1660

CILSS

PRORES

PROBLEMS RELATED TO THE FARM-PRODUCE SECTORS IN THE SAHEL

A SYNTHESIS OF NATIONAL BALANCES/EVALUATIONS

OUAGADOUGOU, March 1997

SUMMARY

A comparison of inventories in the farm-produce sectors at the national level reveals similarities and distinctive feautures which lead to an inventory of nine farm-produce sectors at the regional level.

The same comparative analysis applied to the criteria allowed to adopt six relevant criteria that governed choice at the regional level:

- contribution to GDP;
- contribution to food security;
- importance of the people involved in the sector;
- contribution to the trade balance;
- opportunities for sub-regional or international trade;
- ability of the sector to meet a sustained sub-regional demand.

The sectors that best met the criteria falling in line with the concerns related to food security, the reduction of disparities, improvement in regional trade and participation to development have been considered as promising farm-produce sectors at the regional level. Those sectors are: cattle/meat, cereals, fruit and vegetables, and fishing. The analysis of each of those sectors evolved around the constraints and assets at all levels: production, market behaviour, consumption and processing.

Detailed analysis of the national studies called for urgent actions through the following aspects:

- collection of data on quantities produced and census of the cattle as well as production costs;
- monitoring of consumption parameters;
- initial costs; determination of competitiveness;
- inventory and analysis of trade policies;
- inventory of processing plants, technologies and standards of quality; collection of data on processed quantities.

After the strategic orientations, options for possible interventions with a view to improving and optimizing the competitiveness and operation of the sectors have been classified into two complementary categories:

- on the general plane, options in favour of the environment, organizations, funding, trade and technology;
- on the specific plane, options pertaining respectively to cattle/meat, cereals, fruit and vegetables, and fishing.

An important annex comes in to support the comparative and analytical study. It particularly includes detachable indexes as per sector adopted in a given country and the regional level.

OVERVIEW

The rural sector is one of the most important sectors in the economies of the CILSS member countries. However, such importance is unequal, depending on individual countries. While it represents 40% of GDP in Niger and Chad, it is 22% in Senegal and Mauritania.

The sector is characterized by considerable swings in productions which are due to interannual climatic variations and the uncontrolled phytosanitary situation. Under such circumstances, food balances reveal a chronic deficit with the exception of the Gambia and Mali which are not in a deficit in years of normal rainfall.

Background and justification

Against this background, CILSS has been adopting a comprehensive approach to meet the constraints due to dysfunctioning in all segments in a given sector and to the interactions between sectors. National studies have already identified concrete actions to be undertaken by the States and by CILSS so as to improve the operation and competitiveness of the farm-produce sectors in the Sahel. The analyses were centered around the three most promising farm-produce sectors in each country.

Objectives

The study aims at the following objectives:

- to have a better understanding of the importance of those sectors in the agricultural development of the countries and the dynamics of supply and demand in foodstuffs;

- to determine the strengths and weaknesses in their operation, identify the consequences for action and to make proposals of options for improvement while ensuring synergy at the national and regional levels;

- to determine with some accuracy the regional interventions which would back-stop the national efforts and enable CILSS to be one of the best actors.

This study is a synthesis of the nine national studies on farm-produce sectors and which have been validated by national workshops. Such comparative synthesis of national diagnostic balances highlights the most promising farm-produce sectors, and it analyses the constraints they are faced with.

The analysis relates to market behaviour, to consumption of the produce under consideration as well as the constraints to the processing and trading of produce.

The synthesis tables possible actions so as to improve and optimize the competitiveness and performance of the sectors, and it identifies fields for further investigation.

Our selection of the most important sectors was based on six criteria.

Methodology

The methodology consisted in tapping the existing documentation, discussions with the team members in charge of the synthesis of studies on the production systems and interviews with CILSS experts.

Limitations

The study has several limitations. It is mostly based on the national studies which emphasized the informal nature of production, marketing and processing of farm produce. Under such circumstances, the background information is inadequately or poorly quantified. For example, the competitiveness of the sectors is difficult to determine. In some studies, the data are obsolete. Series of data are incomplete.

Approach

In a first part, we introduce the most promising farm produce sectors and we state the rationale behind our selection of the four major sectors.

The second part is a synthesis of the operation of the selected sectors.
The third part tables strategic orientations, options for improvement and optimization of the operation and competitiveness of the sectors as well as further actions to be undertaken.

INVENTORY OF SECTORS

1.1. INVENTORY OF SECTORS AT NATIONAL LEVEL

The inventory of the farm-produce sectors in all the national studies (see Annex I) highlights specific produce and groups of produce in various fields of activity: dry and irrigated farming, transhumant and sedentary cattle-breeding, continental and maritime fishing, forestry and picked crops. In some countries, the authors went beyond the farm-produce sectors to cover other agro-industries outside the food chain: fiber cotton in Burkina Faso and the Gambia, horns, hooves and wool in Mauritania, hides and leather in Burkina Faso.

In order to be in keeping with the terms of reference which restricts the scope of the studies to the farm-produce sectors, cotton should have been addressed in terms of processing into oil.
In the same vein, wool, horns and hooves, although they are important for the economies concerned, can but be taken into account in the "livestock sector" which is of partial interest for us.
It should be recalled that the farm-produce sectors are a component of agricultural sectors. This component is part of the food chain which goes from production to consumption. Thus, the forthcoming analysis relates to this component.

Fishing was mentioned by Mauritania more as a strategic sector for the country rather than a farm-produce sector, which reinforces its promising nature.

In view of the above, it is important that the various CILSS member countries agree on a common definition of the concept of farm-produce sectors.

1.2. INVENTORY OF SECTORS AT REGIONAL LEVEL

The inventory of sectors at the regional level (see Table I) is a synthesis of the main sectors (three/country)selected by the countries as a whole (see Annex I). Consideration of this table reveals:

- specific produce (cowpeas, milk, groundnut);
- groups of produce that make up a sector (cereals, cattle/meat, poultry, fruit and vegetables, fish products).

Six countries identified the cereal sector. More specifically, the Gambia favoured millet and corn; Mali and Burkina Faso emphasized corn and rice; Chad and Mauritania chose millet, sorghum, corn and rice.

Seven countries chose cattle and meat.

Table I: Inventory of sectors

Sectors	Countries	Number of countries
Cowpeas	Niger	1
Milk	Mauritania	1
groundnut	Chad	1
Cereals	Gambia,Mali,Mauritania,Chad, Burkina Faso,Guinea-Bissau	6
Cattle/meat	Niger,Burkina Faso, Chad, Mauritania,Cape Verde, Mali,Guinea Bissau	7
Poultry	Gambia,Senegal, Guinea-Bissau	3
Fruit and Vegetables	Niger, Senegal, Burkina Faso, Guinea-Bissau	4
Fish products	Mauritania, Cape Verde	2
Forestry and picked crops	Senegal	1

Several lessons may be drawn from this regional synthesis:

- possible upgrading of surface and groundwater resources through the development of irrigation for the production of rice and/or fruit and vegetables over large areas in Senegal, Mali, Burkina Faso, Chad, Niger, Mauritania and Guinea-Bissau;

- possible upgrading of fish and forest products. However, the selection of the related sectors are very much localized in the Western part of CILSS, precisely in Cape Verde, Mauritania and Senegal;

- exploitation of pastoral resources which could be tremendous in view of the space concerned. A large portion of this space is covered by cereals. Thus, it would be possible to integrate agriculture and livestock development;

- peculiarity of milk, groundnut, cowpeas and poultry in terms of location of the choice for each of these sectors (specific choice);

- coincidence of several national choices which highlights common concerns for cattle/meat, cereals, fruit and vegetables.

1.2.1 The Cattle/meat Sector

Seven countries chose the cattle/meat sector which is one of the most important activities in the sub-region on the economic, human and environmental planes.

Virtually, the cattle/meat sector covers a large common space in the zone where ecological conditions as well as production systems are almost identical.

In 1995, the number of heads was impressive in the countries concerned with 18.310 million cattle, 51.395 million sheep and goats, and 1.6 million camels. Unauthorized slaughter is considerable and produces as much meat as official slaughterhouses in some countries. Annex 5.2 provides figures for all CILSS member countries.

In 1995, controlled meat production in the seven countries was 665,900 tons while livestock exports represented 804,700 large cattle, 1,400,000 small catlle and 61,000 camels.

The major constraints in the cattle/meat sector are ecological, socio-cultural, economic, technical (processing) and organizational in nature.

Among the assets, we should mention the existence of considerable but inadequately exploited opportunities and of a large internal, sub-regional and external market (coastal countries in the Gulf of Guinea, Maghreb and Central African countries).

1.2.2 The Cereal Sector

Six countries chose this sector which comprises rice, corn, millet and sorghum as sub-sectors. In general, the sector covers 60 to 80% of cultivated land and considerably contributes to the econbmies of the various countries. In 1995, cultivated areas were estimated at 9.8 million hectares of which 400,400 were irrigated.

The produce referred to are the basis of the Sahelians' food consumption.

Total production was 6.4 million tons in 1995, and the available stock was 5.2 million stock.

This sector is characterized by high variation in productions which basically depend on climatic conditions. Coverage of consumption was of the magnitude of 93% in 1995.

However, the balance varies very much from one country to another.

According to the national studies, the potential in arable lands is considerable, especially as regards irrigable areas which represent more than 7.88 million hectares (see Table II for the six countries which chose this sector).

For all CILSS member countries, Annex 5.3 provides data.

The major constraints that were identified are climatic, technical and organizational in nature.

Among the assets, the following should be noted:

- considerable potential in irrigable lands;
- considerable potential in arable lands;
- existence of a large internal and sub-regional market.

Table II: Irrigable Potential, cultivated areas (in thousand hectars), production (in thousand tons)

Countries	Potential in lands		Irrigated areas	Cereals Production	
	I.F	R.F	I.F	R.F	I.F
Burkina Faso	160	3,080	70	2,411	81
Chad	5,600	1,245.8	41.2	1,081.1	93.4
Gambia	84.2	84.2	11.2	69	20.2
Guinea-Bissau	NA	1,260	29	66	131
Mali	2,000	2,350	230	1,986	291
Mauritania	137	177.2	19	125.6	31.4
TOTAL	**7,981.2**	**8,197.5**	**400.4**	**5,738.7**	**647.9**

R.F: Rainfed Farming I.F: Irrigated Farming

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

1.2.3 The Fruit and Vegetables Sector

Four countries chose the fruit and vegetables sector which comprises a great diversity in species and varieties. This sector is also marked by its tremendous contribution to the export earnings of those countries, and mostly by the high level of women's participation in production and marketing activities.

Market-gardening amounted to 50,000 tons in Burkina Faso in 1993, and to 154,000 tons in Senegal in 1995, while fruit production was 2,000 tons in Niger in 1994 and 110,000 tons in Senegal in 1995 (see Table III).

Table III:Fruit and Vegetables Production (in thousand tons)

Countries	Vegetable Production	Fruit Production	TOTAL
BURKINA FASO*	50	70	130
NIGER**	146.6	0.2	146.8
SENEGAL***	154	110	264

* 1993 figures ** 1994 figures *** 1995 figures

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

The fruit and vegetables sector is in full expansion in the various countries; however, there are a number of constraints, the most important ones being:

- produce are highly season-related and they are perishable;
- inadequate storage and preservation facilities;
- high cost of packaging, processing and transport;
- weakness of processing.

The assets of the sector are, inter alia:

- the wide range of produce and their good adaptation to pedo-climatic conditions;

- the existence of national, sub-regional and international markets;
- possibility of industrial and artisanal processing and upgrading.

1.2.4 The Fishery Sector

Mauritania and Cape Verde chose the fishery sector. It plays a very important role in the economies of both countries, especially as an occupation for the active population as well as in terms of their daily diet.

The fishery sector has a considerable productive capacity in Mauritania with 880,000 metric tons, and in Cape Verde with 43,000 to 50,000 metric tons. Production amounted to 482,702 tons in Mauritania in 1992, and 10,800 tons in Cape Verde in 1994 (see Table IV).

The constraints of the sector are often related to the poor condition of ships, to difficulties in storage and preservation at the level of processing, and also to a problem of quality standards.

The essential assets are the underexploited fish stock as well as the existence of a market in increasing demand at the national, sub-regional and international levels.

Table IV: Productive Capacity , Production and Consumption

Countries	Productive capacity (metric tons/annum)	Production (tons)	Consumption (tons)
Cape Verde**	43,000-50,000	10,800	6,330
Mauritania*	660,000	482,702	17,000

* 1992 figures ** 1994 figures

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

The national reports did not refer to continental fishing. However, it should be underscored that it is a non negligeable activity in the Sahel where there are many rivers. Its contribution to the local economy and to food security must be mentioned. Comprehensive data collection on this activity will help confirm this opinion.

1.2.5 The Poultry Sector

Senegal, the Gambia and Cape Verde chose the poultry sector. This sector has been characterized by rapid development over the last years in those countries with the emergence of semi-intensive poultry-farming in peri-urban and urban areas, and of intensive and/or commercial poultry- farming or raising of breeders (Senegal).

Poultry- farming has a high share in the economies of the countries concerned as well as in the people's diet.

In 1993/1994, the Gambia had 740,000 heads of poultry, while Senegal had 16,904,000 heads in 1995 (see Table V).

Note should be taken of the importance of rural poultry-farming that provides most of the production which, in 1995, reached 10,300 tons of poultry meat and 114 million eggs in Senegal, and 1,800 tons of poultry meat and 35 million eggs in Cape Verde.

Regarding trade, in 1995, Senegal exported 620,000 chicks in the sub-region and imported 200 tons of poultry meat and 11,100 one-day chicks. In 1993/1994, the Gambia imported some 400 tons of poultry meat.

Table V: Estimated number of heads and production

Countries	Number of heads (in thousand)	Meat Production (in thousand tons)	Egg Production(in thousand
Cape Verde*	-	1.8	35,063

Table V: Estimated number of heads and production

Countries	Number of heads (in thousand)	Meat Production (in thousand tons)	Egg Production(in thousand
Cape Verde*	-	1.8	35,063
Gambia**	740	-	-
Senegal*	16,904.6	10.3	114,000

* 1995 figures   1993/1994 figures

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

The constraints of the poultry sector are basically related to:

- the low genetic potential of local breeds;
- the high cost of feed which, in addition, is not always available;
- the inadequacy of health monitoring;
- the weakness of extension work and the lack of infrastructure and facilities (slaughterhouses, freezing facilities).

Some of the assets are:

- increasing demand due to high urbanization rate and low cost as compared with red meat;
- possibilities to improve rural poultry-farming.

The national reports did not adopt poultry-farming. However, it should be noted that it represents an important activity, especially in the Sahelian rural areas which provide meat to urban centres.

1.2.6 The Cowpeas Sector

Niger chose this sector. Cowpeas represent the third crop in Niger in terms of production. Cultivated area was estimated at 3,272,000 ha in 1994 and production amounted to 356,000 tons for the same year.

The market value of production is estimated at F CFA 20,000 million, and its contribution to national revenue is estimated at F CFA 940 million.

National consumption is low, swinging between 12 and 35% of production; the remainder is exported mainly towards Nigeria (Kano).

The constraints of the cowpeas sector boil down to:

- inadequacy and poor distribution of rains;
- poor quality of seeds;
- pests and diseases;
- low internal demand;
- difficulties related to storage and preservation;
- low level of processing;
- funding difficulties.

The assets include:

- existence of large areas;
- good command of production techniques;
- existence of promising markets in the sub-region;
- high incomes derived from production and marketing (distribution).

1.2.7 The Forest Products Sector

This sector was chosen by Senegal for which these products play a very important role in local trade and in the peasant-farmers' food and economic strategies.

The sector is characterized by diversity in products and by a regional specialization which shows the adaptation of species to ecological conditions.

In 1995, controlled production in Senegal was 8,850 tons, of which 2,923 tons of palm kernels. Exports in 1995 were estimated at 1,950 tons.

Over the last eight years, imports have reached an average 22,800 tons per annum, of which 16,500 tons of palm oil.

Among the constraints faced by the sector, the following should be mentioned:

- forest degradation;
- lack of organization in marketing;
- low level of industrial upgrading;
- poor quality of products;
- perishable products;
- rather coercitive regulations.

As regards the assets, they are mainly related to the diversified range of products, the adaptation of species to the environment , and to renewed interest of the people in their consumption because of their nutritional value.

Forestry is important in all CILSS member countries, especially in Senegal, Mali, Burkina Faso, Niger and Chad because of diversity in species, of internal demand and of trade in border markets.

Shea nut is processed into butter in Mali and Burkina Faso. The latter lays emphasis on the future of the agro-forestry system aimed at planting fruit-trees such as shea nut tree.

There is also renewed interest for arabic gum which can be used in the sweet industry and in the production of soft drinks.

The upgrading of forest products is envisaged in the framework of the agro-forestry production system which is promising.

1.2.8 The Milk Sector

The sector was chosen by Mauritania where the productive capacity was estimated at 350,000 kilogrammes of milk in 1993, on the basis of the number of dairy cows.

According to two different sources, the potential consumption of liquid milk would amount to 57/169 litres per inhabitant and per annum.

In 1993, imports amounted to 17,544.9 tons, representing an estimated Ougouiyas 2,100 million.

The constraints are due to the dispersion of cattle, to difficulties in collecting and preserving, to the low level of processing and, mostly, to sociological obstacles (selling milk in large quantities seems to be a recent phenomenon).

Among the assets, we could mention the high level of milk consumption by the people and the important stock.

The sector generates many jobs in peri-urban areas.

1.2.9 The Groundnut Sector

The sector was chosen by Chad. Representing the second cash crop in the country, this sector has been marked by considerable expansion over the last years, with an average growth rate of 12% per annum.

In 1993, areas under cultivation in Chad were estimated at 258,400 ha.

Production in 1995 amounted to 200,000 tons and to 404,000 in 1996, of which 50 to 70% were marketed, the remainder representing on-farm consumption.

The production of groundnut for export generally follows the same informal channels as cereals.

Exports in 1993 were estimated at 28,000 tons.

The major constraints of the groundnut sector are:

- precarious climatic conditions;
- soil depletion
- limited production areas;
- high pest, disease and advent pressure;
- inadequacy of credit and funding;
- competition from imported oil.

The following assets should be highlighted:

- possible intensification and diversification;
- possible integration of agriculture and cattle-breeding, allowing increased yields;
- sustained demand within and outside the country;
- importance of earnings and incomes derived from production, processing and marketing.

Groundnut production has considerably fallen in the CILSS member countries from 1,000,000 tons in 1977 to 678,000 tons in 1991 and 1995 in Senegal, and from 311,910 tons in 1967 to 17,000 tons in 1990 in Niger, owing to inadequate and erratic rainfall, soil depletion, pests and fall in world quotations.

Renewal of interest for the sector is still low.

1. 3 Selection Criteria

The comparison of the criteria adopted in the national studies (see Annex II) reveals several similarities, especially contribution to food security, regional trade, job creation and the human resources needed in a given sector. However, there are peculiarities, especially in relation to the role of women and to the availability and reliability of data. Some criteria are extremely vague in their formulation, therefore difficult to apply because of their multi-faceted dimensions, and they are the following: productive capacity of the sector, national or sub-regional scope of interest, economic importance for the country. Finally, in most countries, the criteria adopted for the selection of sectors at the national level do not systematically take into account the regional dimension.

Following the analysis on the relevance of the criteria proposed at the national level, we would adopt the following at the regional level:

- contribution to GDP;
- contribution to sustainable food security;
- importance of the people involved (occupation rate) in the sector and productive capacity;
- contribution to the trade balance;
- opportunities for sub-regional or international trade;
- ability of the sector to meet a sustained sub-regional demand.

1. 4 Selection of Sectors

1.4.1 Multi-criteria Analysis

The sectors that will best meet the criteria falling in line with the concerns related to food security, the reduction of disparities, improvement in regional trade and participation to development will be considered as promising sectors. The following analyses emerge from the inventories of the various sectors:

The Groundnut Sector

The sector has been faced with two decades of decline and is hardly emerging in Chad which chose it as a promising sector.

Indeed, this country has large productive capacities, but at the regional level the progression margin is limited because of high production of vegetable oil in coastal countries which could not be a promising market; in addition, most CILSS member countries produce groundnut for domestic consumption.

Under these circumstances, development of this sector is limited at the regional level.

The Cowpeas Sector

Only Niger adopted cowpeas. The only external market is Nigeria where marketing channels have been a well-established prolog for years. For the short and medium terms, the national studies did not provide evidence for a reorientation of trade towards other markets. As a result, there is a lack of information on cowpeas consumption in other CILSS member countries.

The Milk Sector

The milk sector was adopted but by Mauritania where consumption of the production is entirely domestic. Marketing on a large scale is recent and Mauritania, an importer of milk, does not seem to have large surplus quantities for export.

Forest Products and Crops

Only Senegal considered this sector as promising. Given the too much localized nature of species, the limited level of production, the lack of organization in marketing channels and the lack of industrial processing, prospects for development in the sector at regional level are currently low.

Although the other countries did not choose forest products and crops, we should mention that some products are emerging almost everywhere, especially shea nut in Burkina Faso and Mali, arabic gum in Chad and cashew nut in Guinea-Bissau.

The Poultry Sector

This was seen as being important in Senegal, the Gambia and Cape Verde, and the sector is localized in the western part of the sub-region. Given the costs of transport and limited development in the Gambia and Cape Verde, the only realistic objective could be the supply of internal markets and neighbouring countries.

The Cattle/meat Sector

The cattle/meat sector is an occupation for more than one million people in each of the main countries which chose it, with the exception of Mauritania, Cape Verde and Guinea-Bissau. Overall, the seven countries are net exporters.

With an export of 804,700 large cattle, 1,400,000 small cattle and 61,000 camels, its contribution to the trade balance is considerable. There is also a high productive capacity to meet sub-regional demand as the number of heads is impressive: 17.9 million large cattle, 50.9 million small cattle and 1.6 million camels.

Given these favourable factors, the cattle/meat sector appears to be highly promising.

The Cereal Sector

Cereal production is an occupation for more than 70% of the people in the countries which chose it. This sector is the essential element in rural GDP and food security. However, while it is true that the sector is currently subject to climatic hazards, its potential development is real with the possible development of 7.8 million irrigated hectares.

In the long run, the sector will meet the requirements of the sub-region and feed trade.

In the light of these considerations, the sector seems to be promising and there are potentials in terms of processing.

The Fishery Sector

While fishing is an occupation for a relatively low number of people, the countries which chose it, namely Mauritania and Cape Verde, have great productive capacities to meet sub-regional requirements.

Currently, fish production plays an appreciable role in meeting the protein requirements of the people in the sub-region.

Given the avenues for development in the short and medium terms, this sector seems promising insomuch as continental fishing is widely practised in Mali, Burkina Faso and Niger and comes in to supplement maritime fishing mentioned in the national studies (Mauritania and Cape Verde).

The Fruit and Vegetables Sector

The sector is an occupation for a large part of the active population in those countries which chose it, especially for women. It plays a significant role in sub-regional trade. There are real possibilities for development in the light of its potentials in terms of land and markets. For these reasons, this sector appears to be promising.

However, while it is true that it is currently subject to climatic hazards, its potential development is real with the possible development of 7.8 million irrigated hectares.

In the long run, the sector will meet the requirements of the sub-region and feed trade.

In the light of these considerations, the sector seems to be promising.

1.4.2 Promising Sectors at the Regional Level

Groundnut, milk, poultry, forest products and crops and cowpeas have been considered in the national programmes aimed at sector recovery (see Table VI).

The regional programmes will include cattle/meat, cereals, fruit and vegetables and fish products.

Table VI: Multi-criteria Analysis

Criteria Sectors	Contribution to GDP	Contribution to food security	importance of the people involved in the sector	Contribution to Trade Balance	Possibilies for sub-regional or international trade	Ability of the sector to meet a sustained sub-regional demand	Score	Rank
Cattle/ meat	++	++	+++	+++	+++	+++	16	1
Cereals	+++	+++	+++	0	+	+	11	2
Fruit & vegetables	+	+	++	+	++	++	9	3
Fish products	+	+	+	+	++	+++	9	4
Groundnut	+	+	+	+	++	++	8	5
Cowpeas	+	+	++	+	+	+	7	6
Poultry	+	+	+	-	+	+	4	7
Forest products & crops	+	+	+	0	0	0	3	8
Milk	+	+	+	-	0	0	2	9

II PROMISING SECTORS AT THE REGIONAL LEVEL

2.1 The Cattle/meat Sector

2.1.1 Production Systems

Generally speaking, there are two major cattle-breeding systems and an emerging system in the CILSS member countries:

- the pastoral system which relies on rainfall. It is widespread in the northern part of each country and is characterized by the exploitation of extended areas where people and cattle cover great distances in search of water and pastures;

- the agro-pastoral system where cattle-breeding is a secondary activity. Practised in areas with a predominantly agricultural or pastoral vocation, this system is more or less integrated to agriculture (availability of agricultural residues, keeping the cattle in fields for manure).

A semi-intensive system is also developing (finishing, cattle improvement centres, peri-urban animal husbandry). This system is very important because it is an extension of the systems mentioned above which are the sources of supply, and it brings lifestock closer to consumption. Because of peri-urban development, it is an emerging component.

In the CILSS member countries, animal feed is almost exclusively based on natural resources.

2.1.2 Production

As a reminder, the seven countries chose this sector which, in 1995, consisted of 18.10 million large cattle, 51.155 million small cattle and 1.68 million camels. For the same year, meat production amounted to 665,900 tons (see Table VII).

All CILSS member countries have some 21.16 million large cattle, about 58.55 million small cattle and 1.68 million camels (see Table V).
There is no data available on production costs.

Table VII: Number of heads and Meat Production in 1995

Countries	Cattle	Sheep	Goats	Camels	Pigs	Meat (in thousand tons)
Burkina Faso	4,345.9	5,850.9	7,459.4	NA	NA	94.8
Cape Verde	21.2	8.7	100.2	-	68.0	4.2
Chad	4,700	2,200	3,800	258	17.6	283.7
Guinea-Bissau	410	240	225	-	-	-
Mali	5,707	13,150*	-	NA	NA	148.0
Mauritania**	1,200	8,500*	-	1,050		67.3
Niger	1,986.6	3,739	5,890.1	379.6		67.9

* Sheep/goats ** 1992 statistics

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

2.1.3 Consumption

Average annual meat consumption per inhabitant is 9.3 kg in Burkina Faso, 10 kg in Niger, 11kg in Chad, 11.2 in Cape Verde and 23.2 kg in Mauritania.

2.1.4 Trade

Generally, cattle and meat marketing is liberalized. Prices are determined by the market.

With the exception of controlled slaughterhouses, the greater part of marketing is done in a informal framework.

Exports for 1995 (see Table VIII) stood at 665,200 heads of large cattle, 1,400,000 heads of small cattle and 61,000 camels , mostly to countries in the Gulf of Guinea.

External markets are inadequately monitored, especially in terms of demand and prices.

Table VIII: Cattle Exports in 1995 (in thousand heads)

Countries	Cattle	Sheep/Goats	Camels
Burkina Faso	146.2	249.1	NA
Cape Verde	NA	NA	
Chad	118.1	10.2	NA
Guinea-Bissau	410	240	
Mali	220	510	2
Mauritania(1992)	43.3	327.6	31.6
Niger	77.1	303.8	27.4

Source: National Studies on the farm-produce sectors in the Sahel: PRORES/PMSA/CILSS; 1996

2.1.5 Processing

Apart from drying which is practised mostly in Niger, Chad and Mali, other methods of processing are not developed. There is no industrial processing. Under these circumstances, upgrading of the considerable available stock remains limited. However, there are possible avenues for diversification in consumption patterns.

2.1.6 Constraints

They are ecological, socio-cultural, economic and technical (processing) in nature.

Ecological Constraints

Cattle-breeding is carried out in areas marked by precarious potentials in terms of water and pasture (lack of watering points, over-grazing, low pasture productivity etc.).

Socio-cultural Constraints

Increasing population pressure on the pastoral space; pattern of cattle-breeding (hoarding) and of cattle exploitation; system of organization of cattle producers and traders.

Economic Constraints

- low money supply and limited access to inputs (agro-industrial feed, veterinary products...);
- inadapted and inadequate means of transportation;
- inadequate and obsolete infrastructure and facilities (embarcation ramps, rail transports, slaughterhouses, cold rooms...);
- few processing plants;
- funding difficulties (access to credit);
- inadequate market information system;
- lack of reliable statistical data on the competitiveness of the sector, on exports and consumption as well as on the impact of ongoing projects and programmes.

Technical Constraints

- inappropriate technology;
- inadequate training of the stakeholders.

2.1.7 Assets

The cattle/meat sector has the following assets:

- existence of a vast pastoral and agro-pastoral space;
- existence of a long-standing tradtion of pastoralism in the Sahelian region;
- considerable numbers of large and small cattle (see Table VII);
- available stock of meat and cattle for export;
- improvement of the competitiveness of local meat as compared to imported meat;
- increase in incomes generated by the sector and that could be an incentive for the recovery of the sector;
- existence of export markets (coastal countries, Maghreb);
- existence of an important local market for hides, leather and manure;
- avenues for processing;
- business circles starting to express their requirements in terms of assistance.

The improvement of productivity and production, the organization of professionals in the meat cattle and meat sector are fundamental strategic options.

The great number of stakeholders carrying out highly diversified activities in agro-pastoral and peri-urban areas is already contributing to the upgrading of pastoral resources, thus offering a sound basis for the sector.

2.2 Cereals

2.2.1 Production Systems

a) Dry Farming

Generally speaking, this relates to extensive systems which use little fertilizers and agricultural equipment.

Corn and sorghum are often cultivated in rotation with cash crops such as cotton and which have the adavantage of late season farming.

b) Irrigated Farming

Generally, there are five types which differ in performance:

- areas with total water management;
- areas with partial water management
- areas under controlled submersion;
- developed bottom lands;
- non developed diffuse areas.

As regards areas with total or partial water management, there are three types of development: the large irrigated areas, the intermediate areas and the small village areas.

2.2.2 Production

In 1995, cereal production in the six countries which chose the sector was estimated at some 6.3 million tons, of which 5.2 million were available (see Table IX).

The overall production of the CILSS countries amounted to 9.5 million tons, of which 7.98 million were available.

2.2.3 Consumption

In 1995, cereal consumption amounted to 9.2 million tons, covered at 93% by the available production (see Table IX). This situation varies from one country to another (cases of Mali with an 8% surplus and of Mauritania with a 70% deficit). This is mostly due to climatic conditions, to the performance of the sector and to the productive capacity as compared to actual requirements.

Cereal consumption for all member countries estimated at 9.2 million tons was covered at 86.7% by the production of CILSS countries.

2.2.4 Trade

a) Dry cereals

Marketing has been liberalized. Internal and external trade are informal. External trade generally involves neighbouring countries.

Marketing is mostly in the hands of private individual traders, but it should be noted that community cereal banks are emerging.

b) Rice

While the marketing of rice has been liberalized, the fact remains that, in most countries, the State intervenes through different methods, including quotas and taxation: hulled rice is subject to import tax or prior authorization in ECOWAS member countries; only threshed unmilled rice is on the list of local commodities and is therefore subject to free movement duty and tax-free.

The CILSS member countries are net importers. However, their competitiveness has been improved since the devaluation of the CFA F in 1994.

Table IX: Cereal Coverage*

Countries	Production (1,000 t)	Available Production (1,000 t)	Consumption (1,000 t)	Surplus/Deficit	Rate of coverage (%)
Burkina Faso(1995)	2,492	2,100	2,241	-141	93
Chad(1995)	907.7	921	841	80	109
Gambia(1995)	89.2	80.7	194.6	-113.9	41
Guinea-Bissau (1995)	197	125	170	-45	73
Mali (1994)	2,457	1,981	1,840	141	108
Mauritania (1992)	157	111	461	-320	30
TOTAL	6,299.9	5,348.7	5,747.6	-198.9	93

* The various countries do not provide data for the same year

Source: Synthesis of National Studies on Production and Processing Systems: PRORES/PMSA/CILSS; 1997

2.2.5 Processing

The processing of cereals is mostly artisanal. There are only a few industrial units, namely rice, flour and corn mills (Burkina Faso). The technologies are generally inappropriate.

This low level of processing does not allow to meet the requirements of the cereal market under various forms for consumption, especially mixed flours, child food, pastas, biscuits and staple semolinas (flour, semolina, rolled products) for traditional meals.

2.2.6 Constraints

The cereal sector is faced with the following major constraints:

- low rainfall and soil depletion;
- high cost of inputs, agricultural equipment and lack of appropriate supply channels;

- high cost of hydro-agricultural developments;
- land-lockedness of production areas and high cost of transport;
- high rate of loss and low performance of extension activities;
- inadapted agricultural credit;
- ineffective organization in the sector;
- low competitiveness of the cereal sector;
- low level of processing due to low levels of funding.

2.2.7 Assets

Assets of the cereals sector include:

- great potentials in arable lands yet to be tapped;
- the people's food habits are increasingly oriented towards the consumption of local cereals;
- expansion of the national and sub-regional market;
- existence of an international market.

The integration of agriculture and cattle-breeding as well as water management through mobilization of run-off water are fundamental strategic options. In the specific field of rice-growing, action should be taken towards total water management.

2.3 Fruit and Vegetables

2.3.1 Production Systems

Three types of production systems coexist:

- the extensive system of family farms which are labour-intensive and have a rather diversified production;
- the intensive system of farms irrigated by tubewells or wells equiped with motor pumps;
- the highly intensive system with modern irrigation networks on developed lands that expand up to 20 ha.

2.3.2 Production

There is a wide variety of fruit and vegetables.

Fruit Production: mangoes, citrus fruits, palm kernels, dates, banana, cashew.

Vegetable Production: cabbage, tomato, green beans, capsicum, onion, garlic, melon, cucumber, okra, eggplant.

Production is difficult to understand because of the lack of statistical data. They cannot be given in agregate figures. For information only, in 1994, vegetable production in Burkina Faso amounted to 50,000 tons; in Senegal, in 1995, it was 154,000 tons. Fruit production amounted to 2,000 tons in Niger in 1994, and in Senegal in 1995, it was 110,000 tons.

The overall figures overshadow the relative importance of the sector's produce.

2.3.3 Consumption

A distinction should be made between produce of mass consumption at the local and regional levels and which include onion, tomato and potato, and produce of low local and sub-regional consumption meant for European market. Fruit and vegetables are generally consumed in the rough, very little under processed forms.

2.3.4 Trade

Depending on the importance of on-farm consumption, a distinction could be established between three groups of produce:

- produce the total production of which goes to on-farm production or is sold on the local market (capsicum, carrot, okra, watermelon);
- produce meant for the local market or exported to neighbouring countries or countries in the Gulf of Guinea (tomato, onion, mango, capsicum);
- produce the near total of which (90%) is exported mostly to Europe (green beans, melon)

Trade is informal.

With the exception of onion and capsicum, sub-regional trade is done through short channels. The lack of organization of channels as well as transport and preservation-related difficulties limitate distribution.

Vegetable exports are considerable in Niger, Burkina Faso and Senegal. The latter imports large quantities of fruit and vegetables (see Table X).

Table X: Fruit and Vegetables Imports and Exports (1,000 tons)

Countries	Imports		Exports		Consumption	
	V	F	V	F	V	F
Burkina Faso*	NA	NA	3,155	0.417	NA	NA
Niger**	NA	3.5	55.3	3.5	NA	4
Senegal***	8.2	3.9	4.5	NA	23	18

* 1993 figures ** 1994 figures *** 1995 figures

Source: National Studies on farm-produce sectors in the Sahel: PRORES/PMSA/CILSS:1996

2.3.5 Processing

The industrial processing of fruit and vegetable is very low. It does not allow to meet market requirements under various forms such as marmelade, jam, sirup, juice, tinned and dried fruit and vegetables. Nor does it allow diversification of consumers, for example the production of food for children.

2.3.6 Constraints

The sector is faced with multiple constraints:

- low upgrading of research output;
- low quality of extension activities;
- low level of technical skills among producers;

- low level of investments;
- difficult access to water and lands;
- high costs of land development and inputs;
- land-lockedness of production areas because of inadequate road infrastructure;
- inability of producers to stagger production and sales so as to meet demand over the whole year.
- highly perishable produce;
- inadequate infrastructure for storage and preservation at all levels so as to supply and regulate the fruit and vegetable market;
- inadequacy of produce upgrading and processing plants;
- weakness of information systems on production, market and prices;
- poor planning of productions in relation to market requirements;
- high cost of air freight and packaging;
- inadequacy of capacities offered by airlines;
- lack of standards for an effective system of quality control;
- inexistence of a policy for produce promotion.

2.3.7 Assets

The sector's assets are the following:

- high potentials in untapped lands;
- considerable unmet internal and external (sub-regional) demand;
- existence of different varieties adapted to the pedo-climatic conditions;
- available research output.

The fruit and vegetable sector relies on a promising production system based on proper use of water resources so as to intensify production. Therefore, one strategic option could be sound water management. Another option would consist in organizing the sector's stakeholders, especially the producers, so that they have greater control of the sector at all stages: production, marketing, identification of markets, processing.

2.4 The Fishery Sector

2.4.1 Production Systems

A distinction should be made between two main systems: industrial fishing and artisanal fishing. Artisanal fishing is either modern (pirogues, canoes and motorized polyester and/or aluminium launches) or traditional (non motorized launches, motorized wooden pirogues) and it employs some 7,300 fishermen in Mauritania.

2.4.2 Production

The quantities that can be caught each year while ensuring the reproductive capacity of resources wihtout any risk of imbalance amount to some 660,000 metic tons for Mauritania, and some 50,000 metric tons for Cape Verde.

For both countries, annual production amounts to 493,502 tons , of which 482,702 tons for Mauritania and 10,800 tons for Cape Verde.

While artisanal production is low in Mauritania (3.5%) it is considerable in Cape Verde (65%).

The fishery sector employs 7,300 people in Mauritania and 2% of the active population in Cape Verde; hence its socio-economic importance.

2.4.3 Consumption

Fish consumption is low in Mauritania: 17,000 tons/annum, i.e. 8 kg/inhabitant/annum; it is relatively important in Cape Verde: 6,330 tons/annum, i.e. 16.4 kg /inhabitant/annum.

2.4.4 Trade

Over the last ten (10) years, in Mauritania, 97% of the production have been exported, yielding 55% of hard currency receipts.

Cape Verde exports 42% of its production. The main destinations for Mauritanian exports are Europe, Côte d'Ivoire and Nigeria.

2.4.5 Processing

While industrial processing is low in Mauritania, it is relatively important in Cape Verde which has several tuna preservation plants and manufactures of fish meal.

Traditional processing is also found in both countries.

2.4.6 Constraints

The fish sector's major constraints are:

- delapidation of the fleet;
- difficulties in storage and preservation;
- low quality of products in relation to standards;
- low level of processing and product diversification;
- high cost of factors (energy, transport) and equipment;
- inadequacy of the marketing channel;
- lack of basic facilities (landing yards, cold rooms).

2.4.7 Assets

The sector's assets include:

- considerable quantities of fish resources;
- possibility for the countries concerned to meet sub-regional demand;
- existence of expanding sub-regional and international markets;
- competitiveness of fish products.

The upgrading of fish resources creates a promising production sub-system in several countries: maritime fishing in Cape Verde, Mauritania and Senegal , supplemented by continental fishing in Mali, Niger, Chad and Burkina Faso.

Modernization of the production sub-system in terms of diversification and intensification is an important strategic option to be considered.

The integrated management of fish resources with other types of natural resources also allows integration with the other sectors of continental fishing, fruit and vegetables, and cereals (especially irrigated rice), and from the stage of production too: e.g. integrated nuisance control (water pollution).

Assistance towards the organization of professionals in the fishery sector is also to be taken into account.

III STRATEGIC ORIENTATIONS AND OPTIONS FOR IMPROVEMENT

Before considering the strategic orientations and options to improve on the operation and competitiveness of the sectors, a reminder of the major constraints to overcome is needed.

3.1 Major Constraints to the Development of the farm-produce Sectors

From the analysis of the major promising farm-produce sectors adopted at the regional level, it appears that there are five main groups of constraints to their developement.

Ecological constraints

They are related to climatic hazards (decreasing rainfall and poor distribution of rains, wind and water erosion), to crop diseases and pests, to soil depletion and degradation of the plant cover.

Institutional constraints

They are related to the low level of organization and training of producers as well as to the inefficiency of the institutional framework.

Socio-cultural constraints

They are related to social obstacles, to negative social changes, to the negative impact of population pressure on the environment and on lands, to insecurity in land tenure, to the low level of organization and training of producers as well as to the inefficiency of the institutional framework.

Technical constraints

They are related to the low potential in local varieties and breeds, to the inadequacy of technologies adapted to production and processing, to the lack of standards and quality control and to inadequate technological support.

Economic constraints

They are related to the lack of credit, to producers' low funding capacities, to the high cost of production factors, to foreign competition, to the lack of basic infrastructure and facilities, and to the narrowness of markets.

3.2 Strategic Orientations

3.2.1 General Objectives

The general objectives behind the CILSS programme on farm-produce sectors are:

- to improve the operation of the sectors;
- to improve the competitiveness of the sectors.

3.2.2 Specific Objectives

In order to reach the stated general objectives, three specific objectives have been identified:

- increased production and improved of productivity;
- rehabilitation of the sectors;
- improvement of the environment of the sectors.

a) <u>Increased Production</u>

This sector includes two fundamental aspects which both contribute to the qualitative and quantitative improvement of productions.

- Promotion of promising sectors:

 the objective is to encourage the development of promising sectors through private initiative, and to try and upgrade potentials towards production, processing and marketing with a view to supplying varied products for human consumption.

- Intensification of production:

 the objective is to increase incomes and raise productivity in the sectors by improving soil fertility, by using greater quantities of inputs, by tapping research output and by funding production.

b) <u>Rehabilitation of Sectors</u>

One of the major constraints identified in the national studies is weakness in the organization of the sectors and a lack of professionalism among the stakeholders. The objective is to ensure overall profitability in the sectors and at the level of the most important components, to re-organize the sectors from up to downstream, and to support initiatives aimed at establishing professional groupings which will require improved training.

c) Improvement of the environment of the sectors

This is a prerequisite for the proper operation and competitiveness of the sectors. The objective is to create an enabling framework for the development of all sectors on the legal, institutional, economic, financial and technical planes.

3.2.3 Strategies

The adopted strategies are based on the following principles:

The search for complementarity and synergy

The target is to promote the development of the sectors in the framework of promising production systems, to set a direction for the various components in a given sector for greater integration and higher profitability and, finally, to develop a technological and commercial synergy between various sectors or groups of sectors.

The reduction of disparities

The objective is to favour more equitable distribution of added value between the components of the sector (production, processing, distribution) on the one hand and, on the other hand within areas (villages, small and medium-sized towns, big urban centres).

Another avenue is to decentralize back-stopping activities (management, information, technological adaptation, standardization, training, marketing, dissimination) and to build local capacities for increased participation in development.

Encouraging participation

The aim is to involve the various stakeholders in the development process of the sector and to build responsibility among them.

3.3 Improvement options on general plane

3.3.1 Measures in favour of the environment

- to safeguard the pastoral environment;
- to improve natural resource management;
- to regenerate soils;
- to build responsibility among the people towards resource management;
- to monitor and protect fish resources.

3.3.2 Measures in favour of organizations

- to support and promote the organization of producers and processors;
- to develop extension activities;
- to develop information, awareness-raising and education activities;
- to support regulations governing land tenure so as to facilitate land ownership;
- to promote frameworks for consultation with a view to improving communication and conflict management;
- to harmonize donors' intervention policies.

3.3.3 Measures in favour of funding

- to facilitate access to credit;
- to facilitate the opening of specific credit lines
- to encourage the harmonization of funding systems;
- to favour private investment.

3.3.4 Measures in favour of trade

- to update economic legislation and regulations;
- to remove tariff and non tariff obstacles to movement of products;
- to harmonize policies and alleviate trade procedures;
- to develop information systems on the market;
- to develop marketing/promotion strategies;
- to improve transport and infrastructure.

3.3.5 Measures in favour of processing

- to support infant initiatives developed by private traders;
- to develop and disseminate new appropriate technologies;
- to promote quality control;
- to systematically and fully integrate the processing of products.

3.4 Improvement options on a specific plane

3.4.1 Measures specific to the cattle/meat sector

- to promote fattening;
- to multiply watering points in conjunction with fodder resources;
- to promote the upgrading of agricultural and agro-industrial by-products and facilitate access to inputs;
- to specialize the zones (reproduction, breeding, re-breeding, finishing);
- to support the development, diversification and promotion of new meat-based products;
- to improve infrastructure and facilities meant for the development of trade;
- to promote the creation of processing plants.

3.4.2 Measures specific to the cereal sector

- to facilitate access to inputs;
- to rehabilitate hydro-agricultural developments;
- to encourage small-scale irrigation;
- to improve infrastructure and facilities meant for the development of trade;
- to encourage the production of improved seeds by the peasant-farmers in the framework of seed programmes for dry farming;
- to encourage animal traction;
- to support the development, diversification and promotion of new cereal-based products;

3.4.3 Measures specific to the fruit and vegetables sector

- to encourage small-scale irrigation;
- to facilitate access to inputs;
- to encourage the specialization of zones;
- to promote sub-regional trade;
- to prospect the European market with a view to developing complementarity between CILSS member countries and establish groupings for air freight;
- to define and harmonize standards , and strengthen quality control;

- to improve infrastructure and facilities meant for the development of trade;
- to support the development, diversification and promotion of fruit and vegetable-based products;

3.4.4 Measures specific to the fishery sector

- to improve infrastructure and facilities meant for the development of trade;
- to define and harmonize standards , and strengthen quality control;
- to improve the quality of treatment on land;
- to support the development, diversification and promotion of new fish-based products;

3.5 Further Actions to be taken

Stage	Actions	Sectors concerned	Countries	Trade	
				CT	MT
Production	⇒ collection of data on quantities produced and census of cattle ⇒ Production costs	Cereals, cattle, meat, fruit and vegetables, fishery, milk, poultry, peanuts, forest products	CILSS countries	x x	
Consumption	⇒ Indicators for monitoring consumption parametres (price, demand, quantities consumed)	Cereals, cattle, meat, fruit and vegetables, fishery, milk, poultry, peanuts, forest products	CILSS countries	x	x
Trade	⇒ initial cost ⇒ determination of competitiveness (cost price, comparative costs, quality...) ⇒ Inventory and analysis of trade policies	Cereals, cattle, meat, fruit poultry Cereals, cattle, meat, fruit and vegetables, fishery, milk, poultry, peanuts, forest products	CILSS countries	x x x	x
Processing	⇒ Inventory of processing technologies and products ⇒ Collection of data on processed quantities ⇒ Inventory of quality standards for processed products	Cereals, cattle, meat, fruit and vegetables, fishery, milk, poultry, peanuts, forest products	CILSS countries	x x x	

OVERALL CONCLUSION

Several major results emerge from the comparative synthesis:

- comprehensive inventory of the farm-produce sectors in the Sahel;
- common or diverging viewpoints as regards the criteria used to appraise a promising sector.

A common understanding of the concept of promising farm-produce sectors is a prerequisite to sub-regional action.

The comparative synthesis also allowed to take note of the fact that several countries share some constraints related to the competitiveness of the sectors.

In this regard, several strategic orientations and options for improving the operation and competitiveness of the sectors have been formulated and several avenues for further action have been identified.

Another important result is the fact that the synthesis could highlight the complementarity between the actions to be undertaken at the national and regional levels.

The overall approach of CILSS as regards the sectors could be translated into concrete actions if we consider the nature of the promising sectors:

- agro-forestry could help improve production systems and the environment;

- possible diversification of diet through the availability of foodstuffs rich in proteins, vitamins and starch. We should recall that the interventions of CILSS over the past two decades have been focusing on the cereal sector and, to a lesser extent, on livestock products;

- the integration of the sectors will have to be considered from two standpoints: taking into account the economic, institutional and socio-cultural environment, and strenghtening the linkages between the various segments or components. This is the direction in which our recommendations are to be appraised.

Annex 1 Inventory of sectors at national level

Countries	Sectors
BURKINA FASO	⇒ Cereals (sorghum, millet, corn, rice, fonio) ⇒ Cattle/meat ⇒ Fruit/vegetables ⇒ oleagenous crops (groundnut, sesame, shea nut) ⇒ cotton
CHAD	⇒ Cereals ⇒ Cattle/meat ⇒ oleagenous crops (groundnut) ⇒ forest products ⇒ horticulture
CAPE VERDE	⇒ Tubers ⇒ Meat ⇒ Poultry ⇒ Fishery (tuna) ⇒ CEreals (millet, corn) ⇒ Fruit/vegetables ⇒ Milk
GAMBIA	⇒ Cereals (early/late millet, corn, sorghum, rice, fonio) ⇒ Cash crop (groundnut, cotton, sesame) ⇒ Cattle-breeding (cattle, poultry) ⇒ Fishery (songa)
GUINEA BISSAU	⇒ Cereals (rice, millet, sorghum, fonio, corn) ⇒ groundnut ⇒ tuber ⇒ cotton ⇒ cashew ⇒ fruit/vegetables ⇒ Cattle/meat (small cattle)
MALI	⇒ Cereals (rice, corn, millet, sorghum, fonio, wheat) ⇒ Oleagenous crops (cotton, groundnut, shea nut) ⇒ Sugar ⇒ Tubers (potato, yam, sweet potato ⇒ Fruit and Vegetables (onion, tomato, capsicum, green beans) ⇒ Livestock (cattle, meat) ⇒ Fishery ⇒ Forest crops

MAURITANIA	⇒ Meat ⇒ Milk ⇒ Horns and hooves ⇒ Wool ⇒ Cereals (rice, millet, sorghum, corn)* ⇒ Fishery ⇒ Dates
NIGER	⇒ Cattle-meat ⇒ Dairy products ⇒ Poultry ⇒ Onion ⇒ Cowpeas ⇒ Groundnut, capsicum ⇒ Sesame ⇒ Nut-grass ⇒ Millet-corn-sorghum ⇒ Fruit ⇒ Fishery
SENEGAL	⇒ Cereals ⇒ Groundnut for oil ⇒ Fruit and vegetables ⇒ Cattle-meat ⇒ Poultry ⇒ Forest crops ⇒ groundnut for eating ⇒ Milk

Annex 2 Sector selection criteria as per country

Countries	Selection criteria
BURKINA FASO	⇒ Direct participation to diet ⇒ Weight of sector in family economy ⇒ Existence of a local and/or external and sub-regional market ⇒ Avenues for upgrading using local technology ⇒ Importance of sector in food habits
CHAD	⇒ Contribution to food security ⇒ Contribution to trade balance ⇒ Job creation ⇒ Effects on environment ⇒ Evolution of production ⇒ Potentials for the sector
CAPE VERDE	⇒ Economic importance for the country ⇒ Contribution to food security ⇒ Possibilities for trade with countries in sub-region ⇒ Importance of the people involved in the sector, especially women ⇒ exploited and untapped fish resources
GAMBIA	⇒ Contribution to food security ⇒ socio-economic importance
GUINEA BISSAU	⇒ Identification and number of people intervening in each sector ⇒ Turnover for the various actors ⇒ Volume of trade and financial flows at stake ⇒ Current dynamics and future trends ⇒ Pattern of orgaization and regulation of supply
MALI	⇒ National and sub-regional interest ⇒ Potential or actual target groups concerned ⇒ Availability and reliability of data
MAURITANIA	⇒ Total/exported production ⇒ Total/imported consumption ⇒ Balance (deficit, surplus, coverage) ⇒ Trade(domestic, sub-regional) ⇒ Importance in the national economy (% of GDP) ⇒ Role of women
NIGER	⇒ Contribution to food security ⇒ Contribtuion to trade balance ⇒ Job creation and people involved in the sector
SENEGAL	⇒ Profitability on financial and economic planes ⇒ Comparative advantages in relation to imported products ⇒ Contribution to GDP ⇒ Role in food security ⇒ Jobs created ⇒ Role in desertification control

ANNEX 3 SYNOPTIC TABLE OF SECTORS AS ADOPTED BY EACH COUNTRY

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
I. cereals sorghum millet corn rice fonio	1.Direct participation to diet **2.** Weight of sector in family economy **3.** Existence of a local and/or external and sub-regional market **4.** Avenues for upgrading using local technology **5.** Importance of sector in food habits	Cereal sector **RICE**	**Production system** Rainfed rice Bottom-land rice Irrigate rice area in 1993: 30,000 ha (regression) Production in 95: 69,500 tons (stagnation) **Consumption:** 132,650 tons 20/30% coverage of rice requirements **Trade:** marketing local rice free imported rice: Caisse Générale de Péréquation Importation 95: 63,060 tons **Processing:** -manual artisanal -industrial	- under-equipment of producers - low dissemination of technological package - decreasing soil fertility - high production cost - low level of organization of producers - soil degradation - climatic hazards - strong competition from better quality imported rice - poor technoological adaptation of equipment - inappropriate packaging - low demand - problems of storage and preservation - problems of funding	- Avenues for irrigated farming - Gain in productivity following devaluation of CFA F - High potential yields (2t/ha rainfed; 4t/ha irrigation) in western and south-western parts - development of national distribution channel - informal trade with other countries -Processing -Priority in state policy -existing industrial capacities	-Increase acreage for rice-growing - Define policy for support to production - faciltiate access to credit for private traders - improve information system on cereal markets -improve road network -tariff on rice to protect local production - promote local cereal consumption in urban areas -liberalize intra-regional trade Application of food charter -promote storage at village level - promote processing

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
		CORN	**Production system** - Grown in cotton belt - Compond land - irrgated farming **area:** 6.54% of cereals 5.74% of total area **Production 1994:** 350,000 tons	- Low level of organization of producers - soil degradation - climatic hazards	- High yields (2t/ha rainfed, 4t/ha irrigated) - adequate rainfall in corn-growing areas	-Increase acreage for corn-growing - Define policy for support to production
			Consumption:	- Low level of consumtion -Low level of diversification	- Possible diversification	- faciltiate access to credit for private traders - improve information system on cereal markets -improve road network
			Trade: - local trade by private traders - informal regional trade	- Production zones land-locked - low demand - low information system on markets	-efficient national distribution channel - Trade possible with other countries	-promote consumption of local cereals in urban areas -liberalize intra-regional trade Application of food charter -promote storage at village level
			Processing: - artisanal - industrial: breweries, biscuits, pastas, oil	- equipment not adapted	- existing industrial capacities -Priority in state policy -existing industrial capacities	-Promote processing

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
		CATTLE MEAT	**Production system** - pastoral transhumant in the sahelian and south-sahelian zone - pastoral sedentary in agricultural area - pastoral specialized	- repeated period of drought -decreasing pastures - deficit in agro-industrial residues -inadequate number of watering points -non performing system -land problems -health problems -lack of organization in sector	- Considerable number of haeds of cattle	- Support to privatization of profession of veterinarian - intensification of livestock production
			Production: -large cattle 4,345,900 sheep:5,850,200 -goats:7,459,400 **Official slaughterhouses** large cattle:40,819t sheep/goats:33,694t pigs:9,296t donkeys/horses/ camels:1,708t			-creation of private cattle/meat marketing boards - cattle-breeders' organization - Products with high added value - removal of illicit taxes -Protection of products against extra-African products - dialogue to upgrade regional complementarities - reinforce slaughterhouses
			Consumption per capita:9.3kg	Fall in purchasing power; increase in cost of meat	Food habits favourable to consumption	
			Trade: - market supply 95: cattle:390,439 sheep:851,254 -controlled exports 95: cattle:146,263 small cattle: 249,164	-export over-taxation -low level of organization in sector -production of fresh meat limited to domestic consumption -low funding possibilites	- national and sub-regional market	- training of butchers
			Processing: - 5 slaughterhouses -modern butchers' -drying	-under- equiped slaughterhouses -limited number of industrial facilities	- Possible diversification	

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
		POULTRY	**Production system** -Modern poultry-farming for eggs -Rural traditional poultry-farming	- high cost of feed - health problems - inadapted housing - inadequate training of breeders - weak support bodies	-developed rural poultry-farming	-Intensification of production -support private initiative -improve training of breeders -facilitate access to inputs
			Production: -Modern 1990: 79,000 layers -traditional 1995: 19,339,880			
			Consumption 0.91kg/annum		- High demand in urban centres	
			Trade: - exports 95: 2,000,000		- Possible diversification	
			-Processing: none		- create slaughterhouses for poultry	
		Fruit/vegetables a) fruit	**Production system** Tradtional plantations - modern plantations		-favourable pedo-climatic conditions	-diversify production -improve road network -diversify markets - body for standardization and quality control -improve processing -take advantage of deregulation in air transport - end administrative harassment -favour contacts between actors -existence of external market
			Areas in 93 -mango trees:5,000h -citrus: 3,000 ha -banana: 240 ha **Production 93:** mangoes: 35 to 40,000 tons citrus: 24 to 30,000 t banana:6,000t Cashew nuts:1,000t	- limited varieties		
						-improve artisanal and industrial processing
			Consumption: - Fresh fruit - fruit juice		- Low demand	
			Trade: export 95: 330 t of mangoes			
			Processing -artisanal: drying -industrial: drinks, jam	-High transport cost -Little adapted technology	-Possible artisanal and indsutrial processing	

				- limited varieties -High transport cost -Little adapted technology		

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
		POULTRY	**Production system** -Modern poultry-farming for eggs -Rural traditional poultry-farming **Production:** -Modern 1990: 79,000 layers -traditional 1995: 19,339,880 **Consumption** 0.91kg/annum **Trade:** - exports 95: 2,000,000	**Modern poultry-farming** - inadequate training of breeders - expensive and low quality feed - health problems - climate unfavourable - lack of organization in sector - weak support bodies **Traditional** - feed constraints -health constraints - housing constraints - training constraints -inexistence of several varieties	- High demand in urban centres (daily consumption in Ouagadougou:2 .1t Traditional quite widespread - high production cost -small numbers -important external market	

BURKINA FASO

Inventory of sectors	Criteria for selecting promising sectors	Adopted promising sector	Features of adopted sectors	Major constraints of adopted sector	Potential of adopted sector	Proposed measures for improvement
		B) Vegetables	**Production system** -small gardens - irrigated perimeters **Areas in 1993** -tomato:7 to 800 ha -onion:7 to 800 ha -green beans:5 to 600 ha -potato: 150 ha		-possible irrigation - favourable climate	-improve road networks -diversify production
			Production in 1993: -tomato: 12,500 t -onion: 10,000 t -green beans: 4,000 t -potato: 3,500 t others: 20,000 t **Consumption** 10% of green beans and tomato production **Trade:** - exports 95: 282 t gree beans	- inadapted and low technical guidance - weak support from research - unfavourable food habit - limited internal demand - land-lockedness of production zones -lack of standars and quality control -preservation difficult -high cost of transport	- existence of internal and external market	-diversify markets - body for standardization and quality control -improve processing -take advantage of deregulation in air transport - end administrative harassment -favour contacts between actors
			Processing -artisanal: -industrial (tomato)	-high cost - technology not mastered - too strong competion from imports	-Possible artisanal and indsutrial processing	-improve artisanal and industrial processing

CAPE VERDE

Inventory of sectors:
- cereals
- legumes
- fruit and vegetables
- tubers
- meat
- poultry
- milk
- fishery

Criteria for selecting promising sectors
- economic importance for country
- contribution to food security
- possibility of trade with countries in sub-region
- importance of people involved and strong participation of women
- available and untapped fish resources

Adopted promising sector

Tubers (potato)

Features of sector:
Production system:
- irrigation
- rainfed

Production 1995:
2,100 tons i.e. 29% of horticulture production
irrigated production increased by 10%, fall in cultivated areas
Consumption:
7,376t/annum; 19kg/capita/annum
Rate of coverage of requirements:
38%
Trade:
importation 1995: 2,982 t
Processing:
low level except for chips

Main constraints in sector:
- deficit in irrigation water
- inappropriate production system for rainfed production
- low level of input availability (seeds)
- predominance of little performing family processing
- limited development of irrigated areas because of deficit in water
- difficult access to credit and low investment capacity among farmers
- inappropriate agricultural extension
- isolation of consumers and producers
- no transport or local preservation
- competition from importations
- swing in prices
- land-lockedness of islands
- geographic dispersion of production
- high loss in harvest
- lack of organization
- difficult access to credit

Potentials
- possible intensification
- existence of infrastructure in country
- existence of human resources in terms of technology
- untapped potential in humid and sub-humid zones
- existence of productive and adapted varieties
- possibility to expand production over periods in the year
- yields are quite high
- efficient information system

Measures for improvement
- intensification of production in humid and sub-humid areas
- strengthen introduction of new and more performing varieties
- improve existing agrarian structure

Adopted promising sector

Meat

Features of sector

Production system:
- family exploitation
- intensive cattle-breeding

Production 1995:
- goats: 100,200
- pigs: 68,200
- cattle: 21,200
- sheep: 87,010

Meat in 1995: 45,000 t, of which 72% pork, 16.3%beef, 11% goat and mutton

Consumption:
in 1995: 16.5 kg

Trade:
- importations in 1995: 281 tons from Europe

Processing:
- semi-industrial (pork)
- traditional (pork, goat)

Main constraints in sector:
- poor knowledge of health situation
- poor knowledge of zootechnical parameters
- low availability of water resources
- predominance of traditional exploitation
- no adapted technology for agricultural residue for animal feed
- precarious and deficient health monitoring
- defiance of consumers vis-à-vis local meat
- predominance of illegal slaughtering
- absence of quality control
- high municipal tawation
- lack of skilled butchers
- poor knowledge of the commercial situation of meat

- high cost of factors
- supply difficult for processing plants
- difficult access to credit
- inappropriate processing technology
- poor quality of products processed in traditional manner

Potentials
- existence of adapted local breeds and large genetic variety
- existence of livestock selection stations
- increasing domestic demand
- existence of legal provisions
- existence of a solid quality control system
- strong competition from imported products
- industrial processing:
    * processing plants (pork)
    * market for processed meat
    * technical quality of food processing
- traditional processing:
    * indigenous knowledge

Measures for improvement
- improve meat production
- improve veterinary services
- improve management of fodder resources
- improve genetic potential of breeds
- establish veterinary laboratory capable of meeting requirements
- improve quality control system
- promote artisanal, semi-intensive and industrial processing of meat-based products
- rehabilitate slaughtering, storage and preservation facilities

CAPE VERDE
Adopted promising sector

Poultry

Features of sector

Production system:
- traditional
- extensive

Production 1995:
1,188 tons of which 1,520 t of intensive poultry-farming (sic)
- 35,063,200 eggs of which 9,626,200 for traditional poultry-farming and 25,434,800 for intensive poultry-farming

Consumption:
4.95kg/capita/annum
92 eggs/capita/annum

Trade:
imports 1995: 1,289 t

Processing:
none

Main constraints in sector:
- low availability in water resources
- predominance of non-productive breeds
- low availability of quality feed, chicks and production factors
- predominance of traditional poultry-farms
- no quality control
- no veterinary laboratory
- poor knowledge of quantities consumed and marketing channels
- scattered farms
- low production
- lack preservation facilities
- poor planning of commercial activities by actors
- poor knowledge of national stock
- imported production factors
- low competitiveness of national products

Potentials
- potential for intensive poultry-farming
- existence of plants for local products
- increasing domestic demand
- good source of animal calories and proteins

Measures for improvement
- consolidate and develop poultry-farming
- increase national production
- establish a veterinary laboratory capable of meeting requirements
- improve veterinary service

		Fruit/vegetables Mango	**Areas** 5,000h **Production 93:** mangoes: 35 to 40,000 tons -maket dominated by amelia, brooks, springfield -from mid-february to august, peak in april-may-june	-low level of extension work -limited research -limited plan material -inadapted research output - low level of extension work		
		Green beans	**-private** irrigated perimeters& small gardens **area**:5 to 600ha **Production 93** 4,000t - period: from december to mid-march - individual/collective irrigation	-low support from research & extension -inadapted research output -low level of extension work -weak support to transfer of technology and improved farming		
		Tomato	**Area 93: 7 to 800ha** **Production 93:** **12,500t** **period:december-late june**	-high cost of processing -technology not mastered -too strong competition from imports - limited internal demand - land-lockedness of production zones	-artisanal and industrial processing possible -important national and external market	
			Trade with Togo	-lack of standards and quality control -preservation difficult -high cost of transport -High transport cost -Little adapted technology		

THE GAMBIA

Inventory of sectors:
- cereals
- groundnut
- cotton
- sesame
- cattle/ meat
- poultry
- fishery

Criteria for selecting promising sectors
- potentials for food security
- potentials for country's economic and social development

Adopted promising sector

Millet

Features of sector

Production system:
- early millet grown from July to September
- late millet grown from July to November

Area
- cultivated area: 43,460 ha

Production 1995:
- late millet production: 43,400 ha in 1995
- positive evolution of production since 1980

Consumption:
NA

Trade:
local trade

Processing:
Artisanal

Main constraints in sector:
- Harvesting is labour-intensive
- crop sensitive to pests and diseases
- climatic hazards
- seasonal nature of supply : inadequate supply of millet
- land-lockedness of production zones
- considerable cereal deficit
- competition from rice
- inorganized channel
- lack of policy towards processing

Adopted promising sector

Tuna

Features of sector

Production system:
- artisanal fishing
- industrial fishing

Production from April to November
- productive capacity: 25 to 30,000 tons
- catches 1994: 7,500 t of which 4,000 t by foreigners

Consumption: 9 kg/capita/annum
- tuna from artisanal fishing

Trade:
- exportation

Processing:
- artisanal
- industrial

Main constraints in sector:
- dilapidated fleet with low autonomy
- inappropriate fishing technique
- lack of storage and preservation facilities
- lack of preservation facilities in certain areas
- low purchasing power of the rural people
- price depends on supply and demand
- supply difficult for land-locked areas

Potentials
- high productive capacity: 25 to 30,000 t
- sale possible on domestic market
- increased production possible if diversification in fish products
- diversification possible
- utilization of the Sal cold rooms

Measures for improvement
- diversify production
- promote processed products
- establish a quality control system
- disseminate new fishing techniques
- intensify trade with ECOWAS countries
- promote trade with actors in other countries
- facilitate flow of information between countries
- develop and intensify marketing on fish products

Potentials
- several improved varieties
- important place in people's diet
- increasing demand

Measures for improvement
- disseminate varieties of high yield cereals
- strengthen farmers training and extension re improved technologies
- promote consumption of local cereals
- promote dissemination of information on cereals

THE GAMBIA

Adopted promising sector

CORN

Features of sector

Production system:
- rainfed

Area in 1995: 12,700 ha

Production 1995:
- 13,600 t; increasing

Consumption:
NA

Trade:
-local trade

Processing:
- artisanal

Main constraints in sector:
- high cost of inputs
- diseases and pests
- difficuties in transport and storage
- price instability

Potentials
- corn is an early crop as compared to other cereals
- increasing demand

Measures for improvement
- disseminate varieties of high yield cereals
- strengthen farmers training and extension re improved technologies
- promote consumption of local cereals
- promote dissemination of information on cereals

THE GAMBIA

Adopted promising sector

POULTRY-FARMING

Features of sector

Production system:
- poultry
- traditional poultry-farming
- small-scale commercial poultry-farming

Production 1994:
740,000 heads

Consumption:
increasing

Trade:
importation of poultry meat in 1994: 396.4 t

Processing:
none

Main constraints in sector:
- traditional poultry-farming
- frequent poultry diseases
- low level of feed
- rudimentary housing
- high mortality

Modern poultry-farming
- lack of one-day chicks
- lack of poultry feed

- lack of preservation facilities
- difficulties in transport
- little developed marketing channels
- lack of processing facilities

Potentials
- increasing demand owing to high rate of urbanization

Measures for improvement
- improve housing
- develop organized markets for poultry products
- encourage private initiative
- improve capacities of the veterinary laboratory
- improve rural poultry-farming
- strengthen quality control

THE GAMBIA

Adopted promising sector

Bonga

Features of sector

Production
- contribution of the fishery sector to GDP: 7%

Consumption:
Bonga is the species most widely consumed in the country: 16.64 kg/capita/annum

Trade:
- local trade

Processing:
- artisanal: drying, smoking

Main constraints in sector:
- lack of disembarcation facilities
- under-equipment in the artisanal fishery sector
- inadequate funding
- absence of quality standards
- economic, technical and institutional constraints
- inappropriate transport facilities
- market not adapted to quality standards
- poor quality of processed products

Potentials
- considerable fish resources
- widespread food habit
- high level of consumption
- existence of fresh bonga on marketplace
- high demand for processed products
- development of processing projects (AFDP)

Measures for improvement
- develop credit for artisanal fishing
- develop training in production and processing techniques
- develop facilities for disembarcation, storage and preservation
- develop the distribution and marketing channel through improved means of communication

GUINEA-BISSAU

Inventory of sectors:
- cereals (rice, millet, sorghum, fonio, corn)
- groundnut
- tubers
- cotton
- cashew
- fruit and vegetables
- Cattle/meat

Criteria for selecting sectors
Identification and number of people involved in each sub-sector

- turnover of all actors
- volume of trade and financial flows
- current dynamics and future propects
- patterns of organization and regulation of supply

Adopted promising sector

RICE

Features of sector

Production system:
- rainfed rice
- bottom-land rice

Areas in 1994: 67,000 ha
- rainfed rice: 24,700 ha
- bottom-land rice: 32,000 ha
- salt plain rice: 11,300 ha

Consumption:
- requirements: 127,000 t/annum
- current consumption: 107 kg/capita/annum

Trade:
- marketing and prices liberalized in 1989
- reversal of trends in border trade depending on harvesting periods
- barter trade in paddy for consumer goods
- importation: 50,000 t/annum
- exportation: 5 to 10,000 t to neighbouring countries

Processing:
- three plants running below capacity
- artisanal processing

Main constraints in sector:
- acid, saline soils; fragile soils
- erosion
- falling rainfall
- poor maintenance of equipment
- poor water management
- difficult access to credit
- inadequate access to credit
- low producer prices
- poorly organized marketing credit
- difficult access to promising markets
- poor condition of roads
- high processing costs
- considerable losses

Potentials
- markets in neighbouring countries (Senegal, Guinea)
- maritime transport

Measures for improvement
- draw lessons from technical support already provided
- build infrastructure to open up land
- support producers' organizations
- include rice in production diversification
- buid up stocks
- remove tariff barriers
- rehabilitate and strenghten maritime transport
- strenghten producers' storage capacities
- improve quality
- monitor barter prices and terms
- improve collection in land-locked areas

GUINEA-BISSAU

Adopted promising sector

FRUIT SECTOR

Features of sector

Production system:
- the peasant "Ponteriros"
- the capitalist "Ponteriros"
- small family plantations
- associated growing of banana and pineapple
- cashew, mango, citrus trees as plantations or orchards
- Kola trees: populations of 150 to 200 feet

Production : cashew nut

Consumption:
- as fresh produce

Trade:
- with Senegal and the Gambia for fruits and Kola nuts
- exportation of cashew nut to India and Saudi Arabia in 1996: 30,000 t

Processing:
no industrial or semi-industrial processing plants
- artisanal processing of cashew into wine

Main constraints in sector:
- poor organization of producers
- production periods too short
- lack of preservation facilities
- difficulties in packaging
- difficulties in transport
- lack of information on markets and prices
- high cost of credit
- absence of appropriate technology
- low quality of produce

Potentials
- diversified production systems
- fruit-tree growing adapted to agro-ecological conditions
- existence of a domestic market
- existence of a sub-regional market (Senegal, the Gambia)
- existence of an international market for cashew nut -India, Saudi Arabia

Measures for improvement
- improve facilities for storage, preservation, transport and marketing
- phase out fruit production
- organize producers
- develop the information system on markets and prices
- improve the quality of produce

GUINEA-BISSAU

Adopted promising sector

Small cattle

Features of sector

Production system:
- agro-pastoral
- semi-intensive

Production
- sheep: 240,000 heads
- goats: 225,000 heads
- large cattle: 410,000 heads

Consumption:
- increasing demand

Trade:
- local trade more developed
- no importation of cattle
- marginal exportation
- importation of meat from the European Union

Processing:
none

Main constraints in sector:
- persistence of diseases
- lack of pastures
- inadequate number of watering points
- inefficient management of cattle
- low level of organization in sector
- lack of bodies to support livestock production
- too much limited and erratic supply
- absence of a real network of cattle-market
- season-related supply of animals
- too much scattered production
- absence of slaughterhouses

Potentials
- increasing domestic demand

Measures for improvement
- build rural infrastructure to open up land
- develop an appropriate system for cattle and pastureland management
- provide an efficient veterinary service
- facilitate access to inputs

MALI

Inventory of sector:
- cereals
- oleaginous crops
- sugar
- tubers
- fruit and vegetables
- livestock products
- fish products
- forest crops

Criteria for selection of promising sectors
- scope of interest is national and sub-regional
- potential and/or real target groups
- availability and reliability of data

Adopted promising sector

RICE

Features of sector

Production system:
- perimeters with total water management
- perimeters with partial water management
- perimeters under controlled submersion
- developed bottom-lands in southern Mali
- diffuse undeveloped areas
- extremely differing performances

Area in 1995: 230,000 ha

Production 1995:
458,425 t

Consumption 95:
- 306,000 t
- on-farm consumption: 35.29%
- coverage of requirements: 87%
- 20% of cereal consumption

Trade:
- marketing is little organized
- prices are determined between the Office du Niger and Producers (union price)
- importation in 1995: 40,000 t
- removal of barriers in sub-region
- competitiveness restored after devaluation

Processing:
- manual
- industrial
- private mills

Main constraints in sector:
- high cost of agricultural developments
- production zones land-locked and poor condition of tracks and roads
- inadequate coverage of requirements
- informal trade
- high cost of transport
- swings in international prices of rice and rate of dollar
- tax on imported hulled rice or prior authorization to import
- poor packaging
- high rate of smashed grains and impurities

Potentials
- available irrigable lands: 2 million ha well distributed
- command of technologies by responsibility- awared farmers
- important investment programmes
- low production cost as compared to neighbouring countries

- strong financing system
- expanding domestic market
- expanding sub-regional market
- competitiveness recovered
- multiplicity of small mills

Measures for improvement
- continue rehabilitation programmes and expand areas
- provide inputs to producers
- harmonize export standards at sub-regional level
- establish framework for consultation among actors in the sector
- remove import-export taxes on hulled rice
- fiscal and financing policy for mills and training of users

MALI

Adopted promising sector

CORN

Features of sector

Production system:
- Pure (intensive cropping, ofeten in rotation with cotton
- in association with millet
- rainfed crop whith fertilizers

Area in 95: 258,930 ha

Production 1995:
259,930 t

Consumption:
27 kg/capita/annum of cereal consumption

Trade:
- importation from Côte d'Ivoire
- exportation (Senegal, Côte d'Ivoire): 3,000 t

Processing:
- manual

Main constraints in sector:
- climatic hazards (crop sensitive to hazards)
- high cost of inputs (demanding crop in terms of water and manure)
- difficult preparation reduces demand

Potentials
- animal traction used
- policy to boost production
- existence of domestic market
- Senegalese market (animal feed)

Measures for improvement
- intensify extension activities
- revamp village stocks at the level of village associations
- search of sub-regional markets
- facilitate installation of mills

MALI

Adopted promising sector

CATTLE/MEAT

Features of sector

Production system:
- Agro-pastoral system
- pastoral system
-semi-intensive system

Production 1995:
- large cattle: 5.707 million
-small cattle: 13.150 million

Official slughterhouses
- large cattle: 200,000 heads
- small cattle: 480,000 heads
numerous illegal slaughterings

Consumption:

Trade:
- liberalized and informal marketing
- exportation prior to devaluation: 200,000 large cattle/annum
- large cattle in 95: 228,000

Processing:
5 slaughterhouses

Main constraints in sector:
- difficult access to credit
- inadequacy and high cost of animal feed
- low purchasing power of consumers
- absence of marketing tracks
- lack of organization among professionals
- low quality of cattle and meat
- high cost of transport
- inadequate number of slaughterhouses: dilapidated and under-equipped

Potentials
- vast pasturelands
- considerable number of heads of cattle
- foreign markets (Gabon, Algeria, Côte d'Ivoire, Ghana)

Measures for improvement
- undertake programmes for pastoral water supply
- strenghten pastoral regulations
- facilitate access to credit
- set up information and planning system
- strenghten communication and information networks on markets
- develop processing-related research

MAURITANIA

Inventory of sectors:
- meat
- milk
- horns and hooves
- wool
- cereals
- fishery
- dates

Criteria for selecting promising sectors
- total production/ exported
- total consumption/imported
- balance (deficit, surplus, coverage)
- trade (domestic, sub-regional)
- importance in the national economy (% GDP)
- role of women

Adopted promising sector

Cattle/Meat

Features of sector

Production system:
- extensive system
- peri-urban system

Production 1992:
- large cattle: 1,200,000
- small cattle: 8,500,000
- camels: 1,050,000

Meat: 67,340 t of which
beef: 18,200 t
goat meat and mutton: 32,400 t
camel: 17,100 t

Consumption:
- an average 50,230 t
- 36 kg/capita in 1970
- 23.2 kg/capita in 1992

Trade:
informal cattle trade but meat is controlled
- exportation of cattle: 401,300 heads

Processing:
- little controlled slaughtering

Main constraints in sector:
- imbalance cattle/resources (inputs)
-cattle diseases
- difficult access to credit
- fall in consumers' purchasing power
- hygiene problem
- professionals not organized
- Competition from European meat in Côte d'Ivoire
- few cattle-markets without equipment and communication facilities
- lack of modern slaughterhouses

Potentials
- considerable number of heads
- experienced cattle exporters having capital of their own

Measures for improvement
- census of cattle
- establish permanent system for data collection
-improve pasturelands
- legislation in terms of agricultural inputs
- list of essential drugs
- determine the limits and responsibilities of private veterinarians
- implement project re slaughterhouse in Nouakchott

MAURITANIA

Adopted promising sector

M ILK

Features of sector:

Production 1992:
- 360,500 t of which:
cows: 145,000 t
small cattle: 190,000 t
camels: 25,000 t

Importation in 1993
- depending on sources: 90,755 t or 17,555 t

Consumption:
- 57 to 169l/capita/annum, depending on sources

Trade:
- mainly urban owing to two dairy plants in Nouakchott and small traders

Main constraints in sector:
- transhumance reduces supply
- socio-cultural prejudice
- high taxation on packaging
- milk reconstituted from imported cheaper powdered milk

Potentials
- renewed interest of cattle-breeders in milk sale (change in behaviour)

Measures for improvement

MAURITANIA

Adopted promising sector

CERÈALS

Features of sector

Production system:
EXTENSIVE

Area in 95:
- millet, sorghum: 162,200 ha
- irrigated: 19,000 ha

Net Production 1995:
- sorghum: 111,470 t
- millet: 7,850 t
- corn: 6,280 t
- rice: 31,400 t

Production cost: gas-oil subsidized (rice)

Consumption:
- 150 to 163 kg/capita/annum
- millet, sorghum: 26%
- rice: 28%
- wheat: 45%
- on-farm consumption: 12%

Trade:
liberalized in 1989-1991 : cost price of imported rice is lower than local rice

Processing:
small industrial mills; individual mills

Main constraints in sector:
- climatic hazards
- absence of selected seeds
- land-lockedness, difficulties in transport
- absence of credit
- inadequacy of outlets
- absence of storage facilites

Potentials
- potential in lands: 277,000 ha of which 137,000 in the valley of River Senegal

Measures for improvement

NIGER

Inventory of sectors
- cattle/meat
- dairy products
- poultry
- onion
- cowpeas
- groundnut
- capsicum
- rice
- sesame
- nut-grass
- garlic
- sugar cane
- wheat
- millet-sorghum
- corn
- fruits
- fishery

Criteria for selecting promising sectors
- contribution to food security
- contribution to trade balance
- job creation and people involved in the sector

Adopted promising sector

CATTLE/MEAT

Features of sector

Production system:
- extensive pastoral
- extensive sedentary
- semi-extensive

Number of heads in 1995
- large cattle: 1,986,000
- sheep: 3,732,000
goats: 5,890,000
camels: 379,000

Controlled meat production
- 60,000 t in 5 slaughterhouses
- illegal slaughtering: +/- 60,000 t
- immunization is paid for

Consumption 1995:
- 10 kg/capita/annum

Trade:
liberalized but informal

Cattle exportation in 1995
- large cattle: 77,189
- sheep: 139,225
- goats: 14,070
- camels: 27,488

Processing:
- preservation/drying
- 4 modern slaughterhouses

Main constraints in sector:
- climatic hazards
- health barriers
- high cost of transport
- poor distribution of watering points
- dilapidation of facilities and equipment
- fall in consumers' purchasing power
- high rate of illegal slaughtering
- competition from subsidized extra African meat
- transhumance reduces supply
- informal marketing
- inadequate number of formal organizations
- risks related to driving cattle on foot
- absence of facilities on marketplaces
- heavy taxation
- high variations in Naira/CFA F rates
- hygiene problem

Potentials

Cattle:

- considerable number of heads and relatively good health condition
- existence of complementary pastroal and agricultural zones
- highly specialized people in charge of cattle
- relative control of diseases such as plague and bovine peripneumonia
- investment of domestic savings in livestock
- promising outlets in coastal and Maghrebian countries

Meat:

- quality of meat highly valued by consumers
- domestic and external demand high for dried meat (kilichi)
- project re new slaughterhouse in Niamey: 18,000 t.annum for export

Measures for improvement

- intensify control of diseases especially plague and foot-and-mouth disease; draw epidemiological map
- improve cattle feed : pastoral water supply, development of pastoral and agro-pastoral space
- Rural financial institutions
- sub-regional commercial information systems
- communication facilities
- emergence of professional organizations
- improve conditions for meat production: rehabilitation and expansion of municipal slaughterhouses and drying areas

NIGER

Adopted promising sector

ONION

Features of sector

Production system:

- extensive system (manual)
- intensive system (tubewell and motor pumpà
- high intensity system (gravity irrigation)

Production on small areas

Area in 1994: 6,000 ha

Production 1994: 185,600 t

Trade:

- Informal trade: data differ depending on sources
- Exportation: CFA F 2.5 billion

Main destinations: Côte d'Ivoire, Ghana, Togo, Bénin

Main constraints in sector:

Production:

- quantitative and qualitative inadequacy of seeds (ageing)
- absence of organized agricultural credit
- environmental degration caused by water and wind erosion
- high cost of irrigation/investment and exploitation
- proliferation of pests

Demand:

- inadequate and inappropriate packaging
- mo,opoly of wholesalers
- considerable swings in prices
- competition from Holland, Mali, Burkina Faso
- fall in people's purchasing power

Trade:

- land-lockedness of production zones
- inadequate professional organization at national and regional levels
- high cost of transport, too much time spent on journey, administrative harassment
- heavy taxation

Potentials

- vast space: 29,000 ha
- good command of techniques by farmers
- existence of INRAN for variety imrpovement
- interest of donors
- high quality
- existence of promising markets

Measures for improvement

- continue research on rainy season onion
- support seed multiplication by private actors
- establish rural financial institutions
- try and understand patterns of consumption, processing methods and costs
- encourage the manufacturing of nets, bags and tags

sub-regional commercial information systems

- emergence of profesional organizations
- communication facilities

Consumption:
-on-farm consumption: 15%

Trade:
- informal marketing channels for inputs and crop

Exportation: 68.8%

Domestic market: 16.2%

Processing:
- **artisanal**

Main constraints in sector:
- inadequacy and poor distribution of rains in space and time
- inadequate and inappropriate facilitties for preservation and storage
- degeneration of seeds
- pests and diseases
- land-lockedness of production areas
- socio-cultural prjudice
- high vulnerability of seed to pests; difficult preservation
- recipes not disseminated
- high price variations
- under-equipment of trading companies
- inadequate professional organization
- heavy taxation , licence
- lack of financial resources for marketing
- lack of industrial processing plant

Potentials
- dry and hot climate appropriate for cowpeas-growing
- vast lands available
- command of production techniques by farmers
- existence of promising markets in sub-region (Nigeria, Ghana)
- considerable financial yields

Measures for improvement
- establish financial institutions
- develop animal traction
- promote domestic consumption
- try and understand patterns of consumption, processing methods and costs
- enter negotiations with Nigeria to remove ban on cowpeas importation (Joint Commission)
- develop and disseminate improved methods for preervation and storage

SENEGAL

Inventory of sectors:
- cereals
- groundnut for oil
- groundnut for eating
- fruit and vegetables
- cattle/meat
- poultry-farming
- forest products and crops
- milk

Criteria for selecting sector:
- financial and economic profitability
- comparative advantage as compared to imported products
- contribution to GDP
- Jobs created for target groups (women)
- role in desertification control

Adopted promising sector

1. Fruit and vegetables
1.1 market-gardening

Features of sector

Production system:
- small traditional family farms (0.2 to 1 ha)
- community projects (1 to 5 ha)
- modern farms (5 to 20 ha)

Production zones:
- northern littoral (Niayes)
- Valley River Senegal
- North and Centre of country
- South and South-east

Area : 6 to 8,000 ha for at least the past 15 years

Production 1995: 154,000 t, sharp increase

Consumption 1994: 51.8 kg/capita/annum
deficit for potatoes and onions

Trade:
- Exportation 1995: 4,500 t
- importation 1995: 8,200 t
existence of a grouping of exporters SEPAS

Processing:
low overall
- artisanal
- industrial: tomato 3,200 t/annum

Main constraints in sector:
- difiicult acces to land
- high cost of water
- land-lockedness of some production zones
- fall in people's purchasing power
- difficulties in transport
- inadequate market information system
- high competition on external markets
- absence or inadequacy of facilities for storage and processing
- few products processed
- high cost of investment and factors
- high cost of processed products

Potentials

- favourable climate
- long-standing experience in market-gardening
- product diversity
- numerous gains from research
- high domestic demand for vegetables
- existence of a sub-regional and external market (Europe...)
- maritime transport

Measures for improvement

- organize profession at all levels
- facilitate access to land ownership
- facilitate access to credit and agricultural inputs
- expand area in zones with high potentials
- specialize zones according to their vocation
- upgrade research output and develop the quality of produce
- improve competitiveness

establish a service in charge of exportation

- identify regional markets
- develop exchange of information on markets
- develop marketing (regional and international markets)
- support credit to marketing
- develop artisanal and industrial processing

1.2 Fruits

Features of sector

Production system:

- **family orchard.**
- **modern orchard**

Production zones

- Casamance
- Niayes
- South-east

Production 1995: 98,000 t, sharp increase

Consumption 1994: 18 kg/capita/annum

Trade in 1995:

importation: 3,870 t

Processing:

- artisanal
- industrial (juice)

Main constraints in sector:

- difficult acces to land
- high cost of water
- land-lockedness of some production zones
- lack of cold storage facilites for transportation
- inappropriate technology
- high cost of factors

Potentials
- favourable climate
- market
- maritime transport
- research ouput available

Measures for improvement
- organize profession at all levels
- facilitate access to land ownership
- facilitate access to credit and agricultural inputs
- expand area in zones with high potentials
- specialize zones according to their vocation
- upgrade research output and develop the quality of produce
- improve competitiveness
establish a service in charge of exportation
- identify regional markets
- develop exchange of information on markets
- develop marketing (regional and international markets)
- support credit to marketing
- develop artisanal and industrial processing

2. FOREST PRODUCTS AND CROPS

Features of sector

Production system:
-extensive system

Production
- 8,852 t but poor control of overall supply

Consumption:
data not available

Trade:
- importation: 22,870 t.annum of which 72 % of palm oil
- exportation: 1,955 t/annum

Processing:
- artisanal
- industrial : little developed (juice, soap, candles)

Main constraints in sector:
- deforestation
- difficulties in access to land ownership and forest
- ill adapted land taxation
- inadequate organization in sector
- low yield
- ignorance re nutritional quality of produce
- lack of facilities for storage and preservation
- too high seasonal dependence of produce
- land-lockedness of production zones

- lack appropriate transport preservation and processing facilities
- high swings in prices
- lack of organization in marketing channel
- little developed artisanal and industrial processing
- problems of quality
- high seasonal dependence

Potentials
- regional specialization according to climatic conditions
- wide variety of produce
- high demand from local industries
- high demand from households; food habits changing in favour of local produce
- existence of local and external market
- considerable gains from research

Measures for improvement
- protect natural resources (forests)
- create a legal framework for sound conservation and management of natural resources by the riparion people
- establish information and awareness-raising programmes for the people with a view to resorce conservation
- establish development programmes including activities for reinforcing productive capacity
- develop forestry research in favour of species of forest crops
- reorganize the forest taxation system on forest crops

3. POULTRY-FARMING

Features of sector:

Production system:
- traditional family poultry farming
- modern poultry-farming

Number of heads : 16,904,660 of which
local breed: 13,000,500
from chicks selected in Senegal: 1,231,118
imported chicks: 1,673,042

Production 1995: meat: 10,300 t of which 6,800 t from corn-fed chicken
3,000 t local chicken and 500 t from decommissioned layers
Egg production: 114 million in 1994

Consumption:
meat: 1,5 kg/capita

Trade:
-importation in 1995: 218 t
falling exportation: from 1994 to 1996 116,596 chicks and 77,760 eggs for hatching in the sub-region

Main constraints in sector:
Family poultry-farming
- deficiencies due to genetic material
- high rate of poultry diseases
- precarious housing
- inadequate and poor feed

Modern Poultry-farming
- inadequate training of poultry-farmers
- inadequate health monitoring
- little specialized extension workers and labour
low level of infrastructure and equipment
low level of funding
high cost of feed and veterinary products

Potentials
Traditional family poultry-farming
- throughout country
- utilization of rustic breeds adapted to the environment

Modern
- high urban demand for eggs and meat
high progression margin
development of reproduction farms

Measures for improvement
- programmes for health protection, improvement of feed and housing
- improve genetic potential of local breed
- reduce tariff protection on inputs
- promote production and storage
- favour creation of factories to produce mineral extracts with added vitamins
- to operationalize the laboratory in charge of quality control and polutry pathology
- facilitate access to credit for poultry-farmers
- develop production of incubators, reproduction farms, slaughterhouses, preservation facilities
- develop processing of poultry products
- integrate poultry-farming into research programmes

CHAD

Inventory of sectors
- cereals
- oleaginous crops
- horticulture
- cattle-meat
- fishery
- forest by-products

Criteria for selection of promising sectors
- contribution to food security
- contribution to trade balance
- job creation
- effects on environment
- productive capacity of sector
- evolution of production

Adopted promising sector

CATTLE/MEAT

Features of sector

Production system
- pastoral system depending on rainfall (North) : limited production
- agro-pastoral system, cattle-breeding is a complementary activity (South)

Production in 1995
- large cattle: 4.7 million
- sheep/goats: 6 million
- camels: 0.6 million

Meat: 15,560 t
beef: 12,658 t
mutton: 1,419 t

Production costs
difficult to assess in the absence of an enquiry

Urban consumption
15 kg/capita in 1994
11 kg/capita in 1995

Trade
- Exportation: 98% to Nigeria
- marketing liberalized
- informal trade

Processing :
preservation: drying

Major constraints in sector
- climatic hazards
- cattle diseases
- lack organization among professionals
- high cost of inputs
- lack of credit and low level of extension activities
- lack of pastures during some periods of year and inadequate water resources
- long distances that reduce cattle performance
- informal activities
- fall in consumers' purchasing power (dried fish cheaper)
- competition from EU meat
- high cost of transport
- over-taxation and complicated administrative formalities
- illegal slaughtering
- hygien problems

Potentials
- considerable fodder resources (during rainy season)
- relatively good health condition thanks to paid immunization (Livestock Development Fund)
- external markets (Nigeria)

Measures for improvement
- create watering points and develop pasturelands
- ensure better health coverage
- alleviate export taxation
- simplify adminstrative formalities
- put an end to illicit levies
- traaining and organization of professionals
- information system on external markets
- abandon the use of posted values as basis for importation
- establish a pilot project for processing of dried meat

CEREALS

Production systems
- Saharian system in oases with irrigation
- Sahelian type with 300 to 500 mm
- Soudanian system with about 900 mm

Area in 1995: 1,287,015 ha of which 41,188 in rice

Production in 1995: 117 million tons of which millet: 78%
sorghum: 78.5%; rice: 8%, corn: 13%; Production varies tremendously depending on years

Production cost:
case of the Déli seed farm: millet CFA F 32,070/ha; sorghum: CFA F32,070/ha; rice: 164,530/ha

Consumption
-on-farm consumption: 60 to 70%
- per capita consumption: 117.3 kg

Trade
markets scattered: complex distribution channels; high marketing costs

Processing
-manual
- rice mill
-hulling machines
- grinding mills

Major constraints in sector
- climatic hazards
- declining soil fertility
- low level of extension activities
- low utilization of inputs
- high cost of inputs
- land-lockedness
-land problems
- high cost of transport
- inadequate credit
- resitance to technological innovations
- informal activities
- inadequate information on patterns and levels of consumption
- narrow domestic market
- low level of organization among stakeholders
- poor quality of processed cereals

Potentials
- land availability plentifull: 39 million ha
- intensive rice production in 3 regions
- comparative advantage re neighbouring countries South and East
- Research workers, trainers and extension workers available
- existence of an information system for decision-making
- trade easy with external market

Measures for improvement
- bush fire control
- strenghten training, extension and credit
- support to information services
- improve marketplaces
- improve telecommunications
- rehabilitateand maintain tracks and roads and buid the Mondou-Ngaoudéré railway
- promote processing

GROUNDNUT

Production system
Not too much demanding in soil, it is grown in association with millet

Area in 1996: 280,000 ha
Production in 1996: 400,000 t
Production costs
case of Abougoudan: CFA F 39,263/ha
case of Déli: CFA F 42,063

Consumption
- on-farm consumption: 30 to 50 %

Trade
- exportation: 30 to 50% (CAR, the Congo, Cameroon, Zaïre, Nigeria): CFA F 2.3 billion
- competitive informal channel
- high seasonal variation in prices

Processing
- manually by women for oil
- soap
- cattle feed (cake)

Major constraints in sector
- climatic hazards
- high pest pressure
- inadequacy of credit and funding
- loss during storage
- competition from imported oil

Potentials
- land available
- possible diversification
- high domestic and external demand

Measures for improvement
- develop adapted varieties
- reinforce pest control
- develop credit system
- develop adaptation research or introduce and disseminate processing technologies.