

## Table of contents

1. Introduction.....	3
2. Review of the national rice sector.....	3
2.1. Inventory of the rice sector.....	3
2.2. The status of rice in national policies.....	7
2.3. Rice consumption levels and projected demand.....	7
2.4. Marketing system and key players in the sector.....	8
<i>Collecting agents</i> .....	8
<i>Processing agents</i> .....	9
<i>Retailers</i> .....	9
3. Key challenges and opportunities for the development of the national rice sector.....	9
4. Priority action areas and agreed approaches.....	10
4.1. Priority action areas.....	10
4.2. Approaches retained.....	11
5. Vision and framework of the national strategy.....	11
5.1. Objectives.....	11
5.2. The NSDR in Madagascar.....	13
5.3. Governance of the NSDR.....	14
5.4. Financial commitment of the State towards the rice sector.....	14
5.5. Key interventions (innovation, technology, policy, institutions, markets, capacity building) ...	15
6. Strategies for the subsector.....	16
6.1. Seed.....	16
<i>a) The seed system</i> .....	16
<i>b) National Vision and Strategy on seed</i> .....	16
6.2. Fertilizers.....	17
6.3. Irrigation.....	18
6.4. Mechanization.....	21
6.5. Rural credit.....	23
6.6. Agricultural outreach.....	25
7. Conclusion.....	26

**List of Tables**

<i>Table 1: Trends in rice production for the last six years (2003-2008)</i>	4
<i>Table 2: Strong and weak points in the rice sector in Madagascar</i>	5
<i>Table 3: Changes and objectives in production (2006–2009)</i>	7
<i>Table 4: Rice consumption levels and demand projections (2007–2011)</i>	7
<i>Table 5: Area, yields and rice production in 2008 and target objectives for 2018</i>	11
<i>Table 6: Number of scientists and technicians in 2008 and targets for 2018</i>	12
<i>Table 7: Analysis of changing MAEP budget allocation to developing rice</i>	14
<i>Table 8: Production Objectives and demand in rice seeds</i>	16
<i>Table 9: Objectives to be achieved for the development of irrigation</i>	20
<i>Table 10: Objectives to be achieved for the development of mechanization</i>	22

**List of Appendices**

APPENDIX I:	Diagram on rice marketing in Madagascar
APPENDIX II:	Crop seasons and respective calendars per region
APPENDIX III:	Map of rice production per zone in 2007
APPENDIX IV:	Results registered per scientific area and per large rice producing region
APPENDIX V:	General seed situation in the major agro-ecological areas
APPENDIX VI :	Seed availability
APPENDIX VII:	Diagram on seed organization

# NATIONAL STRATEGY FOR THE DEVELOPMENT OF RICE GROWING (NSDR)

## 1. Introduction

Rice is the best-known subsistence crop in Madagascar and occupies an important place in the agricultural sector. The rice chain is the foremost economic activity in the rural areas and in terms of volume. Rice growing is practiced by around 2,000,000 households, accounting for 85% of farmers (*Agricultural census 2004-2005*).

Rice is the staple food for a large majority of the people of Madagascar. Average consumption is estimated at 138kg/head/year in rural areas and 118/kg/head/year in urban areas (Diagnostic and development perspectives for the Malagasy rice sector-UPDR/FAO 1999-2000).

Currently, local production does not meet the requirements of the local population, a requirement that has increased due to high on-farm consumption forcing the country to import around 180,000 tons of rice in 2008 (Customs Department).

However, given its strong potential thanks to about 15 large production basins, Madagascar should be able not only to meet its domestic needs but also to become the “Indian Ocean’s Rice Basket,” even exporting to the sub Saharan Africa region.

It is therefore necessary to develop a National Strategy for the Development of Rice Growing (NSDR) that is adapted to the new context prevailing after the food crisis and the skyrocketing prices that have recently hit the world.

## 2. Review of the national rice sector

### 2.1. *Inventory of the rice sector*

Based on the major agro ecological areas and cultivation practices, there are three principal types of rice growing: *water, rainfed and in slash-and-burn (tavy) areas*.

According to the 2004-2005 agricultural census, Malagasy rice growing is characterized by an average of 5.51 persons for each agricultural holding of an average area of 0.87 hectare.

Most of the rice area (73%) is randomly transplanted with just 9.4% transplanted in rows, which leads to better productivity and facilitates crop maintenance. Direct sowing, which is considered a traditional system, covers 12.6% of the rice area. The System of Rice Intensification (SRI) and the System of Improved Rice (SRA) advocated for the increase of production and productivity account for only 0.34% of the area.

Annual growth of rice production since 1980 is estimated at 1.5% and average yields remain relatively low (at around 2.5 tons per hectare (t/ha). Although stagnant for a long time, annual production of rice has significantly increased since 2003. Total production across all the different types of rice growing was estimated at 4,914,450 tons in 2008, representing an increase of 26% compared to 2007. Average yield stands at 3.03 tons per hectare as indicated in table 1 below.

*Table 1. Trends in rice production for the last six years (2003-2008)*

<b>Year</b>	<b>Acreage of cultivated rice (ha)</b>	<b>Rice production (tons)</b>	<b>Average yield (tons/ha)</b>
2003	1 219 350	2 800 000	2.30
2004	1 237 000	3 030 000	2.45
2005	1 250 092	3 392 460	2.71
2006	1 291 000	3 485 000	2.70
2007	1 350 000	3 886 900	2.87
2008	1 620 615	4 914 450	3.03

*Source: Rice Observatory (ODR) / EPP/PADR - 2008*

The work volume generated by rice production (exclusive of processing and marketing) corresponds to 242 million working days per year, representing the equivalent of 970,000 full-time jobs.

Added to this are close to 70,000 paid jobs generated downstream of production in processing and marketing. Pay for the people involved in rice growing activities represents on average 20% of direct added value, accounting for close to Ariary (MGA) 100 million (US\$ 50,000). (Source: *Diagnostic and perspectives of development for the rice chain in Madagascar-UPDR/FAO 1999-2000*).

Significant studies of the chain were carried out in the rice sector, including one conducted by UPDR and FAO between 1999 and 2000, which enabled the formulation of the Policy Letter for the Development of Rice Growing until 2010.

- Diagnostic and perspectives for the development of the Malagasy rice chain – UPDR/FAO, 1999-2000
- Rice chain and rural poverty in Madagascar, Doctoral thesis in economic sciences – 2003 - Louis BOCKEL
- Setting up a regulatory system for the rice market in Madagascar - May 2005 - John MAGNAY and Olivier JENN-TREYER (WFP)
- Cost of rice: A cause of wealth or poverty? Diagnostic of the Malagasy rice market in 2004 and beginning 2005 - May 2005 – Marie-Hélène DABAT (World Bank)
- Setting up a rice observatory in Madagascar – 2005 – Louis BOCKEL (FAO)
- Rice markets in Madagascar in Disarray - Policy Options for Increased Efficiency and Price Stabilisation – September 2006 – Bart MINTEN and Paul DOROSH (for the World Bank)
- Study on the rice sector in the regions of intervention of the Watersheds and Irrigation Schemes Project (BV-PI)

The identified strong and weak points of the sector are summarized in Table 2 below.

*Table 2: Strong and weak points for the Malagasy rice sector*

Strong points	Weak points
<ul style="list-style-type: none"> <li>- Practice of rice crop in several production areas in Madagascar</li> <li>- The overriding place of agriculture and economy of Madagascar (the direct added economic value of the sector in 1999 stood at 12% of the GDP in running terms and 43% of agriculture GDP estimated at 27% of the total GDP.</li> <li>- Significant on-farm consumption (69% of production)</li> <li>- Strong vertical integration in intermediate marketing</li> <li>- The multipurpose nature of officers</li> <li>- Strong competitiveness (the loss of competitiveness is situated specifically down the sector and it is essentially the result of the marketing structure).</li> <li>- Presence of sub-regional markets: SADC, COMESA and COI</li> <li>- Great diversity of production systems</li> <li>- Diversity of suitable agro-ecological zones</li> <li>- Ancestral know-how that is well anchored in traditions and standards</li> <li>- High consumption levels</li> <li>- Availability of usable result findings</li> </ul>	<ul style="list-style-type: none"> <li>- <u>Physical constraints</u>: weather hazards (cyclones and droughts), the enclosed nature of production areas, degradation of natural environment and fall in soil fertility levels, the degraded state of certain irrigation networks and poor water control</li> <li>- <u>Technical constraints</u>: Weak quality of equipment, poor upgrading of technical documents</li> <li>- <u>Economic constraints</u>: High costs of labor, its scarcity and high funding costs, weak diversification of credit instruments, difficulty in accessing land and land insecurity, high on-farm consumption</li> <li>- Poor understanding of export markets and lack of adherence to international standards</li> </ul>

*Source: Diagnostic and development perspectives for the Malagasy rice sector – UPDR/FAO 1999-2000) / Note on the bottlenecks and strong points - Rice = Dossier on staple products, May 2008*

The total acreage under rice is estimated at 1,620,615 hectares, of which 1,060,000 ha are irrigated during the high season, with 280,000 ha being double cropped in the off-season as well as a further 281,000 ha of rainfed rice.

## 2.2. The status of rice in national policies

The Presidential Vision of 'Madagascar Naturally' takes into account the Millennium Development Goals (MDG), and sets a general framework for development from which flows the Madagascar Action Plan (MAP), which has been developed for the 2007-2012 period. The MAP describes the new strategy and action plan geared towards stimulating economic growth and poverty reduction. Eight commitments have been set out, four of which are on rural development with six major challenges to be tackled (i) secure land ownership; (ii) improve access to rural funding; (iii) launch a sustainable green revolution; (iv) champion market oriented activities; (v) diversify agricultural activities and (vi) increase added value of agriculture and promote agri-business.

The target for 2009 is to move towards doubling paddy production compared to 2006 in order to reach a volume of 5 million tons. This growth is underpinned by an increase in productivity (through supply of inputs, improvement in crop techniques, improvement of hydro-agricultural techniques, introduction of agricultural machinery, regular technical support...) as well as an increase in area under cultivation.

Table 3. Changes and objectives of production (2006 –2008)

YEAR		2006	2007	2008
PADDY	Production (tons)	3 500 000	3 886 900	4 914 450
	Yield (tons/ha)	2.70	2.87	3.03

Source: Rice Action Plan 2007-2009/ MAEP

## 2.3. Rice consumption levels and projected demand

The Policy Letter on Rice Development by 2010 predicts a change to average consumption of 145 kg per head per year and the export of the equivalent of 1.8 million tons of paddy. Table 4 below shows the estimates of rice surpluses based on this level of consumption.

Table 4. Rice consumption levels and projections for demand (2007–2011)

	2007	2008	2009	2010	2011
Production estimates (in tons)	3 886 895	4 914 450	6 600 000	7 800 000	9 100 000
Seed and losses (10%)	388 690	491 445	660 000	780 000	910 000
Paddy available for human consumption	3 498 206	4 423 005	5 940 000	7 020 000	8 190 000
White rice available nationally (67%)	2 343 798	2 963 413	3 979 800	4 703 400	5 487 300
Estimated population (INSTAT estimates/ average estimates of +2.87%)	18 816 000	18 870 000	18 924 000	18 978 000	19 032 000
Total annual consumption of white rice (tons) /based on consumption rate of 145 kg/head/year	2 728 320	2 736 150	2 743 980	2 751 810	2 759 640
Surplus or (shortage) of rice (tons) calculated on the basis of 145 kg/head/year	(384 522)	227 263	219 433	211 603	203 773

Source: MAEP/ DSI

## 2.4. Marketing system and key players in the sector

According to the 2004-2005 agricultural census (MAEP), rice growing is practiced by 2,075,000 farmers. If we go down the chain, another 30,000 operators many of whom are involved in collection, husking and wholesale and retail selling bring the total number of people involved in rice to around 2,105,000. (Source: *Diagnostic and development perspectives for the Malagasy rice sector– UPDR/FAO 1999-2000*) / *Note on the bottlenecks and strong points –Rice – Dossier Staple Products, May 2008*)

### Collecting agents

Collecting agents act as middlemen between producers and wholesalers. They are in direct contact with producers and are also often hauliers. By 1999, the country had 4700 registered collecting agents, 40% of whom operated in the Central Highlands, 27% in the Center and West and 18% in the North West. Each collecting agent employs on average five people, accounting for around 22,000 jobs. (*The structural implications of liberalization on agriculture and rural development Phase I: National Synthesis of Madagascar -January 2007*)

Collection is a very competitive subsector made up mostly of formal and informal players but also of freelance and employed collecting agents.



### *Processing agents*

Processors are mainly involved in husking rice and in certain instances, in steam or parboiling treatment, for example in the Alaotra Mangoro region. However, manual pounding is still widespread.

Husking machines are normally small units for processing paddy. They are distributed across the country whereas rice fields are mostly concentrated in the large production basins such as at Lake Alaotra. Since the rice chain was liberalized, the number of husking machines has increased faster than that of rice mills and their lower operating costs have created stiff competition for the mills.

### *Retailers*

There were some 24,000 retailers in 1999, 66% of whom obtained supplies of white rice from wholesalers, husking agents, rice mills and collecting agents. Most of these retailers were women (60%).

Since 2005, there have been concerns about the running of the rice sector and a dialogue and steering platform for rice (PCP-Riz) was founded to bring together all actors in the sector.

A marketing diagram for rice in Madagascar is presented in Appendix I.

## **3. Key challenges and opportunities for the development of the national rice sector**

The major challenge for the agricultural sector, including the rice sector remains that of building the capacity of the sector to supply the market with sufficient quantity of quality products in order to ensure food security for the growing population, to supply industries down the chain, and to export. There are a number of obstacles that need to be considered, in particular:

- The precariousness of land titles hindering investment, the lack of clear directions in the management of agricultural investment areas and the scarcity of incentives to enable agribusiness people to set up shop;
- Availability and limited access to quality agricultural inputs (improved seed, fertilizers, etc.)

- Difficulties for producers in accessing credit; lack of collateral, high interest rates, the productivity and viability of farm holdings, lack of stable and developed funding policies;
- The weakness of the dissemination systems for innovative techniques that might enable growth of productivity, underdeveloped integration, and failure to capitalize on the results of applied research;
- Agricultural products are too variable, fragmented, heterogeneous and in short supply to attract business people and industrialists, the run-down state of the road infrastructure, and the lack of support for export initiatives for raw or processed agricultural products
- Growers lack technical capacity and management skills; there are gaps in the agricultural advice system, weak development of rural professions and lack of training opportunities in certain areas.

Yet, Madagascar enjoys exceptionally high and exceptional agroecological potential enabling great diversity of both temperate and tropical plant production. More than a dozen large rice production basins are genuine food baskets and must be able to secure the country a place at the regional or even international level. Taking into account the driving role that the agriculture sector has in the transformation of the Malagasy society, the major objectives from the 2008-2012 period are: (i) ensuring food security and respect for qualitative standards; (ii) improving earnings for producers through accurate information on the sector and a bid for exports; (iii) creating jobs for rural populations by encouraging larger and larger agricultural holdings and the training of rural youth for both rural and non-agricultural rural jobs; (iv) supply a prosperous agri-industry; (v) contribute towards the improvement of the balance of trade *(Source: Agricultural Sector Program, March 2007 and Rapid Impact Action Plan, Initiative on Soaring Food Prices, Madagascar 15/09/08)*

## 4. Priority action areas and agreed approaches

### 4.1. Priority action areas

While rice can be grown all over Madagascar, the largest areas of high potential will be given priority for intensification activities, and the expansion of rainfed rice growing will be carried out using agroecological techniques in order to better preserve the most vulnerable areas. The six agroecological areas are:

1. The North includes the Regions of DIANA (Diégo, Ambilobe, Nosy-be and Ambanja) and SAVA (Sambava, Antalaha, Vohémar and Andapa).
2. The North West corresponds to the local administrative district of Mahajanga and includes (i) Maintirano region, (ii) the Marovoay and d'Ambato-Boëni plains, (iii) the alluvial plains of Sofia (Mampikony, Port-

Bergé, Antsohihy) and (iv) average or high altitude areas of Befandriana, Mandritsara et Bealanana.

3. The Central Western brings together (i) the western slope of the island situated between Morondava and Morombe, (ii) the peneplain areas of the Mid West and (iii) the western side of the Central plateau of the island.
4. The Highlands corresponding to the central part of the Malagasy Highlands.
5. The East coincides with the western slopes of the islands stretching from Maroantsetra to Vangaindrano.
6. The Alaotra, a bowl shaped area situated between the central eastern part of the island in the middle of which is found Lake Alaotra with its swampy areas, plains and adjacent valleys.

Crop seasons and their respective calendars according to regions are presented in APPENDIX II. The map on rice production per zone in 2007 is presented in APPENDIX III.

## **4.2. Approaches retained**

Quantities of seed to be produced in the long and medium terms were estimated by considering an average seed rate of 50kg per hectare, a three-year renewal period for seeds and an increase of cultivated area over time in favor of rainfed rice, ending with the disappearance of *tavy* rice from 2013 and an inversion in the proportion of irrigated rice versus that from lowland in 2018.

# **5. Vision and framework of the national strategy**

## **5.1. Objectives**

In accordance with the National Policy for Rice Development, the overall objectives of the National Strategy for Developing Rice Growing are:

- Contribute to food security in every region.
- Contribute to the increase in economic growth.
- Improve earnings and the circumstances of actors in the rice sector.

The specific objectives consist of matching domestic consumption needs and expanding export markets, through increasing national production and by the professionalization of producers. The production objectives inherent to achieving this are presented in the following table:

*Table 5. Area, yields and rice production in 2008 and objectives set for 2018*

	Rainfed ( <i>tanety</i> )			High season			Off-season			Total or average		
	Area (ha)	Yield (t/ha)	Production (t)	Area (ha)	Yield (t/ha)	Production (t)	Area (ha)	Yield (t/ha)	Production (t)	Area (ha)	Yield (t/ha)	Production (t)
2008	281 439	1.97	554 453	1 060 114	3.33	3 531 737	279 262	2.97	828 262	1 620 615	3.03	4 914 452
2013	500 000	2.50	1 250 000	1 300 000	5.00	6 500 000	700 000	4.00	2 800 000	2 500 000	4.22	10 550 000
2018	600 000	3.00	1 800 000	1 300 000	5.50	7 150 000	700 000	4.50	3 150 000	2 600 000	4.65	12 100 000

Source: DSI/MAEP

To sustain development of the rice sector, human resource capacity building is necessary for the Department of Rice Research at the National Center for Research (FOFIFA).

The number of research technicians and scientists in 2008 as well as future needs are given in the table below:

Table 6. Number of scientists and technicians in 2008 and targets for 2018

	Scientists			Technicians		
	Total	Specialists in rice growing (full time)	Specialists in rice growing (part time)	Total	Specialists in rice growing (full time)	Specialists in rice growing (part time)
2008	22	PhD (3) Masters (11)	PhD (1) Masters (7)	17	12	5
2013	48	PhD (14) Masters (28)	PhD (3) Masters (3)	17	12	5
2018	48	PhD (42)	PhD (6)	17	12	5

Source: FOFIFA/MAEP

## 5.2. The NSDR in Madagascar

The NSDR in Madagascar contains two major axes:

- **The cross sectoral intervention axis**
  - Ensure a favorable policy, economic, legal and social environment to enable the development of the private sector
  - Develop an institutional framework despite the pluralism of actors
  - Strengthen organizational capacity
- **Axis of specific agricultural sector interventions**
  - Intensify and modernize production
  - Increase conditions of access and irrigated infrastructure
  - Strengthening support to producers
  - Conserve natural resources
  - Develop trade and promote contractualization between producers and operators
  - Promote the monetarization of trade

These interventions will be accompanied by reinforcement strategies for rural security and communication strategies.

### **5.3. Governance of the NSDR**

Under the supervision of the Ministry of Agriculture, Livestock and Fisheries (MAEP), the NSDR will be mainly under the umbrella of the Integrated Platform for steering the rice sector (PCP-Riz) set up in 2005 to strengthen close cooperation between the public and private sector by setting a single objective to develop a long-term rice sector in Madagascar.

The main mission of PCP-Riz is to:

- Promote dialogue, meetings, collection and exchange of information between direct and indirect actors in the sector;
- Propose policy and development strategies for the rice sector;
- Monitor the implementation of the policy of rice development in Madagascar;
- Constitute a consultative organ on measures to be taken for the rice sector;
- Provide guidance for necessary actions in line with current policy;
- Play an interface role between the State, the private sector, civil society and technical and financial partners;
- Monitor and evaluate the evolution of the rice sector in its national and international environment with the aim of proposing clear measures to improve the functioning and development of all the links in the chain.

The PCP-Riz is essentially made up of nine groups: producers; researchers; processors; middlemen (transporters, collecting agents, business people); importers/exporters; technical support organizations; financial support organizations; administrators; and consumers.

### **5.4. Financial commitment of the State towards the rice sector**

Table 7 is extracted from the medium-term costings of the Ministry of Agriculture, Livestock and Fisheries, and shows State engagement in funding the NSDR.

Table 7. Analysis of budget changes of the MAEP allocated to rice development

		2007	2008	Δ 2008/07	2009	Δ 2009/08
CODE PIP	PROJECT HEADING	X1000 MGA	X1000 MGA	X1000 MGA	X1000 MGA	X1000 MGA
MISSION 411 - ADMINISTRATION AND COORDINATION		40 000	55 000	15 000	8 696 200	8 641 200
CHALLENGE N° 0-1-4	ESTABLISH AN EFFICIENT AND TRANSPARENT BUDGETARY PROCESS BY THE STATE	40 000	55 000	15 000	8 696 200	8 641 200
MISSION 410 - AGRICULTURE		149 893 681	189 567 937	39 674 256	214 504 016	24 936 079
CHALLENGE N° 0-4-1	SECURING LAND OWNERSHIP	47 881 526	3 604 000	-44 277 526	0	-3 604 000
CHALLENGE N° 0-4-2	IMPROVING ACCESS TO RURAL FUNDING	39 000	39 000	0	69 523	30 523
CHALLENGE N° 0-4-3	LAUNCHING A SUSTAINABLE GREEN REVOLUTION	64 697 972	89 137 199	24 439 227	144 340 620	55 203 421
CHALLENGE N° 0-4-4	PROMOTE MARKET ORIENTED ACTIVITIES	0	0	0	0	0
CHALLENGE N° 0-4-5	DIVERSIFY RURAL ACTIVITIES	24 712 083	40 977 536	16 265 453	52 530 373	11 552 837
CHALLENGE N° 0-4-6	INCREASE ADDED AGRICULTURAL VALUE AND PROMOTE AGRI BUSINESS	1 231 100	42 867 000	41 635 900	0	-42 867 000
PROGR 405	AGRICULTURAL RESEARCH				1 906 500	1 906 500

Unit: MGA 1000; \$US 1 = MGA 2000

Source: A quick analysis of public expenditure in the agriculture sector, Jean Pierre Dumas, 25/11/2008

### 5.5. Key interventions (innovation, technology, policy, institutions, markets, capacity building)

With regard to innovation and generation of new technologies, FOFIFA through the Department of Rice Research has worked on essentially two main types of rice growing: irrigated rice growing with appropriate water control and lowland rice growing without true water control. A regional approach to problems was adopted in the formulation of research themes for study. Its major findings are on the most successful crop techniques and on more productive varieties that are more adapted to each type of rice growing than those usually grown by rice farmers. Findings acquired from each scientific domain and for each large rice producing area are summarized in APPENDIX IV.

To help disseminate its findings, FOFIFA participates in regional or national shows such as fairs or exhibitions. It also organizes field visits for farmers and others involved in rural development to see experiments in the fields of cooperating farmers. The scientific committee on which sit representatives from relevant ministries is also briefed on research results.

## 6. Strategies for the subsector

### 6.1. Seed

#### *a) The seed system*

The seed system in Madagascar is catered for by different actors at different levels. Research (FOFIFA, FIFAMANOR) produces nuclear and pre-foundation seed. The Seed Multiplication Centers (SMC), the Organization of Seed Farmers (OSF) and seed enterprises multiply seed whether or not it is controlled or eventually certified, i.e. destined for marketing. Control and certification are carried by the Official Control Department (OCD) while distribution falls on an assortment of entities (research center, private individuals, companies....). Since the roles of each entity are not clearly spelled out, research centers produce commercial seeds while SMC produce their own foundation seed. Most seed production is dominated by the SMC under the umbrella of the State.

A dozen SMC are operational and supply a substantial amount of seed despite lack or shortage of equipment and financial means. The two most important are the SMC of Anosiboribory in the Lake Alaotra region for irrigated rice and the Sakay SMC in the Mid West for rainfed rice that between them produce around 70% of the national supply of improved seeds.

The general situation according to the agroecological area as well as seed availability is set out in APPENDICES V and VI. The diagram of seed organization is presented in APPENDIX VII.

#### *b) National Vision and Strategy on seed*

The vision aims at “Competitive Malagasy agricultural products that are plentiful and well-reputed”. The main objective is to “to render long term support towards the development of the agricultural and agrifood sector therefore contributing to poverty reduction and a rise in the national economy.” It is about “promoting use of *Factor, Variety, Seed* to achieve rapid and harmonious development of the seed market.” In order to do this, it is necessary to inject professionalism into the seed sector and to ensure availability and use of quality seed by end users. The indicators for expected results are:

- Area under improved seeds; 5-10% of the total area
- Increase of yields on sown area 10-50% according to crop and region



Table 8: Production objectives and demand for rice seeds

Year	2008	2013	2018
Action	Production (t)	Demand* (t)	Demand* (t)
Rice	0.780 t of pre-foundation for aquatic rice growing. 1.288 t of pre-foundation for rainfed rice growing 32.5 tons and 1.5 t of pre-foundation seeds, respectively for aquatic and rainfed rice growing	34.2 t in irrigated rice growing 22.8 t in uncontrolled lowland rice growing 57 t in rainfed rice growing	43.9 t in irrigated rice growing 18.8 t in uncontrolled lowland rice growing 62.7 t in rainfed rice growing

Source: FOFIFA/MAEP

\* for foundation seeds

In 2008, FOFIFA produced around 2 tons of pre-foundation seeds and 34 t of foundation seeds for the two main types of rice growing and for all the other varieties. Given its current capacity, only the most sought after varieties in each region and by type of rice growing can be multiplied.

### *Strategies for the development of the seed sector*

Action to be undertaken within the framework of the National Seed Program revolves around the following three axes of intervention:

- a) Axis N°1: The installation of an incentivizing and secure environment for the development of the rice chain
- b) Axis N°2: A move towards professional seed production
- c) Axis N°3: Widespread use of quality seeds

## **Fertilizers**

### *a) Vision and National Fertilizer Strategy*

The National Fertilizer Strategy conforms to the “Naturally Madagascar” and falls into line with the National Program for Rural Development (NPRD) in its different orientations, thereby responding to the major challenge of *a truly green revolution in Madagascar*.

### *b) Objectives*

To identify action plans to form the first steps towards the development of a fertilizer market whose central actor is the private sector. The objective for fertilizer use on all agricultural crops would be 90,000 tons/year by 2012.

A 100% increase in rice production in five years, with a total fertilizable rice area of around 300,000 ha out of a total area of 1,620,615 ha receiving 150 kg/ha of DAP

and 50 kg/ha of urea would require a total of 60,000 tons of applied fertilizer to get one million tons of additional paddy.

*c) Strategies for the development of the fertilizer sector*

Strategic axis N°1: Concerted national mobilization for the fertilizer sector

Objectives consist of: mobilizing all the concerned actors from the rural areas at the national level to guarantee a significant growth in the use of fertilizers giving a speedy increase in agricultural production; and to contribute to setting up a politico-economic and regulatory environment for private operators that will help develop a “fertilizer sector.”

Strategic axis N°2: Streamlined use of fertilizers

The objectives consist of: increasing economic performance of farms; developing sustainable and profitable production systems; adjusting extension activity within the framework of a re-launch of Agricultural Advice; strengthening support services for production in general and the use of fertilizers in particular; maximizing profitability of fertilizer use through the introduction and use of appropriate types of fertilizers; savings on mineral fertilizers through streamlined use of water and local fertilizer resources.

Strategic axis N°3: Improvement of access to funding

The objective consists of allowing the acquisition of fertilizers at different levels.

Strategic axis N°4: Professionalization of marketing

The objectives consist of supporting the confirmation and/or the emergence of professional operators with regard to distribution of agricultural inputs, including fertilizer; supporting the implementation of a sustainable supply strategy; improving market information and adhering to standards and quality.

### **6.3. Irrigation**

*a) Strategic outlook for the irrigation sector*

Madagascar is the second country in sub Saharan Africa in terms of irrigated area with a million hectares, representing 30% of agricultural land.

The irrigable potential involves close to 1,500,000 ha of which 800,000 ha are formal equipped schemes and 300,000 ha are traditional or family-held schemes. The remaining 400,000 ha are plains irrigable by gravity from either holding or diversion dams, or by as yet unbuilt direct feeds from a watercourse..

The high cost of operating pumping stations means they are rarely used.

The irrigated sector is generally found in:

- Large irrigated schemes (LIS) of more than 2 500 ha.
- Small irrigated schemes (SIS) of between 200 ha and 2 500 ha.
- Micro-irrigated schemes (MIS) below 200 ha.

- Family schemes (FS) (several hundred sq m). They differ in their design and rudimentary build without government intervention.

Following the adoption of the policy letter on development of watersheds and irrigated schemes in 2006, these schemes have since been classified not simply by area but according to the complexity of the hydro-agricultural infrastructure as well as the means of management and maintenance.

There are now:

- Partner schemes where the State intervenes in the management and maintenance of works that have not been transferred to a Water Users Association (WUA)
- Autonomous schemes where only WUA are responsible for the management and maintenance of the scheme.

By this new classification, all the GPIs are classified as partner schemes, all the MIS and FS fall in with the schemes termed autonomous, and the SIS may be in either category.

#### *b) Objectives for the irrigation sector*

Specific objectives in this sub-sector include:

- Improving the availability and efficient use of water in the irrigation structures
- Ensuring modernized irrigation structures are taken over by the beneficiaries
- Strengthening the sustainability of structures by taking into account technical, environmental, agricultural, economic and social perspectives.

These objectives will be achieved through three major priorities:

- Rehabilitation/modernization of existing schemes
- Development of efficient irrigation structures
- Capacity building for the entities concerned in the management of irrigation (AUE, technicians...)

Table 9: Objectives to be achieved for the development of irrigation

	2008	2013	2018
	Objective	Objective	Objective
Rehabilitation (ha)	20 000	150 000	200 000
Maintenance of communal works (ha)	10 000	50 000	75 000
Number of dams	15	80	80 <sup>1</sup>
	120	200	200
Extension (ha)	5 000	10 000	10 000
Management structure AUE (Unit)	100	200	250

Source: DGRMA/MAEP

### c) Strategies for the irrigation sector

These consist of applying research findings on the running of farms for the major plant crops, especially rice, and structuring the actors per sector as well as strengthening public-private partnership at different levels.

Short-term actions	Medium-term actions	Long-term actions
Inventory of operational/non operational schemes	Setting up of a GIS data base for the irrigation sector	
Identification of partner schemes	Ensure that the FERHA becomes a basket fund for the irrigated sector	
Scheduling of continuous and periodic maintenance works	Parts availability for periodic maintenance	
Estimates for cost of works		
Rehabilitation of non functioning hydro-agricultural networks	Sourcing of funding for works on hold	Construction of new schemes
Short-term actions	Medium-term actions	Long-term actions
Improvement of guidelines regulating management, maintenance and water		Updates

<sup>1</sup> The number of dams is the same given that rehabilitation works do not necessarily mean rehabilitation of dams.

policing

Extension for these guidelines

Capacity building for the AUE (technical, management, financial)

Capacity building for technicians (water management techniques, small irrigation schemes)

Promotion of irrigation techniques other than those by gravity for rainfed crops

## 6.4 Mechanization

### a) Strategic outlook for the development of mechanization

To achieve the projected production growth, one of the key strategies of the Ministry of Agriculture, Livestock and Fisheries is to promote the development of agricultural mechanization alongside the extension of rice growing techniques, use of improved seeds and fertilizers as well as improvement of irrigation infrastructure.

Farms are underequipped and, apart from *angady* spades, use only small equipment pulled by animals. There are few mechanized farms (motorized tillers, and tractors).

Currently, there have been concerted efforts to boost agricultural mechanization, including through:

- Facilitating acquisition of agricultural implements by farmers
- Agricultural equipment campaigns (producer prices subsidized by 40%)
- Partnership between the Governments of Madagascar and India to supply 411 tractors and equipment (direct sales, hire and facilitation of annual repayments...)
- Partnership between the Governments of Madagascar and Libya through a grant of eight equipped tractors.
- Exemption from import taxes for farm implements (tractors and motorized tillers).

The main activities for the development of the sector consist of ensuring availability of agricultural inputs through:

- Capacity building for local artisans for the manufacture of farm machinery
- Promotion of Cooperatives for Use of Farm Implements
- Building up the equipment sales and distribution networks
- Support for the dissemination of appropriate materials
- The continuing freedom from import taxes for farm machinery

Table 10: Objectives to be achieved for the development of mechanization

	2008	2013	2018
	Objective	Objective	Objective
Demand (units)	10 420	32 000	34 000
- small equipment	10 000	30 000	30 000
- power equipment	420	2000	4000
Installation CUFA (unit)	5	10	15
Installation of a sales outlet (units)	30	40	60
Promotion of large-scale mechanized cultivation (ha)	15 000	150 000	250 000

Source: DGRMA/MAEP

#### b) Strategies for the development of mechanization

The major features of the action plan are as follows:

- Developing a partnership with other countries all over the world
- Building capacity and means for all players (artisans, suppliers, administration officials...)
- Facilitating the private sector ventures by offering incentives in production areas
- Putting in place a data base for agricultural mechanization (manufacturers, importers, nature and type of existing material, needs in farm implements...)
- Facilitating the acquisition of farm implements by liaising with the private sector and microcredit institutions and banks
- Doing outreach in appropriate and adapted techniques and capacity building for all the players (technicians, designers...)
- Developing and updating the policy document on agricultural mechanization (institutional reforms, regulations, projects and programs).

## 6.5. Rural credit

#### a) Strategic outlook for the development of rural funding

The vision is to have in place a professional, viable and long lasting microcredit sector that is integrated into the Malagasy financial sector and offering innovative diversified products and services to the rural and urban populations, and at the same time ensuring sufficient coverage of the requirements of the entire country while operating within an appropriate legal, regulatory, fiscal and institutional framework.

The overall objective of development is “To promote access to microfinance services diversified both at the level of product offer and in the types of institution as a result of integrating viable institutions into the financial sector, and aimed at a majority of low-income households and at microentrepreneurs in the entire country by 2012.”

*b) Strategies for the development of the rural credit system*

Three strategic axes:

Strategic axis N°1: Improvement of the legal, economic and regulatory environment to permit harmonious development of the microfinance sector.

Strategic axis N°2: Viable and long-lasting availability of adapted, innovative, diversified products and services, and increased availability in noncovered areas and in those with weak coverage by professionals from microfinancing institutions (MFI).

Strategic axis N°3: Organizing an institutional framework in a way that enables proper structuring and efficient conduct of the sector

Role of the public sector:

- The government will ensure that there is “Development of an environment enabling market efficiency, general economic development, control of inflation, the implementation of a legal and regulatory framework that promotes development of MFI by offering protection to depositors, monitoring the financial sector in general and helping institutions develop.”
- The MAEP will work on the following aspects:
  - Consider the implementation of products and services adapted to the needs of the population;
  - Research and make available appropriate funding for the expansion of institutions;
  - Experimenting and implementing innovative mechanisms for risk control, especially for financial products linked to agriculture;
  - Introducing MFI to key projects
  - Setting up guarantee funds for institutions.

Actions to be undertaken include:

- Diversification/innovation of financial products (emphasis on the promotion of risk management products such as micro-insurance and matching payment times with the crop calendar).
- Intensifying the MFI networks in rice producing areas



- Participation in risk refinancing and management of MFI (use of FDA)
- Intensification of activities by operators supplying inputs and agricultural equipment in rice producing areas.
- Facilitate access to areas that can be cultivated
- Outreach for the SRI/SRA technique
- Strengthening information on regional and world markets
- Sensitization on the issue of added value and profit calculation
- Sensitization of producers on advantages of pooling together

## **6.6. Agricultural outreach**

### *a) Strategic outlook for agricultural outreach*

Lessons previously learnt demand a new vision for agricultural outreach.

- Outreach must be embedded within an agricultural policy
- It must be a 'facilitation tool' rather than 'technology transfer'
- Producers are clients, sponsors and partners rather than recipients of agricultural outreach
- Market demand leads to new relations between producers and suppliers of goods and services
- New approaches with regard to public funding and partnership are needed
- The multiplicity of players requires coordination and dialogue among the players

Furthermore, the key point for eventual reform must be centered on devolution at the level of Regions, which ties in with the direction of decentralization efforts conducted by the government for a number of years.

### *b) Strategies for the development of agricultural outreach*

Taking note of the influx of unqualified young people into the agricultural sector and of the lack of a policy for aiding and nurturing a new generation of properly trained farmers intended to be the innovators in the rural world, to serve as extension officers, community technicians and producers' leaders, the objectives and strategies for the development of outreach aims at:

- Creating a strong synergy between Research-Extension-Training-Production and the market by instituting a platform for information exchange and dialogue between sectors
- Reinforce services to farmers: structuring and capacity building of OP, support for the operationalization of the CSA, outreach (technical,

- management and economic advice...) craft and professional training in potential rice producing areas
- Strengthening craft and rural professional training; development of a timetable of specialized training
  - Support for the development of financial services and making them accessible to producers in potential rice producing areas
  - Support the development of agricultural service providers.

In this regard, actions to be taken include:

- At the regional level: bringing together all the actors, promoting synergy between these actors, ensuring coherence of actions, facilitating access of actors to training, developing a platform for exchange and dialogue, facilitating access of farmers to basic services;
- At the central level: developing an environment enabling efficiency of services to farmers (integrated outreach approach), developing an accessible information system for all actors through the CSA, the FDA, the FRDA, projects and programs;
- Improving conditions for establishment and development of basic services;
- Tackling the land issue;
- Acting on environmental protection;
- Optimizing production and ensuring supply of inputs and agricultural materials.

To do this, it is necessary to have a common vision for the agricultural sector, role sharing between the different actors, organizing access to information, developing rural communication and renovating the mechanism for Rural Agricultural Training.

## 7. Conclusion

As with all developing countries concerned about sustainable food security, Madagascar recognizes the strategic importance of the development of rice growing. Initiatives have also been taken in strategic and policy documents for rural development aiming at reducing poverty and famine by half (Millennium Development Goals MDG1).

Indeed, the development of rice growing in Madagascar is allied with the deployment of efforts in favor of upgrading vast swathes of under-utilized land on the one hand and the improvement of the production factors of productivity on the other.

Initiated in 2007 for a five-year period, the 'Sustainable Green Revolution' reckons on tripling rice production by 2012. The revolution would not however be conceivable without improvement in rural security and information campaigns on education and communication accompanying outreach on a combination of the benefits gained from agricultural inputs and the use of appropriate technology in the various rice systems.

It advocates the application of the five pillars of water control, adequate use of fertilizers, use of improved seeds, adoption of appropriate techniques and use of agricultural equipment while at the same time anticipating the levers to improving access to agricultural advice, access to funding, an increase in area under cultivation, increasing added value and increasing exports; exports that will be sustained by actions geared towards reducing costs of production, especially in potential high yield areas, to sustain the competitiveness of Malagasy rice on the international market.

Growth in rice production is a guarantee for the establishment of food security for all, for boosting the export of production surplus and as the beginning of an expanded agricultural economy.