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DROUGHT CONTROL AND DEVELOPMENT IN THE SAHEL

SITUATION AT THE START OF THE 1980s

OVERVIEW AND PROSPECTS

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SUMMARY

As of the beginning of the 1980's, there is reason for concern about several aspects of the situation in the Sahel.

The analyses made by the Club du Sahel and the CILSS in the aftermath of the great drought showed that the region was afflicted by basic disequilibria, which the drought had clearly revealed. As of the early 1980's, none of these basic problems had been solved, but they could hardly have been expected to be solved in so short a time. More disturbing is the fact that none of the main unfavourable trends identified has begun to reverse.

Food production is rising less rapidly than population. Farm productivity is stagnating, while migration into urban areas is constantly increasing. The town-dweller is increasingly dependent on imports and food aid.

Food production is still vulnerable to drought and in some regions soil fertility is declining. The Sahel is living on its capital.

The livestock sector is not being modernised. Meat exports are dropping, milk imports are rising; herds raised according to traditional systems cannot grow indefinitely. Deforestation and desertification are advancing in some zones.

All these phenomena are symptoms of a single ill: the Sahelians have not yet managed to define and introduce a system

which will allow better use of land surface that is shrinking because of population growth, nor to harness their potential resources for a better life.

Other imbalances have been added by international economic trends and internal developments in the Sahel itself.

Production of export crops has levelled off or is decreasing, but industrial development has not accelerated. Economic growth is slow, the public sector remains cumbersome. Savings are too low to enable the governments to finance new investment, most of which is funded by foreign aid sources. The Sahelians are not always able to preserve their capital stock intact.

The foreign debt of most Sahel countries has reached disquieting proportions and is comparable to that found in other heavily indebted Third World countries. For certain Sahel countries the debt is largely due to foreign aid provided on concessional terms and so the debt service is manageable. Other Sahel countries have accumulated debts at market terms in addition to concessional debts and their debt service is high.

International aid has risen since 1975. In 1980, 1981 and 1982, ODA commitments amounted to $1690 million a year on average, i.e. an increase of 26% over the previous three-year period. The Sahel countries now rank among the countries receiving the highest amount of aid per capita in the world.

Aid has been concentrated increasingly on the sectors suffering most from fundamental disequilibria. Despite this, aid to these priority sectors remains modest. Less than 4.5% of the total is allocated to the development of rainfed cereal farming, which accounts for 95% of cereal production, and only 1.5% has gone to ecology and forestry.

By contrast, more than one-third of aid is not used to finance new investment, but to help the Sahel Governments to function. This portion includes food aid, various forms of budget assistance, technical cooperation, etc. Thirteen percent of total aid is used for the construction of transport infrastructure whose maintenance is becoming increasingly more difficult.

The Sahelians' efforts together with the increased aid from the International Community have often been successful. There are many examples of effective projects - but most of them are isolated achievements. The main trends have not yet been reversed.

The Sahel's position has evolved since 1975. Understanding of the region's problems has sharpened, mainly through the work of the CILSS and the Club du Sahel, although much remains to be understood. Consequently, the policies of the Sahel countries and aid donors have begun to evolve. But, it is now necessary to move forward, and taking account of the changed situation, to draw more benefit from what has been learned so that joint action by the Sahel and the International Community will be more effective. A new approach is essential.

The magnitude of the economic difficulties affecting the Sahel must be taken into consideration. Food self-sufficiency and ecological equilibrium must be related to the economic dimension. It must constantly be borne in mind that all the problems are linked and that the aim must therefore be to change the land and production system as a whole, by a consistent set of actions.

The "Ottawa Strategy", as revised in Kuwait, was an initial attempt to introduce consistency of action. It has no doubt become insufficient. It is necessary to go further. Several suggestions can be put forward as to how this should be done.

The first is to follow-up the conceptual work undertaken by the CILSS and the Club du Sahel, but to set the analysis in an overall and prospective economic framework. The Sahel governments and aid sources increasingly need to place their daily action in a more general, long run context.

Second, a more systems-oriented approach should be adopted. Since the system as a whole needs to be changed, individual actions are necessarily of limited efficiency. Favourable conditions must be established so that those concerned, and in the first instance, the farmers and herders themselves, make the system change from within. This pre-supposes a consistent set of actions to create the conditions for change, removing the obstacles, and providing the necessary supporting action.

This is the business of the Sahel governments, aided by the International Community. To this end, it is proposed to update the concept of a contract, in which each partner undertakes specific commitments : the policies to be implemented by the Sahelians, and the volume, conditions and continuity of aid for the International Community. This necessitates, on the one hand, more rigour in devising and pursuing policies and on the other, a different concept of aid and a minimum of collaboration among donors. It is suggested that a first experiment with the new contractual approach could be made in the field of agriculture and food production.

This overview of the Sahel's position at the outset of the 1980's cannot end without a question. The Sahel is constantly threatened by a recurrence of generalised drought as in 1972 - 73. Another drought could occur at any time : are the Sahelians and the International Community ready to face up to it?

INTRODUCTION

THE FIRST OVERVIEW PRESENTED IN KUWAIT

The two Secretariats of the CILSS and the Club du Sahel presented their first overview of drought control and development of the Sahel from 1975 to 1979, at the Fourth Conference of the Club du Sahel, held in Kuwait in 1980.

That report was mainly devoted to an analysis of the volume of aid to the Sahel provided by the International Community after 1975 - its trends, its sectoral and geographical distribution and its impact on the region. Recognising that it was somewhat premature to assess this last point, the report focused on the description of some of the main trends observed in the Sahel over the period considered, and concentrated on the conclusions to be drawn from the experience gained in the actions undertaken during that period;

That initial overview document was welcomed favourably at the Kuwait Conference. The participants considered that it shed "light upon the positive aspects and the gaps of the development effort undertaken" and "that it would be very useful in the future to direct the combined efforts of the Sahel States and the International Community".

In view of this favourable judgement, both Secretariats thought that it would be useful to present a similar document at the Brussels Conference. But, a new overview which merely updated the 1980 work analysing the change in the volume of aid and the trends in the Sahel over the years 1980, 1981 and 1982, while no doubt providing interesting information, would perhaps be of too limited scope. It was thought that Sahel and International leaders would find

it more useful to have a document drawn up in the same spirit as the Kuwait overview, but emphasizing different themes.

NEW FEATURES OF THE PRESENT DOCUMENT

Following the severe drought which struck the Sahel in 1972 and 1973, several studies analysed the region's situation in the aftermath of this climatic disaster (see for example the FAO prospective study published in 1976).

Much has changed in the Sahel since 1974: climatic conditions, although not uniformly good, have been better on the average; the population has continued to increase; the Sahel is confronted with a worldwide crisis which did not exist, or not to the same extent, only a few years ago. What is the present situation in the Sahel? It would seem that an analysis could be of value, especially as regards the food supply and ecological aspects which are basic concerns of the CILSS and the Club du Sahel.

It also seems useful to place food supply and ecology in a more general economic framework. How have the economic and social indicators in the Sahel moved? What about investment and saving? External financing and indebtedness?

The first part of the present report attempts to analyse the Sahel's position at the beginning of the 1890's; it presents only the essential data and is limited to a description of observed facts and trends, but with no judgement as to the causes of what will be seen to be a far from satisfactory situation.

Part two updates the information on international aid in the 1980 overview: the nature and volume of aid to the Sahel in the early 1980's, and changes in its volume, its distribution between economic sectors, its terms, etc.

Part two is similarly restricted to reporting facts and trends.

Part three deals with policies. Since the creation of the Club du Sahel, the idea has gained ground that it is not enough to undertake an increased number of development projects nor to increase the volume of foreign aid. The need to place projects within the framework of suitable policies has been recognised. The thinking engendered by the work of the Secretariat of the CILSS and the Club du Sahel has undoubtedly contributed to the definition of new policies -- particularly in such key sectors as cereals production, ecology, forestry, village hydraulics, etc.

What is the present position? What are the Sahel States' approaches to the policies to be implemented to obtain food self-sufficiency and accelerate the pace of development? How do foreign donors view their aid policies? And what has been the outcome of the policies which have been implemented in practice?

I - THE SITUATION IN THE SAHEL

1.1 - POPULATION

No new data have been established recently to improve our knowledge of Sahelian demography. There are still gaps in the information on population size, its rate of growth and the factors responsible for its growth. Based on available census data, some of which is admittedly old, there were a little over 30 million Sahelians in 1980.

The rate of growth of population has exceeded 2.7% per year over the last decade everywhere except in Upper Volta, where substantial emigration reduced it to 1.8%,and in Cape Verde where a significant decline in the birth rate appears to have limited annual growth to approximately 2%.

The distribution of population over the Sahel is quite uneven. This is due to climatic constraints: the density of the population is almost nil in the desert and sub-desert zones and increases on average as one moves south to increasingly watered regions. However, neither climatic data nor agricultural resources alone explain the present distribution pattern. In Upper Volta the Mossi plateau is more densely populated than the South-West of the country which is better endowed by nature. The eastern part of Senegal is almost empty, whereas the groundnut basin, which is no better watered, is heavily populated. History and geography explain the distribution of population in the Sahel.

These two factors have caused stresses leading to emigration and internal migrations, sometimes encouraged by the governments,sometimes not, and not always wellknown: the map of the Sahel population is one that undergoes perpetual change. People migrate from one province to another and to towns. More than 5 million Sahelians lived in towns in 1980, i.e. four times more than in 1960.

If nothing occurs to change demographic trends over the next few years, the population of the Sahel will be 50 million in the year 2000 and its territorial distribution will bear no resemblance to what it is today. What will the urban population be at that time? Several quite different estimates have been made, and the actual outcome will, of course, depend on the relative trend of living conditions in urban and rural areas. None of the estimates envisage less than 12 million urban dwellers in the Sahel at the turn of the century, and some even forecast 25 million.

TABLE I - The Population of the Sahel

(in million inhabitants

	1980 Estimates	Forecasts for 2000
CAPE VERDE	0.4	0.5
THE GAMBIA	0.6	1
UPPER VOLTA	6.1	10
MALI	7	13
MAURITANIA	1.5	3
NIGER	5.3	10
SENEGAL	5.7	10
CHAD	4.5	7
TOTAL	31.1	54.5

(Source: United Nations, Population Division)

Urban population is increasing. The number of ycung people is also rising because of the acceleration of population growth; Each farmer must produce enough to feed more people every year, and the evidence suggests that this trend will continue over the next two decades.

Based on a medium hypothesis of urban population growth, the FAO has calculated that each farmer who had 2.8 people to feed in 1980 will have 3.6 in 2000. This last figure could be much greater if emigration to towns increases.

TABLE 2 - Trend of the Urban Population

	1960 Estimates	1980 Estimates	Forecasts for 2000
Urban population in the Sahel	1.2	5	12 to 25

1.2 - Food Supply

Food supply in the Sahel in the first instance consists of cereal crops which provide about two-thirds of the calories consumed by the Sahelians.

Five main points characterise the recent trend of cereal farming in the region as a whole:

- it has been increasing slower than needs,
- it does not meet quality standards,
- it remains very traditional,
- it is affected by soil deterioration in certain regions,
- it remains quite vulnerable to climatic nazards.

Increase in production

The table below covering all types of cereals has been drawn up on the basis of FAO statistics (which are adjusted to achieve comparability of national data).

TABLE 3 - Cereal Production and Imports (1970 - 1980)

(in thousand tons)

	Production (x)	Imports
1970	4 865	424
1971	4 214	496
1972	4 517	563
1973	3 502	859
1974	3 613	1 025
1975	4 857	548
1976	4 637	713
1977	5 184	786
1978	4 851	976
1979	5 889	751
1980	5 232	902
1981	5 601	825

Source : FAO

(x)) Production is that of the year n-1, so that the table shows the availabilities of cereals in year n.

The table shows that cereals production recovered markedly after its decline during the severe drought of 1972 and 1973, but has not increased as fast as the population. The long-term trend is a 1% rate of increase per year, whereas the rate of growth of the population is 2.7% per year.

Other statistical series would not reveal a very different trend; indeed, the data published by the Agricultural Development Ministries of the Sahel show a lower rate of increase of production.

The growing gap between supply and demand is confirmed by the trend of cereals imports: at the beginning of the 1960s, only 200,000 tons of cereals entered the Sahel every year. Over 400,000 tons were imported around 1970 and approximately 800,000 tons (commercial imports and food aid) are now imported on average each year.

Whereas twenty years ago the Sahel produced 95% of the cereals it consumed, this figure has now fallen to 88% on average, and considerably less in years of bad climatic conditions.

The cereals consumption gap

Farmers mainly produce the traditional cereal crops: millet and sorghum. Production of rainfed and irrigated rice is increasing very slowly, as shown in Table 4 below. Virtually no wheat is grown.

Rural areas consume locally grown cereals. However, urban demand (even rural demand in some regions of Senegal) is progressively moving to cereals other than the traditional crops, namely, rice and wheat, which are either not grown, or produced in limited quantities.

TABLE 4 - Production of Paddy Rice

(thousand tons)

	1960/64	1965/69	1970/74	1975/79	1980
The Gambia	32	34	33	31	25
Upper Volta	33	37	35	34	28
Mali	177	156	163	214	142
Mauritania	1	1	3	7	10
Niger	11	34	30	28	35
Senegal	94	116	86	116	90
TOTAL:	348	378	350	430	330

Source : ADRAO

The consequence has been a major increase in imports of these two products, as shown in Table 5 below :

TABLE 5 - Factory Rice Imports (including food aid)

(thousand tons)

	1960/64	1965/69	1970/74	1975/79	1980
The Gambia	9	9	18	27	36
Upper Volta	3	3	7	20	24
Mali	-8	3	37	16	75
Mauritania	6	9	26	36	64
Niger	1	1	3	10	5
Senegal	119	165	178	214	300
TOTAL:	130	190	269	323	504

(Source : ADRAO)

There has been a four-fold increase in rice imports over twenty years. The rise in wheat imports has been even more rapid.

Factors of Production

The cereals production system remains traditional. Ninety-five percent of the cereals produced are rainfed or subsistence crops. Most cereals are grown by hand, without even organic fertilizers. The varieties used have not been renewed. Only a small percentage of total cereals output is farmed with animal-traction. Similarly, a low percentage is grown with fertilizer or selected seeds.

Nevertheless, a feature of the last two decades has been the progress made in the transformation of the production system. For example, in Senegal, fertilizers started to be used for cereals crops in the 1960's. In Upper Volta, it is estimated that 2% of the cereals harvested in 1980 were grown using mineral fertilizer, whereas none at all was used in 1970. This is still far from a massive change of the system. At most, it can be said that farmers are beginning to intensify cereals production, but the "green revolution" has not yet reached the Sahel.

Neither farmers' productivity nor the yield per hectare of rainfed cereals crops have risen in recent years: average millet and sorghum production remains low: 300 to 400 kg per hectare in the least watered areas, and 500 to 600 kg per hectare in the higher rainfall zones.

Five percent of cereals crops are irrigated, with much higher yields. But these yields are still far below what might be anticipated from this type of farming. In some irrigated perimeters, two crops of paddy rice are grown yearly, harvesting 8 to 10 tons every year, but there are many more producing only a single harvest with yields of two tons per hectare or less.

In general, it can be said that the cereals production system is extensive and not very productive.

Land Degredation

Production is increased basically by extending the land area cultivated. In some regions, in particular Mali and Chad, land is still abundant and farming can be extended without engendering any short- or medium-term problems.

However, in other regions where population density has risen and there is no new land, farmers have reduced the length of the fallow period which would serve to reconstitute soil fertility in the absence of mineral or organic soil nutrients. As a result, fertility is declining, land is over-worked, and yields are tending to fall. This is true of the groundnut basin in Senegal, the centre of Upper Volta, and most of Niger.

Vulnerability to Climatic Hazards

The traditional production system remains very vulnerable to climatic conditions. The seed varieties used in intensified rainfed farming are no more resistant to drought than the varieties used in traditional farming. Irrigated farming,

in principle less vulnerable to climatic factors, still accounts for only 5% of cereals production, and even today, is not totally sheltered from drastic weather conditions. In many instances, the water supply is not fully controlled, and irrigated crops are as vulnerable to drought as rainfed crops, and perhaps even more so.

In sum, the last two decades have been marked by extensive cereals production, and even more by a deterioration, rather than by a favourable shift in the system. Although encouraging signs of a beginning of intensification have been observed, especially over the last few years in a few zones the system remains traditional and of limited efficacity. In some regions, with extension hampered by the limits to the arable land available, soil degredation is causing a substantial drop in already poor yields, the beginnings of a vicious circle which has disquieting implications for the future.

Such is the system which enables the rural population to live in some years and to barely survive in others, and is contributing increasingly less to the supply of towns. Farm productivity is lagging behind the increase in the number of mouths to be fed. Urban residents require cereals in quantities and qualities which farmers do not provide. They are becoming progressively more dependent on rice and wheat imports, and food-aid. Although reality is far more complex in detail than these unrefined figures show, it is probably no accident that the four-fold increase in the Sahel's population has coincided with a four-fold increase in rice and wheat imports over the past twenty years.

1.3 - Export Crops

Groundnuts

Groundnuts are exported in substantial quantity by only two Sahel countries: Senegal and The Gambia. They account for a marginal share of Mali's exports (2% of the total value of exports). They have almost become a foodcrop in Upper Volta and Niger but no longer play a significant role in the exports of these countries.

In aggregate, groundnut production is declining. At the beginning of the 1960's, the Sahel was producing over 1.5 million tons of groundnuts. Production reached its peak in 1975 at over two million tons. It has been declining since 1975, and fell below 1 million tons in 1980, admittedly a particularly bad year.

The groundnut crop occupies almost 60% of the Gambia's arable land, and a little over 40% in Senegal, where it is declining. It occupies only a few percent of the cultivable area in other countries. Although use of animal traction, selected seeds and fertilizers are used in groundnut production more than cereals production, yields for groundnuts remain low: 500 kg per hectare in Upper Volta, 700 to 800 kg in Senegal and Mali. It is becoming increasingly more difficult to obtain satisfactory yields in Senegal's groundnut basin where the land has been exhausted by several decades of harvests grown without enough fertilizer additives.

1975 was the peak year for groundnuts in the Sahelian economy. The volume of groundnuts exported has been declining since and their position on the world market has been deteriorating since 1978. Some years ago, it was probably economically advantageous for coastal countries to grow groundnuts and import rice, but with the change in relative prices, it is now of dubious interest to specialise in this one crop.

Cotton:

The position of cotton growing is very different. It has increased substantially over the last two decades, as shown in the Table below:

TABLE 6 - Production of Cotton Fibre

(thousand tons)

	1961/62	1971/72	1977/78	1978/79	1979/80	1980/81	1981/82
Upper Volta	0.8	10.4	13.9	22.3	28.7	24.7	22.7
Mali	3.9	25.3	42.2	48.1	56.1	41.8	35.2
Niger	0.8	3.1	1.3	1.5	1.2	1.1	0.7
Senegal	-	7.7	13.3	12.6	9.7	8.4	13.3
Chad	17.2	41	45.4	50.1	33.2	30.7	25
TOTAL:	22.7	87.5	116.1	134.6	128.9	106.7	96.9

(source: CFDT)

This increase is mostly due to the rise in yields stemming from the selection of varieties suitable for Sahel conditions, the use of fertilizers and pesticides and recourse to animal-drawn farming. In 1961/62, 4% of the cotton-growing areas were ploughed by animal-drawn equipment. In 1981/82, animal-drawn machines were used on 73% of the area farmed.

TABLE 7 - Areas Farmed and Yields

	1961/62	1971/72	1977/78	1978/79	1979/80	1980/81	1981/82
Planted areas	371	506	507	514	424	378	308
Average yields	61	173	229	262	303	282	314

(source: CFDT)

Area: thousand hectares
Yield: kg of fibre per hectare

In contrast to cereals and groundnut farming, the development of cotton growing has been the result of a full-scale conversion of the production system to the use of intensive methods, not the extension of cropland. There was a five-fold increase in yields per hectare in 20 years, and the area under cotton was smaller in 1981 than 20 years earlier.

However, after this spectacular progress, cotton output peaked in 1978 and has been declining since. This downward trend is due only in part to the events in Chad (where production was halved in three years); a ceiling has been reached in the other Sahel countries. In some zones the limit of available land has been reached or virtually so, and competition between cereals and cotton for scarce land is also limiting the areas devoted to cotton. In other zones, in particular in the eastern part of Senegal, there seems to have been an outbreak of parasitic diseases, but producers apparently find it too troublesome fully to implement anti-parasitic techniques, thus yields have declined.

Other farmed or gathered crops such as sesame, karite, niebe, fruits and vegetables, play only a marginal role in the region's exports and there is no tendency for them to expand. Nevertheless, niebe production and niebe exports have picked up in Niger over the last few years. With the decline of groundnut farming the range of products exported by the Sahel has shrunk.

1.4 - Livestock

There are no accurate and reliable quantitative data on the state of livestock in the Sahel, and it is only possible to make a few qualitative remarks on the trends observed over the last few years. Table 8 gives general information on herd sizes in the Sahel in 1968 and 1977; these figures should be read with caution.

TABLE 8 - Trend of Livestock Numbers in the Sahel

(million units)

	1968	1977
Cattle	21.3	16.7
Sheep	15.2	17.3
Goats	19.2	19.2
Camels	1.5	1.5

(Source: IEMVT)

The severe drought which lasted from 1970 to 1973 reduced herd numbers variably according to the species and the region, but roughly by one-quarter on average. Since 1974 herds have been reconstituted. The number of cattle may not have returned to its level before the drought, but camel and goat herds have been replenished and sheep are more plentiful in the Sahel than before the drought.

- The sanitary condition of herds gives reason for concern. In 1978 and 1979, rinderpest made a sporadic reappearance in Mali, Mauritania and Senegal and spread in 1980 to Upper Volta, Niger and Chad. An emergency programme brought it under control, but this experience shows that the efforts made, especially after 1962, to eradicate rinderpest by systematic vaccination, have not yet been fully successful.

- Herds are being reconstituted using the same breeding techniques in both the Sahelian and Sudanese zones. This means that almost everywhere the animals depend essentially on natural pastures for their food intake. Before the drought, some of the available pasture land was already being used to the limit and even beyond. The growth of

numbers will inevitably come up against the limit of natural pasture resources, and this will occur sooner rather than later as such resources are, if anything, tending to decline. In the Sahelian zones, drought, over-grazing or both have led to the deterioration of some pastureland; in better watered regions, the extension of farmland is reducing the availability of land for livestock grazing. Artificial pasture and the use of agro-industrial by-products to feed animals are still exceptional.

- The reconstitution of livestock numbers has not simply re-established the situation prevailing before the drought. The increase has not been proportional to population growth, and the herd structure has changed through massive losses during the drought, and also because herders may not consider cattle as a store of value to the same extent as previously. The geographical distribution of herds has changed, with the centre of gravity moving Southwards.

Livestock no longer plays the same role in the Sahelians' food supply and exports as before the drought. Average meat intake, already low, has fallen further (it is estimated to have been 13 kg per capita in 1977 as opposed to 17 kg in 1968). Meat exports to coastal countries, which used to be a major activity in the region, have dropped; milk imports have increased five-fold within ten years. The factors affecting livestock trends are somewhat similar to those operating in the case of cereal crops: urban dwellers require products which cannot be provided by traditional methods and are increasing their dependence on imports.

1.5 - Fisheries

Although the boundary between maritime and continental fisheries can hardly be defined precisely (where does maritime fishing end for

that matter where does continental fishing begin; in an estuary?), the two will be dealt with separately.

Continental fisheries

The state of information is particularly defective in this field. The catch sizes shown in the Table below are all estimated quantities which at best give orders of magnitude:

TABLE 9 - Trend of Continental Fisheries

(in tons)

	Quantities caught in 1973	Quantities caught in 1980
The Gambia	1 000	3 500
Upper Volta	6 000	6 000
Mali	110 000	110 000
Mauritania	10 000	5 000
Niger	13 000	7 000
Senegal	15 000	28 000
TOTAL:	155 000	159 000

(Source : programme/overviews)

It appears that fishing activity has risen in the Gambia and Senegal (at least in the South); it has stagnated in Upper Volta and Mali and fallen in Mauritania (because of deficient river flooding) and in Niger (where part of the Lake Chad basin has dried up).

It is impossible to say whether the total volume of fresh water fish caught in the Sahel has increased, declined or remained stationary over the last few years. If it has

increased, it has done so at a lower rate of growth than that of the population to be fed. The quantity of fish protein consumed by the Sahelians is tending to decline according to available data -- on average 4.8 kg per capita per year against 5.2 in 1973.

Archaic and not very productive techniques are still in use. A greater catch is possible: the potential resources of the Sahel's continental fisheries have been estimated at 275,000 tons per year. This figure does not take account of the possibilities opened up by technical improvements or the introduction of aquaculture in the last few years. Trials are under way, but this source does not yet provide the region with a significant quantity of food.

Maritime fisheries

The Table below gives an estimate of the quantities of sea fish landed and consumed in coastal countries in 1980:

TABLE 10 - Position of Maritime Fisheries in 1980

(in tons)

	Quantities landed	Quantities consumed
Cape Verdi	8 800	8 800
The Gambia	27 300	13 000
Mauritania	30 600	29 600
Senegal	359 000	120 000
TOTAL :	426 000	172 000

(Source: CILSS/Club du Sahel Sectoral Reviews)

Maritime fishing is undertaken by artisanal fishermen who supply the domestic market. The coastal countries' population consumes approximately 20 kg of fish per capita a year. Given the lack of reliable statistics, it is difficult to say what the trend of fish intake has been over recent years. The installation of engines in pirogues has often increased the catch considerably and fish protein intake has probably increased markedly, at least in some coastal areas.

Maritime fishing is also undertaken by industrial or semi-industrial fleets whose catch is mainly exported. The proceeds are a significant contribution to the economy of the coastal Sahel countries.

The total catch in the fishing limits of the Sahel countries greatly exceeds the quantities landed shown in Table 10. Some fish are caught by foreign fleets in the frame of bilateral agreements with an industrialised country, against fees which help support the Sahel countries' budgets. Some fishing is also sheer piracy, of no profit to any of the region's countries.

It can be observed that in the light of the estimated potential of maritime fisheries in the region, i.e. 2.7 million tons a year, this resource is still poorly exploited by or for the Sahelians.

1.6 - Forestry

The forests have multiple roles in the Sahel:

- They are a basic element of the equilibrium of the agricultural and pastoral ecosystems;

- Wood is the main energy source in the region: depending on the country, wood provides between 60 and 90%

of the energy consumed. It is almost exclusively used for cooking, a traditional crop treatment, and urban or rural artisianal activities.

- forests contribute to animal and human food supply;
- they are a source of raw material: wood for construction, tools, etc.

All of these are important for the region.

The CILSS/Club du Sahel study "Energy in the Development Strategy of the Sahel" (1978), drew attention to the accelerated deforestation of the region and to the risks of a major crisis which advanced deforestation would engender. The sectoral reviews carried out in each Sahel country in 1982 have provided a clear picture of the position of forestry and ecosystems, as well as the state of the population's wood supply.

Rural dwellers collect their own wood. This task is traditionally undertaken by women. Deforestation around villages due to fuelwood collection and the extension of farmland is increasing the distance to be covered to collect wood, which can be as much as ten kilometers in certain areas.

In the urban environment, in small and large towns alike, fuelwood has become a major commercial good, either as wood or as charcoal. This creates trading activities for carriers, sellers, charcoal makers, etc., and provides non-negligible revenues for the national budget in the form of taxes. However, as the average distances for transporting wood are increasing, its price is increasing faster than the average cost of living in large towns, and fuel supplies are absorbing a rising share of household budgets: from 10% to over 20%. In certain towns, some families can only afford one hot meal a day; and deforestation has been total within a fifty kilometer radius of capitals.

The sectoral reviews estimate aggregate wood consumption in the Sahel at about eighteen million tons per year (excluding Chad), of which sixteen million tons are burnt as fuelwood. It is difficult to assess how supplies can meet this demand, since the growth of the natural forest depends on how it is exploited. In general, while natural growth still seems sufficient, demand is far from being uniformly distributed geographically, and the result has been scarcity and deforestation in some regions.

The increase in population from 30 to 50 million Sahelians will, if current trends are maintained, both increase the demand for wood and replace forest acreage by arable and pastureland. The areas affected by shortages, sometimes acute, will expand, as will the zones of total deforestation, with all the risks that this involves for ecological balance.

1.7 - Transport

It is not the purpose of the present overview to give a general picture of transport in the region, and this section will be limited to two remarks on the road transport system.

The first is that the structure of the transport network in the Sahel, built in colonial times, has basically not changed since independence. This structure was mainly determined by the desire to facilitate commercial foodcrop exports and the result was a network of ports and roads giving access to groundnut and cotton growing areas.

The substantial investments made over the last twenty years to extend and improve the network have not remodeled it. Road communications between the different Sahel zones remain difficult; the structure of the network is oriented more to the foreign sector than to common development. Many regions are still badly connected, some almost completely isolated.

The second remark is the sub-optimal maintenance of the network. It is estimated that the available budgets (national financing and foreign aid) provide on average only half of the minimum maintenance financing required. As a consequence, part of the network has been allowed to deteriorate, especially the secondary roads. Deterioration has now gone so far that often maintenance would be ineffective and rehabilitation must be envisaged.

The bad state of the roads makes transport precarious, in particular in the rainy season. It enhances the isolation of whole sections of the rural world and complicates the supply of country goods to towns.

1.8 - Conditions of Life

Apart from the problems of food and fuelwood supply reviewed above, three aspects of life will be examined : water supply, health and education.

Water Supply

Villages in the Sahel traditionally obtain their water from surface resources or from wells built using local skills. Conditions are unsatisfactory, in terms of the volume of water available (which is sharply reduced at the end of the dry season), water quality (subsurface water is often polluted and a source of intestinal diseases), and accessibility (rudimentary pumping equipment necessitates considerable muscular effort and long distances must be covered at the end of the dry season to find scarce water).

Despite the efforts made since 1960, and in particular since 1978, conditions have not yet improved much in many villages. Not all villages have modern water installations. Those that have do not always make the best of them because facilities and equipment are inadequately maintained, while the inhabitants do not know the rudimentary precautions

required to keep the water clean.

It is difficult to give figures for the present position of the Sahel in this field, as there have been no systematic censuses. In 1975, WHO estimated that approximately one out of four Sahelian rural dwellers was adequately supplied. The CILSS/Club du Sahel Programme/reviews undertaken in 1982 show that perhaps 25 to 30% of villages draw their supply from a modern water installation: drilled or cemented wells or well-boreholes.

Health

The Sahel countries are still one of the regions of the world in which life expectancy is shortest, although it has risen by a few years over the last two decades to 43 years on average, against 47 for Africa South of the Sahara, and 74 in the industrialised countries. The infant mortality rate is very high: between 150 and 200 per 1000 children (between 0 and 1 year), varying by country, compared with a rate of about 10 in industrialised countries.

The density of medical coverage is well below WHO recommended standards, as shown in the Table below :

TABLE 11 - Doctors and Midwives in the Sahel Countries

	Upper Volta	Mali	Mauritania	Niger	WHO Standards
Doctors	1 : 60000	1 : 22000	1 : 58000	1 : 42000	1 : 10000
Midwives	1 : 620000	1 : 28000	1 : 28000	1 : 74 00	1 : 3000

(Source : WHO)

In addition, the Table does not reflect the unequal distribution of doctors and midwives within countries. For instance, in Mali, 40% of doctors and 57% of midwives are in the Bamako district where only 6.6% of the population live. A large share of the rural population has very limited access to modern health care.

Education

The following Table shows the gross rate of enrolment in primary schools over the last twenty years:

TABLE 12 : Gross Rate of Enrolment (age 6 to 11 years)

(%)

	1960	1980
CAPE VERDE	19	83
THE GAMBIA	12	33
UPPER VOLTA	7	13
MAURITANIA	5	24
MALI	8	20
NIGER	5	20
SENEGAL	17	37
CHAD	11	28

(Source: UNESCO)

It should be recalled that this is a gross rate, calculated as the ratio of the numbers attending primary schools including pupils over 11 years of age, to the number of children aged 6 to 11. This over-estimates the percentage of a certain age bracket attending school, sometimes very heavily. It is doubtful whether more than one in four children on average receive schooling. The percentage is higher for boys than for girls and much higher in towns than in the country (for instance, in Upper Volta, the school-attendance rate is estimated to be 9% in rural zones and 70% in towns).

Despite the efforts made over the last twenty years, primary education does not cover the whole population. UNESCO classifies all the Sahel countries in 1980, apart from Cape Verde in the category of countries whose rate of illiteracy exceeds 80%.

1.9 - General Economic Conditions

It is not the function of the present overview to give a detailed account of the economy of the Sahel. The discussion will be limited to a description of a few salient features.

Slow Economic Growth

The conventional economic parameters do not provide a clear view of the economic position and the pace of development of Sahel countries. Most of the rural population grows its own food and the value of the goods consumed is not adequately registered in the economic accounts. The limited scope of the economic indicators on the Sahel is clearly revealed by the great differences in the estimates published by various institutions, although each certainly takes much care in establishing its figures.

Despite their divergences, all these sources agree that growth has been slow throughout the Sahel in the last two decades, and nil or negative in some countries and periods.

The estimates in the World Bank's report on Accelerated Development in Africa South of the Sahara are given for information. They are neither better nor worse than other estimates (the World Bank Atlas gives other figures).

TABLE 13 - An average Annual Rate of Growth of GDP and Population and GNP per Capita

	1960 - 1970		1970 - 1979		GNP per capita in 1979 (in US $)
	GDP	Population	GDP	Population	
The Gambia	5.4	3.2	2.8	3	250
Upper Volta	3	1.6	-0.1	1.6	180
Mali	3.3	2.4	5	2.6	140
Mauritania	-	2.5	1.8	2.7	320
Niger	2.9	3.3	3.7	2.8	270
Senegal	2.5	2.4	2.5	2.6	430
Chad	0.5	1.8	-0.2	2	110

(Source : Accelerated Development in Africa South of the Sahara)

Low or Negative National Saving

As regards the use of the slowly rising gross domestic product, the Table below shows the changes in its distribution as between official consumption, private consumption and investment. It is subject to the same reserves as those stated in the previous Chapter regarding the precision and reliability of the data. However, it does give an idea of orders of magnitude and trends.

TABLE 14 - The Distribution of GNP as between Consumption and Investment (*)

	Official Consumption		Private Consumption		Gross Domestic Investment		Balance of Resources	
	1960	1979	1960	1979	1960	1979	1960	1979
The Gambia	20	26	72	83	13	22	- 5	-31
Upper Volta	10	14	94	89	10	24	-14	-27
Mali	12	23	79	32	14	15	- 5	-20
Mauritania	-	39	-	47	-	51	-	-37
Niger	9	9	79	72	13	28	- 1	- 9
Senegal	17	(*)	68	98	16	21	- 1	-19
Chad	13	18	82	96	11	13	- 6	-27

*Official and private consumption combined

(Source: "Accelerated Development of Africa South of the Sahara")

The Table shows that most Sahel countries need to address the foreign sector to finance most, if not all, of their investment. In most countries, external financial resources even cover part of domestic consumption.

It must also be underlined that the national accounts data do not reflect degredation of capital assets for lack of maintenance. The studies made for the CILSS/Club Colloquium on Recurrent Costs revealed the inadequacy of the maintenance and renewal of much infrastructure: roads, buildings, irrigated perimeters, etc. The national economy does not produce enough resources to preserve the installed capacity at a constant level: there is consequently a continuous loss of capital.

The rate of economic growth in the Sahel countries is too low to finance new investment and the maintenance of existing investments. Most of the countries consume more than they produce. Domestic savings are low at best, and more usually negative. Of course, this does not mean that no Sahelians save, but that the savings of some economic agents are transferred to others, generally official economic bodies (State or official corporations), which do not invest the funds, but use them to finance current consumption outlays.

Trends in the Trade Balance

The main features of the Sahel's foreign trade are four in number :

- the growihg share of energy imports,
- the rising percentage of food imports,
- the stagnation or reduction of certain exports and
- the deterioration of the terms of trade

(a) Growing share of energy imports

Table 15 gives the trend in the oil imports of five Sahel countries between 1970 and 1980.

TABLE 15 - Growth of Oil Imports

(in million CFA francs at current prices)

	1970	1975	1980
Upper Volta	1 050	2 800	9 970
Mali	1 110	4 300	
Mauritania	1 200	4 400	7 600
Niger	640	2 750	16 300
Senegal	2 670	14 850	58 310
TOTAL	6 670	29 100	

(Source: Reports of the Franc Zone Monetary Committee)

These imports have risen sixfold.

(b) Rising percentage of food imports

Food imports have increased more slowly than oil imports, but nevertheless are a heavy burden for the Sahel.

TABLE 16: Growth of Food Imports

(in million CFA francs at current prices)

	1970	1975	1980
Upper Volta	3 090	5 500	9 050
Mali	3 580	8 400	
Mauritani-	3 630	12 400	27 400
Niger	2 300	1 720	
Senegal	15 460	29 300	40 700
TOTAL:	28 060	57 320	

(Source: Reports of the Franc Zone Monetary Committee)

Cereals account for a large share of food imports as shown below for two countries.

TABLE 17: Growth of Cereal Imports

(in million CFA francs at current prices)

	1970	1980
Upper Volta	730	4 130
Senegal	5 880	24 230

(Source: Reports of the Franc Zone Monetary Committee)

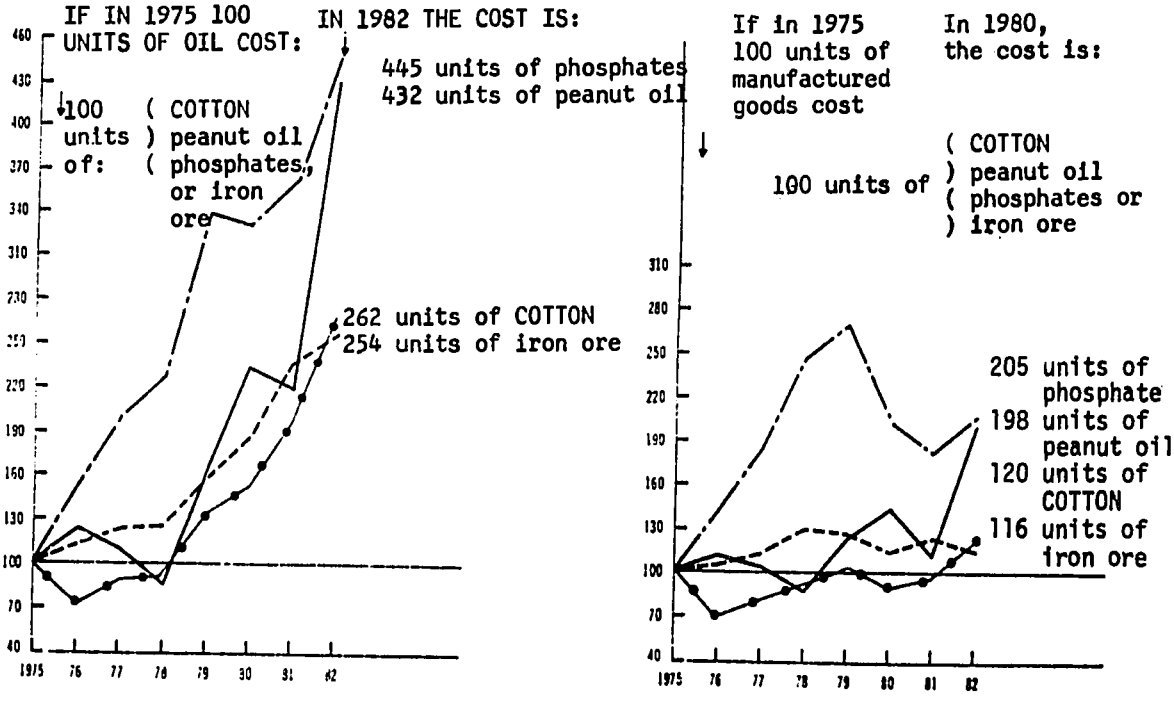
(c) Stagnation or reduction of certain exports

The reader is referred to the earlier remarks on groundnut and cotton production.

(d) Deterioration of the terms of trade

The graphs below show recent movements in the terms of trade. It can be seen that the quantities of groundnuts, cotton, phosphates or iron ore which must be marketed by the Sahel to purchase a ton of oil or a unit of manufactured goods are continuing to rise.

TREND OF THE TERMS OF TRADE



The four factors listed above have operated to widen the trade deficit of every Sahel country.

Growing indebtedness

The trade deficit has been financed by disbursements of foreign aid (which, as will be seen later, has been increasing), capital transfers, in particular emigrants' remittances, and recourse to foreign borrowing.

The Sahel countries' foreign debt has thus risen rapidly over recent years:

$ 450 million in 1970
$1040 million in 1975
$3545 million in 1980

TABLE 18 - The Growth of Foreign Debt

($ million at current prices)

	1975	1980
The Gambia	14	120
Upper Volta	62	302
Mali	353	636
Mauritania	190	731
Niger	117	635
Senegal	238	960
Chad	68	161
TOTAL:	1 042	3 545

(Source: OECD-DAC)

In relation to the size of the economy, the indebtedness of some Sahel countries is reaching high levels. Much publicity has been given to the size of the foreign debt of some developing countries, in particular Brazil and Mexico. In absolute terms, the Sahel countries' foreign debt is certainly not a threat to the international financial system, but as show in Table 19 below, in relation to their present economic potential, most Sahel countries are more heavily indebted than either of these two countries.

TABLE 19 - The Foreign Debt of Sahel Countries in 1980

(debt and GNP in dollars)

	Debt per capita	GNP per capita	Debt/GNP
The Gambia	200	250	0.8
Upper Volta	49	210	0.2
Mali	91	190	0.5
Mauritania	487	440	1.1
Niger	120	330	0.4
Senegal	168	450	0.4
Chad	36	120	0.3
Brazil	480	2 050	0.2
Mexico	623	2 135	0.3

(Source: OECD:DAC)

A substantial share of the Sahel's foreign debt is due - as will be seen in the next chapter - to loans at soft terms extended by the International Community. For some Sahel countries most of their foreign debt comes from concessional loans and so the debt service is manageable. Other countries have borrowed both on concessional and market terms. For them, as Table 20 below shows, their debt service is comparable to the most heavily indebted countries of the Third World.

TABLE 20 - Foreign Debt Service of the Sahel (1980)

(in million US £

	Debt Service per capita	GNP per capita	debt service % of GNP
The Gambia	2.3	250	0.9 %
Upper Volta	2.8	210	1.4 %
Mali	2.5	190	1.3 %
Mauritania	25	440	5.7 %
Niger	17	330	5.1 %
Senegal	31	450	6.9 %
Chad	2.7	120	2.2 %
Brazil	116	2 050	5.6 %
Mexico	137	2 135	6.4 %

(Source: OECD:DAC)

II. INTERNATIONAL AID

2.1 - The Volume of Aid

Diagram 1 shows the trend of ODA commitments and disbursements to the Sahel countries as a group since 1974.

It calls for some comments:

- average annual aid commitments over the last three years, 1980, 1981 and 1982 were:

$ 1690 million per year,

i.e. a 26 % increase over the figure for the previous three-year period: 1977 - 1979 of $1334 million. It is necessary to take into account both monetary erosion and the appreciation of the dollar against the European and Sahelian currencies over the last few years to assess the real trend of aid. A very large share of international aid is spent by the Sahel governments to purchase goods and services in Europe. Diagram 1 therefore does not exactly reflect the real trend of aid commitments for 1981 and 1982, during which years the dollar rose against virtually all the European currencies.

The Table below shows aid commitments expressed in dollars and European Currency Units (ECUs).

TABLE 21 : Official Development Assistance Commitments

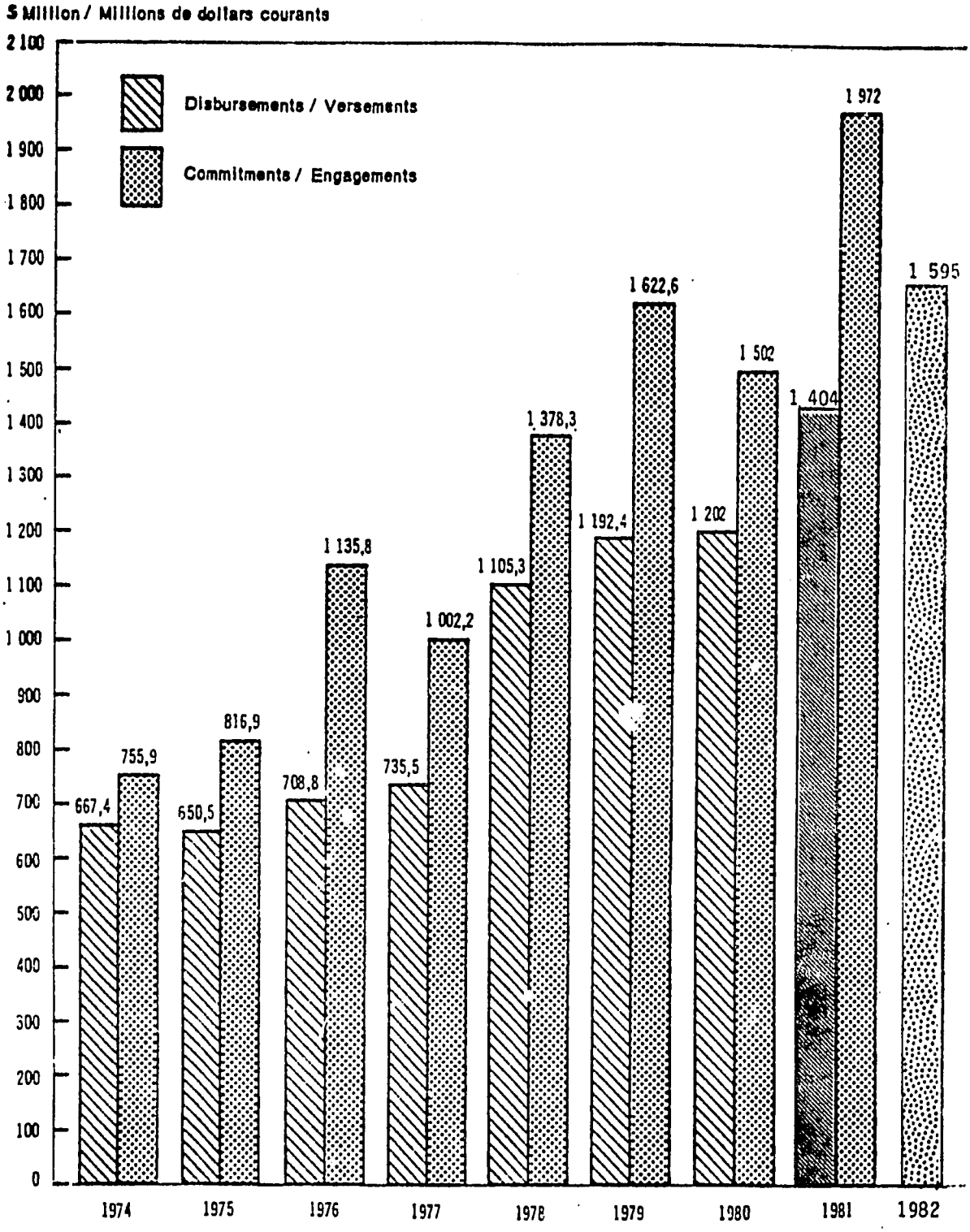
	In US $ Million	In million ECUs
1979	1 623	1 183
1980	1 502	1 078
1981	1 972	1 770
1982	1 595*	1 636*

(Source: Club du Sahel) *Provisional figures

Diagram 1/Diagramme 1

TOTAL DISBURSEMENTS AND COMMITMENTS OF PUBLIC AID FOR DEVELOPMENT IN THE SAHEL 1974-1982

ENGAGEMENTS ET VERSEMENTS D'AIDE PUBLIQUE AU DEVELOPPEMENT POUR L'ENSEMBLE DES PAYS SAHELIENS ENTRE 1974-1982



Aid shows a steeper increase expressed in ECUs than in US dollars. The increase in the real purchasing power of the aid allocated to the Sahel is probably between the two.

- Aid commitments in 1980 declined in relation to 1979; this was basically due to a reduction of aid to Mauritania (mainly from Arab funds), which was exceptionally high in 1979.

- The increase of aid commitments in 1981 is to a large extent due to financing of the Senegal river regional development programme: almost $300 million was committed for construction of the Diama and Manatali dams.

- In 1982, the development of the Senegal River Basin continued to mobilize considerable financing ($295 million). Despite this, aid commitments overall were lower than in 1981 with several bilateral and multilateral donors reducing the level of their commitments.

- At the beginning of the 1970s, ODA disbursements were approximately $250 million a year, and soared to $700 million starting in 1974. In 1978 there was a further upsurge to $1100 - 1200 million level. The figure was $1400 million in 1981.

2.2 - Share of ODA in External Financial Inflows

ODA has always accounted for the lion's share of the external financing of the Sahel States. This is in contrast with most developing countries whose foreign financial resources are largely procured at market terms.

Nevertheless, the following Table shows that the share of ODA in foreign financial resources flows to the Sahel is tending to decrease.

Table 22: Net Supply of Foreign Financial Resources to the Sahel (in $ million)

	1975	1976	1977	1978	1979	1980	1981
Official development assistance	650	709	735	1 105	1 192	1 202	1 404
Financing at market terms	32	90	108	147	126	303	288
of which, export credits of DAC Member Countries	2	53	80	72	55	121	140
TOTAL financial resources inflow	682	799	843	1 252	1 318	1 506	1 692
Share of ODA (%)	95	89	87	88	90	80	83

(Source : OECD/DAC)

Foreign financing at market terms in the form of official or private loans, private investment, export credits, etc., is tending to rise, but remains quite low. Between 1975 and 1980, this component represented a net inflow of $775 million, whereas the Sahel's indebtedness increased to $2500 million. Financing at market terms accounted for less than a third of the increase in the Sahel's foreign debt.

2.3 - Financial Terms of Aid

Approximately 65% of the aid channelled to the Sahel countries between 1975 and 1981 was in the form of grants. The share of loans and grants varies substantially among donor groups, as shown in the following table:

TABLE 23 - PERCENTAGE OF GRANTS in ODA

(as a %)

	1975	1976	1977	1978	1979	1980	1981
OECD countries	73	84	84	95	87	86	84
Multilateral agencies	52	44	52	58	57	54	58
OPEC countries	48	37	55	8	1	33	34
Share of grants in total aid	64	61	72	72	57	67	66

(Source : Club du Sahel)

Grants are a higher share of ODA for the Sahel than for other developing countries. The fact remains that development assistance lending is mainly responsible for the growth of the region's indebtedness over the period 1975 - 1980, accounting for over two-thirds of the new foreign debt.

Nevertheless, the situation varies from one country to the next as shown in the following two tables :

TABLE 24 - ODA and the Foreign Debt of the Sahel Countries in 1980

(in US $ million)

	Total foreign debt (1980) (1)	ODA foreign debt 1980 (2)	Ratio (2)(1)
The Gambia	120	86	72 %
Upper Volta	302	234	77 %
Mali	636	573	90 %
Mauritania	731	486	66 %
Niger	635	215	34 %
Senegal	960	382	40 %
Chad	161	120	75 %
TOTAL SAHEL COUNTRIES	3 545	2 096	59 %

(Source: OECD/DAC)

TABLE 24 (A): Foreign Debt Service of Sahel Countries in 1980

(in US $ million)

	Total Debt Service (1)	Debt Service of ODA (2)	Ratio (2) (1)
The Gambia	1.4	0.3	21 %
Upper Volta	16	6	37.5 %
Mali	17.6	4.9	28 %
Mauritania	40.5	9	22 %
Niger	90.3	20.9	23 %
Senegal	179	14.3	8 %
Chad	12.1	2.3	19 %

(Source: OECD-DAC)

For all of the Sahel countries except two, more than half of the debt service comes from concessional aid. On the other hand, for all countries loans made at market terms generate the majority and, in some cases, almost all of the debt services.

2.4 The Sectoral Distribution of Aid

Table 25 sketches the distribution of aid as between different types: non-project and project aid, and breakdown of the distribution of the latter form of assistance as between the different sectors of activity. It was noted in the Kuwait overview that certain projects cover several sectors of activity and that it is not always easy to determine what share of these projects should be imputed to a particular sector. This is especially true of completed projects which can turn out to be quite different from initial plans. Thus, Table 25 should not be viewed as an accounting statement, but it does provide gross orders of magnitude.

The sectoral distribution it shows warrants some comments.

Non-project aid

Since 1975 roughly 35% of total aid has been non-project aid, i.e. the direct supply of funds to the Sahel States unconnected with the implementation of a development project. The percentage of non-project aid is tending to increase slightly.

TABLE 25 : Sectoral Distribution of ODA Commitments between 1975 and 1981

	% of total aid (*)	Rate of growth compared with total aid
NON-PROJECT AID:		
. Technical assistance, research, scholarships	14.3	↗
. Food aid, emergency assistance	10.3	↘
. Operating assistance (of which balance of payments support, budget support, etc.)	11.5	→
PROJECT AID :		
. Rainfed farming (**)	9	↗
. Irrigated farming	7	↗
. Large river basins (OMVS, OMVG)	6 (26)	↗
. Livestock	2.5	↗
. Fisheries	1.3	↗
. Reforestation	1.6	↗
. Mines	3	↗
. (Rural and urban) water supply	3.3	↗
. Infrastructure (transport, telecommunications, urban development)	19	↗
. Education, training	6	↗
. Health	2.7	↗
. Industry and tourism	2.2	↗

(*) Average of 1975 - 1981 commitments

(**) It is estimated that less than half of ODA commitments are allocated to subsistence crops, i.e. between 3.5 and 4.5%.

There are three main headings under non-project aid:

- Food aid. This has become permanent, irrespective of climatic conditions, but is not rising as fast as total aid;

- Technical assistance, which accounts for a steady one-third of non-project aid;

- Aid to the operation of the Sahel States, in such forms as budget and balance of payments support, contributions by Stabex, debt reorganisation, support from Arab funds, import financing etc. The share of this form of aid is rising.

Project aid

Aid for rural development has moved since 1975, as follows:

Table 26

	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL
Commitments ($ million at current prices)	179	333	273	320	338	334	679	619	3,075
Share in total aid	22%	30%	27%	23%	20%	22%	34%	39%	28 %

(Source: Club du Sahel)

Aid for rural development represents one quarter of total aid. The major increase in 1981 and 1982 is basically due to the financing for the Senegal river valley development scheme (about 300 million).

As underlined in the Kuwait overview, rural development aid rose sharply compared with the start of the 1970s. This trend has continued over the last few years.

Looking at broad headings, rural development is distributed as follows:

- Rainfed cereal crops : less than 4.5% of total,
- Other rainfed crops : over 4.5%,

  (some projects cover, both cereals and cotton, so that accurate separate figures cannot be determined).
- Irrigated farming and the development of large river basins: 13%,
- Livestock : 2.5%,
- Fishing (mainly maritime) : 1.3%

Between 1975 and 1981, three times more aid was allocated to irrigated than to rainfed cereal crops. To say the same thing in a different way, the Sahel receives approximately 60 times more international aid per ton of irrigated cereals harvested than per ton of rainfed cereal crops.

This comparison may not be fully legitimate since part of the aid considered as irrigated farming funds is used to prepare for the long-term, or even the very long-term (e.g. the development of the Senegal river). Nevertheless, it should be underlined that the volume of aid to irrigated farming is much higher, and is increasing more rapidly than is assistance for rainfed cereal crops.

In 1982, for the first time, aid to rainfed agriculture increased sharply.

Although still quite low, aid for forestry has increased quite substantially since 1975.

TABLE 27

Commitments	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL
for forestry (in $ million at current prices)	3	5	9	19	23	45	45	15	165
Share of total aid	0.3%	0.5%	0.9%	1.3%	1.4%	3%	2.3%	0.9%	1.5%

(Source : Club du Sahel)

Of the various sectors examined, aid for forestry has risen at the fastest pace.

Aid for village and pastoral hydraulics has only been recorded separately since 1978 (before then it was combined with urban water supply). It has risen as follows:

TABLE 28

	1978	1979	1980	1981	1982
for village and pastoral hydraulics($ million at current prices)	12	15	14	42	29
Share of total aid	0.8%	0.9%	0.9%	2.1%	1.8 %

(Source: Club du Sahel)

This form of aid is basically directed towards sedentary rural dwellers' water supply. There have been few pastoral hydraulics development projects.

Private aid should be added to the official aid. It is channelled via non-government agencies and its share in the financing of village hydraulics is far from negligible.

The very substantial but decreasing share of aid for the construction of infrastructure should also be underlined -- almost 20% of total aid. The highest proportion is allocated to the construction of transport infrastructure: roads, railways, ports and airports. This aid has moved as shown in Table 29 below :

TABLE 29

Commitments for infrastructure	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL
($ million at current prices)	83	227	137	178	246	179	201	124	1 375
Share of total aggregate aid	10%	20%	14%	13%	15%	12%	10%	8%	12.5%

(Source: Club du Sahel)

Transport infrastructure alone has received three times more funding than rainfed cereal farming.

2.5 - Aid in the Economy of the Sahel

Table 30 compares 1980 GNP per capita and aid per capita in each Sahel country.

TABLE 30 - Aid in the Economy of the Sahel

	GNP per capita in 1980	Aid per capita in 1980	Aid/GNP
CAPE VERDE	200	161	0.80
THE GAMBIA	250	90	0.36
UPPER VOLTA	160	35	0.21
MALI	201	36	0.18
MAURITANIA	326	106	0.32
NIGER	356	32	0.09
SENEGAL	465	46	0.10
CHAD	111	8	0.07
All SAHEL countries	262	39	0.15

(Source: 1981 World Bank Atlas and DAC)

These figures show the substantial role played by foreign aid in the region's economy. Aid represents approximately 15% of GNP(although it should be recalled that GNP reflects mainly the "modern" rather than the traditional sector of the economy).

2.6 - International Comparisons

Table 31 shows the trend of ODA disbursements per capita to the Sahel between 1975 and 1981.

It also gives the same information for Africa South of the Sahara (excluding the Sahel) and Asia, as well as Egypt, which has been added by reason of the substantial volume of aid it has received over the last few years.

Table 31 : Net ODA Disbursements

	($ at current prices per capita)			
	1975	1979	1980	1981
Sahel countries	23	40	39	44
Other Africa South of the Sahara	10	17	21	20
Asia	6	9	10	9
Egypt	67	38	35	32

(Source : OECD - DAC)

III. DEVELOPMENT AND AID POLICIES

3.1 - Rainfed Farming

A full analysis of the development and aid policies in this sector would require a lengthy discussion. The present paper will recall briefly a few main changes in the direction of these policies and the present situation,, reviewing production and marketing policies separately to facilitate the discussion.

Production policies

Since 1960 until quite recently, almost all production policies in the Sahel had the following characteristics:

- they were basically oriented "from the top down", meaning that the Public Authorities designed and implemented development programmes most of the time, including also the creation of cooperatives and producer associations.

Similarly, development programmes were designed, studied and implemented by bodies or agencies which were extensions of the official sector. The governments viewed themselves as responsible for dynamising the rural world and the evolution of the agricultural production system. On their side, financing sources attempted to impose their views on the design and development of projects, and in so doing introduced "models" which were not always adapted to farmers' needs and possibilities. Producers themselves were left with little freedom of action, at least in conceptualizing which direction things should take.

- Change was to be brought about by focussing on the development of individual "projects": extension, training, the supply of modern production factors, etc., which were supposed to find support among farmers, rather than on broader "policies", aiming at creating favourable conditions for farmers themselves to take initiatives to introduce change. When favourable conditions were

secured (e.g. often the case of export crops and especially cotton), the producers indeed took the desired initiatives, or at least acted in this direction. Such export oriented "projects" succeeded, and productivity and output increased. In other cases, foodcrop producers did not react or their reaction was ephemeral (as was frequently true in the case of cereals farming), the system did not evolve, and the efforts made were largely in vain.

More substantial efforts were directed to cash crops than foodcrops. In the 1960's, the supply of traditional cereals (millet and sorghum) raised no major difficulties. Despite the fact that development plans stipulated that at least an equal effort should be made to intensify cereals farming, much more attention was given to the extension and intensification of cash crops. They were considered as the best way to provide more income to rural dwellers and to produce the revenues needed by the States for the operation and modernisation of society.

This remark is also true of research and intensification operations in the field. A large and successful effort was made in selecting long-fibre cotton varieties adapted to Sahel conditions and defining the appropriate farming methods, but less attention was paid to selecting varieties of short-growth cycle millet which would be more resistant to drought and be more productive).

This choice had the effect of concentrating a more substantial share of foreign aid on cash crops than on cereals.

The situation has started to change in the last few years. First, the idea that the rural world should be more involved in the design and implementation of development has gained ground, although it has not yet been reflected in action to any large

extent. Moreover, the rural world, which has often been reproached for being incapable of developing by its own means, has started to express itself and to take initiatives. These include, inter alia, the creation of small irrigated perimeters in the Senegal river valley, and the creation of village cooperatives in Upper Volta and Senegal, which are not simple extensions of the official sector, but real associations of motivated producers. These signs of an incipient trend are most encouraging.

Again, the idea has also gained ground that Sahelian farmers are the same as farmers all over the world, in that they will only change their habits if it is worth their while. This means that an environment must be created to promote the success of projects and this in turn involves implementation of suitable policies.

It has now been understood that such policies should be general and consistent; they should cover research, the dissemination of more productive techniques and the supply of needed inputs and the marketing of production. We will return to these points. In 1977, Senegal introduced a food investment programme (1977-1985), which, although not a food policy as such, propose a new approach and sought greater consistency between actions to be undertaken. In 1981 the Gambia and in 1982 Mali drew up food strategies which, although quite general, are nevertheless a step forward in defining an overall framework to promote the development of rainfed and irrigated cereals farming. Other Sahel countries are working on similar strategies, but all this thinking has not yet taken much material shape as concrete action.

Despite these signs of incipient change, the development of rainfed cereals farming still remains far more dependent on the implementation of projects than on the definition of policies. The environment of projects is still far from fostering the transformation of the production system. For example, in several countries, there are shortages of selected seeds and animal-drawn farming equipment. Such situations hamper development.

Greater attention has been paid to the development of cereals farming since 1975. More and bigger projects have been implemented, although a new dimension of size has not been reached. The substantial investment scheduled in the Senegalese Food Programme has not been set in motion: indeed, the programme has not even been presented to the International aid donors. The previous chapter has mentioned that the volume of aid for cereals farming between 1975 and 1981, although much higher than the previous period, was nevertheless lower than the volume of aid directed to cash crops.

Marketing Policies

At the beginning of the 1960's the Sahel States felt the need to control marketing in the same way as they felt responsible for the development of cereals farming and cash crops. Official agencies were established to replace foreign trading companies and networks of traders who were handling most of the marketing of cash crops and cereals. In four States (Mali, Upper Volta, Senegal and Niger), these agencies were given the legal monopoly of the cereals trade.

The system for marketing cash crops has generally played the role it was imparted satisfactorily. This was in particular true in the case of cotton. However, the same cannot be said for cereals. Cereals marketing has played a far smaller role than the Governments had thought. Even in those countries which formed a legal monopoly, the official agencies, far from acquiring the total marketable cereal supply, did not even purchase a large share and sometimes only succeeded in procuring minute quantities.

The inadequate material and financial resources available to agencies to collect extremely scattered crops partly explains this failure. But, the main reason is that farmers had no incentive to stop selling their crops to traditional

traders. They saw no reason to choose official marketing channels which offered prices that were too low, and services they could see no clear advantage in having.

The outcome has been two cereal marketing systems operating in parallel.

- the official sector, which has sometimes played only a marginal role and not rendered the expected services, and

- the private sector which has also not rendered all necessary services, in particular because it did not grant cereals farmers satisfactory access to credit.

Each of these sectors has had its own price system. Most Governments have fixed the producer purchase price and the consumer sales price to be paid and charged by the official sector. Supply and demand fluctuations have determined prices in the private sector; these prices have fluctuated sharply, and are poorly documented.

It is now recognised that this double system has not allowed the Governments to achieve their two main objectives, respectively

- to provide cereals producers with a fair income which would be an incentive to market more produce. Official prices have rarely been a stimulus for farmers to produce for the market. And, although private traders sometimes offer farmers advantageous prices, they guarantee neither price levels, nor an offtake sufficient to convince farmers to produce substantial quantities of cereals for the market.

- to set consumer prices compatible with income policies Because the official agencies failed to market substantial quantities of cereals, only a minority of consumers drew benefit from low official sales prices. In the upshot, food aid and

imports took over from farmers in supplying town residents at reasonable prices.

Since 1976, the work of the secretariats of the CILSS and the Club du Sahel has revealed the inadequacy of the policies followed for cereals marketing and the key role they play. The 1979 Nouakchott colloquium was a major step in this process. Since this meeting, several Sahelian governments have introduced measures to reform their marketing agencies, liberalise the cereals trade to a certain extent, offer more attractive prices to producers, etc. It can be said that the Sahel is still feeling its way in this field, a difficult task because the problem of cereal marketing, i.e. providing incentives to producers and acceptable prices to consumers, is quite complex. It is not surprising to find that some experiments have failed or that the policies followed by one government or another have given an impression of lack of continuity or even inconsistency. However, the considerable effort made to take market realities into account and to prepare more coherent strategies is a major step forward and an encouraging development.

Nevertheless, no Sahel State has yet managed to devise a marketing policy compatible with the declared objective of food self-sufficiency. Observing that there was a divorce between town supplies of cereals and farmers, the Nouakchott colloquium suggested several directions of action:

- the promotion of locally grown cereals in forms more suited to urban consumption;

- protection of the national market against cereals imports and food aid by an appropriate price policy.

Little progress has been achieved in either direction, although they are of key importance for the future of the region.

A course of action for the future: a more general approach and more contractual policies.

Rainfed farming is indubitably the foundation of the Sahel's food supply and its economy. All the evidence is that it will remain so for many many years. In the light of its capital role, the assessment in the Kuwait report revealed that the share of aid allocated to this sector was very small, not to say ridiculously tiny. The previous chapter has shown that the position has basically remained the same in recent years.

This is explained on the one hand by the difficulties met by the Sahelians in designing development projects in this sector. Despite its efforts, no Sahel State has yet managed to create an adequate framework embracing both production and marketing policies within which development projects could be set.

On the other hand, donors hesitate to commit themselves in a sector in which the design and execution of projects are difficult, and where success - as past experience has proved - is not guaranteed, and the conditions for success depend to a large extent on political measures over which the International Community has no control. Donors think twice about altering their habits or giving up their own conception of development.

The future of the region nevertheless depends much on the Sahelians' and the foreign aid donors' ability to work together. It is becoming increasingly obvious that the necessary changeover of the agricultural production system depends in the first instance on farmers, who will only change the system if the environment is favourable to this. Only the Sahel governments can create the new environment, develop systems for the supply of inputs, offer prices and purchase guarantees, extend the necessary training, etc. It is also clear that the magnitude of the change needed in the agricultural production system is such that it cannot occur without substantial international support. Foreign aid donors can make their contribution.

by designing techniques and providing part of the needed capital.

At present, there is frequent reference to the idea of a contract between aid recipients and donors. It may be that cereals farming could be chosen as a priority sector actually to apply this idea, and that it is even urgent to do so.

Although much still remains to be done, thinking since 1976 on production and marketing has led to progress. The sectoral reviews drawn up recently by the two secretariats have provided a clearer picture of the constraints and obstacles in each country's position. The system has started to change; in some places, farmers have taken initiatives to improve conditions or seem ready to do so. The time may well soon be ripe for Sahelian leaders to meet donors on a country-by-country basis to draw up an initial contract for the development of rainfed farming.

This pre-supposes that the Sahel States make the effort to define general and consistent policies and to apply them, to reform structures which have become over-cumbersome and unsuitable and to take account of the reality of a rural world which is neither monolithic nor frozen, but differentiated and changing rapidly. In this regard, the sectoral reviews on rainfed agriculture are rich in pertinent recommenations. which could bring about change in the rainfed farming system.

This also pre-supposes that donors are prepared to discard some of their preconceptions regarding the basic approaches: their idea of development , and its form (formulation and execution procedures) and even to move away from the sacrosanct principle of economic efficiency. The yield of a rainfed farming project has never been as high as expected, and in any event, it is notrepresentative of the actions to be

undertaken to change rural society. It also pre-supposes that donors agree to work in common and in the same direction, and to come to an agreement with the Sahelians on some basic principles. Nothing can be done as long as one camp holds, for instance, that fertilizers should be subsidized, and the other contends that this must be avoided at all costs.

3.2 Irrigated Farming

The sectoral reviews drawn up in 1979 by the CILSS and the Club have paved the way for a diagnosis of the state of irrigated farming.

The observed fact is that irrigated areas and production have increased slowly since 1960. Production in particular has not followed the trend of needs. A substantial proportion of the irrigated perimeters built have deteriorated to a point at which they are no longer operational and must be rehabilitated.

Analysis has revealed the low yield from irrigation despite the substantial investments made in irrigated farming. Productivity levels for many crops are incommensurate with the volume of resource inputs.

The conclusion of the sectoral reviews underlines the need for better management of perimeters and especially for improved maintenance of facilities and equipment. Irrigated agriculture must be intensified and farmers must be motivated to adopt intensified techniques.

Some progress has been achieved since 1980:

- the Sahel governments have made a certain effort with the help of the International Community to reform the parastatals responsible for managing irrigated perimeters and raise their efficiency;

some advances have been achieved in this direction.

- the rehabilitation of several irrigation projects which had become unoperational, has been undertaken and a few new perimeters developed. Despite this effort the area of irrigated land is still growing slowly.

- the Senegal river valley development project, representing a substantial investment, has been launched. Its effects will of course only become evident in the long-term or even the very long term.

A substantial and increasing share of international aid has been devoted to these investments. This share is disproportionate to the results obtained up to now and the true position of irrigation in the Sahelian economy.

There is of course no intention to criticise here the utility of this type of farming or the volume of aid allocated to it. It represents one way to provide the quantities and qualities of cereal needed to meet urban demand, and which will certainly remain in demand even if an effort is made to develop rainfed cereal farming. Irrigated farming obviously has a role to play in the region's food security and is indispensable in preparing for the long term future of the Sahel.

However, there is reason to question whether irrigated farming has not been considered too independently of other sources of food supply. Thinking since 1976 has shown the value of adopting a global approach to the problems of food self-sufficiency and security.

The development of irrigated farming should be one chapter of the food strategies mentioned above, and the role of this type of farming should be determined on the basis of an analysis of its costs and benefits from the standpoint of product quality, and the maintenance of supplies despite

climatic factors. Has this cost-benfit analysis really been carried out with the requisite attention for earlier projects or those now under way?

The same obstacles to the transmutation of the rainfed production system recur and explain at least in part the problems of irrigated farming: insufficient acknowledgement of the role of the rural world, a price policy which gives no incentive to producers to increase their yields, etc. The thinking on the marketing of rainfed cereals is or will be beneficial for irrigated farming. This is another reason for not separating rainfed from irrigated farming and perhaps envisaging that future cereal crop development contracts will have two separate sections, devoted respectively to rainfed and irrigated farming.

3.3 - Livestock

It should be clearly stated that neither thinking at national level nor the thinking of the CILSS or the Club have produced a straightforward and undisputed livestock development strategy. The conceptual advance in this field is still far from the substantial and constructive efforts made since 1976 as regards cereals farming and marketing, which brought about major changes in both ideas and policies. There has not been a "Nouakchott colloquium" on livestock.

Action in favour of livestock development has been concentrated for a long time on animal health and pastoral hydraulics, and has contributed to some increase of extensive traditional livestock. Intensification operations (ranches, industrial, traditional cattle feeding, etc.) have had only limited success and effect. They have not led to a transformation of livestock techniques.

After their reduction by the drought, herd numbers have recovered, but the transformation has yet to begin. As in the past, livestock remains very vulnerable to climatic conditions

and there is general agreement that an impasse has been reached: the limits to natural pasture resources put a ceiling to herd growth, but the number of meat and milk consumers will keep on rising. The livestock development projects designed since 1976 remain basically within the same frame as earlier actions. The share of aid allocated to livestock is decreasing. The fact that neither the Sahel leaders nor aid donors have a clear idea of how to promote an "other" form of livestock may well have something to do with this decline.

It is becoming increasingly important to reconsider livestock strategy in the Sahel countries:

- obviously, neither pastoral hydraulics nor animal health should be neglected (the recent outbreaks of rinderpest proves this), but they are insufficient on their own to prepare for the future;

- it is also accepted that nomadic or semi-nomadic livestock in Sahelian zones is the best way of developing the scarce resources in these regions, and further that it must be preserved for social reasons. The questions are whether livestock can be developed and pasture resources increased, and if so, how? Or, whether, to the contrary, livestock should be limited and another way sought to improve living conditions? These are the basic problems which have yet to be solved.

- in wetter areas, the need to associate farming and livestock has been underlined many times. However, today, the mere co-existence of the two activities raises sometimes serious problems, because available space is decreasing. Ways

must be found to organise this co-existence, increase cattle-feed resources and develop a meaningful association of farming and livestock; it is not at all obvious what this could be.

- meat marketing and prices have not been given the same attention as cereals although they are determinant for the future of the livestock system.

The secretariat of the CILSS has begun to draw up national livestock overviews, to compile data and secure better country-by-country information on the position of livestock and its problems. It will then be necessary to analyse the data thoroughly and propose strategies. This could be an area to which the Sahelians and the International Community might devote increased attention over the next months.

3.4 - Fisheries

Continental Fisheries

Sahelians could draw more fish protein from continental fisheries than they do today. However, this will depend mainly on appropriate fisheries development, especially of aquaculture. The development of continental fisheries will not happen spontaneously and will mainly be the result of purposive action.

Fisheries is one of the sectors which has received the least official development assistance. It is perhaps the most neglected sector considering what is at stake.

Until very recently (1980 or 1981 in most countries) there were administrative departments specialised in continental fisheries. Since then a number of fisheries departments or continental fisheries divisions have been created within Water and Forestry departments. This is a first step. However, it is only a step; these new structures are understaffed at executive level and have very small budgets.

The shortage of executive staff is a key problem of continental fisheries in the Sahel. It will not be solved in the near future as the MOPTI regional training project envisaged some years ago has not yet seen the light of day.

Considering the weakness of the specialised structures, it is not surprising to find that research and development work on fisheries and fish-farming is still embryonic. None of the Sahel countries have formulated a sophisticated and consistent policy for continental fisheries and the projects in this sub-sector have received only a very limited share of international aid: less than 0.2% of the aid allocated to the region.

The work of the CILSS and the Club has revealed the importance of fisheries, but has not yet triggered major action. The establishment of sectoral reviews on continental fisheries will provide the necessary basis for a development plan. The Sahel States and International donors could take this opportunity to hold discussions to devise a really significant action programme.

Maritime fisheries

Maritime development policies have been much more vigorous. The coastal Sahel States have established relatively specific maritime fisheries development plans. Although the first generation projects did not receive much attention, a non-negligible volume of investment was channelled to the sector in the framework of bilateral agreements of which the provision of fishing rights to industrialised countries is often a major feature. This financing covered the modernisation and the development of artisanal fisheries and the creation of industrial or semi-industrial fishing fleets.

Nevertheless, although resources should obviously be pooled, each Sahel State has followed a strictly national policy. It is worth asking whether greater concertation or even joint management of this resource would not be more beneficial to coastal countries, which still do not derive all the advantage they could from their maritime resources.

3.5 - Forestry

Until 1976, the Sahel countries' basic forestry policy was to preserve the national forest. This policy, inherited from colonial times, was mainly based on repression and most usually implemented with absurdly few resources.

The increasing deforestation of the region and in general its ecological problems were realised in the mid-1970's. This led to adding plantation to the activities performed by the national forestry departments.

Above all, the studies undertaken by the CILSS and the Club between 1976 and 1979 produced a psychological shock, in that they revealed the difficulties of wood supply and the desertification threatening the region. A number of projects were initiated and a plan for the struggle against desertification was drawn up in 1980 based on:

- integrated sylvo-pastoral or agro-sylvo-pastoral development to preserve ecological balance and meet the population's needs;

- wood production in village or industrial plantations, or the development of natural formations;

- fuelwood savings by the design and dissemination of improved cookstoves for rural and urban dwwellers.

International aid, practically nil in 1975, has increased rapidly, although it remains modest in absolute terms: $150 million over seven years. Two remarks must be made on the present position:

- the projects undertaken or under way (approximately 20 000 hectares of new forests planted) are in total not proportionate to the magnitude of the region's assessed needs;

- the projects so far implemented have not yielded the results expected.

Poor results, and the immensity of what needs to be done could cause despondency and slow down effort at a time when the ecological position in certain zones is increasingly disquieting. It is patently essential to revise the forestry policies and the aid policies in this sector.

The teachings drawn from the experience of the last few years reveal two facts:

- the cost of the reforestation projects undertaken over the last few years, which is still too high compared with the results obtained. It has become obvious that action of this type could not be generalised, even if yields were improved. The financial and human resources to be mobilised to face up to the needs of the region make such generalisation utterly unrealistic.

- limited popular participation; there has been no massive involvement of users in projects of reforestation around villages or in the dissemination of improved hearths.

There is a relationship between these two facts. The sudden awareness of the magnitude and the pace of deforestation in the Sahel triggered a speedy response from Sahelian leaders and aid sources, which although praiseworthy, was probably too rash and certainly over-technocratic. The effect of technical difficulties due to the inadequacy of studies has been cumulated with that of the human problems stemming from the fact that the population's needs, expectations and constraints were not sufficiently analysed.

The programme/overviews drawn up in 1982 have provided a clearer view of the ecological position and the level of needs and have also drawn the first lessons from the experience of the last few years. It should be possible to use the

information assembled to rethink the course of action in the forestry sector and define a programme of operations with a better cost/efficiency ratio. Several basic principles already emerge as being worth consideration:

- first, the need for a general and consistent strategy at country level, covering the different aspects of the production, transformation, transport and use of wood; this strategy should include the creation of a suitable legal framework, which hardly exists at present, to promote reforestation.

- second, the need to mobilise the interest of the local population before envisaging projects such as family or village plantations, agro-forestry or the dissemination of improved hearths. These projects, undertaken by the population concerned and supported by foreign aid should be the basis of programmes and should be supplemented, if need be, by industrial plantations specifically to meet the demand for town supplies.

- third, the need to combine and not differentiate forestry from agricultural or pastoral actions: the issue is the development production system as a whole in the Sahel, i.e. cereals, meat and wood production; all the constituents of the system are linked, and there is no plausible way to change one of them without affecting the others.

3.6 - Village Hydraulics

The Sahel States have paid much attention to the improvement of the water supply of the rural population; they and the International aid donors have made a major effort in this field, especially since 1978.

The programme overviews drawn up in 1982 by the CILSS and the Club have successfully completed a critical analysis of the policies followed. The main aspects are as follows:

- information on underground water resources has improved greatly. It is now established that these resources are sufficient in total to ensure the region's future water supply. However, uneven geographical distribution and the growth of human and animal requirements as well as those of irrigation necessitate real management of water resources. For the future, the principle should be introduced that guidelines for the use of water need to be drawn up and implemented.

- information about and in particular the allowance made for human needs have generally been inadequate up to now; many of the recently built water-points have been installed without associating the population sufficiently with the design and development of these facilities and their equipment. The outcome is that the people concerned tend to think that these water-points are not theirs and do not feel overly involved, especially as regards maintenance.

- the programming of village hydraulics has not been given enough attention; most bodies responsible for water have allocated a substantial share of their resources to execution tasks, whereas the public authorities' true function is the programming and design of projects. Programming resources should be strengthened better to take real needs and development and maintenance potential into account, and promote rational water management. To do this, priorities need to be defined at political level to determine inter alia whether particular stress should be laid on satisfying social requirements or priority given to projects allowing for economic use of water for market gardening or small-scale livestock raising. National water strategy needs to be thought about as a whole;

- with national independence in mind, the Sahel States have created well construction teams and well boring agencies which are administrative entities operating as public corporations, or official contracting firms which are in fact officially controlled. These organisations are not equipped for

efficient on-site work, and it is suggested that the human resources and equipment available in the Sahel be devoted to programming, design and control tasks, while promoting the creation of local contracting firms, which could be official, private or mixed. For the time being, a certain number of physical tasks such as construction or surveys, can be sub-contracted to foreign firms;

- the problem of maintaining facilities and equipment was first flagged some years ago. Some progress has been made, but none of the programmes under way or envisaged plan ahead for the resources required for maintenance of the water-points built. Simple arithmetic shows that over the next few years the Sahel governments will not be able to subsidize the maintenance of water-points in all villages using official funds. The local people concerned must therefore finance at least part of the maintenance and rehabilitation of facilities and equipment, and must be trained to undertake part of this maintenance. This pre-supposes that they be involved from the outset in project design and implementation.

The basic problem in village hydraulics is how to make more rational use of limited human and financial resources collected locally or from abroad, better to meet the still enormous needs. This leads to the suggestion of a different approach, from the bottom up rather than the usual "top downwards" approach. It will come as no surprise that the ideas set out earlier on the development of rainfed farming and reforestation recur here: getting food, cooking it, and having water to drink are three aspects of the same basic need. For several reasons this basic need is no longer met properly or is threatened in some Sahel regions; continuous and accelerated population growth is not the least of these. The position cannot be improved without the active participation of the population concerned.

This implies a revision of the Sahel States' policies and a different approach to programming. It also presupposes a change in the attitude of the aid sources, whose main concern should be to help reveal the population's needs while simultaneously disclosing development potential, rather than to develop esthetically satisfying projects based on preconceived models.

3.7 - Transport

Substantial aid has been provided to this sector, most of it to the development of new infrastructure (75% to 80% of the total in the last few years has been used for new investment and very little for the maintenance of existing capital). The description given in Part I underlines the disquieting state of deterioration of infrastructural assets.

This finding suggests that the Sahel States' and aid agencies' current policies in this sector need to be thoroughly revised.

The Sahel's economic position does not allow the governments to find the necessary resources to maintain the existing transport infrastructure. It is necessary to call a halt to new investment until the economic basis for funding it has broadened. New infrastructural projects may reveal the existence of a potentially useful return, but the economic benefits they produce are absorbed by so many claimants and the needs are so numerous and urgent that the public authorities cannot draw on such benefits for the funds needed to maintain them. Pending a return to balance, aid sources should focus most of their action on safeguarding and maintaining existing infrastructure and, where necessary, rehabilitating the infrastructural facilities that can be used in opening up agricultural regions.

One of the reasons for insufficient maintenance is its high cost. It would be useful to study and implement maintenance methods, in particular for rural roads, which call for more participation by the local labour force and are less costly in terms of foreign currency and investment.

Granted that governments and aid sources should focus their action on an "emergency transport programme" to cover short- and medium-term needs, they should also prepare for the long-term. The transport system is, as underlined earlier, still unsuitable for autonomous development of the Sahel region : thinking has already been undertaken on the desirable shape of a future network and the ways of developing it; progress is required in this direction. Non-conventional techniques (e.g. transport by lighter than air dirigibles might also be suitable alternatives to meet requirements and overcome constraints in the region: it would be desirable to continue to study the scope for possible introduction of such non-conventional techniques.

CONCLUSION

The basic conclusion to be drawn from the discussion above is that there is reason for concern about the Sahel's situation at the beginning of the 1980s.

In the aftermath of the acute drought, attention was focussed on the reconstruction of the region's economy. The analyses undertaken in the months which followed the creation of the Club du Sahel showed that this was not enough. The region was afflicted by basic disequilibria that were only revealed by the drought, and a remedy had to be found as an urgent matter. The analyses also showed that this was possible and that the Sahel had the necessary resource potential.

The strategy proposed by the CILSS and the Club du Sahel to this end has had remarkable effects: it has promoted increased Sahelian and International efforts and has acted to guide them along the same path.

These efforts have to a large extent borne fruit, but sporadically so. The basic problems of cereals farming, livestock and reforestation have not been solved, nor could they have been in a few short years. The disquieting feature is that the main unfavourable trends have not been reversed. The disequilibria identified are still present.

Further disequilibria have been added to those revealed in 1976. The trend of international economic conditions and internal developments in the Sahelian societies have led to other disequilibria, which existed in 1976, but now give grounds for concern : intolerably high recurrent costs, land deterioration, the absence of national saving, the growing weight of the public sector, massive foreign debt, etc.

This not overly-optomistic assessment must not be a reason for despondency. There have been positive results. Effort must be redirected in areas to improve them further and this effort must be sustained.

The Sahel's position has changed since 1976, as well as its international environment. Understanding of the problems has improved although there still is much to be learned. Action must follow new lines.

A few suggestions are made to this end.

The first is that the CILSS and the Club du Sahel can no longer merely seek food self-sufficiency and ecological equillibrium; neither can they limit themselves to analyses and proposals for sectoral action, as they have generally done so far. Economic problems have intensified to a point that they are inevitably encountered each time concrete action is undertaken: difficulties relating to input costs, the price of products, capital costs and recurrent costs are omnipresent. The need is increasingly felt for an overall economic framework within which the different sectoral policies can be set.

What are the region's long-term prospects? What is the consistent course to follow to offer the Sahel an acceptable future? Aid sources and Sahelian leaders seem to need this macro-economic framework as a beacon to focus their attention on the future. The disequilibria affecting the Sahel obviously call for "structural adjustments", but are these adjustments not best made in a long-term perspective? And, in the absence of such general forward-looking economic thinking, can one make anything other than short-to-medium-term adjustments which will have to be re-adjusted?

The second suggestion is that a more systems-oriented approach should now be followed to deal with the Sahel's problems.

Experience over the last few years has shown that individual uncoordinated actions are rarely effective, and that projects in isolation have been of little utility, e.g. in the development of rainfed cereals crops. The whole production system must be changed. A complete new system must be developed. To do this necessitates a wide range of consistent actions : research into new varieties and techniques, creation of an organisation to distribute inputs, extension of techniques, training, development of a marketing and credit system, construction of transport infrastructure, achieving attractive prices of products by protecting the domestic market, transformation of the product for easier marketing, etc.

Similarly, rainfed farming, livestock and re-forestation problems are closely linked; they are all partly a reflection of the same phenomen, namely that the available space is decreasing with population growth and must be put to better use. These problems cannot be solved separately. The whole production system in the rural environment needs to be changed.

Future projects should not be undertaken as isolated operations, even if they are called integrated projects. The projects and actions needed are part of an overall strategy designed to modify the system.

An economic framework and a more systems-oriented approach are two aspects of a more general approach to the problems of the Sahel. To secure them in concrete terms, the third suggestion is to renew the idea of "contract". The concept of a "Generation" contract was put forward when the Club du Sahel was established, i.e. a generation contract between the Sahelians and the "Friends of the Sahel". Little enough was made of it, and that little not applied very rigourously.

The concept of contractual aid is becoming topical again, but agreement is still necessary on how to give it content.

The analyses undertaken over the last few months have shown that a certain number of basic disequilibria could be remedied by joint action:

- action by Sahelians at the grass-root level - the farmers, herders , village dwellers who are directly involved and are ready to change - to alter the production system to the extent allowed by a favourable environment, and provided they receive the assistance required: technical assistance and in some cases, temporary financial aid or capital aid;

- action by the Sahelian governments who alone can create this favourable environment by implementing the appropriate policies (in the overall economic framework mentioned above). The CILSS and Club du Sahel studies have paved the way for better knowledge of the conditions to be met to create this favourable environment. However, these conditions will not always be secured easily. Some will perhaps necessitate difficult changes, or even sacrifices;

- International action to guarantee a sufficient and continuous flow of aid adapted to needs. Changes in the design of aid and aid procedures will no doubt not occur spontaneously. Nor will it always be easy to modulate systems to adapt them to the real, and changing, needs of the Sahel. Nevertheless, these factors condition the efficiency of future aid.

Contracts between a government and the International Community probably offer interesting scope for the future. A particular sector such as cereal farming or reforestation could be used for an initial trial.

This course will necessitate a commitment by both parties and a minimum of harmonisation among donors; if each aid source sets its own standards, which to some degree conflict with those of the others, this will only lead to confusion, with no contribution to the cause of international cooperation.

Adopting this course of action also presupposes that national contracts not be drawn up independently. The Sahel's problems are mostly regional and it has been known for some time that many of them can only be solved on a regional scale. The CILSS could be made responsible for organising the necessary regional consistency.

Lastly, the problem of food security cannot be lost from sight. The Damocles sword of generalised drought hangs over the Sahel. In the last few years there have been occasionally extensive local droughts. The general catastrophe of 1972 - 73 has not recurred, but it could, tomorrow. And it would strike a more heavily populated Sahel with larger urban areas, a Sahel already afflicted by serious disequilibria.

Are the Sahel and the International Community prepared to face up to this challenge?