

## **A PROJECT OF COOPERATION FOR DESERT ZONES**

**1. An economic context in change.** The large scale introduction of export crops, such as cotton or sorghum, and the progressive destruction and removal of cattle from the country in the form of meat have eventually broken the balance of the ecology and life of the population of Sahel.

Sahel is an arabic word which refers essentially to the climactic state of a region of almost 4,000,000 km<sup>2</sup> of semi-arid land, of which a major part belong to Mauritania, Western Sahara, Morocco, Burkina, Chad, centralafrica, Sudan, Niger Ethiopia and Somaliland.

In the same way as the Tuaregs circulate in their Northern districts, the Sahel is a nomadic, mobile and transitional fringe the limits of which expand and contract according to the volume of rainfall, or lack of it, each year e

Groups of nomadic herdsmen; exploit the scant resources of a strip of land the annual mean precipitation of which varies between 100 and 350 mm. Further South, in a region of 350-600 mm rainfall, herdsmen and farmers coexist; the latter bartering their cereals for the cattle products of the former: meat, leather and hides.

In order to understand what these precipitation figures mean, one must bear in mind that in the zone affected by the Sahel, the rain falls in short and intense bursts and 80-90% of the humidity produced is lost through evaporation. In Madrid rather less than this), but they are more equally distributed over the year and losses through evaporation are insignificant.

### **2. To the underdevelopment.**

Relatively small annual variations in precipitation can transform large areas of land. Thus, for instance, in 1941-42 rainfall was less than 100 mm over an area of 340,000 square kilometres in Mauritania The result was that the whole area (i.e. a third of the total area of the country) turned into an inhospitable desert. Ten years later, when precipitation rose above 100 mm again, the nomadic herdsmen could pasture their cattle in the same land. With another swing; of the pendulum the situation is reversed again. Over the last ten years, the desert has advanced inexorably South, claiming 150 kilometres of what hitherto was pastureland for the nomads.

Owing to the mobility of the natural milieu, the population of the region has had to establish a whole series of different, yet interdependent, ways of life, specifically adapted to a seasonal and cyclic regime of insufficient humidity. In other words, semi-aridness is a constant in the Chad and the whole life style of the population is based on this.

So then, if this is so, why has the drought of the last years had such serious consequences? If the way of life, developed throughout centuries in the Sahel was specifically designed to face semi-aridness, then why has it failed so miserably in the face of this new period of drought, serious though it may be?

The answer is that various technical and socio-economic innovations, imported from outside, have disturbed the precarious balance of the region. Although is there anything more useful in practice for; the herdsman of a region liable to drought than the sinking of deep wells and the creation of a chain of water holes for cattle? Is there anything more logical than combatting and eliminating the endemic diseases which periodically decimated nomadic herds?

These innovations have not only affected the herdsman. Commercial crops such as cotton, groundnuts and rice were introduced. The population grew, and it became necessary to give over to agriculture a greater proportion of land which were pasture before.

The main diseases eliminated, the nomads' cattle herds multiplied and a growing number of cattle were concentrated on an ever diminishing area of pastured land. Grouping around the recently created water holes, the more numerous herds soon deteriorated the fragile pastureland. Thus the effort to solve the problems of water supply and animal health gave rise to a new problem, when the drought became serious: the lack of food. During the drought in 1970-75 over a third of the cattle died from starvation, and not from thirst or disease. Not in vain in 1975, and after 15 years in power, President Tombalbaye —in Chad— was overthrown and assassinated, and was succeeded by General Malloum.

### **3. Rationalisation is imposed.**

Traditionally, the nomad felt obliged to maintain the greatest possible number of cattle in order to guard against losses through disease, drought and pillage. Water holes were less numerous, but their use was regulated jointly by the use of force, agreements and custom. When disease was wiped out and the water supply problems mitigated, the nomads continued to maintain large herds as a guarantee against catastrophes which were no longer so menacing. Later events showed that, if the improvement in the water supply had been combined with controlled planning of the new water holes and reduction in animal diseases with pasture improvement plans

and more, satisfactory marketing agreements to absorb the increase in cattle production, the consequences of the recent natural disaster would have been reduced.

The destruction of pasture resources and of basic grazing land through excessive use, which was already serious before the last drought, had catastrophic repercussions when the annual precipitation turned out to be considerably lower than the average. Thus, then, the central problem of Chad consists in organising grazing land in accordance with fluctuating and marginal climatic conditions of an indivisible socioeconomic and cultural whole. It must be approached from a global point of view. The problem cannot be solved by taking isolated measures for specific difficulties. It is necessary to examine the consequences of the evolution of human populations, of the patterns of settlement and technology of the corresponding ecosystems. UNESCO, through its Man and the Biosphere Programme (MBP), carried out a set of research works on arid zones, which gave rise to the publication in 1962 of a World Soil Map analysing the whole of African vegetation while it was preparing a map on African groundwater North of the Equator.

##### **5. Some option of cooperation for development.**

Nevertheless, development plans in Sahel failed. The socioeconomic and ethnic cultural context of the local population was not taken into account. There was no profound knowledge of the environment, and the centuries-old experience of the people of Chad was not taken into consideration. And, above all, there was no educational activity in parallel. It was necessary to establish land use directives to establish on them economic and social relations that would be mutually beneficial for nomads and farmers. Evaluate the capacity of regions, the precipitations of which insufficient to support agriculture and the main type of use will probably continue to be cattle raising in a nomadic system. And at the same time assess zones where the transition from nomadic to sedentary cattle raising is possible.

For this concrete point it would have to be applied in the areas which were the most favourable for the production of forage and could be equipped with a regular water supply. The zone to be administered would be centered around a deep well, which could provide water in the dry season. It would include some seven thousand head of cattle, representing the combined herds of seventy families, that is, in all, some 350 individuals. Pasturage should take up some 31,500 hectares, forming a circle of 10 kilometres radius around the well.

Beyond that circumference, there would be a ring of land of some three kilometres wide, which would serve as pastureland in the rainy

season. At regular intervals in the zone there would be a number of ten artificial storage reservoir; with sufficient capacity between large Precipitations to attend to the needs of 700 head - i.e. one tenth of the total cattle, for 15 days, as shown schematically in the figure. Around each of these reservoirs there would be a circle of pasture land of 840 hectares.

In the dry season each herd of 100 head would be moved to the "dry season circle", but keeping it at the outer edge of the circle. Every day the cattle would be driven to water at the central well along narrow and well-defined paths, in order to prevent them from stamping on the pasture land. Later, the cattle would be placed again some 5 kilometres from the well, thus reducing the distance necessary to obtain water during the period of maximum heat.

Although this scheme may seem simple to put into practice, it is necessary to mobilise the decided cooperation of the herdsmen, and also an educational programme in order to explain to them the need to adopt new ways and organize a disciplined control of their herds.

But what is important is the knowledge that there are reasons and projects for hope in this huge country, which is the Sahel.

