République of Ivory Coast

Union - Discipline - Work

……..

……..

MINISTRY OF AGRICULTURE

……..

NATIONAL RICE DEVELOPMENT OFFICE (NRDO)

REVISED NATIONAL RICE DEVELOPMENT STRATEGY FOR THE CÔTE D'IVOIRE RICE SECTOR (NRDS) 2012–2020

January 2012

METHODOLOGICAL APPROACH

Despite all its assets in terms of rice production, Côte d'Ivoire has to import huge quantities of rice to meet the continually increasing domestic consumption of rice.

National rice production has remained at less than half of demand for more than three decades despite various policies for developing the rice chain.

The 2008 food crisis led to the introduction of a National Rice Development Strategy (NRDS/SNDR), which was adopted by the government in June 2008.

This latest National Rice Development Strategy revises the 2008 version to correct deficiencies in effectively addressing objectives such as meeting local demand entirely with national rice production, building a security/buffer stock and exporting surplus production.

The revised NRDS is enshrined in Government Plans and Programmes, such as the Master Plan for Agricultural Development (MPAD/PDDA), the Strategy Document on Poverty Reduction (SDPR/DSRP) and the National Programme for Investment in Agriculture (NPIA/PNIA). It is based on the model supplied by the Coalition for African Rice Development (CARD) comprising the rice-producing African countries and a group of development partners.

The methodological approach followed the example of other CARD member countries in having the National Rice Development Office (NRDO/ONDR) begin drafting a revised National Rice Development Strategy in June 2010. The draft vision for the strategy was twice presented to Cabinet meetings.

Following these presentations, a validation workshop was held at Grand-Bassam on 29 and 30 July 2011 to consider a final revised National Rice Development Strategy document. This meeting chaired by the Prime Minister's Office brought together the parties actively involved in the rice chain, Ministries dealing with rice-related issues, development partners and support bodies with an interest in rural affairs.

Finally, the NRDS document was submitted to the National Office for Technical and Development Studies (NOTDS/BNETD), which advises the Presidency on technical matters. The document was also discussed with several development partners, in particular the World Bank, the French Development Agency and certain private sector partners prominent in the world rice sector.

SUMMARY

Worldwide rice production totals 650 million tons of which just 31 million tons (about 5%) is traded, a reflection of the protectionist attitude of exporting countries. Furthermore, the increase (2%) in world demand is 10 times greater than the increase (0.2%) in traded volumes.

With a population of around 21.9 million people (NSI/INS) on 322,462 km^2, Côte d'Ivoire has undergone rapid urbanisation (1.5 rural dwellers to every city dweller in 1995 and urban dwellers expected to outstrip city dwellers by 2015) with a poverty level of 48.9%. The cooking advantages for rice in these conditions have made it the staple of Côte d'Ivoire's population.

National production, which is estimated at an average 600,000 tonnes annually since 2008, barely covers 50% of estimated average national consumption of 1,500,000 tonnes of milled rice (white rice) annually.

To cover this deficit Côte d'Ivoire has resorted to huge imports from Asia, which came to 919,000 t of milled rice in 2009 at a cost of more than 235 billion CFA Francs (FCFA).

Yet Côte d'Ivoire has many assets favouring rice growing that would allow the country to produce enough to cover its own needs and eventually export any surplus. Notable among these are a significant land area suitable for growing rice, a highly favourable climate with abundant rainfall, producers with ample know-how, high-yielding varieties with good organoleptic qualities, existing market potential and a satisfactory economic and institutional environment.

The State initially opted to manage the rice situation in Côte d'Ivoire through an aggressive policy of intervention along the length of the supply chain (SATMACI from 1960–1970 and SODERIZ from 1970–1977). This policy achieved rice self-sufficiency in 1976 (350,000 t). Côte d'Ivoire then began a period of progressive disengagement by various State-sponsored bodies from the rice sector. These were the NPE (National Public Enterprises/Etablissements publics nationaux) such as SATMACI, SODEPALM, SODEFEL, CIDT, CIDV and ANADER between 1978 and 1995. Because rice was no longer a prime target for these bodies, it no longer received the attention it needed for its proper development. Production began to rise and fall erratically creating a deficit between supply and demand.

This situation led the Government to set up the National Rice Project in 1996 – later to become the National Rice Programme (NRP/PNR) from 2003 – to coordinate and monitor the implementation of rice-growing projects.

In line with its Agricultural Development Master Plan 1992–2015 (1993), the Poverty Reduction Strategy Document (2009) and the National Agricultural Investment Programme (26 July 2010), the Government adopted the Rice Rehabilitation Strategy in June 2008 following the crisis caused by the sharp rise in the prices for staple foods such as rice. This strategy, which covers the period from 2008 to 2018 at an overall cost of 2,257.9 billion CFA Francs, comprises three stages, of which the first is the Emergency Rice Programme (ERP/PUR) 2008–2009 at a provisional cost of 17.9 billion FCFA.

Given the target of obtaining an extra 200,000 tonnes of rice from 31,000 ha in one year, the programme was able to achieve 76,000 tonnes of additional milled rice in 2009 – 38% of the production target – using just 7,256,900,000 FCFA from the 17,927,600,000 FCFA available.

This rehabilitation strategy for rice growing adopted in 2008 is characterised by:

1. Not taking the different types of rice cultivation into account, particularly rainfed rice, which represents 95% of the area planted;
2. Fairly high cost because of the priority given to investment in big dam-based irrigation schemes;
3. Lack of attention to production procedures and to making pedigree seed available to producers;
4. Insufficient account taken of all the elements in the rice value chain, particularly processing and marketing;
5. Poor recognition of the conditions needed for effective private sector participation.

At the same time, it is important to place on record that the issues affecting rice remain:

- Meeting 100% of national rice consumption needs
- Guaranteeing a stable and profitable income for the rice grower
- Reductions in rice imports and the outflow of foreign exchange
- Enhancement in consumer opinion of rice grown in Côte d'Ivoire
- Using Côte d'Ivoire's assets and leadership role to supply other countries in the region.

Because of these issues and the difficulties in implementing the 2008 strategy, and to align with the Government's Programme for the rice chain, it became vital to revise the strategy taking into account all elements of the rice value chain so it met the requirements for sustainability of proposed action and for raising funding.

The Revised Strategy for Rice Development 2012–2020 aims both to cover national consumption requirements from 2016 onwards through local production of 1,900,000 tonnes of milled rice, and to continue this through to 2.1 million tonnes of milled rice in 2018. It will be implemented in two phases:

i) The first 2012–2016 phase, which will enable all consumption requirements to be covered by local production, at a cost of 477 billion FCFA
ii) A second phase costing 195 billion FCFA from 2017–2020, which is a consolidation phase enabling build-up of a safety or buffer stock.

The Vision of the Revised National Rice Development Strategy in Côte d'Ivoire is to satisfy national consumption requirements for good quality rice competitive with imports, together with the opportunity to build a buffer stock and export surplus production.

The strategy priorities are:

(i) development of a seed sector by creating six (6) further centres for pedigree seed production to supplement the single existing centre;

(ii) rehabilitation of all the sites previously developed for irrigated rice growing and carry out development on floodplains;

(iii) agricultural advice, mechanisation of production and technology transfer;

(iv) support for processing and marketing local rice;

(v) support improvement of the institutional framework and reactivation of organisations along the rice chain so they are capable of supporting the ongoing development process;

(vi) implementation of an information system able to supply business operators with reliable data relevant to all activities in the value chain

The approach is centred on taking into account the whole value chain (seed, production, processing, marketing) in a logical framework set out in two phases:

i. A first phase comprising actions necessary for a pragmatic approach and making the most of our existing production model,

a. for rainfed rice growing, which makes up 95% of our production, this means making improved seed accessible to all rice growers so yields can be improved by at least 30%;

b. in relation to irrigated rice, activities will include rehabilitation of all previously developed inland valleys and the development of inland valleys for flooded rice cultivation;

c. flooded rice will be the vehicle for beginning development in the Denguelé and Moyen Cavally regions;

ii. A second phase based on gradual investment in water control to develop production based on a system of water management that will reverse the trends in irrigated and flooded rice, which should account for at least 70% of production from 2018 onwards.

The expected **impact** from implementing the revised National Rice Development Strategy is that Côte d'Ivoire will be able to cover its consumption needs with national production; that the strategy will contribute to economic development, to maintaining social harmony by improving incomes and the living standards of rural people, and to creating many new jobs. All this will help the country fight poverty.

The Strategy will be implemented through a five-year plan implementation agreement granted to the NRDO and containing clearly defined objectives, performance indicators and periodic evaluation designed to better prepare for the succeeding stages.

INTRODUCTION

Côte d'Ivoire has a population of about 21.9 million inhabitants on a land area of 322,462 km^2. Annual population growth is 3.3%.

Poverty levels reached 48.9% at national level in 2008, 62.5% in rural areas and 29.4% in urban areas. In 1993, these levels were, respectively, 32.3%, 42% and 19.3%. Data analysis shows that rural areas suffer the highest levels of poverty. However, the agricultural sector in general in Côte d'Ivoire, and the rice sub-sector in particular, is bulging with unexploited potential.

In particular, this includes:

- A major land area that could be cultivated for rice;
- Producers with ample know-how;
- Abundant rainfall, with a damp tropical climate in the south (1,600 to 2,200 mm of rain, two wet seasons each followed by a dry season) and in the north, a dry tropical climate (1,000 to 1,200 mm of rain, one dry season and one rainy season);
- Availability of high yielding varieties with good organoleptic qualities thanks to a strong research system;
- A satisfactory economic and institutional environment despite some deficiencies.

These assets should allow Côte d'Ivoire to produce enough rice both to cover and safeguard domestic production, and to export any resulting surplus.

Nevertheless, despite these assets Côte d'Ivoire is exposed to food insecurity for rice because of its very strong dependence on imports, having an average annual production of 600,000 to 700,000 tonnes against estimated consumption of 1,317,704 tonnes in 2008.

As far as the world market for rice is concerned, production is 650 million t/year of which just 31 million t/year – 5% – is traded. While world demand has been rising by 2% annually, the amount traded has gone up by just 0.2% per year; the increase in world demand is therefore 10 times greater than that for volumes of rice traded.

The indicators for rice in Côte d'Ivoire and those for the world rice market makes us fearful that the risk of returning to a situation of social unrest such as in 2008 cannot be totally discounted.

The agricultural rehabilitation strategy adopted in 2008, while fairly expensive, did not take sufficient account of the rice value chain nor the realities of domestic production, particularly rainfed rice and the modus operandi of the seeds sector.

It has become evident that a return to a realistic approach is needed, as much for fund raising as for sustainability of the proposed actions, and for a strategy revision to take all facets of the rice value chain into account. Furthermore, action is needed in each of the country's cultivation systems, i.e. rainfed rice, lowland rice, irrigated and flooded rice growing.

This Revised Strategy for Rice Development, which will take in the period from 2012–2020, aims both to cover national consumption requirements from 2016 onwards through local production of 1,900,000 tonnes of milled rice, and to continue this through to 2.1 million tonnes of milled rice in 2018. It will be implemented in two phases:

i) The first 2012–2016 phase, which will enable all consumption requirements to be covered by local production, at a cost of 477 billion FCFA
ii) A second consolidation phase costing 195 billion FCFA from 2017–2020 to enable build-up of a safety or buffer stock.

CHAPTER I. THE STATE OF THE RICE SUPPLY CHAIN IN CÔTE D'IVOIRE

Analysis of the state of the rice supply chain in Côte d'Ivoire highlights the key problems. .

1.1- The Bases and Benchmark for Rice Supply Chain Development in National Policies

Rice is the major food staple consumed in Côte d'Ivoire and the need to reach food security and self-sufficiency by covering rice requirements is a central plank of all the country's agricultural development policies.

The strategy developed draws on different Plans and Programmes developed within the framework of agricultural development policies. Thus, the basic statements and consistencies in the National Rice Development Strategy are fully endorsed in the major decisions on agricultural development under the following items:

1.1.1. Agricultural Development Master Plan 1992–2015 (ADMP/PDDA)

Adopted in 1993, it advocated research into food security and food self-sufficiency through meeting national requirements for rice and through a perspective of competiveness for national agricultural systems rather than one of imports substitution.

1.1.2. Poverty Reduction Strategy Document (PRSD/DSRP)

Adopted in January 2009, this set forth rice as a basic pillar in obtaining food security and food self-sufficiency and opted to promote agricultural food production through funding guarantees and improvements in the distribution channels.

1.1.3. National Agricultural Investment Programme (NAIP/PNIA)

Adopted on 26 July 2010, it falls within the regional framework of ECOWAP/CAADP for country-level stimulation processes. The revised National Rice Development Strategy falls under the following NAIP components:

At the level of Improvement Programme for productivity and competitivity of agricultural production

- To improve the use of agricultural and veterinary inputs;
- To promote mechanisation of agricultural businesses and small agricultural production processing units;
- To reinforce agricultural advisory services, research and development, and training;
- Improve water management;
- Sustainable land management.

At the level of the Development Programme for supply chains

- Rehabilitate rice production;
- Develop processing and storage of agricultural produce;

- Overcome hunger and ensure sustainable food and nutritional security for all sections of the population by 2015.

1.2- Previous rice policies and the lessons learned

Management of the rice sector in Côte d'Ivoire from 1960 until the present day has been marked by six (6) distinct periods within the institutional framework delineated by the policies adopted. These are:

- **From 1960–1970,** characterised by an aggressive interventionist State policy for the whole value chain. This period saw a significant increase in national production without acting as a brake on imports.
- **From 1970–1977,** characterised by an aggressive interventionist State policy for the whole value chain through the Rice-growing Development Company (SODERIZ), which was specially created to promote rice. This policy brought about an increase in local rice production and self-sufficiency in 1976.
- **From 1978–1988,** saw the development of rice growing by means of several corporate bodies following the dissolution of SODERIZ. Because rice was no longer a prime target for these bodies, it brought about sharp rises and falls in production creating deficits between supply and demand.
- **From 1988–1995,** characterised by a global approach to food production through the official bodies, Ivorian Food Development Company (CIDV) and the National Agency for Rural Development (ANADER). The results were the same as in the previous period.
- **From 1996–July 2010,** brought the establishment of the National Rice Project in 1996, which became the National Rice Programme from 2003, to coordinate and monitor the implementation of rice-related projects.
- **July 2010 to the present,** saw the dissolution of the National Rice Programme and the establishment of the National Rice Development Office to take up the activities of the NRP.

On analysing what has happened in the past, it is clear that after the opening up of the rice sector the heavy State involvement did not help establish a sustainable system for developing rice production in Côte d'Ivoire that is able to meet national consumption.

Two intervening causes have been identified: (i) there is no consistency in the activities of the various elements in the value chain and (ii) not all elements of the value chain are taken sufficiently into account, particularly processing and marketing of locally produced rice.

The lessons to be drawn from these experiences of developing rice in Côte d'Ivoire are on two levels, bearing in mind that true sustainable development of rice growing cannot be achieved other than through:

- Taking into account, and with the necessary support, those downstream activities (processing and marketing efforts) in which SODERIZ excelled;
- Establishment of an autonomous coordination structure charged with responsibility for supply chain development.

1.3- Production systems

There are three (3) systems of rice production with distinct characteristics in Côte d'Ivoire. These are: (i) rainfed rice grown throughout the country but dominant in the west, north and west-central, (ii) flooded rice, which is mainly grown on the large north-western and northern plains, and (iii) irrigated rice, which is grown in the developed lowlands and the dam-based schemes of the centre, west, centre-west and north.

Table showing the characteristics of the three (3) cropping systems

Indicator	Rainfed rice	Flooded rice	Irrigated rice
Area planted	About 600,000 ha, or 95% of the total area	About 15,000 ha	35,000 ha or 5% of total area
Average yield	0.8 t/ha	2.5 t/ha	3.5 t/ha
Number of cycles/year	1	1	2
Production	About 480,000 t of paddy	About 37,000 t of paddy	About 140,000 t of paddy
Producers' organisations	44 Cooperatives, two Unions of Cooperatives, one National Association (ANARIZCI), one Development Management Council (CGA) for each developed scheme		
Development services	ANADER, Agricultural Professional Organisations (OPA), NGOs		
Use of pedigree seed	7% of total area	20% of total area	60% of total area
Use of fertiliser and herbicides	Low usage of herbicides and fertilisers		60% of total area
Mechanisation	Hardly any tractors	Use of tractors, rotary tillers and threshers	

1.4- Agricultural research and advice

- **Research**

The National Centre for Agronomic Research (CNRA) is the body responsible for research and development and for the production of rice basic seed.

The 2002 military political crisis did not allow the implementation of several rice research projects and also prevented those already started from covering the whole of the country. This particularly affected research on pathology, rice blast disease (only in the Fromager region) and rice yellow mosaic virus.

Furthermore, research to establish the mineral fertiliser (NPK, urea) requirements for the country's different soil types could not be carried out except in the Gagnoa and Saioua departments.

Funding problems were the main reason hampering the CNRA's thematic and area research.

- **Agricultural advice**

Advice for the rice supply chain is delivered by the National Rural Development Agency (ANADER), which undertakes implementation of agricultural advisory programmes within a framework of target-based contracts set out between the NRDO and ANADER.

The ANADER agents responsible for rice cover all other annual crops, although rice growing, which is a complex enterprise of strategic importance to food security, needs specialised coaching in extension of cultivation techniques along with strong knowledge of crop science and how to improve yields.

Furthermore, the structural difficulties of ANADER (both organisationally and in capability) act as a brake on efficient delivery of agricultural advice.

1.5- System for collection, processing and marketing of paddy rice

The stakeholders involved in the collection and marketing of paddy are the producers and their cooperatives on the one hand, and the commercial collectors of rice paddy and the processors on the other.

Generally speaking, the rice grower sends his production to a small village hulling plant dealing with paddy alone or other cereals, or he can sell his harvest direct or consign it to a warehouse. Additionally, there is another form of stakeholder, the women, mostly in Abidjan, who are involved in the marketing of food products, who take part in collecting and processing rice paddy.

Furthermore, the 2002 census identified 6,600 small-scale and semi-industrial units carrying out rice hulling.

The key problem at this level is linked to the **inefficiency of collection, processing and marketing of paddy**. The underlying cause is the poor organisation of marketing and processing. The problem is demonstrated by the (i) lack of confirmed and regular buyers, (ii) the high costs of collection and transport creating a surtax on the rice price, (iii) the non-remunerative prices for producers or the absence of a guarantee mechanism for incentive prices and the failure of buyers to observe contract terms, and (iv) an inefficient paddy processing sector.

1.6- Marketing system for milled rice

The FAO analysis of harvest outlook and the rice supply situation showed international prices staying high and continuing to harden because of the limited stock traded on the world market.

There are several distribution channels within the Côte d'Ivoire rice market, depending on the distances between the places of production and the centres of consumption. The marketing system has shown in past years its capacity to adapt to prompting from the market by regularly supplying urban centres. The constraints on these markets

are mostly linked to obtaining a sufficient quality and quantity of local milled rice all the year round.

1.7- Rice consumption and future demand and supply

Rice production in 2009 was estimated at 628,184 tonnes, while rice consumption was 1,547,265 tonnes and has grown substantially year on year.

Average annual consumption of rice nationally is put at 63 kg per person against 17 kg/person for wheat and 40 kg/person for maize among other consumer food products. There is a steady substantial rise (9%) in milled rice imports in response to demand fuelled by the imbalance between the annual 4% rise in national rice production and the 6% per annum increase in consumption.

Consumer preferences are linked to living standards in the sense that the highest consumption is of rice having no more than 16–25% broken grains.

Consumption breakdown for price and quality

Quality		2006	2007	2008	2009
Quality 1	0–15% broken grains	32 347	34 537	19 752	32 518
	%	4%	4%	3%	4%
	Price (FCFA/t)	381 000	375 000	401 000	439 000
Quality 2	16–25% broken grains	579 031	680 381	522 625	656 927
	%	72%	75%	69%	71%
	Price (FCFA/t)	184 000	242 000	292 000	263 000
Quality 3	Over 25% broken grains	192 211	186 487	214 248	229 635
	%	24%	21%	28%	25%
	Price (FCFA/t)	167 000	189 000	291 000	261 000
TOTAL		803 589	901 405	756 625	919 080

Source: RIZINFO

Forecast demand is linked to the active population, irrespective of background, and to average annual consumption per head.

According to a World Bank report (Spencer Report 2010), the CIF price for imported rice in Côte d'Ivoire is around 60% greater than the FOB price in the country of origin, while this differential elsewhere in the world is 15% at most. Because of this, there is a sure-fire comparative advantage for rice produced in Côte d'Ivoire over imported rice.

FOB and CIF prices for rice imported into Côte d'Ivoire

	FOB price Thailand 2009	CIF price 2009
5% broken grains (USD/t)	555	878
16–35% broken grains (USD/t)	332	526
More than 35% broken grains (USD/t)	330	522

Source: FAO, World Bank and RIZINFO

The following table shows production, imports and consumption if no action is taken.

Table: Production, imports and consumption status in the absence of comprehensive action

Year	National production of milled rice	Imports	Consumption	Deficit
2008	604 024	756 680	1 360 704	-756 680
2009	628 184	919 081	1 547 265	-919 081
2010	653 311	1 001 798	1 640 101	-986 790
2011	678 439	1 084 516	1 732 937	-1 054 498
2012	703 566	1 167 233	1 825 773	-1 122 207
2013	728 693	1 249 950	1 918 609	-1 189 915
2014	753 821	1 332 667	2 011 445	-1 257 624
2015	778 948	1 415 385	2 104 280	-1 325 332
2016	804 076	1 498 102	2 197 116	-1 393 041
2016	829 203	1 580 819	2 289 952	-1 460 749
2017	854 330	1 663 537	2 382 788	-1 528 458
2018	879 458	1 746 254	2 475 624	-1 596 166
2019	904 585	1 828 971	2 568 460	-1 663 875
2020	929 712	1 911 688	2 661 296	-1 731 583

The production and consumption forecast shows that Côte d'Ivoire will have to import 1,731,583 tonnes in 2020 in the absence of comprehensive action. Such a position would result in major foreign exchange outgoings for the Côte d'Ivoire State and very strong dependence on exporting countries.

Lack of local production to respond to demand and deficiencies in adding value to and promoting local rice are the essential elements to correct if deficits are to be covered.

1.8- Rice supply chain stakeholders

The rice supply chain comprises the following stakeholders:

- The State, which has through the Ministry of Agriculture given the National Rice Development Office (NRDO) the task of coordinating all activities in the rice production chain within a dynamic of motivation. As the nominated coordinating manager under contract to and guided by the Ministry of Agriculture, the NRDO is responsible for implementing the revised Strategy;
- Around 2 million producers organised into 44 informal groups and cooperatives;

- National Rural Development Agency (ANADER), which is called upon to deliver agricultural advice and organise producers;
- NGOs brought into certain districts to support agricultural advice and organise producers;
- The processors, comprising two industrial rice mills and 5,660 small processing units;
- Importers, consolidated in one association
- Wholesalers and retailers;
- A single importing organisation involved in the local rice trade;
- The national consumers' federation

These stakeholders, who are active in several sectors linked to rice, are not always organised into an inter-professional framework. Therefore, they give the impression of being side-by-side without being linked. This is one of the difficulties of obtaining a global vision shared by all.

Categorisation of stakeholders shows: (i) producers mostly organised in cooperatives themselves consolidated into an Association or Federations, (ii) the processors, (iii) the importers and traders, (iv) consumers, (v) support bodies, including the State and the development services.

1.9- Information system

Operators in the rice supply chain constitute a number of links that are then interdependent. Unfortunately, information passes with difficulty between the different stakeholders in the supply chain, which has no specific information system.

1.10- Gender dimension in the rice supply chain

Women have a strong presence in the local rice supply chain both at the production and retail ends. They are traditionally part of post-harvest operations (threshing, winnowing) and hold a virtual monopoly for local rice retail sales in the markets in most production zones.

Thanks to the organisation of school cafeterias, we have 1,200 groups of women producing rice to supply some 5,230 school cafeterias throughout the country.

However, several insufficiencies in the activities of women in the sector have raised themselves, particularly in their organisation into small informal groups.

1.11- Problem synthesis

Central problem:

The local rice sector in Côte d'Ivoire isn't strong enough to meet expectations

Key problems:

1. **Côte d'Ivoire is not able to produce enough to satisfy its rice consumption requirements;**
2. **Côte d'Ivoire is strongly dependent on outside sources for its rice consumption;**
3. **Weak local rice productivity;**
4. **Inefficient marketing and processing of paddy;**
5. **Stakeholders are neither sufficiently organised nor involved in developing the supply chain;**
6. **Local rice isn't sufficiently available in either quality or quantity;**
7. **Supplies linked to trade flow are not known;**

CHAPTER 2: OPPORTUNITIES FOR THE RICE SECTOR IN CÔTE D'IVOIRE

Rice, its importance to existing consumption aside, presents Côte d'Ivoire with challenges to meet, yet the opportunities it offers are tailor-made for the assets at the country's disposal.

2.1- Local rice production as a factor for growth and for poverty reduction

Because of the large number of rice growers (2 million), local rice becomes an important element of the fight against rural poverty from the moment when this activity can be made profitable through development action.

Job creation, through developing the rice supply, involves all segments of the rice value chain, particularly at the production, services (CGEA, processing, various forms of upkeep etc.) and distribution levels.

Local rice is also a driver for economic growth because of the impact of substituting huge rice imports that give rise to a major outflow of foreign exchange (235 billion FCFA in 2009).

The rice supply chain also makes a fairly important contribution both upstream and downstream in terms of taxes and duties.

2.2- The rice supply chain, a source of social stability

Because of rice's importance in feeding Ivorians, those in power pay strong attention to questions related to the availability and price of rice. The social disquiet about rice and critical staple foods during the 2008 crisis drove the Government to establish an Inter-ministerial Committee to Monitor Cost Rises of Critical Products. Rice is the main critical staple food.

In terms of rural structure, the strategy will favour relatively well-distributed wealth creation on the one hand and, secondarily, a net improvement in standards of living as demonstrated by access to modern commodities, appreciably slowing the rural exodus. On the other hand, it favours the emergence of SMAE directed by community leaders, the true facilitators of community and regional development.

2.3- Trans-border rice trade

Côte d'Ivoire is considered to be the economic leader in the WAEMU area. Because of this tag and taking account of its potential, the country must push rice exports to satisfy the shortfalls in other countries. It has to be acknowledged that because of the 10 years of crisis in Côte d'Ivoire, major unauthorised transfers of large amounts of rice took place in the production zones bordering Guinea, Mali and Liberia.

There is therefore a key problem; **the quantities involved in this trade flow are neither known nor supervised**. The underlying causes are the strong demand for rice in these neighbouring countries, local production not being organised to permit harvest monitoring and a dearth of processing capacity, which means that a substantial amount of paddy is diverted to Guinea for parboiling and hulling. Demonstrably, it can be seen that forecasting and production statistics are not under control and local rice production is not sufficiently turned to account in Côte d'Ivoire.

2.4- Land tenure

The area of land tenure is governed by two distinct land tenure regimes: customary law and modern law. Law N° 98-750 of 23 December 1998 set out the basis of land tenure policy in rural areas by recognising rural custom, on the one hand by validation of existing management under customary law, and on the other hand by adapting customary rights into modern rights of property.

Despite the fairness of the options available under this law on Rural Land Tenure, difficulties remain in its application.

As far as the lands used for rice growing are concerned, and taking account of irrigated land development by the non-native majority, the question of land tenure security crops up sharply. Assistance in clarifying land tenure issues is needed for every proposed development. Thus, whether or not the land tenure law is applied, arrangements are made between the landowners and the users for its exploitation while avoiding clashes over the development.

2.5- Human and institutional capacities

Rainfed rice growing, with around 2 million producers and an area of 600,000 ha, represents 80% of national production. Irrigated rice growing, with about 164,000 producers, takes up around 35,000 ha or 5% of the rice area to produce 20% of national production. The production cost for one kilogramme of rice stays high because of the traditional way of working and the high cost of inputs.

Côte d'Ivoire has three types of structure for supporting the development of rice growing.

Overall coordination of activities comes under the National Rice Development Office (NRDO) organised around a Directorate-General comprising:

- 2 Technical Advisers, one in charge of production and the other value development;
- 1 Infrastructure and Planning Service;
- 1 Agronomy Service;
- 1 Documentation and Information Service;
- 1 Monitoring and Evaluation Service;
- 1 Administration and Finance Service;
- 1 Seed processing branch.

The breakdown of the NRDO Technical Personnel (35 people) by grade is as follows:

Agronomist	Agricultural Technical Engineer	Agricultural Engineer	Cooperation and Marketing Specialist	Plant Production Assistant	Agricultural Field Adviser	Senior Agricultural Engineering Technician	Technical Statistics Assistant	Senior Logistics Technician	Lawyer	Sociologist
4	**3**	**7**	**2**	**3**	**1**	**8**	**2**	**2**	**2**	**1**

The National Agronomic Research Centre is responsible for basic research, for research and development and for production of rice basic seed. Current and forecast levels of qualified research staff are:

Year	Agronomists with a Master's or PhD	Research Technicians
2011	**12**	**7**
2012	**15**	**13**
2013	**16**	**16**
2015	**18**	**16**

In terms of agricultural advice and capacity building of the Producers' Organisations, these services are carried out by the ANADER in conjunction with the development bodies. ANADER's technical staff comprises:

Agronomists	PhD	MBA	Agricultural Technical Engineers	Holders of a Master's	Agricultural Advisers
78	4	5	114	74	945

2.6- Rice sector opportunities

The opportunities associated with rice development in Côte d'Ivoire are:

- Major potential in land suitable for rice growing and abundant rainfall;
- High-yielding varieties with good organoleptic qualities thanks to an effective research programme;
- Land tenure law;
- A development plan for irrigation now being adopted;
- Strong national and sub-regional demand for local varieties.

CHAPTER 3: NATIONAL RICE DEVELOPMENT STRATEGY (NRDS)

3.1- Review of the 2008 Strategy

The revitalisation strategy adopted for the rice supply chain in June 2008 had food security and self-sufficiency by 2012 as an overall objective. Average production growth by 200,000 tonnes of milled rice annually would cover 100% of national consumption in five years.

This objective was to have been achieved in three (3) steps:

The first step {Rice Emergency Programme (PUR) 2008–2009} was to have increased milled rice availability throughout the country by 200,000 tonnes;

A second step (2009–2012) was to consolidate the spadework of the emergency programme by increasing the cropping area, for both irrigated and rainfed cultivation so 100% of national requirements estimated at 1,480,000 tonnes could be covered in 2012;

A third step (2012–2018) would have future-proofed the action taken for sustainability of meeting national milled rice needs and envisaged stocks for exporting.

Just 38% (78,000 t) of the 200,000 t objective of the Emergency Programme was reached and the programme affected only 16,000 ha out of the 34,000 ha to be targeted. It was not able to raise more than 6.5 billion FCFA (36%) of the 17.9 billion FCFA expected.

This strategy was marked by:

1. Insufficient account taken of the different types of rice growing, particularly of rainfed rice, which represented 95% of the rice area.
2. Fairly high costs because of the priority given to investment in major works (dams) for water control;
3. Lack of attention to production procedures and to making pedigree seed available to producers;
4. Insufficient account taken of all the elements in the rice value chain, particularly processing and marketing;
5. Poor recognition of the conditions needed for effective private sector participation.

It is important to place on record that the issues affecting rice remain along these lines:

- Meeting 100% of national rice consumption needs
- Guaranteeing a stable and profitable income for the rice grower
- Reductions in rice imports and the outflow of foreign exchange
- Enhancement of consumer opinion of rice grown in Côte d'Ivoire
- Using Côte d'Ivoire's assets and leadership role to supply other countries in the sub-region.

Accordingly, it has become opportune to adopt a realistic attitude both in terms of generating funding and for the sustainability of required activities and to proceed with a revision of this strategy taking into account all elements of the rice value chain.

The fundamental elements for integration in the revised strategy are:

- The precise definition and account taken of the full range of elements in the rice value chain, including identification of structural disconnects;
- Guarantees of gainful activity for rice growers;
- Take rainfed rice into account and its consequent support;
- Take into account all stakeholders (including private sector stakeholders) with a comparative advantage for the initial investment support;
- Generation of synergy between the various stakeholders in the value chain (continuity of activities and stakeholders rather than the current contiguity);
- Look for long-term consistency on the many initiatives existing on the ground with a view to implementing a single reference framework;
- An option to change at the installations development level to give priority to rehabilitation and carrying out less expensive works
- Establishment of a steering body with ample funding and an effective legal framework;
- The need to establish a lending system with simplified procedures to allow rapid raising of timely loans in line with the cropping calendar.

The basic principle of the revised strategy is to satisfy national rice consumption requirements and build a buffer stock in a way that is competitive, profitable and sustainable.

3.2- Priorities and Approaches

The priorities for the national Strategy in developing the rice supply chain fall into four (4) categories:

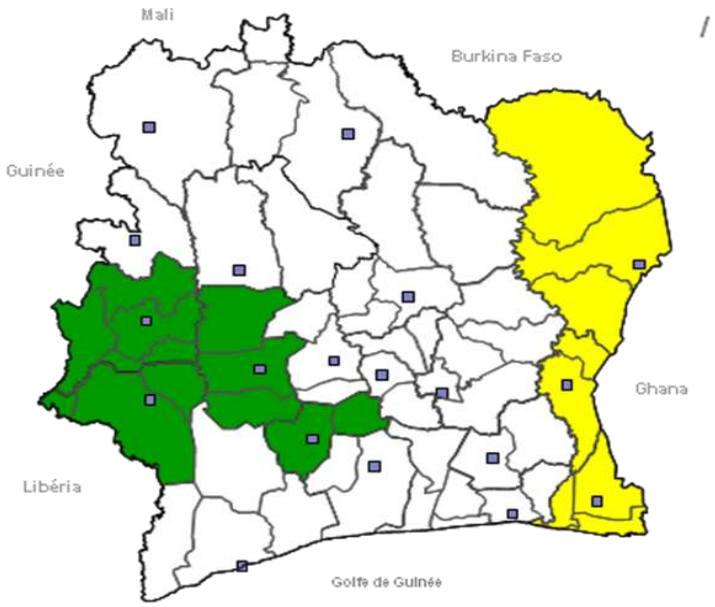
1. ***Development of a seed sector*** so pedigree seed can be made available across all production zones;
2. ***Rehabilitation of all the sites previously developed*** for irrigated rice growing and carry out development on floodplains which are a major cultivable area;
3. **Support for processing and marketing local rice** through substantial aid to the private sector and the establishment of contract partnerships between commercial processors, producers of food rice and seed producers;
4. ***Establishment of a mechanism for regulating and stabilising prices*** at the production and processing levels as much as at the marketing end.

The plan of approach is centred on taking into account the whole rice value chain in a logical framework set out as three components:

1. ***Establishment of a sustainable system for producing local rice*** comprising technical economic support for production under each of the three (3) production systems;
2. ***Establishment of a system that adds value to local*** **production:** comprising support for processing paddy and for the promotion and organisation of local rice distribution;

3. ***Establishment of a coherent, working institutional framework*** incorporating (i) the NRDO, (ii) organisation of operators in the supply chain, and (iii) establishing an inter-professional body.

The production zones are shown in the map below:



CARTE DES ZONES DE PRODUCTION DE PADDY

High production zone 57%
Average production zone: 37%
Low production zone: 6%

With the importance of rice to food security, or indeed to food sovereignty, the Strategy retains the following elements as policy challenges:

- Meeting 100% of national rice consumption needs;
- Guaranteeing stable and profitable incomes for rice growers;
- Reduction of rice imports and of the outflow of foreign exchange;
- Promotion to consumers of rice grown in Côte d'Ivoire;
- Supplying the countries of the sub-region thanks to the assets at our country's disposal and to our leadership role.

3.3- Vision and impact

3.3.1- Vision

The vision in this revised Strategy is to produce good quality rice competitive with imports in a competitive, profitable and sustainable way so that national requirements are met and a security stock built up, together with the opportunity to export production surpluses by involving all the rice-producing systems – rainfed rice, lowland rice, irrigated and flooded rice.

The corollary to this vision is to give rice growers through the production of rice a highly remunerative activity that is also capable of contributing efficiently to underpinning food security and the struggle against poverty in Côte d'Ivoire and the sub-region.

The Strategy envisages covering national rice requirements from 2016 onwards when production of milled rice will reach 1,900,000 tonnes against consumption estimated at 1,800,000 tonnes of milled rice. By 2018, local production will grow to 2,100,000 of milled rice against estimated consumption of around 1,915,000 tonnes releasing about 200,000 tonnes to make up a buffer stock.

Table: CI production and consumption forecasts due to the Revised Strategy

Year	Population (Hd)	Consumption (Tonnes)	National Production (Tonnes)	Deficit /Surplus (Tonnes)
2008	20 600 000	1 360 704	604 024	- 756 680
2009	21,900 000	1 547 265	628 184	- 919 081
2013	25 800 000	1 628 000	1 432 000	-196 000
2015	27 500 000	1 737 000	1 891 340	154 340
2018	30 300 000	1 915 000	2 112 500	197 500

3.3.2- Impact

The expected **impact** from implementing the strategy of sustainable development of rice growing is that Côte d'Ivoire will be able to cover its consumption needs with national production, that the strategy will contribute to economic development, to maintaining social harmony and to creating many new jobs. This will contribute efficiently to the fight against poverty in this country and in the West Africa sub-region.

In the consolidation phase, major financial flows will be generated both upstream with service providers (inputs and equipment) and downstream through stocks of finished products (milled rice) and manufactured by-products (clear flour grade and briquettes). The turnover from trading in milled rice is estimated at 630 billion FCFA in 2016 based on a guide price of 350 FCFA per kg of milled rice. The by-products accounting for about 20% of this are estimated to be worth 126 billion FCFA.

The contribution of the rice supply chain in terms of taxes and duties could provide in the region of 56 billion FCFA per year (7.5% of the turnover) notwithstanding the flows generated upstream into inputs and equipment.

All parts of the rice value chain will benefit from job creation, particularly at the production, services (CGEA, processing, maintenance etc.) and distribution levels. Therefore, more than 500,000 direct jobs and 2,000,000 indirect jobs will be created upstream and more than 100,000 direct jobs and 400,000 indirect jobs downstream, particularly in the processing and services areas.

In terms of rural structure, the strategy will favour relatively well-distributed wealth creation on the one hand and, secondarily, a net improvement in standards of living as demonstrated by access to modern commodities, appreciably slowing the rural

exodus. On the other hand, it favours the emergence of SMAE directed by community leaders, the true facilitators of community and regional development.

The impact indicators are:

- Covering consumption needs with local food production of about 1,900,000 tonnes of rice by no later than the end of 2016;
- A halt in the outflow of foreign exchange caused by huge imports of rice;
- The creation of at least:
  - ✓ *500,000 direct jobs, for paddy production using water control,*
  - ✓ *1,500,000 direct jobs for paddy production in rainfed conditions,*
  - ✓ *More than 500,000 direct jobs in processing and services supply;*
- Increases in community saving and the capacity of rice growers to self-finance;
- Improvement in standards of living and the social amenities of rice producers.

3.4- Priorities for strategic intervention and results

Problem analysis made it apparent intervention by the NRDO over the next 10 years should be focussed on four major strategic priorities. These strategic lines of action are described below:

3.4.1- Strategic intervention priority (strategy by sub–sector)

3.4.1.1- Strategic priority 1: TECHNICAL SUPPORT FOR PRODUCTION

a) Seed production component

Through the National Agronomic Research Centre (CNRA) Côte d'Ivoire has available a range of high-yielding pedigree varieties that meet the population's organoleptic quality requirements. However, Côte d'Ivoire has only one NRDO station at Yamoussoukro (middle of the country) from which improved seed is diffused.

The Strategy objective for seeds is to make pedigree seed available throughout the production zones; with this aim, the following steps will be taken:

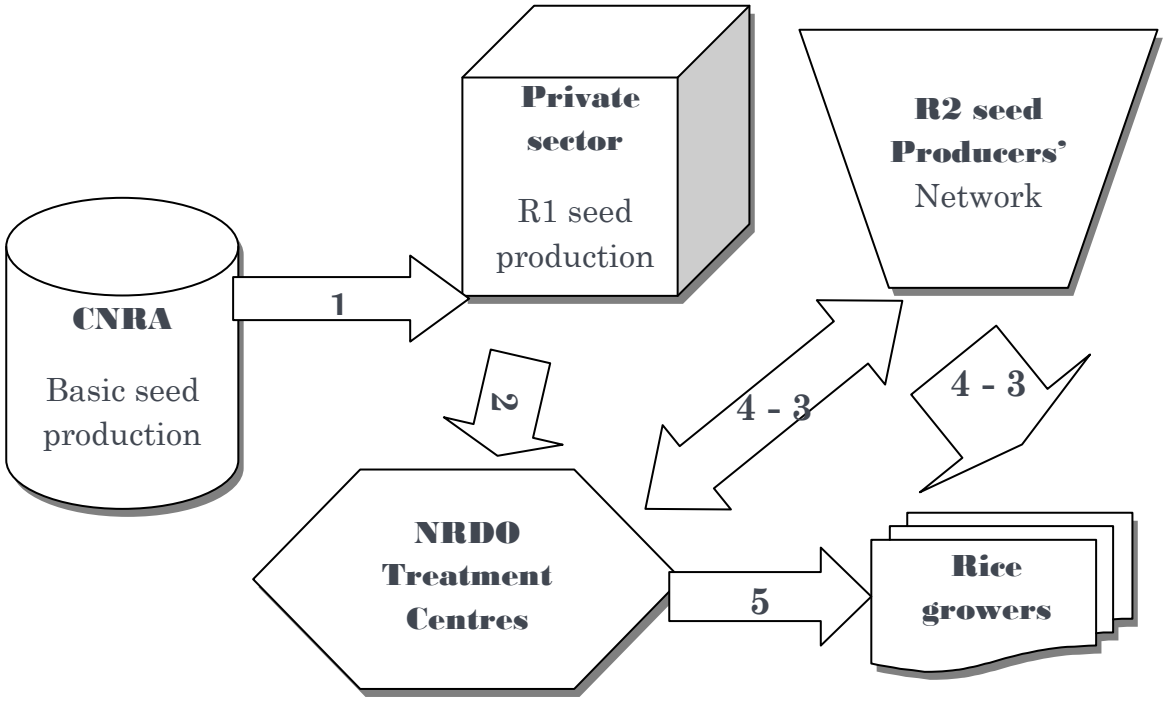
The creation of six (6) other branches to bring to seven (7) the number of reception centres for untreated pedigree seed produced by the network of pedigree seed multipliers. Each centre will have the equipment and infrastructure needed to treat seed and submit it for certification and homologation by the appropriate Ministry of agriculture service before it is made available to growers.

Production of pedigree seed will be totally underpinned in this component by the seed producers. Management of the treatment centres will be carried out by the NRDO in this first phase until a professional private sector rice seed production system has been set up and management of the centres can be licensed to franchisees.

1. ***Basic seed production by the CNRA***
2. ***Provide basic seed to the NRDO or to private producers under the terms of a contract with the NRDO for the production of R1 seed***
3. ***Purchase and treatment of R1 seed by an NRDO centre***
4. ***Make R1 seed available through an NRDO centre to seed multipliers***

5. ***After treatment in NRDO centres, R2 seed will go for retail sale, warehouse consignment (dépôt vente) or back to the multipliers;***
6. ***Sale of R2 seed at a subsidised price to rice growers***

Production arrangements and provision of pedigree seed (below).



b) ***Works and water management component***

Côte d'Ivoire has about 200,000 ha of land with potential for development for rice growing. The 35,000 ha that were previously improved have since degraded badly and the strategy focuses on rehabilitating these areas so they can produce two crops per year of irrigated rice.

Land tenure studies will be carried out for undertaking the developments and a mechanism for security of tenure put in place to make the most of them.

As well as rehabilitating the previously developed 35,000 ha, the new works will take the area supporting two annual production cycles for irrigated rice up to 45,000 ha, while a further 25,000 ha will be brought into production on the floodplains of DENGUELE, Moyen COMOE, LAGUNE and Sud BANDAMA.

c) Production component

Production level activities will be directed towards the adoption of effective growing techniques using inputs and to supporting mechanisation at all stages through to post-harvest activities.

Activities involving agricultural advice and making the different aids (inputs, equipment…) available will be handed to various specialist stakeholders within the

target-based contract framework set out in partnership with the Inter-professional Fund for Agricultural Research and Counsel (FIRCA).

This means:

- For rainfed rice, which represents 80% (1,000,000 ha sown) of production, improving yields by at least 30% by making improved seed accessible by all rice growers;
- For irrigated rice for which the cropped area is going from 30,000 ha to 45,000 ha, post-rehabilitation intensification to enable good management of two (2) growing cycles to achieve yields of at least five (5) tonnes/ha per cycle or at least 10 tonnes of paddy per year;
- For flooded rice, start development of around 25,000 ha on the great alluvial plains with their potential for about 75,000 ha, and practise intensive rice growing with an average yield of five (5) tonnes per ha.

The strategy will place emphasis on knowledge of soils in each production zone so that the most appropriate type of manure can be put forward, with recommendations in favour of organic manures. The agricultural advisory service will be called upon to train producers in the use of organic manure. A credit system will be established to help producers obtain inputs.

Purchase of the first batch of machinery (tractors, rotary tillers, mowers, threshers) will be made by the NRDO using funding from donors or through the Treasury. A machinery credit system will also be set up.

In relation to post-harvest activities, training will be undertaken to introduce and diffuse technological innovations with the aim of reducing losses in grain and paddy quality during post-harvest operations. Provision will be made for materials and equipment purchases through APO under the system described in the foregoing paragraph.

Producers will benefit from management advice to enable good management of inputs and materials with the aim of reducing the cost of factors of production. This will help improve their incomes and ability to repay loans.

In terms of agricultural advice, a specific framework will be made available for rice growing. A partnership contract will be set up so that agricultural advice for rice growers leads to the effective adoption of cultivation techniques capable of achieving the highest potential yields from the improved seed to be diffused.

Capacity building of producers will be done through partnership contracts to install representative Organisations of Agricultural Professionals (OPA) able to relieve the State from activities taken to help producers.

d) ***Research and development component***

Relations with research will be stepped up through a partnership designed to make available high-performance varieties adapted to local growing conditions, and also through effective innovation transfer to the rural environment.

Besides supplying basic seed, research will be firmly pushed within this strategy to: (i) make available high-yielding varieties with appropriate data sheets, (ii) determine mineral fertiliser application doses tailored to soil types in each production zone, and (iii) introduce new and innovative cultural techniques for growing rice.

The aim will be to reach, as far as possible, the production potential of the varieties being diffused. To achieve this, three-year programmes will be developed in conjunction with all the chain's stakeholders to identify research/development options appropriate to the aim of being competitive, and funding mechanisms for these programmes put in place.

The results and strategies associated with strategic priority 1 are synthesised below:

3.4.1.2- Strategic priority 2: SUPPORT FOR ADDING VALUE TO LOCAL RICE (PROCESSING, PROMOTION AND MARKETING)

a) Processing capacity development component

The current processing set-up comprising around 5,600 small processing units will be joined by about 100 newly installed units capable of handling 2,000 tonnes of rice annually, either at cooperatives or with certain organised young people.

A third type of unit made up of factories with annual capacities of between 15,000 and 24,000 tonnes of rice will be built within a public/private sector partnership. The new installations will together produce around one million additional tonnes of good quality local rice at a competitive cost. To achieve this, the public/private partnership will generate synergies between producers, processors and the Ivorian banking system under NRDO coordination and inter-professional control.

In consequence, the strategy makes provision for two (2) processing systems for local rice:

The first processing system takes into account small hulling units at the level of producer cooperatives and some private sector operators. These hulling units comprise a building and hulling/decortication plant able to handle 500 to 2,000 tonnes of paddy each year and cost around 10 million FCFA.

The activities under this option will be subject to statistical follow-up, and also to training for better integration in the strategy in terms of controlling quality and making better use of the distribution networks.

A second processing system made up of larger units with private sector operators benefiting from the initial loan support inside project frameworks. Contractual agreements will be made in these projects initiated by the NRDO between three types of operators. These are:

- The plant operator who will communicate the varieties and quality of rice needed by his customers so that the production system for pedigree seed can respond quickly with the required quality and quantity;
- The producers who have to produce paddy under contract to meet the processors' requirements;
- The multipliers of pedigree seed who have to make available to producers the type of seed demanded by the processor.

b) Marketing and quality component

As a first approach, the NRDO will support the existing commercial network for imported rice (wholesalers, retailers) with marketing efforts for local rice produced by

the small processing units developed under the Strategy Framework.

In the second approach, marketing support will rest on the one hand on the existing importers progressively substituting their imports with locally produced rice from reserved production at the processing units, and on the other hand permitting use of their distribution networks.

Promotion based on the quality of locally produced rice (rice labelled Côte d'Ivoire) will be carried out on a large scale through the mass media and on promotional days. A mechanism will be implemented (traceability of the packaging) to help consumer recognition and to protect the identity of local rice.

c) Gender component

The Strategy allows for action directed at women through aids for the 1,200 women's groups organised to serve the 5,300 school canteens.

These groups are made up of women who produce rice for:

1. Provisioning the school canteens with rice;
2. Ensuring rice consumption in their own homes;
3. Supplying surplus production to nearby markets.

These women's groups will be identified precisely and a programme implemented to ensure they benefit from the same actions being developed for other producers. Contact will be established between these women's groups and the new hulling plants so they can take in and hull the paddy produced by the groups.

These groups of women will be able to benefit from the construction of a hulling plant when they are remote from those units being established within the framework of programmes being carried out by the Development Management Committees (CGA).

d) Access to credit and funding component

The activities scheduled in the NRDS will be funded by the public purse, where the activities involve agricultural advice and producer organisation, by funds from international lending institutions and by direct contributions from national operators through the national banking system.

Producers will be able to call on microcredit systems for purchasing agricultural inputs and equipment. A tailored system of warrantage or credit storage will be set up to allow producers to obtain credit to meet harvest expenses by placing their production in a secure warehouse from which it can be recovered when loan repayment is made or at a time when prices are better.

The actions contained in these components will therefore result in competitive and profitable Ivorian rice coming to market.

These actions will be instrumental in producing milled rice at a cost below or equal to the price of imported rice landed in Abidjan. They are based on two principles:

(i) Development of a public/private partnership throughout the rice value chain: conditions for effective private sector participation and establishment of an information management system to serve all parts of the chain should

favour the involvement of the national banking sector to best harness the flow of funds that will be generated.

(ii) Progressive replacement of imported rice in the markets with Ivorian rice: a partnership will be developed with importers to retain their usual distribution channels for the progressive replacement of their bulk imports with Ivorian rice, while giving them priority as wholesalers for the various pools of production.

The desired objective is to satisfy from 2016 onwards all national consumption requirements for good quality rice under a Côte d'Ivoire Label, competing with imported rice, and to make rice production into a highly rewarding activity for the rice growers.

The programmes will be instrumental from 2016 in taking the irrigated rice area from 30,000 ha to 45,000 ha, flooded rice to 25,000 ha and rainfed rice to 1,300,000 hectares at a total estimated cost of 210 billion FCFA over the first five years.

The following table shows the progress forecasts for cultivated area, paddy production and milled rice, along with the estimated consumption.

	YEAR	2008	2011	2013	2016	2018
Irrigated rice	Ha cycle 1	25 000	31 500	35 000	45 000	50 000
	Paddy yield (t/ha)	4	5	5	5	5
	Ha cycle 2	16 000	31 500	35 000	45 000	50 000
	Paddy yield (t/ha)	5	5	5	5	5
	Tonne paddy	180 000	315 000	350 000	450 000	500 000
Flood rice	Ha		1 500	15 000	25 000	30 000
	Paddy yield (t/ha)		3	3,5	5	5
	Tonnes paddy	0	4 500	52 500	125 000	150 000
Rainfed rice	Ha	937 000	750 000	1 200 000	1 300 000	1 300 000
	Paddy yield (t/ha)	0,8	1,2	1,5	1,9	2
	Tonnes paddy	749 600	900 000	1 800 000	2 470 000	2 600 000
	Total paddy	929 600	1 219 500	2 202 500	3 045 000	3 250 000
	Tonnes milled rice	604 000	792 675	1 431 625	1 979 250	2 112 500
	Consumption	1 430 000	1 526 000	1 628 000	1 795 000	1 915 000
	Gap	-826 000	-733 325	-196 375	184 250	197 500

3.5- Modalities of implementation

In line with the strategic priorities shown above, the NRDS 2012–2020 will be carried out in two phases:

- the first 2012–2016 phase, which will enable all consumption requirements to be covered by local production;
- a second phase from 2017–2020 which is a consolidation phase enabling build-up of a safety or buffer stock.

The activities to be carried out under each programme will be set out in the operating plan. However, it is necessary to show the modalities of strategy implementation.

3.5.1- The planned arrangements

***Rice-growing zones*:**

The country will be divided into four (4) rice-growing zones, each of which will receive direct assistance from technical and financial partners with a sound financial base and long experience in the international rice trade.

Within each of the four zones, these partners will take charge of (i) control and management of the flow of financial resources, (ii) the preferential distribution of production to satisfy the local market and any export possibilities, (iii) supervise costs throughout the value chain to ensure rice production is profitable for the grower and competitive in the market.

Each zone will be divided into Rice Development Pools.

Rice Development Pools:

The arrangements within the rice-growing zones will consist of creating Rice Development Pools (each pool with a catchment radius of about 75 km will serve between one to three of the country's Departments) in the production zones. There will therefore be about 30 pools, each based around a medium-size processing plant (15,000–24,000 t/year milled rice capacity each) thanks to strong public/private partnership.

This means building an environment that will interest private investors in profitable processing businesses and putting competitive rice on the market.

Contractual relationships will be established for each pool between the processor and producers so that the processor covers agricultural input requirements and the spot purchase of paddy from producers in return for a guaranteed supply of paddy for the factory.

Each pool built in this way should meet all the rice consumption requirements in its area of operation and channel its surplus production to the major consumption centres.

A partnership will be entered into with importers to retain their usual distribution channels for the progressive replacement of their bulk imports with Ivorian rice, while giving them priority as wholesalers for the various pools of production.

The banking system will be called upon to put in place funds for buying inputs and working capital for spot purchase of paddy from producers.

The entire mechanism will be monitored thanks to the establishment of Centres for Farm Business Management (CGEA), which have shown their worth in Niger and Senegal. These centres are independent autonomous organisations for advice and management control (finance and accounting) for all operators in the supply chain (producer organisations, processors, traders etc.) and they will guarantee the fairness and reliability of operation and movement of funds.

A geographic information system (GIS) will be put in place to provide real-time local analysis of paddy production, the varieties used, the yields according to cultivation system, the amount of processed paddy, stocks of milled rice with processors and distributors, the demands of the various operators etc.

3.5.2 – Management advice and information system

All the arrangements for implementation will be monitored thanks to the establishment of Centres for Farm Business Management (CGEA), which have shown their worth in Niger and Senegal. These centres are independent autonomous organisations for advice and management control (finance and accounting) for all operators in the supply chain (producer organisations, processors, traders etc.) and they will guarantee the fairness and reliability of operation and movement of funds.

A geographic information system (GIS) will be put in place to provide a real-time local analysis of paddy production, the varieties used, the yields according to cultivation system; the amount of processed paddy, stocks of milled rice with processors and distributors, the demands of the various operators etc.

a) Management advice

The National Rice Development Office anticipates setting up an Agricultural Economics Management System (SGER) to deal with the deficiencies in management advice available to operators. The main aim of the SGER is to assist the operators and beneficiary cooperatives to manage credit and equipment in common, and also in the recovery of loans made to the cooperatives. This assistance should both improve the income of the cooperatives and enable the recovery of the loans. The SGER will centralise all the information on loans made, their status and the payment schedules for loans to producers, hulling plants and the pedigree seed production units.

The SGER will enable: (i) management advice for the foregoing groups (monitoring the use and good management of loans), (ii) recovery of loans with the help of the cooperatives and the hulling operators, (iii) establishment of a universal set of economic data on rice in Côte d'Ivoire, and (iv) establishment and management of a Market Information System for the rice supply system.

b) Information and communication system

To facilitate the flow of information between the various stakeholders in the supply chain, an information and communication system will be set up for the whole rice sector. The geographic identification of the stakeholders should be integrated into a geographic information system (GIS) for information flow. This GIS should contain the periodically updated information on (i) seed production units, (ii) details of developed schemes, (iii) quarterly production forecasts, (iv) the various hulling plant locations(…).

3.6- Conditions and institutional framework for success

a) Conditions for success

The revised Strategy might meet implementation difficulties that could compromise its success. These include:

- Natural disasters (drought and floods);
- A major fall in the international rice price making imports more attractive;
- Rocketing prices for chemical inputs;
- Unsuitable procedures producing a mismatch between credit becoming available and the agricultural calendar;
- Lack of interest from the private sector;
- An ill-fitting institutional framework.

The effect of flooding, which is mainly an issue for irrigated rice, will be mitigated when proposed prevention measures are carried out and particularly by regular upkeep of irrigation channels and drainage.
As far as drought is concerned, applied research programmes will take into account resistant varieties together with meaningful use of agroclimatic data (see the planned information system).

The buffer stock, the target price, yield improvements and command of the cost system, particularly processing and transport costs, at least will be essential elements for safeguarding the equilibrium of the Ivorian rice supply chain against the risks of unfavourable fluctuations in international exchange rates.

Use of chemical fertilisers and a possible State intervention to reduce taxes through a relief from the Rice Development Fund should mitigate a rise in the prices for chemical inputs.

The ongoing sovereign role of the State, the creation of a favourable framework for public/private sector partnership and the promotion of private sector investment in the rice sector will be just some of actions aimed at arousing the interest of the private sector operators.

Freedom of action by the NRDO in researching and putting to use sufficient funding to meet the needs of the agricultural calendar will be one of the key conditions to achieving the Strategy objectives.

b) Institutional framework

To guarantee consistency and efficiency of strategy implementation, a plan for State withdrawal in favour of the APO and the private sector will be worked out. The defining features of this withdrawal plan will be the strict retention of the State in a sovereign role, the creation of a framework favourable to public/private partnerships and the promotion of private investment in the rice sector.

The institutional framework proposed for NRDS governance comprises:

1. The Ministry of Agriculture, Ministry for the Economy and Finance – the Ministerial guardians representing the State, the project's owner;
2. The National Rice Development Office (NRDO) – the owner's nominee;
3. Rice Development Fund (FDR);
4. The inter-professional industry body comprising all the organisations representing each group of operators.

The statutory administrative authority entitled the National Rice Development Office, abbreviated as NRDO, which was set up by Decree No. 2010-202 on 15 July 2010, is charged with implementing the Strategy by the project owner, under the technical

guidance of the Ministry of Agriculture and the financial guidance of the Ministry for the Economy and Finance.

The State will intervene, through the Ministry of Agriculture and the Ministry for the Economy and Finance for the establishment, monitoring and control of the funding given by International Funding Institutions, and the regular evaluation of the whole supply chain through a five-year contract with the NRDO.

The NRDO, responsible for coordination of all operations, will intervene within a dynamic of motivation in its role as the designated contractor under the responsibility and guardianship of the Ministry of Agriculture. A five-year contract plan will set out the precise objectives, the performance indicators and the modalities of periodic evaluation of Strategy implementation.

Within this framework the NRDO will be charged specifically with:

- Helping develop the different contractual frameworks between operators (between landowners and users of the developed sites, between processors and producers, between processors and the importers being converted, etc.);
- Develop funding requests for the projects submitted and validated by the appropriate Ministries;
- Supervise the implementation of decisions and resolutions by the Inter-professional body;
- Develop in partnership with the Inter-professional Fund for Agricultural Research and Advice (FIRCA), the contract objectives defined with the ANADER and the CNRA for carrying out agricultural advice and applied research activities;
- Managing the information system and making available all the useful information on the supply chain;
- Overseeing the management and monitoring of the upkeep of water-use infrastructure on behalf of the State, which has a sovereign duty to apply the provisions of the Codes on water and on the environment.

The Rice Development Fund (FDR) set up to manage the moneys collected on imports will have its area of operation enlarged, particularly in rehabilitating and using the silos of the former SODERIZ to establishing safety stocks. Under the terms of an agreement between the State, the NRDO and the Inter-professional body, these stocks will have a buffering role similar to that used in the countries of Southeast Asia.

Through various joint actions and periodic price determination **the Inter-professional body** will oversee the maintenance of the good practises and healthy competition needed to retain a competitive rice supply chain in Côte d'Ivoire.

3.7- Costs and funding

The cost of implementation programmes within the revised strategy rise to 477 billion FCFA for the period from 2012 to 2016.

No.	Actions	Cost over 5 years (FCFA)
1	Technical support for production (seed, inputs and mechanisation)	299 billion
2	Agricultural advice and training	26 billion
3	Infrastructure support and safeguarding the environment	75 billion
4	Supply chain information system	3.9 billion
5	Organisation of producers and the supply chain	6.1 billion
6	Aid for distribution and promotion of milled rice	3.86 billion
7	Aid for paddy processing (small plants: 100 plants with 2000 t/yr capacity and 30 plants with 24000 t/yr capacity)	63.2 billion
Total		**477 billion**

The ongoing raising of the contribution from technical and financial partners is worth around 58.796 billion covering various irrigation scheme projects, which will bring water control to 4800 ha. This leaves 418.2 billion FCFA to raise out of the 477 billion FCFA estimated cost.

Private sector intervention will cover inputs, machinery, processing and the establishment of various tailored credit systems. The private sector input will be worth about 306 billion FCFA, or 64% of the total needed.

The State will intervene through its development partners in funding water control works, producer training, building seed treatment centres and to making an information system available to the supply chain. This contribution is put at around 105 billion FCFA, or 22%.

The State will also use the public purse to finance operation of the NRDO, and for making the first inputs available at the production level, to support the organisation of producers. This contribution adds up to 66 billion FCFA, or 14%.

In total, the State involvement in the 2012–2016 phase comes to 171 billion FCFA, representing 36% of the total NRDS cost.

The second phase of the Strategy covering 2017–2020 is a consolidation stage, which will cost 195 billion FCFA. This phase will be marked by self-financing by the supply chain and a decrease in direct aid, with the progressive withdrawal of State commitment to fund production support activities (inputs, equipment).

Refinancing through the resources generated by the supply chain itself, including the private sector participants, will contribute about 13 billion FCFA, or 6.7%.

The State will intervene through the public purse and via financial and technical partners in funding activities to the tune of 182 billion FCFA, or 93.3%. This funding

will come in part from the resources harnessed by the State in the supply chain. It will be deployed to create the infrastructure for the total water control needed to bring about a reversal from 2020 onwards in the proportions of production coming from irrigated rice and rainfed rice.

CONCLUSION

Côte d'Ivoire imports most of its rice consumption requirements despite its assets in terms of soil conditions, climate and the widespread availability of land suitable for rice growing, which could be put into production by using the high performance varieties made available thanks to scientific research.

Various steps have been taken through strategies drawn up to achieve self-sufficiency in rice through developing rice growing. It has to be admitted that the results have not matched the high expectations. Lessons have been drawn from the past experience brought to bear on the proposed new strategy, which is a revision of that adopted in June 2008 and has as a principal line of action, the inclusion of the full rice value chain for all three (3) cultivations systems – irrigated rice, rainfed and flooded rice.

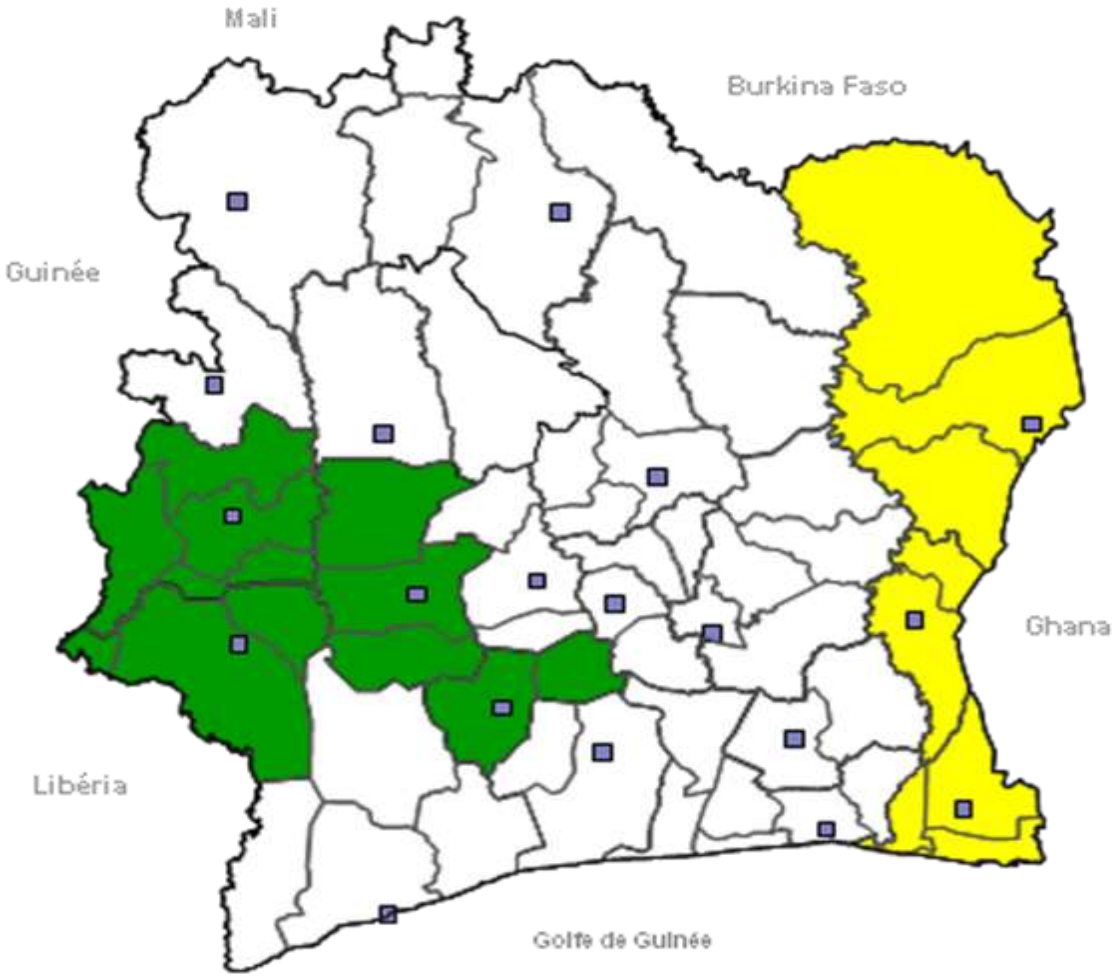
Conditions also need to be created for the development of a public/private partnership with strong involvement from the banking sector. The comparative advantage this entails means this is where initial support through investment should be applied.

Particular attention will be given to producers by meeting their farming needs and also by improving their incomes, which will be safeguarded by various systems of microcredit and warrantage.

Governance of Strategy implementation is an important element of the arrangements with (i) the NRDO in a driving role under a contract plan with the State through the Ministry of Agriculture, (ii) an inter-professional structure working alongside the State to define the policies for regulating or adjusting and restoring morale in the rice supply chain.

To sum up, the proposed revised strategy, with its many challenges and expected impacts, has become the focus of hope for social development and for the Ivorian rural world as well as a solution for the urban population's food supply crisis.

Its comprehensive and decisive implementation will bear witness to the State's innate sense of responsibility to offer the people relevant and thought-out ways to salvation.



CARTE DES ZONES DE PRODUCTION DE PADDY

High production zone: 57%

Average production zone: 37%

Low production zone: 6%

PRODUCTION - IMPORTS – CONSUMPTION

Year	Milled rice Production	Imports	Consumption	Exports	Self-sufficiency level
2000	341 993	352 398	1 044 751	4	33%
2001	348 825	500 148	1 065 912	791	33%
2002	325 017	568 126	1 058 368	2 607	31%
2003	331 869	574 987	1 009 506	216	33%
2004	343 248	561 049	1 058 627	10 504	32%
2005	354 950	691 092	1 163 155	10 854	31%
2006	361 159	899 215	1 275 200	5 762	28%
2007	303 938	808 781	1 317 248	878	23%
2008	604 024	756 680	1 360 704	ND	44%
2009	628 184	919 081	1 547 265	0	41%

PRODUCTION FORECASTS UNDER THE REVISED STRATEGY

	YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Irrigated rice	Ha cycle1	25 000	30 000	31 500	31 500	35 000	36 500	39 500	45 000	48 500	50 000
	Paddy yld (t/ha)	4	4	5	5	5	5	5	5	5	5
	Ha cycle 2	16 000	22 000	31 500	31 500	35 000	36 000	39 500	45 000	48 500	50 000
	Paddy yld (t/ha)	5	5	5	5	5	5	5	5	5	5
	Tonnes paddy	180 000	230 000	315 000	315 000	350 000	362 500	395 000	450 000	485 000	500 000
Flood rice	Ha	500	600	1 500	15 000	15 000	15 000	20 000	25 000	27 500	30 000
	Paddy yld (t/ha)	2,5	2,5	3	3	3,5	4	4,5	5	5	5
	Tonnes paddy	1 250	1 500	4 500	45 000	52 500	60 000	90 000	125 000	137 500	150 000
Rainfed rice	Ha	600 000	600 000	750 000	1 000 000	1 200 000	1 300 000	1 300 000	1 300 000	1 300 000	1 300 000
	Paddy yld (t/ha)	0,8	1	1,2	1,3	1,5	1,6	1,8	1,9	2	2
	Tonnes paddy	480 000	600 000	900 000	1 300 000	1 800 000	2 080 000	2 340 000	2 470 000	2 600 000	2 600 000
	Total paddy	661 250	831 500	1 219 500	1 660 000	2 202 500	2 502 500	2 825 000	3 045 000	3 222 500	3 250 000
	Tonnes milled rice	628 000	650 000	792 675	1 079 000	1 431 625	1 626 625	1 836 250	1 979 250	2 094 625	2 112 500
	Consumption	1 430 000	1 477 000	1 526 000	1 576 000	1 628 000	1 682 000	1 737 000	1 795 000	1 854 000	1 915 000
	Gap	-802 000	-827 000	-733 325	-497 000	-196 375	-55 375	99 250	184 250	240 625	197 500