4</b>	<b>148,8</b>	<b>167,3</b>	<b>170,3</b>	<b>95,3</b>	<b>30,3</b>
<b>Total budget fonctionnement Santé (1)</b>	<b>1149,9</b>	<b>1674,8</b>	<b>2032,1</b>	<b>2374,8</b>	<b>2833,1</b>	<b>3131,9</b>	<b>3475,5</b>
<b>(*) Budget Général de fonctionnement (2)</b>	<b>13932,7</b>	<b>20293,4</b>	<b>25274,6</b>	<b>29429,8</b>	<b>34547,0</b>	<b>44704,7</b>	<b>53140,5</b>
<b>Part des dépenses de Santé (1)/(2) dans le budget général de fonctionnement</b>	<b>8,3 %</b>	<b>8,3 %</b>	<b>8,0 %</b>	<b>8,1 %</b>	<b>8,2 %</b>	<b>7,0 %</b>	<b>6,5 %</b>

.../...

Bilan d'exécution des années 1979-1981 : le secteur Santé. Ministère du Plan - République du Niger

	1975	1976	1977	1978	1979	1980	1981
FNI Dépenses de Santé (3)	115,40	120,45	250,00	495,3	1.028,0 <sup>(**)</sup>	1.553,7 <sup>(**)</sup>	1.200,0 <sup>(**)</sup>
Budget total FNI (4)	2320,12	3405,80	8000,0	13000,0	21.000,0	26.000,0	26.000,0
Part des dépenses de Santé 3/4 dans le FNI	5,0%	3,5%	3,1 %	3,8 %	4,9 %	6,0 %	4,6%

(\*) Déduction faite des transferts et subventions au BAEMTP et de la Dotation au FNI

(\*\*) Il faudrait ajouter à ces 2 montants les crédits affectés à la formation sanitaire + 100 Ms en 1979... + 705 en 1980 et + 530 en 1981.

Source - Budget-général de l'Etat

. Inscrit au budget Ministère des Finances - secours et subvention à la CNSS.

## NIGER RANGE AND LIVESTOCK PROJECT

Since 1979, the Niger Range and Livestock Project, jointly administered by the Government of Niger, the Ministry of Rural Development and USAID, has conducted extensive research in the pastoral zone of Central Niger. The project's final report of research findings will be published in December 1982.

### Discussion Papers

The discussion paper series presents preliminary research results, consultants' reports, and selected chapters of the final report.

These papers represent their authors' perspectives and do not necessarily reflect the position of the Government of Niger or USAID.

It is hoped that the circulation of these discussion papers will generate commentary and dialogue.

Niger Range and Livestock Project  
B.P. 85  
Tahoua  
Republic of Niger