



**CARIFORUM**



**SUPPORT TO THE COMPETITIVENESS OF THE RICE SECTOR  
IN THE CARIBBEAN, PROJECT 9ACP RPR 006**

**“ORGANIZATION AND MANAGEMENT ASPECTS OF THE  
RICE INDUSTRY IN SURINAME”**

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# 1. Introduction

The paddy and rice production, processing and exporting sub-sector in Suriname is for more than decade in great difficulties. The internal production problems result in, low productivity, inefficiencies, relative high production costs, low volume production per hectare and on farm level in a decreasing earning capacity. Externally the continuous price drop on the international market, the changed EU-policy on rice-imports from ACP countries and the new WTO regulations have resulted in deterioration of Surinamese traditional export market on rice. Most probably, Suriname will also have to deal with more severe competition, low(er) prices for rice products and the need to explore new market opportunities.

The EU and the Government of Suriname are aware of these problems and have submitted documents, programs and plans to support the competitiveness of the rice sector in Suriname.

For the "Support to the Competitiveness of the Caribbean Rice Sector" a first assessment and diagnostic mission was held not earlier than mid 2001 followed by a comprehensive feasibility study in mid 2002 and finally in 2003 this support program was adopted. In this Euro 24 million program, the European Commission has approved financing of the on-going competitiveness programme of the rice industry in the Caribbean.

Items and activities, to be financed by the EU, include physical and technical infrastructure, equipment, materials, equipment for office, training, market, financial and trade analyses and expertise in e.g. financing and accounting, human resources, management and marketing.

The implementation and execution of the Suriname part of this project started with the Start-up project concerning organization and management aspects of the rice industry in Suriname in November 2004. In total Euro 9.255 million is committed for Suriname for a period up to September 2010.

The funds for Suriname are clustered in the following activities.

- Technical assistance, expertise and training: € 1.955 million
- Water Rehabilitation: € 3.8 million
- Financial Facility: € 3.5 million

There is a research and extension component of € 2 million. This will be coordinated on regional level.

These clustered activities are not planned in detail yet and detailed planning must take place considering stakeholders priority areas.

The purpose of this report is to review the latest developments and opinions in the rice sector of Suriname and determine and identify priority areas/issues at the different stakeholder's levels. This needs to be investigated because of the long period between the proposals for an action plan and the implementation. Of importance is to investigate if there are new and or other opinions/priority areas now, concerning rice sector developments.

## 2. Macro economic developments and government policy

Over the past 10 years Suriname's mining based economy went through two episodes of hyper inflation. The ruling government, which came into power in 2000, has put strong efforts to stabilize the economy. Strong policy measures until 2001 had good results, but the relaxation of the macro economic policy in 2002 slowed down economic activities. Real Gross Development Product (GDP) fell from 4.5 percent to 3 percent in 2002. Reorganization measures made that the economy came on track again and since 2003 performance and outlooks look good again.

The real GDP growth in 2003 was 5.6 percent and preliminary figures for 2004 show a growth of 5.1 percent.

In addition, the inflation figures are going down since 2002 because of tight macro economic policy measures.

Year	2002	2003	2004*
Real GDP growth in percentage	3.0	5.6	5.1
Inflation in percentage	28.4	20.0	13.0

Source: IMF 2004; \* preliminary

On 1 January 2004, the Central Bank of Suriname introduced her new currency, the Surinamese dollar (SRD), which are formal 1000 old Suriname's florins (SRG)

The official exchange rate for the US\$ for some time now is at around SRD 2.77 for one US\$.

Since June 2<sup>nd</sup> 2004, the minimum and maximum exchange rates for the US-dollar and the Euro were removed which must be interpreted as a stabilization of the Surinamese currency and that the parallel currency exchange market does not significantly deviate from the Central Bank

New "Central Bank rules" make that creating money is set under strict rules and is limited. This lifted the pressure on inflation and restrictions on foreign exchange rate policy.

IMF is of the opinion that the quality and timeliness of economic statistics have improved significantly over the past period and that the projections of economic development are promising and the GDP is projected to grow between 4 and 5 percent in 2005.

**Table 1: Suriname; selected economic indicators (Annual percentage changes, unless otherwise indicated)**

	1999	2000	2001	2002	2003	2004	2005
<b>National income per Capita in SRD, formal +informal</b>	1,596	2,381	3,045	4,452	5,894	n.a.	--
							<b>Projected</b>
GDP at 1990 prices	-0.9	-0.1	4.5	3.0	5.6	5.1	4.1
Inflation (CPI, year end)	112.8	80.4	4.9	28.4	20.0	13.0	10.0
Fiscal balance (% of GDP)	-9.6	-12.1	3.2	-7.0	-3.6	-3.8	-2.7
Exports, fob (% of GDP)	54.5	57.9	58.8	53.5	51.1	62.4	64.4
Imports fob (% of GDP)	-57.8	-56.4	-56.8	-48.2	-55.5	-57.8	-58.5
Gross official reserves(in months of import	0.2	0.2	2.0	1.9	1.7	1.8	2.0
Total public dept (% of GDP)	50.2	74.7	50.6	51.0	47.7	46.6	45.7
Net international reserves (in billions of dollars, SRD)	18.6	27.4	216.6	253.3	330.7	417.5	--
Gross external debt (US\$ mln)* (Fitch rating)	272	264	335	351	360	380	390

Source; Central Bank; Min. of Finance; General Bureau of Statistics; MF projected estimates

That the economy of Suriname is coming on track again can also be derived from the interest from foreign investments. Over the past 4 years more than US\$100 million dollars on foreign investments in the bauxite, gold and oil industries found their way in the economy of Suriname and a view large investment projects are yet to start (oil palm industry, integrated alumina plant in western Suriname, second large scale gold mine etc).

In the same context developments are that the gross official reserves in months of imports is steadily growing, as are net international reserves (see table1).

Although macro economic developments are going well, the levels of interest local banks pass on to local investors still are far too high (around 18 -21 % for local currency, ann. 2004 and this is also the case for (the limited available) foreign currency loans (between 9 and 12 % ) ).

This has a negative effect especially on local production investments.

## **2.1 The Agriculture sector**

The agriculture sector suffered under the erratic macro economic developments of the last decade and from the inconsistencies in agriculture policy and planning. (The IDB Agriculture Trade Policy Loan, ATPL of US\$18 million to the former government did not go to the agriculture sector; the negative effects of the difference between official and parallel exchange rate over the past decade).

The main goals of the present government's agriculture policy program 2001 – 2005 are.

- To enlarge the contribution of this sector to the development of the national economy in a way to distribute regional spreading of economic activities.
- To promote employment and sustainable development.
- To increase agriculture production for the local and export market.
- To reorganize/privatize semi-governmental agro businesses and phase out subsidies.

Despite policy plans, the agriculture sector is performing weak for years now. The general trend of lots of agriculture products produced is one which is going downwards (rice, oil palm, roots and tubers, chicken, beef) and/or do not keep up with the population growth figures (fruits, vegetables, pork). For analyses that are more detailed see Agriforum publications.

This trend can also be concluded out of some macro- economic developments, which are manifest over the last ten years;

- The number of people employed in agriculture is diminishing yearly; in 2002 to 9,450 persons (ABS).
- The contribution to the GDP has further decreased to between 7 and 9 % in 2004.
- The agriculture exports in terms of volume and also in money terms is diminishing and the contribution to foreign exchange earnings has dropped because of low prices and decreasing volumes of exports.
- The investments in new agriculture development projects are on a low level and all the semi-governmental agriculture companies are in great (financial) trouble.
- The physical infrastructure in the rural areas where agriculture production takes place, for years has not been maintained properly. Also because of these developments, productivity dropped.

To be able to make use of Dutch aid funds to help to stop this negative development in the agriculture sector an agriculture sector study was done.

*In March 2004, the agriculture sector study plan (ASP) was completed, discussed with stakeholders and adopted by the council of Ministers and the National Assemble of Suriname.*

In this ASP, a few plans are worked out in detail and immediately executable, but most of the plans concern multi annual action programs, which are budgeted but not yet worked out in detail.

The essence of the ASP is to reform the institutional structure of the agriculture sector by strengthening the

private sector on the one hand and restructure and strengthen the specific governmental tasks and roles on the other hand.

*In the plan, no explicit choice is made for the promotion and development of certain crops or animal or fish production even though in all these sub sectors new developments are needed. The private sector in the new vision must play a more important role.*

*The ASP is budgeted for a total sum of Euro 46.21 million for the period 2004 to 2008 excluded the EU funding for the banana and rice sector.*

*Of great importance is the integration and coordination of the different projects (e.g. in the rice and banana sector) which are or can be funded by the government and different donors.*

*It is now of great importance to coordinate funds in such a way that the (project/sector development) results and output are optimized.*

*The commitment out of the NHAS funds (Dutch aid) is assured up to Euro 18.2- million (February 2005) plus Euro 2.7 million which was agreed upon (Start funds) for the coming 4 years.*

*Possibilities for further funding, out of the "Parity Dutch Aid Funds", must be researched. The government in time has to guarantee the funds to assure the implementation of the complete sector plan within the planned time frame.*

*Because of the bad performance over many years, the sector now seriously has to deal with a structural lack of senior experienced and trained technical agriculture personnel. The MAAHF already has to deal with lack of trained personnel where the different honoraria of trained personnel within different ministries are one of the causes. This will have its impact on the implementation capacity of agriculture development plans if proper measures in this field are not taken.*

## **2.2 Suriname and the global rice situation**

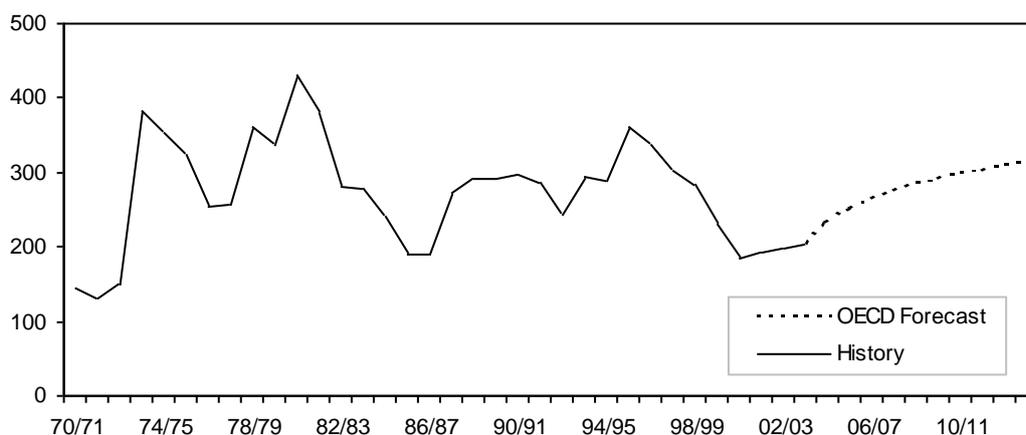
According to the FAO, the global rice production is projected to rise at less than 1 percent per year in the current decade and as a result could reach 440 million tones of milled equivalent by 2010. On the other hand global demand is expected to expand at slightly less than one percent per year and per capita consumption in the world is projected to fall slightly in the coming years. There is a persistent existence of large stocks of rice in the world which has enormous downwards effects on world prices (stocks of more than 100 million tons compared to international yearly trade level of about 25 million tons).

Suriname is a small player in international perspectives and cannot influence international developments and or prices with its export volumes.

Except for 2002, from 1996 onwards a continuous decline in Suriname's rice export earnings has taken place. The volume of rice exports diminished also because large semi-governmental rice producing companies like SML (9.000 ha), SEL (750ha), Surland (1000 ha) gradually stopped their production (for figures see table 5).

The FAO expects the international rice trade to expand with 1.5% per year up to 29.3 million tonnes in 2010 with slightly better international prices up to 4% for the coming years (FAO, 2004).

**Figure 1: World Price: Thai 100% B fob Bangkok: \$/mt**



Source OECD/USDA history; OECD forecast

These forecasted international developments will have their effects on the rice production and export opportunities in Suriname.

*The limited increase of a few percent on international prices can result in stabilization and/or a (limited) production increase of rice in Suriname, provided that production costs stabilize and do not increase. This trend, on a lower level of production has been recognized in 2004 and we see that production is picking up again. This process will speed up if we are capable to further lower production costs and/or increase production per hectare.*

Because nearly every increase in the volume of production must find its way to the export market, it is of great importance to put effort in finding (new) market opportunities. One has to consider the impact of the falling US\$ and the increasing Euro exchange rate effects.

Analysis of the rice market is complicated because of.

- currency movements and exchange rate aspect of the US-dollar and euro-zone.
- policy interventions on main market supplies.
- increased integration of the supply chain in the world and on main markets.
- increasing transport prices.

Research of ADE shows a significant increase of millers and exporter's costs over 2003 and 2004, resulting in a deterioration of their profit margin (see table 2). Unclear was if it concerns milling to the level of cargo rice or including polishing to white rice.

**Table 2: The supplier end of the rice supply chain: 2004 in US \$/tonne**

Suriname	Farmers cost	Price sold	Millers /exporter cost	Price sold (fob)	Price CIF
<b>2003</b>	75 to 100	109	60	195 to 205	300
<b>2004</b>	85 to 105	109	90	210	320
<b>2004 in Euro/ton</b>	63 to 74	80	66	155	237

Source: GRDB report 2003, taken out of draft ADE report 2005

Prices farmers received for their paddy fluctuated between US\$ 6 and US\$ 8.50 per bag of wet paddy, which fits in with farmer's experience. The increasing costs for farmers are greatly caused by increased costs of inputs with a foreign currency element (costs of urea went up from US\$ 280 to US\$ 380 per ton).

### 2.2.1 Suriname and the changes on the EU market

Until 1996, rice exports to the EU mainly took place via the OCT-route which in 1995 and 1996 contributed to respectively 97% and 94% of Suriname's exports to the EU. ACP rice exports benefit from preferential access to the EU under the Cotonou Agreement. The Netherlands are the main destination for Surinamese rice - over 43% in 2001. Because of new (restricted) EU regulations and price aspects the exports via this routing to the EU diminished to 27% and 24% in 1997 and 1998 and anno 2003 this percentage further declined. The EU countries import chiefly cargo rice - 73, 6% of the total imports from Suriname in 2001. On 1 September 2004, a new EC Common Market Organization for rice came into operation, which halved the intervention prices and increased direct payments to EU farmers. ACP Member States, in particular the main rice exporters, Guyana and Suriname, are concerned over these changes which are not in their favor and asked for a study to assess the impacts of these EU policy changes on the rice sector of the ACP. Underneath the main changes in the EU Rice regime are listed.

**Table 3. Main Changes in the EU Rice Regime**

	Before 1 September 2004	After 1 September 2004
<i>Intervention Price</i>	€ 300/tonne	€ 150/tonne
<i>Intervention limit</i>	None*	75,000 tonnes
<i>Monthly increments</i>	yes	No
<i>Direct payment</i>	€ 52.65/tonne	€ 177/tonne
<b>Quotas</b>		
<b>ACP (read Suriname and Guyana) husked</b>	135,000 tonnes	135,000 tonnes
Broken	20,000 tonnes	20,000 tonnes
milled via OCT	35,000 tonnes	35,000 tonnes
<b>EBA</b>	3,329 tonnes	3,329 tonnes
<b>GATT Tariff Rate quota</b>	76,800 tonnes	76,800 tonnes
<i>Tariffs: Husked (brown) rice</i>		
Full (bound) Tariff	€ 264	€ 65
ACP Tariff	€ 88	€ 18
EBA full tariff	€ 264*	€ 65*
Quota tariff	0	0
OCT Tariff	0	0
GATT Tariff Rate quota	0	0
<i>Tariffs: Semi and wholly milled rice</i>		
Full (bound) Tariff	€ 416	€ 175
ACP Tariff	€ 133	€ ??
EBA Tariff	€ 416	€ 175
OCT Tariff / GATT Tariff Rate quota	0	0
<i>Basmati</i>	€ 14	€ 0

\* (a) there was an Intervention limit of 100,000 tonnes in 2003/2004 in preparation for the new regime

(b) the tariff reduction for EBA comes into force in 2006.

Source: ADE draft report January, 2005

*Rice exporters in Suriname report that since the youngest EU –rice regime changes of 1 September 2004, the cargo rice exports of Suriname to the EU dropped to almost zero.*

*In the Proplan impact report on rice exports from Suriname, one of the conclusions was that because of the EU Rice regime change “the exports will soon be restricted even further –directly or indirectly, July 2004” and this came out to be true.*

*For an in-depth analysis on the effects of EU rice regime changes see the studies of;*

- *Proplan consultancy; Impact of the European rice market reforms on the Suriname rice Industry, July 2004 and*
- *ADE consultancy; study into impact of changes in the EU's rice regime on the rice sector of ACP countries, draft report ,January 2005*

### 3. General developments in the rice sector of Suriname

The purpose of this report is not to determine in-depth the developments in the rice- sector in Suriname. Many studies have been carried out already, but with the results until now no proper and explicit strategic choices have been made to strengthen sustainable sectoral development.

The main importance of this study is to review the most important studies and opinions over the last years and to determine and identify priority areas/issues at the different stakeholders levels to make it possible to execute a plan for strengthening the Suriname Rice Export Industry.

The rice sector development in Suriname has a history of more than a century now. In this period the greatest developments roughly took place in the period between 1950 and 1985 when research flourished, the number of paddy farmers grew and the standing cultivated paddy area increased (small - , medium scale and especially large estate paddy producers).

**Table 4: Farm size categories**

Farm size	Number of farmers in 2001	Total acreage in 2001
0.1 –12 hectare	4300 farms	15,020 (27, 3%)
13 – 24 „	110 „	2,440 (4, 4%)
25 – 75 „	17 „	1,060 (1, 9%)
76 – 250 „	28 „	5,000 (9, 1%)
251 –750 „	18 „	13,340 (24, 3%)
> 750 „	8 „	18,140 (33 %)
		<b>Total 55,000 ha.</b>

Source; MAAHF, 2004

Around 30 % of the constructed rice production area is cultivated by small farmers and they contribute to more than half of the labour force in this sector.

The development to a more estate oriented production was possible because over the years research outcomes made that a development of a pattern of a fully mechanized production took place, and different governments implicitly didn't choose to stimulate small and medium size rice farming.

In terms of constructed paddy area (55.000 hectare), gross production value (3% of the GDP in 2002), foreign exchange earnings (around US\$14 mln. in 2002) and direct employment (8.000 people) rice is the most important agriculture crop in Suriname.

The local consumption of consumption rice on year basis in Suriname is around 35.000 ton, which comes to a consumption level per head per year of about 76 kg.

Once more the same amount on rice products is used and processed in the local beer and fodder industry. The production above these figures must find their way on an export market.

**Table 5: Data on rice over the period 1994-2003**

Description	1985	1996	1997	1998	1999	2000	2001	2002	2003
Planted area in ha		61800	53500	50100	48500	42000	50780	40050	52425
Wet paddy production in mt	299.000	229000	213000	188000	180000	164000	191400	157110	193685
Export in mt	137.000	86700	87100	65500	53700	47270	53145	71810	41948
Export value in mln US\$	46	35,2	28,9	19,6	14,2	13,7	11,1	14.17	9,10
Mean Export price of cargo rice (US\$/ton)*		405	331	299	264	289	208	197	191

\* These are calculated customs prices. Farmer's prices are lower  
Source: LVV/RIS

The data of table 5 show that paddy production and export reached its peak around 1985 and since than a

rather erratic development took place because of internal and external factors with the general result of diminishing production and exports of paddy.

<b>External factors</b>	<b>Internal factors</b>
<ul style="list-style-type: none"> <li>-Deterioration of the world market prices on rice</li> <li>-Increased competition especially from countries which support their producers and exporters heavily (subsidies)</li> <li>-Changes (in market regulations) on our main EU export market</li> <li>-Increased quality demand assurance of product and production factors</li> <li>-Increased prizes of different input articles like ;fertilizer and machines</li> </ul>	<ul style="list-style-type: none"> <li>- Macro economic erratic period</li> <li>-enormous exchange rate fluctuations and negative effects of parallel market developments on the sector</li> <li>-High interest rates and indebtedness of producers; no proper credit facility</li> <li>- long term un proper maintenance of the dry and wet rice infrastructure</li> <li>-No or improper coordination of policy measures and also no coordination of stakeholders activities</li> <li>-Weak and improper long term governmental policy for the rice sector</li> <li>-Weak stakeholders organizations</li> <li>-Deterioration and diminishing of product and product quality</li> <li>-Weak and unstructured developed market information and marketing system</li> </ul>

An integrated sustainable solution for the problems the sector is confronted with is not implemented yet, although over the years good and in-depth studies were executed and sound policy measures were suggested.

More detailed production figures over the last couple of years are shown in table 6.

**Table 6 : Area and production of paddy (14% moisture content)**

	unit	1997	1998	1999	2000	2001	2002	2,003
<b>PADDY AREA:</b>								
Standing area	HA	49,350	49,350	49,350	49,350	49,350	49,350	49,350
planted: Spring crop	"	28,435	28,497	21,580	24,385	23,637	17,630	25,885
autumn crop	"	25,060	21,638	26,880	17,610	27,143	22,420	26,540
<b>TOTAL PLANTED</b>	"	<b>53,495</b>	<b>50,135</b>	<b>48,460</b>	<b>41,995</b>	<b>50,780</b>	<b>40,050</b>	<b>52,425</b>
Small/medium scale	"	23,948	19,227	17,995	18,208	19,376	17,056	24,365
Estate farmers	"	29,547	30,908	30,465	23,787	31,404	22,994	28,060
Nickerie	"	46,480	44,495	42,795	37,925	45,978	36,473	24,359
Other Districts	"	7,015	5,640	5,665	4,070	4,802	3,577	24,247
<b>PADDY PRODUCTION:</b>								
Sping crop	ton	115,385	107,844	72,440	93,750	93,260	68,192	93,920
Autumn crop	"	97,670	80,542	107,855	69,905	98,055	88,913	99,765
<b>TOTAL PRODUKTION</b>	"	<b>213,055</b>	<b>188,386</b>	<b>180,295</b>	<b>163,655</b>	<b>191,315</b>	<b>157,105</b>	<b>193,685</b>
Small/medium scale	"	98,180	71,990	72,360	75,887	78,953	71,140	97,810
Estate farmers	"	114,875	116,396	107,935	87,768	112,362	85,965	95,875
Nickerie	"	187,020	167,115	160,995	150,115	175,776	144,140	181,883
Other Districts	"	26,035	21,271	19,300	13,540	15,539	12,965	11,802
<b>MEAN PROD./HA</b>								
Sping crop	kg.	4,058	3,784	3,357	3,844	3,946	3,868	3,6 ton/ha
Autumn crop	"	3,897	3,722	4,014	3,969	3,613	3,965	3,8
Suriname	"	3,983	3,758	3,720	3,897	3,768	3,922	3,695
Small/medium scale	"	4,100	3,744	4,021	4,145	4,075	4,171	4,0
Estate farmers	"	3,888	3,766	3,543	3,690	3,578	3,738	3,4
Nickerie	"	4,024	3,756	3,762	3,968	3,823	3,952	3,742
Other Districts	"	3,711	3,771	3,406	3,620	3,236	3,624	3,090

Source: *LVV Statistics/VRE*

Remark: mean production figures from LVV and from ADRON show great differences (see pg.15)

Subject matter specialists can conclude many developments out of these figures.

#### **Important concluding remarks on basis of above statistics;**

- Almost the total production of paddy is now concentrated in Nickerie and the production in other production districts is structurally diminishing
- The cropping intensity over the whole line went down drastically and especially for estate farmers even figures lower than 1 are getting normal, which means that large production areas on year basis are standing idle
- The autumn crop (Najaars oogst) is always smaller and one of the causes is limited irrigation water (especially for estate farmers on the righter border of the Nickerie river)
- Small farmers in general are producing more paddy per hectare of land and especially in the autumn crop their contribution to production is relatively high (higher cropping intensity)
- Because of the downward trend of the production, the sector is becoming less important for the economy in terms of export earnings, contribution to GDP, employment etc.
- The productivity of the sector is worsening because of the diminishing of the mean production figures/hectare, lower cropping intensity, higher overhead costs of production, quality diminishing aspects etc.

### **3.1 Rice production infrastructural aspects**

The decline in the rice production went hand in hand with the improper and structural neglect of the maintenance of the wet and dry infrastructure (drainage- and irrigation channels are overgrown and silted, dykes and roads in the rainy season are impassable, irrigation and drainage structures are out of order, etc).

For years the responsibility for different parts of the wet and dry infrastructure in Suriname is in the hands of different Ministries and there is no proper coordination.

The political decision for setting up a good functioning drainage and irrigation authority and/or board until now is shoved forward for years and farmers over the years have assumed an attitude to wait for the government. Different studies on the rehabilitation of the infrastructure have been done over the years. It is good to mention that an Ilico study on rehabilitation of the total agriculture infrastructure of Suriname in 1996 calculated investment up to about more than 57 million Dutch guilders and these calculated costs can now only be much higher.

No integral sustainable solutions or implementations for structural long term adjustments for the infrastructure have been put in place in the past decade.

*Meanwhile we see that production is diminishing, installed rice production areas are being left idle, production costs are raising because of inefficiencies in water management, raising costs because of the bad wet and dry infrastructure, the increased needs and costs for pumping water at farm level.*

Research (a.o ADRON) has shown that;

- proper water management at farm level (the paddy fields) is of utmost importance for a good production, also because of the (new) varieties which react strongly.
- Good levelled production fields and proper water management result in higher yields (up to 1,5 ton /ha) and lower production costs (less pumping, more efficient use of herbicides and pesticides, more uniform ripping etc.). An FAO study in 1983 researched that of the paddy area in Nickerie about 70 % are subject to height differences between 8 and 12 inches.
- ADRON has calculated that the pumping costs of water for the paddy production over the years are going up and can make up to 15% of the production costs at farm level. Because of these developments farmers are more susceptible for a more coordinated and well structured water supply system now.

It is pleasant to report that over the last two years some progress on the discussions concerning water- and infrastructural management has been made and that farmers and policy makers are convinced now that structural solutions must be worked out and implemented. The government already did make some steps in this direction;

- Regulations and legislation concerning water users boards and a central water management authority are adjusted and are at the Parliament now in the phase to be adopted
- The MAAHF is in the stage to launch a "productschap on rice", to structure the whole rice column
- The government will start with (two) pilot water users boards this year (Sawmill and Reeberg) and therefore she gets technical assistance from the Dutch ministry of LNV.
- EU and NHAS investment funds for better water management and infrastructural rehabilitation activities are projected

It is also good to mention that over the past 4, 5 years the government, under the pressure of different stakeholder's organizations and policy makers, did her best to boost the sector.

In this regard we can mention;

-Governmental support in 2000 of about SRG5000 million as a loan facility to the sector, which no farmer until now has repaid

- Fuel subsidy to small farmers in 2003 up to SRG1500 million
- Abolition of the foreign exchange convertible law on export earnings
- In different years rehabilitation of different parts of the wet and dry rice infrastructure, especially in Nickerie
- In different years water pumping costs for the Wakay irrigation facility

*These efforts have surely helped the sector in and through a rather difficult period but alas we have to conclude and mention that because of the unstructured and more or less ad hoc policy the effects of all these efforts for the sector have not been sustainable.*

*Because of the enormous investments involved with the rehabilitation of the agriculture infrastructure it is of great importance to make a long-term strategic rehabilitation plan and for the short term make a plan to rehabilitate the infrastructure in a way that you have the maximum output for your scarce to be invested dollar, which is in line with the long term plan.*

*For the rice sub-sector production infrastructure in the different production regions (Nickerie, Coronie, Saramacca) different plans must be considered. Farmers in the district of Coronie and Saramacca complain of the unequal attention the government pays compared to Nickerie which will cause uneven distribution of development in the different regions.*

*At farmers level one must also consider that the interest of large and small farmers can divert, especially in polders where they make use of the same main irrigation system. A flexible and transparent management system therefore must be considered.*

*Farmers and organizations now want to know more and need more in-depth information on the newly planned water management structures with its consequences at farm level so that they can take notice of the different roles, consequences and effects of these new structures.*

### **3.2 Production developments at farm level**

As mentioned there are large problems in the rice production which have resulted in deterioration of farmer's income for many seasons. Many external and internal reasons bring about that the profitability shows a negative development.

#### **External aspects**

- Price ratio between input prices and paddy prices which worsened over the years
- High interest rates
- Bad dry and wet infrastructure
- Negative effects of currency instability
- Bad weather influences
- Downward trend of international paddy prices
- Dependency on traders/millers, machine holders

#### **Internal aspects at farm level**

- Unable to buy/No availability of quality seeds
- improper farm management(water-, weed-, disease control)
- Product-, yield- and quality deterioration
- Indebtedness of many farmers
- Inability to save for maintenance-and replacement costs
- Frequent inability to apply inputs (water, fertilizer etc.) in time

Farmers more or less are in the trap of a vicious circle.

A crop production survey under 430 farmer's fields in 1996/1998 together with desk research out of ADRON research outcomes and publications over the years gives a good overview of the actual situation in Nickerie;

- the main factors influencing high variations in yields and of high yields itself are indicated (bad quality

seed, availability of working capital, water assurance and bad infrastructure etc.)

-The earning capacity of farmers in the past 10 years dropped because of increasing production costs and decreasing output in money terms

-Suriname's financial and capital markets are underdeveloped in terms of diversity of financial instruments, active competition among banks, and access to credit at affordable terms despite an overall positive macro economic development took place over the past 4 years.

This result in too high interest rates on bank loans for farmers and limited available funds for loans and for seasonal credit.

-External factors (international rice- price, market (regulation) changes, etc.), more and more have direct effects on the rice production and prices farmers receive in Suriname

-Good crop management is a weak point in the current production system of many farmers

-In 1994 ELONI was the most popular variety (75%) and the new variety GROVENI, released in 1994 has not been adopted by the farmers.

-The new variety ADRON-111 has a good acceptance and the most resent variety ADRON-125 is very promising especially also for millers.

-Due to the poor wet infrastructure the optimal water management scheme for varieties which mature in 125 days cannot be realized in most of the fields which make that the farmer is deprived of an essential management tool

Out of different studies one can conclude that it is more effective to increase yields than to reduce costs per hectare.

*ADRON handles this principle in her research programs;*

- on the one hand breeding activities should continue to focus on higher yielding 125-days-varieties (potentially 8-10 tons/ha) compared to ELONI which yield 6-7 tons/ha and

-secondly there is clearly a demand and a niche for early maturing varieties (ADRON 111 and 125) which mature within about 100 days. (such varieties can escape from most of the negative effects of late sowing of which at present 30 – 40% of the field in Nickerie can benefit).

*Farmers and millers/exporters appreciate this work of ADRON, but they miss the background to criticize this work structurally and properly.*

*What still is missing in the production is a good integrated extension service program to transfer research outcomes quickly and properly to farmers.*

### **3.2.1 Profitability of paddy production**

At farm level the profitability of paddy production is determined by the total cost per hectare and the output in money terms per hectare.

These two factors on their turn are being influenced again by different aspects.

#### **Production cost per hectare is determined by;**

Different production costs like for; tillage, seed, water pumping, machine, fertilizer, pesticides, labour, rent, etc.  
Relation input costs development and farmers received paddy price ( exchange rate developments)

#### **Output per hectare in money terms is determined by;**

Output of paddy in ton/ha  
World market price/ (Farm gate)paddy price

Different studies have shown that the most important factors influencing a high output are;

-Early date of sowing in the season with good quality seeds

-low level of red rice; (1% red rice comes up to 400 kg less paddy/ha; mean figure in Nickerie is 2,5%)

-proper water management from the beginning and good cleaned up parcel ditches

-early first fertilizer gift and a second /third gift in time and in good portions

There is great difference in statistical data concerning output per hectare which the MAAHF collects and the data ADRON receives from farmers. The big question is if there are already improvements in the mean production figures per hectare. ADRON is from the opinion that over the last 3 to 4 seasons the mean production figure rose up to above 4,3 tons per hectare and that even some large farmers realize outputs of above 5 tons per hectare and that the quality has improved. The mean figures of MAAHF do not show this trend and stagnate at around 4 tons.

In the view of ADRON the production costs per hectare have dropped to under US\$100,- per ton , but can and must further drop to less than US\$75,- per ton.

There is a theoretical model which is being used in the sector to calculate the paddy cost price (see ADRON 1 report), which is used every season by the government to calculate an advise farm gate price for the sector.

*It is good to notice that this modelled cost price gives a good calculation but that a more detailed (and differentiated) cost price calculation model must still be worked out for ;*

- Farmers use different volumes of seed, fertilizer and pesticides per hectare
- The size of the farm and the cost of machines (owned/rented) also play a role in the calculation
- The scale of production at farm level is of importance

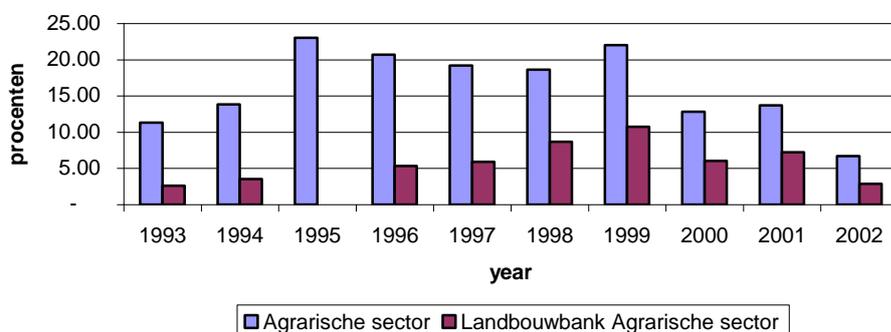
### 3.3 **Indebtedness of the rice sector and the need for credit facilities**

For years nearly no long term investments for development of newly reclaimed rice fields took place and also investments in replacements in new tractors and combines are largely postponed since rentability in rice production declined.

The macro economic development since 1995 in conjunction with the deterioration of the profitability in the rice-sector made that many small and large farmers cannot/do not pay back their bank loans.

*This made that the banking and financing sector's willingness to put out money in the rice sector diminished strongly (see graphic) which has its effects on the production which diminished.*

**Percentage of the agriculture sector within the total credit loans of national banks and the place of the agriculture bank(in percentages of the total)**



On January 5<sup>th</sup> 1999 the commercial banks and the Government of Suriname agreed upon a regulation to

diminish the farmer's indebtedness and to create terms of payments for new loans. This agreement didn't have the expected results; also because not all the stakeholders kept their promises.

In November 2000 the Government installed a Commission to study and research the indebtedness problem of the rice sector and to come up with suggestions to tackle this problem in a sustainable way, stop the deterioration of production and revitalize the sector (Report "schuldenvraagstuk in de rijstsector, A.Zalmijn et al, nov.2000").

*This commission made a good problem analyses and one needs to say that there were valid reasons for the indebtedness problem of rice farmers.*

The commission formulated a proper action plan were all the stakeholders had to participate and fulfil their role to make the sector more profitable.

Unfortunately under pressure the government came up with a precipitated and uncoordinated solution and facilitated producers with a bank loan facility up to a total amount of SRG 5.000 million guilders in the beginning of 2001. This credit facility didn't result in a sustainable long term solution and in 2003 the government again had to come in with a financial facility since the production threatened to stagnate again and many farmers threatened to go bankrupt. The government this time gave the farmers a tax reduction regulation on diesel oil, up to a total amount of Srg 1.200 million, knowing that the farmers didn't/couldn't pay back the first facility and also that the old bank-indebtedness problems of farmers where not solved.

One of the preconditions to work out a sustainable plan of action for continuing and enlargening rice production is to work out a good credit facility with compatible interest rates on an international level.

One of the reports of the agriculture sector study (ASP) concerns the need for Agriculture credit and setting up an Agriculture Credit Fund, AKF (projektdossier Landbouwkrediet, jan.2004). This dossier researched that there is a great demand for credit funds with a low interest rate (instead of the current local interest rates of around 21 % this must be around 10%).

The report gives an excellent overview of the problems and the need for agriculture credit and worked out a credit facility in detail. It concerns Euro 2, 3 million financing capital for a period of 5 years, funded out of the NHAS funds and the execution delegated to the "Landbouwbank". This fund explicitly is advised not to be used for restructuring of the defaults in the rice credit funds. Because of the sensitiveness of this subject the Dutch embassy ordered a second opinion on this report, which is executed in march 2004 (Advies rapport operationalisering agrarisch krediet fonds) and came up with more or less the same recommendations to start with an Agriculture Credit facility funded out of the NHAS funds.

Parties have not reached an agreement yet.

Needless to say that the rice sector suffers of the lack of adequate finance because of:

- the high indebtedness problem
- the much too high interest rates
- the risk avoidance policy of the bank to set out new loans
- the lack of new funds for a new and payable credit facility for farmers

Farmers are really looking forward for;

- a cheap seasonal credit facility to assure their production
- cheap credit to be able to make investments in new equipment, tractors and combines, because the machine-park for a large part is depreciated already for years and there is even an absolute shortage of combines in different rice polders and improving of the rice production surely will be confronted with this bottleneck.

The EU project to enlarge the competitiveness of the rice (export)sector foresees in a credit facility which must be structured in detail yet.

In discussions with different stakeholders the following aspects were brought forward and of which one has

to take notice of, when making detailed plans for a rice credit facility:

*-In the Agriculture credit fund plan of the ASP the credit needs for the period 2004 -2006 were estimated at Euro 27,4 million of which 13million for the rice sector. A differentiation for the rice sector was made in euro 2 million for investments en 11 million for seasonal credit*

*-Possibilities for rice farmers to finance their seasonal credit are limiting more and more and this drives farmers in the hand of traders and processors*

*-Interest rates must be more in line with international norms and the current 18 to 21 % for local currency loans and 10 to 12% for foreign currency loans is improper. If possible a special (cheap grand) development credit facility for the rice sector must be considered.*

*-Farmers brought forward also their need for replacement investment credits for their machines and equipment*

*-Processors also needed cheap investment funds to install proper storage facilities to be able to better manage different batches of paddy for quality improvement reasons*

*-Exporters are really looking forward for an export credit facility*

*-Come up with a solution for solving the indebtedness problem of the rice sector, acceptable for farmers and the banking institution, to break through the vicious circle.*

*-Research the possibility for linking EU credit funds with NHAS funds and the possibilities and need to differentiate and target credit funds*

#### **4. Importance of quality and quality standards**

The history of rice research, rice breeding and quality in Suriname is closely linked with the SML. In the coming years one must expect that the importance of top quality rice to international quality standards will become of more importance. In other words quality will play a more important role in determining the buyer's decision to buy rice from Suriname.

*Unfortunately the awareness within the rice sector in Suriname (producers/millers /exporters) on this development trend is insufficient.*

*At producers and millers level there is hardly no structural quality policy concept in terms of quality assurance and quality management and because of the buying/ trading system of paddy\* there is hardly no stimulus for quality improvement on producers level.*

\*Because of the general trading system (paddy is sold from the field and proper and general accepted systems to define quality are not in place yet).

The CARICOM according to the process of world wide standardization of (food) products in January 2002 accepted and introduced standards for rice produced and traded within the CARICOM and Suriname has to comply with this regulation.

*In May 2004 Suriname by government law accepted and sanctioned the Caricom regulation on rice (Staatsbesluit Standaarden Rijst Uitvoer, mei 2004).*

*It must be considered to set up or make an independent organization take charge of determining paddy- and rice quality where different stakeholders can make use off.*

*At this moment exporters of rice need to let the governmental inspection office determine the quality. It can be considered to further professionalize and extend this governmental service on the short term and then look if this structure is proper or must be amended for long term developments .*

## 5. Rice processors and exporters

A listing on rice processing installations in Suriname, done by the “Staatscommissie rijst” in 1986 came up with;

- 63 drying installations with a total installed capacity of 320 ton per hour,
- 65 milling installations with a total installed capacity of 144 ton per hour and
- A total storage capacity for dry paddy of 205.000 ton.

Even in the peak booming period of the rice industries there was an over capacity in drying and milling of rice. The diminishing of the production over the years resulted in a further under utilization of installed capacity which resulted in the increasing of processing costs.

In spite this development the milling capacity in 2000 increased further to 185 ton per hour.

The deterioration of the rice sector and also because of the bad performance of the processing industry made that a T.A project 7/ACP/SUR/13/14 financed by the EDF was executed in the year 2000 (Post-harvest systemen in de rijstsector, Ir.R.Elmont, Dec.2000).

The goal of this research was to analyze the post harvest system of the rice-sector in Suriname and to determine the bottle-necks which impede the realization of a more efficient and sound rice processing industry and to come up with measures and programmes which can raise these bottle-necks.

For this reason an in-depth inventory of the rice processing industry took place and in a view processing companies orientating dry – and milling tests were executed.

The evaluation of the processing industry was aggravated on;

- the paddy buying-, - transporting and –receiving process
- the storage and drying process of paddy, including the lining up of machines
- the milling- and polishing process and
- the cost price development and quality management aspects.

*The most important conclusions of this study, at the 20 most important processing companies showed that;*

-The installed capacity of these 20 companies concerning drying (5.000 ton/day or 200.000 ton paddy per season) and milling of in total 363.650 ton dry paddy is more than enough. Considering the actual paddy production of less than 250.000 ton on year basis there is rather an enormous overcapacity.

-*The polishing capacity for white rice is not sufficient if the dry and milling capacity are fully utilized; the quality of the polishing sections at most companies is not proper ( the export marketing development at this moment is in this direction)*

-Efficiency is rather poor and the capacity utilization of most companies is around 30 % of their installed capacity, which is absolutely not cost effective.

-Only a view companies with rather modern technical installations and equipment can bench mark installed equipment facilities on international level (*out of the 20 around 7 processing units*)

-There is a shortage of good educated and trained personnel and there is a great need for practical training courses in management and rice-processing technology. This is not recognized by the modern rice processing companies

-Processing costs are calculated and vary between US\$37/ton paddy to cargo rice and US\$64/ton paddy to white rice; this is far lower than the US\$ 90 /ton which was calculated by the working group on debt rescheduling\*.

\*ADRON and the millers disagree on the cost for milling. Millers tend to calculate higher milling costs. Of importance in the cost price calculation is the capacity and scale of the processing unit and the utilization of the installed capacity. It is also good to mention that new turnkey Chinese rice mills with a capacity of 5 tons per hour are available now for US\$100.000 which is 40 to 50% cheaper than European or

Columbian machines..

-At the paddy drying tests that 25 to 30% chaff, straw and spongy paddy was calculated instead of 20 % ( a bench mark clean paddy in Suriname)

## 5.1 Rice Quality and Milling yield aspects

The quality of milling yield is determined by the quantity of whole kernels produced out of a quantity of milled rice that is produced in the milling of rough brown or white rice (percentage of whole kernels of milled cargo out of paddy or milled white rice out of cargo rice).

As mentioned farmers and processors are not aware enough of quality matters and that this beside a more efficient production and milling needs an attitude not only to capture the maximum benefit of the product but also needs a better coordination between stakeholders and a better understanding of the trading system and the customers needs.

The study listed factors effecting the milling yield; grain type or variety, drying and storage results, product quality and the handling, storage and transport of paddy and cargo rice, etc.:

-In many cases storage of different batches of wet paddy, but also of already dried paddy is not proper and has its effect on quality matters

-There is no single and uniform designed drying system which make efficiency comparison of processors facilities difficult and result in great differences especially in the trajet from shelling the paddy to cargo rice and milling/polishing cargo rice to white rice.

-Only 1 out of 4 companies realized a 70 %(-up) milling yield out of produced cargo rise after polishing it to white rice. This results in a loss of between US\$6 and 33 per ton polished cargo rice

-It is out of the question that we can talk about quality guarding during the production process, therefore some investments in laboratory equipment are needed.

*The results of the inventory conclude in general that the Surinamese rice processing industry is far under the level of a bench-mark in this industry world wide.*

For a total overview on results and recommendations on this study see report; EDF  
Projekt7/ACP/SUR/13/14, post harvest systemen, dec.2000

## 5.2 Rice export development

Since 2003 we see that a larger part of Suriname's rice export is more directed to the Caricom and regional Latin American markets.

This market is as underneath table shows more a white rice market than a cargo market.

*The rather inefficient results of the processing from cargo to white rice must get priority attention if we take this development into consideration.*

### Summary on rice exports in 2003 to destination and product sort;; net quantity in KG

Year 2003 destination	BROKEN	CARGO	White	TOTAL		
	TOTAL	TOTAL	TOTAL	JAN-JUN	JUL-DEC	TOTAL
Jamaica (JM)	0	0	6,395,411	0	6,395,411	6,395,411
French Guyana (GF)	0	742	1,159,638	585,934	574,446	1,160,380
Trinidad & Tobago (TT)	0	0	48,254	1,062	47,192	48,254

Antigua (AG)	0	0	0	0	0	0
Guyana (GY)	0	0	10	0	10	10
Turcs & Caicos (TC)	0	0	0	0	0	0
Haiti (HT)	0	0	2,500,000	0	2,500,000	2,500,000
Martinique (MQ)	88,000	0	1,408,005	858,005	638,000	1,496,005
Guadeloupe (GP)	0	0	182,000	66,000	116,000	182,000
Aruba (AW)	1,725,000	0	22,775	21,500	1,726,275	1,747,775
Ned. Antilles (AN)	30,000	550,000	85,200	21,400	643,800	665,200
Brasilia (BR)	0	0	1,745,713	313	1,745,400	1,745,713
Nederland (NL)	1,285,004	21,385,313	486,762	8,567,005	1,351,761	23,157,079
Portugal (PT)	0	0	1,590,900	46,000	1,544,900	1,590,900
Spain (ES)	0	0	20,000	0	20,000	20,000
Belgium (BE)	0	0	0	0	0	0
Centr. African. Rep. (CF)	0	0	0	0	0	0
Liberia (LR)	0	0	0	0	0	0
Mozambique (MZ)	0	0	42,950	42,950	0	42,950
Zuid-Afrika (ZA)	0	0	1,196,000			1,196,000
Japan (JP)	0	0	1,204	654	550	1,204
<b>TOTAL</b>	<b>3,128,004</b>	<b>21,936,055</b>	<b>16,884,822</b>	<b>10,210,823</b>	<b>17,303,745</b>	<b>41,948,881</b>

**Summary on rice exports in the first quarter of 2004 to destination and product sort; net quantity in KG**

Year 2004 (first half) destination	Broken	Cargo	White	TOTAAL
	JAN-JUN	JAN-JUN	JAN-JUN	
Jamaica (JM)			1,873,925	1,873,925
Trinidad & Tobago (TT)	21,000		3,000	24,000
Antigua (AG)				0
Guyana (GY)				0
Turcs & Caicos (TC)				0
Haiti (HT)	200,000		3,000,000	3,200,000
Dom. Republic (DO)			2,000,000	2,000,000
French Guiana (GF)			520,290	520,290
Martinique (MQ)	22,000		726,200	748,200
Guadeloupe (GP)			22,990	22,990
Aruba (AW)			1,875	1,875
Ned. Antilles (AN)	16,100		5,662	21,762
Brasilia (BR)	1,000,000		6,814,840	7,814,840
Nederland (NL)	2,599,000	7,529,000	30	10,128,030
Portugal (PT)			46,000	46,000
Spain (ES)				0
Belgium (BE)				0
Centr. African. Rep. (CF)				0
Liberia (LR)				0
Mozambique (MZ)				0
Zuid-Afrika (ZA)			299,000	299,000
USA (US)			50	50
Japan (JP)				0
<b>TOTAL</b>	<b>3,858,100</b>	<b>7,529,000</b>	<b>15,313,862</b>	<b>26,700,962</b>

The Caribbean region buys almost exclusively white rice - 99, 3% of the total white rice exports from Suriname in 2001 and 80% in 2003.

*The VRE is of the opinion that exporting to the EU under the new EU regulations and conditions is almost impossible and that Suriname has to develop the markets in the region and Latin America. They brought forward that exporters have good knowledge of the opportunities in the region.*

Policy makers have to convince processors/exporters to improve their efficiency and this needs detailed cost (price) calculations at different stages in the chain from production to the end user.

## **6. Rice- and farmers organizations**

The rice sector consists out of ;

- different stakeholders, including governmental and semi-governmental
- supporting bodies as ADRON, MCP, MAAHF etc.
- suppliers of inputs and services

In the first decades of development of the rice sector in Suriname it where more small farmers who dominated the production scene. Their individual position in relation to the processors, marketing agents and exporters was weak and the need to organize themselves and by doing so trying to create better opportunities was clear. They organized and founded many cooperatives in buying inputs, drying paddy collectively, storing-, milling- and selling rice and influencing policy makers. This last aspect made these organizations vulnerable for politics.

Over the years many initiatives on cooperative production and processing systems ended in failures which are a main cause of an enormous distrust within the rice business and a reactive attitude of strong individualism.

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The production processing and marketing of rice is very much organized at individual business level now and the development of fully mechanized production stimulated this development.

*For years now mutual cooperation and coordination in the rice sector is underdeveloped and these developments have their effects on rice production organizations which if they are in place are weak developed.*

In general many of these different stakeholders and supporting bodies for different reasons (financial, technical, management etc.) have limited executing capacity and are weekend over the years. It is of great importance that a good structured, planned and managed production chain knows which links/connections in the organization are weak and have to be strengthened to cause a maximum mutual coordination and tuning.

Chain management also means that different links/connection cannot act in total freedom anymore, but need to closely collaborate with each other to the benefit of all the participants in the chain. Therefore not only trust is needed but also that the different organizations are strong organizations in terms of organization-, institution-, administrative etc. capacity.

For many years the discussion for setting up a "productschap on rice" which can be compared with a "rice - chain management organization" are taking place. Some progress concerning the pros and cons of the need for setting up such an organization have been made.

The discussions now are more detailed and specific, concerning the tasks of such an organization in the field of marketing, extension, quality control and -certification, advice on policy matters to stakeholders and

the support and finance such an organization needs, etc.

*The different stakeholders now recognize the importance of such an organization but still have their doubt about the role and position of the government in such an organization.*

Farmers and Millers Organizations are of the opinion that such a productschap must be established and have the support of all stakeholders in the sector.

*Therefore it is highly recommended to avoid further delay and support the sector with experienced and impartial Technical Assistance to work out the legal basis and a democratic structure for such an organization which needs to be transparent and have a sound financial basis.*

*In the recently adopted agriculture sector plan (ASP) study for the coming four years Euro 370.000 are planned to set up this productschap on rice. A start already has been made with formulating and putting in place the legislation, but this process needs to be speeded up and worked out in detail now, in close collaboration with all the stakeholders.*

## **6.1 Rice research and breeding policy**

In the previous century because of the research results paddy production increased significantly in Suriname, not only in terms of total rice area but also in terms of the production per hectare.

The major contribution to rice research over the years came from SML, but because of different problems and reasons SML more or less stopped her research activities around 1980 (formerly in 1985/'86). Since 1985 various problems caused a sharp decline in research activities, including the development of new varieties.

As a response to the problems in the rice sector since the mid nineteen-eighties and also because of the lack of innovation due to the lack of rice research, the Government of Suriname in 1986 established the Foundation for National Rice Research (SNRI) of which since 1994 the Anne van Dijk Rice Research Centre Nickerie (ADRON) is part.

ADRON does typically applied research. The main basis or objective of their research is to develop technology which increases the profitability of the paddy production through increasing yields and quality and reducing costs

In the 10 years since her establishment ADRON did a lot of research on paddy production and processing matters (see literature list).

Because of the minimum number of research personnel and the limited funds there are not so many possibilities to accelerate and increase research programs.

Started with considerable financial and technical support from the European development Fund (EDF), now ADRON her funding is based on a State resolution which obliges rice exporters to pay a research fee of Srd 9, - per ton of exported rice products (a sort of export quality inspection fee of Srd 10, - per ton cargo rice is paid to the Government of which 90% via the ministry of Agriculture is handed over to ADRON).

Because of the export volume drop of cargo paddy over the years the government besides rising the percentage from 60 to 90% also has to subsidize part of the exploitation costs of ADRON.

ADRON is a practical research station on rice, which make that she concentrates her research on problems the producers and processors experience.

The research goals in general are;

- production improvement scenario's
- Quality improvement scenario's
- Cost reduction scenario's

The results of ADRON's research in her short existence are already bearing fruits.

*In the publication "Rice Research and Breeding Policy, 2001 – 2005" different logical framework analysis to support the production-, management-, IPM-, breeding-, fertilization-, seed- weed control-, soil tillage-, water management post harvest technology and communication research program are worked out (for logical frameworks on the different research agenda see annex 2)*

*Given the problems the rice sector in Suriname is confronted with, it is of utmost importance that ADRON not only can continue her activities but also must be enabled to speed up and extend her activities.*

The activities ADRON is executing are highly appreciated by small as well as large farmers, processors and exporters.

A rough calculation of ADRON on the benefits and costs of research ADRON did shows that the benefits exceed the costs and that research pays off.

## **6.2 ADRON's policy on seed production**

ADRON her breeding activities resulted in the introduction of a few new lines of rice seeds (ADRON102, A-111) and A-125, a recently introduced new variety is very promising in terms of product-quality, yield and milling yield.

Problem still is;

- set up a good seed production system which is capable to transfer sufficient and high quality seeds to paddy farmers
- set up a well connected education , training and extension program on proper rice production and rice processing to twin the research outcomes with the industry

*Actually there is an absolute great shortage of sowing-seed of good quality which lead in the use of sowing seed of inferior quality, which on her turn results in lower quality and milling results.*

*Small and large farmers find ADRON seeds too expensive (at this moment twice the price of paddy, - Srd 48, - per bag, which still doesn't meet the calculated production costs of ADRON)*

The ADRON staff is of the opinion that breeding activities for the production of elite seed (which ADRON takes care of) must strictly be separated from seed production of certified-1 seeds and certified-2 seeds, which in their opinion seed farmers can take care of.

At this moment because of the enormous demand ADRON also produces small quantities of certified-1 seeds for farmers and she works with around 25 seed farmers who ADRON stimulates and accompanies with the production of sowing-seed for paddy production.

*The recently by government adopted "seed –law" is also not yet in line with this process of producing quality seed and makes certification problematic.*

Many small and large farmers buy some seeds at ADRON or from seed farmers to make sowing-seed for their own production. The quality in many cases is doubtful and surely has a negative impact on the quality of the product and the production level.

*Discussions on how to guarantee good and certified quality seed are taking place but are not structured enough to result in a good outcome on the short term.*

In general the following ideas are in consideration;

- Set up a large centralized corporate seed production unit to produce certified- 1 and 2 seeds for the whole sector
- Interest and select more small and medium scale farmers and define procedures and guide them to produce certified-1 and 2 seeds.
- Interest a private large farmer to produce certified-1 and 2 seeds

*The (economic and market)importance of a better quality product as well as the assurance of enough certified sowing seed will only grow, and an integrated solution to solve this problem must be worked out on the shortest possible term for the quality of our export cargo over the last years has dropped drastically and Suriname's quality reputation is at stake.*

ADRON calculated the yearly need of sowing seed for Suriname (70.000 (hectare) \* 150 -190 kilo/ha) at between 10.500 to 13.300 ton on year basis or around 1500 hectare production area for seed production.

*The SEL farm possibilities as a seed farm are promising and economically interested to research and consider seriously. This must be done in close collaboration with ADRON and other producing small and large seed producing farmers. Possibly the SEL formerly has to be reorganized and her goals redefined to led this production facility be in charge to produce quality seed on a market conform way.*

### **6.3 Government extension service**

Over the years the role the MAAHF had and has on training and extension in agriculture production because of different reasons diminished. Lack of funds and fully furnished technical staff are the main causes to be mention. The hollowing out of different structures at the MAAHF and by going so the unattractiveness to work at MAAHF made that in general, training and extension services for many years now do not have the attention and place it should get.

*Needless to say that knowledge, new developments and research outcomes are not well communicated with the different stakeholders in the agriculture production sector and that Suriname is lacking behind in developments in international perspective.*

ADRON in 2000 had technical assistance to look upon this crucial subject matter for the rice development and an advise report "research and rice farmers; the way to sector driven communication improvement" has been published.

Also in the ASP of 2004 a special report on research and new structures for training and Extension services was published.

*A more formal work relation and coordination between ADRON and the extension and training officers of the department of MAAHF in Nickerie must be worked out and institutionalized.*

*In general but more specific for the rice sub-sector we can conclude that;*

*-there is a great need for different sorts of up to date training and extension services*

*-the organization of training and extension services of the MAAHF must be modernized and more demand driven organized*

*-for training and extension services the parties concerned have to pay (a certain part).*

*- (Differentiated) communication systems well adapted to target groups/sectors must be developed*

*-Different institutes involved with training and extension services have to coordinate their responsibilities and activities, to get more structure in the services.*

Because of the urgent need to improve the extension service so that the farmers results can improve on the short term, one can think of outsourcing the LVV extension officers of Nickerie to ADRON and that ADRON additionally pays them a performance allowance.

## 7. SWOT analyses of the rice sector

In the AGROTEC Spa feasibility Study of the CARIFORUM Rice Industry a “Suriname National Action Plan” is formulated, including a rather in-depth SWOT analysis of the rice industry. (See Annex1). For reasons of duplication we want to refer to this SWOT and underneath only mention the most important aspects of the strongnesses, weaknesses and opportunities and threats of the rice industry in Suriname.

<b><u>Strongnesses</u></b>	<b><u>Opportunities</u></b>
<ul style="list-style-type: none"> <li>-Potency of land of good quality for rice production. In Nickerie uniform plain land in abundance and also good potential in other districts</li> <li>-Potency of good quality irrigation water</li> <li>-Good climatic conditions with two rainy and two dry periods (sun and rain)</li> <li>-More than 100 years experience in rice cultivation, rice processing and marketing</li> <li>-More than 60 years research experience in rice. An experienced rice research institute (ADRON) and good local varieties of rice</li> <li>-A critical mass in production/processing to easily make the sector grow further</li> <li>-Good history on quality locally bred rice varieties</li> <li>-Relatively efficient production with medium to low level production cost</li> </ul>	<ul style="list-style-type: none"> <li>-Extend the physical paddy production in Nickerie, Coronie and Saramacca</li> <li>-Extend the irrigation capacity (Ston Dansie/ Maratakka)</li> <li>-Marked opportunities in the Caribbean region and Central- and south America</li> <li>-Produce more added value products from paddy</li> <li>-Optimize the current production potential</li> <li>-Set up a fodder industry and make more and better economic use of waste</li> <li>- opportunities to economically and marketing wise further exploit local bred varieties</li> <li>-Opportunities to increase efficiency</li> </ul>
<b><u>Weaknesses</u></b>	<b><u>Threats</u></b>
<ul style="list-style-type: none"> <li>-not enough internal coordination within the sector</li> <li>- weak organization degree of stakeholders organization (producers, processors, exporters)</li> <li>- Number of farmers with too small production plots</li> <li>-Too low yields and unsatisfactory maintenance of wet and dry infrastructure</li> <li>-poor and inadequate post harvest handling, drying, storage and no or too low incentives for quality consciousness at different levels in the chain</li> <li>-Good credit facilities/ farmers dependence on processors and exporters</li> <li>-weak governmental supporting systems</li> <li>-weak and too little opportunities for agriculture education</li> <li>- No waste management policy and alternative application policy development</li> </ul>	<ul style="list-style-type: none"> <li>-No long term governmental policy on rice</li> <li>- Banking and credit institutions have taken a risk avoidant behavior and handle a</li> <li>- Too high interest rate</li> <li>-Quality deterioration</li> <li>-In a free international market/WTO more competition</li> <li>-Local exporters will become too small to have connection to market developments</li> <li>- Competitors export market subsidies on rice</li> <li>-Producers and consumers subsidies in (potential) export markets (EU, Japan, Korea)</li> <li>- Environmental treats and treats to make use of opportunities to lower costs or to earn extra income</li> </ul>

## 8. Findings, recommendations and conclusions

### An integral long term strategic plan approach for the rice-sector

From the developments over the last two decades we can conclude that short term (ad hoc) policy which is not embedded in a long term strategy is not adequate to pursue long term sustainable development goals. It is of importance to formulate long term policy plans and create the framework to implement these plans. For the coming years there are funds available (EU, NHAS and also government funds) to revitalize the sector. Also there are ideas and plans which are worked out to a certain extent.

- What misses is an integral long term strategic sector plan to revitalize the rice sector. There are partial plans and also more or less allotted funds, which can be seen as parts of a puzzle of which we do not know if we have all the parts and if there are enough funds to solve the whole puzzle. Beside this, many persons (read donors) at the same time are working to solve the puzzle and this does not happen on a coordinated and strategic way. This way of working will not result in the best, most efficient and effective result the sector needs. With a long term strategic development plan for the sector we can coordinate funds, make responsible long and short term priority choices and is it possible to continue the policy- framework, even if there are budget problems.

### Wet and dry infrastructure

The government set out a policy to structure the organization, management and control of the wet infrastructure through polders (waterschappen). Legislation concerning this polder management system is in a final stage of implementation, however with this legal polder management system only, the availability of water and the maintenance and functioning of the polder are not organized yet. The further effects at polder level as well as the detailed effects on farm level need to be worked out in detail yet.

- From a technical and organizational point of view one needs to determine if the historical division in 5 polders still is satisfactory, taking into consideration the extension of the cultivated area up to nearly 45.000 in Nickerie. Problems can rise considering the different interests and when there is no clear and unequivocal start in policy matters (large versus small farmers; distance to the primary and secondary irrigation and drainage channels within polders and between polders, etc.). Short term technical assistance to work out these matters in detail and formulate solutions is of great importance to let this polder model work.
- The control system of polders by farmer's organizations is new, needs to be initialized, developed and facilitated. Technical support (e.g. communication, book keeping, maintenance and control models etc.) and training are needed to enable these new organizations to do a proper job. A program in the first two years including financial support needs to be put in place. The responsibility for setting up and accompanying this polder system possibly can be coordinated by the ministry of regional development, RO in close collaboration with the MAAHF.
- Cutting up of responsibilities of maintenance and management control of waterways, structures, irrigation and drainage infrastructure and also of the dry infrastructure to different organizations and or ministries must be prevented. Clustering of jobs and responsibilities including budgets needs to be implemented at district level. At ministerial level this must be organized, coordinated and institutionalized.
- A governing body for the maintenance and functioning of the primary water system (MCP-channel, van WOU, Nani-, Nickerie and Maratakka River etc.) needs to be installed. This body has to work in close collaboration with stakeholder's parties concerned. Concrete worked out management and control proposals with the needed responsibilities adjusted to the farmers needs have to be worked out in detail. The coordination and communication with polder water boards have to work out in detail yet. The present MCP –governing body is mentioned as possible highest water control, distribution and controlling body for Nickerie (national water authority for Nickerie). This MCP governing body on short term needs technical assistance and financial support the coming two

years for strengthening its technical and institutional level to work and become an independent body.

- A good organized wet infrastructure for the production needs to go hand in hand with a good dry infrastructure (Roads, polder dykes etc.). The establishment of a centralized organization for water-, roads and dykes at polder and district level needs to be investigated to realize efficiency and effectiveness in logistical matters of production. In this context a study concerning a better utilization of water transport as well as the coordination and planning of logistical matters have to be executed.

### **Involvement and strengthening of institutions**

With a rice chain management approach, lots of organizations and institutions are involved. Many of these organizations because of several reasons (financial, technical, organizational etc.) have a limited execution capacity and are weak. It is of great importance that in a good structured, organized and planned chain the weak links needs to be strengthened to guarantee mutual coordination and tuning. Chain management implies that stakeholders/links cannot do and act anymore in total freedom.

In this framework it is of importance that;

- Important farmers organizations, cooperatives, processing- and exporting organizations, governmental institutions involved in the rice –industry need dramatic strengthening at many different levels, such as on administrative-, organizational-, technical- and institutional level, for otherwise they are not capable in fulfilling their task properly. This support must last for a start-up period through which these organizations can grow up to become independent and self-sufficient.
- ADRON and the department of extension of the ministry of LVV in Nickerie, within a general strengthening program need special attention, for a further expansion of these organizations is of utmost importance for better results in the rice production.
- On a larger and wider scale ADRON needs technical and financial support to speed up research at all levels as listed in the logical frameworks (see annexes), to accelerate the needed results to support sustainable development. ADRON also needs to start with a business economics research program because there are great differences between estate-, and medium and small scale farming. Also because of the need for in-depth economic parameters and the effect of farm size aspects on macro- economic and farm level.
- Strengthening of the Nickerie department of LVV is of importance because within a chain structured approach of the production, which the government is heading through, LVV Nickerie has to fulfill a central role and execute more and new tasks such as; re-introduction of sowing calendars for farmers, re-institutionalizing of education and extension services, coordination functions with important institutions as ADRON, MCP etc, improve and enlarge tasks concerning quality control and introduce and guide water board- organizations at polder level etc.

### **The provision of quality sowing seed and other inputs**

- Good sowing seed forms the basis to produce a good end-product. Farmers, processors and exporters need to be aware of this, but in practice we must conclude that they have a limited view of the effects on business- economics matters. In spite of this there is an urgent need for quality seed against payable prices. Opportunities to organize this via the SEL farm at Prins Bernard Polder must seriously be researched. Additionally a good promotion instruction film concerning how to produce quality seeds and its importance and effects on business results must be produced for the sector.
- The provision of machines and spare parts, fertilizers and chemicals etc. has to be reviewed. The temporary/complete or partly abolishment of tax on inputs must be considered to improve the profitability of the whole industry and also because of price differences with our neighboring country Guyana. Because of the monopolistic market structure of the fertilizer market the

government has to look closer at quality matters of fertilizer and on the prices and price structure. The importance of “in-time” availability of fertilizers must be organized and the possibility to involve farmer’s organizations in buying and selling fertilizers should be investigated.

### **Credit and loan facility**

- The financing of production and production development with the actual restricted bank policy towards the rice-sector as well as because of the high interest rates is nearly impossible and unattractive. The indebtedness problems are an obstacle for production and development of the sector and the government, banks and other stakeholders need to search for a workable solution first and so pave the way for better guarantees for bank loans.
- There is a great need for low tariff (between 7 and 11 %) seasonal credits as well for investment credits to do modernization/ expansion- and replacement investments. Although the EU credit facility is not worked out in detail yet we recommend researching the possibilities to twin a possible EU and NHAS credit facility for the sector and by doing so to enlarge the possible package of a differentiated credit facility.

### **Formulation of format standard contracts**

Every season there are disputes between buyers and sellers of paddy and fertilizers. An advice is to formulate standard contracts for buying and selling of paddy and fertilizers in which different important aspects as terms and conditions of delivery and payments, sanctions etc., are regulated. These contracts need to have a legal basis which must have short term imperative force legally structured.

### **Paddy storage-, drying- and processing facilities**

There are great differences within the paddy storage and processing industry. A view companies only can stand bench marking in international perspective, but most of the processing companies in Suriname are out dated and have to realize important efficiency and rent ability improvements.

- Because there is no uniformity in the lining up of drying and storage facilities it is recommended to research to most effective and efficient system. This must have great priority for this is the first switch in the processing-chain and the end quality depends very much on this first stage of processing. Large efficiency and quality improvements have to be realized and are possible in the process from paddy to cargo rice and further to white rice. Part of these improvement results, in money terms have to be ploughed back in the primary production stage.
- Within the processing industry there is a great over capacity in processing facilities which lead to low figures (#30%) of use of installed capacity and high costs which partly is rolled of on primary producers. A well planned permitting system is of importance to lead to a well managed chain structured organization.
- In restructuring the rice-processing industry one has to realize the important differences within the sector and that family and family structures in many cases have priority above business like matters in Suriname. This may be the reason why the involvement of the family in the business is so great and in many cases of more importance than the interest for implementation and rationalization of business like management processes.

### **Added value possibilities in the rice industry**

Estate farmers and rice processors do not see many opportunities in increasing added value opportunities for rice products. Reasons they give are the small domestic market, the high investments in processing factories, the need for highly skilled personnel, the subsidized export from abroad and the more or less

protected markets of industrialized countries.. The only opportunity they see and mention is the processing into “parboiled rice”, but this needs large quantities of good quality water and cheap energy. At this moment this is a problem in most of the places where the processing factories are installed. Added value product out of chaff and straw are also possible but logistical factors form the greatest problems for private initiatives. From an environmental point of view the government will have to play a role to make a start to process this” waste” on an environmental sustainable way.

### **Marketing aspects in the rice industry**

Exporters and their organization (VRE) do not see a bright future on the EU rice market under the current EU Rice regime. At this moment the rice exports are more and more directed to the Caricom and the region and this concern a “white rice” market.

- There is a need for more and better market information and market research, and this will only extend once the rice sector is organized as a rice production board.  
Because of vertical integration developments in the international rice marketing it is of importance to professionalize and cluster the export marketing of rice.
- The domestic market of rice and rice products, price – and quality aspects and its internal relations in the distribution chain are not well researched. A detailed study of the local rice market is recommended.

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## 9. Bevindingen, conclusies en aanbevelingen

### **Integraal strategisch lange termijn plan van aanpak voor de rijstsector**

We hebben de afgelopen jaren kunnen constateren dat korte termijn beleid niet toereikend is om duurzame lange termijn doeleinden na te streven. Het is noodzakelijk om lange termijn beleidsplannen uit te werken en kaders te creëren om deze uit te voeren.

Er zijn voor de komende jaren fondsen beschikbaar (EU, NHAS alsook overheids-middelen) om de sector wederom gezond te maken, alsook zijn er ideeën en plannen die in mindere of meerdere mate zijn uitgewerkt.

- Wat ontbreekt is een integraal lange termijn strategisch sektorplan voor het gezond maken van de rijstsector. Er zijn deelplannen alsook geormerkte fondsbestemmingen die gezien kunnen worden als stukjes van een puzzel, maar we weten niet of we alle stukjes hebben en of er voldoende fondsen zijn voor het in elkaar zetten van de puzzel. Ook is het zo dat er meerdere mensen tegelijk aan de puzzel werken en dat dat niet op een strategische en gecoördineerde wijze gebeurt. Deze werkwijze zal niet dat maximale effect van ontwikkeling sorteren die gewenst is. Bij een langjarige strategische sektorale planningsbenadering kunnen fondsen gecoördineerd aangewend worden, kunnen verantwoord lange en korte termijn prioriteitskeuzen gemaakt worden en kan bij budget tekorten of andere problemen toch continuïteit van beleid plaats vinden, zij het over de tijd aangepast.

### **Natte en droge infrastructuur**

De overheid heeft een beleid in werking gesteld om de organisatie en beheer van de natte infrastructuur langs waterschappen te organiseren. Wetgeving mbt het doen laten functioneren van waterschappen zijn in een afrondende fase echter daarmee is het probleem van beschikbaarheid van water en het onderhouden en doen functioneren van waterschappen nog niet geregeld. De nadere uitwerking op waterschapsniveau alsook de werking van nieuwe regelgeving op bedrijfsniveau dienen nu in detail nader uitgewerkt te worden.

- Vanuit een technische als organisatorische optiek dient bekeken te worden of de historische indeling (5 waterschappen), gelet de uitbreiding van het cultuurareaal dat bediend en beheerd dient te worden, nog voldoet. Problemen kunnen opdoemen waar het verschillende belangen betreft en bij geen eenduidigheid van vertrekpunt (grote versus kleine boeren; afstanden bij hoofd en secundaire leidingen binnen polders en tussen polders) cq beleid. Korte termijn technische assistentie om deze materie in detail in beeld te brengen zal noodzakelijk zijn.
- De beheersstructuur van waterschapsbesturen als vertegenwoordigers van rijstboeren is nieuw en moet geïnitieerd, ontwikkeld en gefaciliteerd worden. Technische ondersteuning (communicatie/boekhouding/ onderhouds- en beheersmodellen en begeleiding etc.) en training zal noodzakelijk zijn om deze organisaties hun taken naar behoren te kunnen laten vervullen. Een programma van steun voor de eerste twee jaren zal opgezet en bekostigd dienen te worden. De verantwoordelijkheid hiervan zou mogelijk bij het ministerie van regionale ontwikkeling i.s.m. het ministerie van LVV geplaatst kunnen worden.
- Versnipperde verantwoordelijkheid bij de organisatie, onderhoud en beheer van waterwegen, kunstwerken en infrastructuur moet worden tegengegaan. Op ministerieel niveau dient dit nadergecoördineerd, georganiseerd en geïnstitutionaliseerd te worden. Clustering van taken en bevoegdheden met daaraan gekoppelde budgetaire overdrachten inclusief verantwoordelijkheden dienen op disriksniveau geïmplementeerd te worden.
- Er dient een beheersorgaan voor het onderhoud en functioneren van primaire watersystemen (MCP-kanaal, van Wou, Nani-, Nickerie en Maratakarivier etc. opgezet te worden dat in nauwe coördinatie met belanghebbende stakeholders-organisaties werkt en dienstbaar is aan

watergebruikers. Konkrete uitwerking met de nodige verantwoordelijkheden in afstemming met gebruikers dient plaats te vinden. Het MCP beheersorgaan wordt in dit kader genoemd als mogelijke en hoogste waterbeheers- en -distributie en coördinatie organisatie voor Nickerie (National Water Authority). Echter dient zij zowel technisch als organisatorisch versterkt en verzelfstandigd te worden. Daarenboven dienen taken en andere verantwoordelijkheden b.v. mbt water-intake, -distributie en -beheer van de Nickerie- en Maratakkarivier aan dit orgaan gedelegeerd te worden. Ook de onderlinge coördinatie, afstemming en communicatie met waterschappen dient in detail uitgewerkt te worden. Korte termijn technische assistentie en steun om deze materie nader uit te werken alsook het instituut te versterken cq tijdelijk te bekostigen zijn onontbeerlijk.

- Bij een goed georganiseerde natte infrastructuur voor de produktie hoort noodzakelijk ook een goede droge infrastructuur (wegen, polderdammen etc.). De oprichting van een gecentraliseerde organisatie voor water, wegen en dijken op polder- of distriktsniveau dient bestudeerd te worden om daarmee efficiency en costeffectiveness te bereiken op het logistieke vlak. In dit kader moet worden bekeken of een grotere benutting van waterwegen alsook coördinatie en "planmatige route planning" van logistieke zaken economisch zinvol is.

### **Versterking van instituties en hun betrokkenheid**

Er zijn binnen de rijstproduktie-keten meerdere instellingen of instituties betrokken die allen een bijdrage leveren aan de rijstproduktie (zie schema van betrokken organisaties). Vele van deze instituties hebben vanwege meerdere redenen (financieel, technisch, organisatorisch etc.) een beperkte uitvoerings-capaciteit en zijn (ver) zwak(t). Het is van belang dat in een goed georganiseerde keten geplande en gestuurde sektor dat zwakke schakels versterkt worden, opdat onderlinge coördinatie en afstemming gemaximaliseerd wordt. Ketenmanagement houdt ook in dat stakeholders/schakels niet meer geheel vrijblijvend kunnen doen en laten wat zij willen.

In dit kader is het noodzakelijk dat;

- Relevante boerenorganisaties, cooperaties, verwerkings- en exporteurs-organisaties, overheidsinstituties betrokken bij de rijstsector zoals LVV, MCP, ADRON etc., dienen op meerdere vlakken dramatisch versterkt te worden (bestuurlijk en organisatorisch, institutioneel, scholingstechnisch, administratief etc.), omdat ze anders niet in staat zullen zijn hun taken naar behoren te verrichten. Ook de nieuw op te zetten organisaties in de sector dienen gedurende een opstart periode zowel technisch, economisch als organisatorisch ondersteund te worden (marketing organisatie, kwaliteits beoordelingsinstellingen, etc). Via een opstart programma kan dan gewerkt worden naar organisatorische werkprocedures waarbij men zelfstandig en zelf bedruipend wordt.
- Het ADRON, alsook de afdeling voorlichting en controle regio west van het ministerie van LVV dienen binnen de institutionele versterkingen bijzondere aandacht te krijgen omdat een verdere uitbouw van ADRON en een versterking van LVV Nickerie van eminent belang is voor een verbeterd resultaat van de rijstproduktie.

ADRON dient daarvoor tijdelijk technisch alsook economisch ondersteund te worden

- Er dient op grotere en bredere schaal alsook versneld onderzoek plaats te vinden op alle vlakken die door ADRON zelf reeds zijn aangegeven (zie logical frameworks in bijlage X), om versneld over resultaten en informatie te kunnen beschikken
- ADRON heeft geen formeel bedrijfs economisch onderzoeksprogramma. Gelet de grote verschillen tussen produktiefactoren efficiency tussen ondernemerslandbouw en kleine boeren is het aan te raden om een speciaal bedrijfseconomisch onderzoeksprogramma op te zetten en te koppelen aan de lopende ADRON onderzoeken. Er is duidelijk behoefte aan een detail bedrijfseconomisch onderzoek naar bedrijfsgroote problematiek in relatie tot de macro economische en bedrijfseconomische effecten.

Versterking van LVV Nickerie is noodzakelijk omdat zij binnen de keten gestuurde benadering van de

produktie een centrale plaats inneemt en een aantal (nieuwe) taken zal moeten/kunnen uitvoeren;

- Om maximaal effect te sorteren in de organisatie van de rijstverbouw is de herintroductie van zaaikalenders op polderniveau een absolute noodzaak. Dit zal strak en met autoriteit , afdwingbaar moeten worden georganiseerd.
- Een initierende en coördinerende functie in de opstartfase bij noodzakelijke veranderingsprocessen die in de komende jaren zullen voltrekken binnen de rijstsector
- De afdeling onderwijs, voorlichting en training zal geheel opnieuw opgebouwd en bemand moeten worden om de versnelde onderzoeksresultaten van ADRON ook versneld geaccepteerd te krijgen bij boeren. Coördinatie en institutionele samenwerking o.a. met het ADRON is daarbij noodzakelijk. Een andere mogelijkheid is een zelfstandige voorlichting ,trainings- en onderwijs unit te stichten die meer marktconform diensten aanbied. Het belang van een verbeterde voorlichtingsdienst wordt algeheel onderkend
- De afdeling kwaliteitscontrole van exportladingen aan rijst dient geëvalueerd te worden. Er is binnen de sector behoefte aan een onafhankelijk instituut dat zich met meerdere aspecten van kwaliteitscontrole en kwaliteitskeuringen bezig moet houden. In dit kader moet gedacht worden aan een onafhankelijk instituut voor kwaliteitskeuringen van de produktie af boerderij, kwaliteitskeuringen van eindprodukten, kwaliteitskeuringen van zaaizaad en meststoffen , etc. Bekeken dient te worden hoe zo'n instituut in te richten en waar zij het beste kan worden ondergebracht.
- Op polderniveau zou bekeken moeten worden of bijvoorbeeld de waterschaps- organisatie belast kan worden om op polderniveau activiteiten te ondernemen tot egalisatie van padie velden op polderniveau. Aanschaf van apparatuur en het produceren van hoogte kaarten op polderniveau kan als technische assistentie in het EU programma worden opgenomen, waarbij mogelijk het beheer en organisatie bij het waterschapsbestuur geplaatst kan worden.

### **Zaaizaad voorziening**

Goed zaaizaad is de basis voor het produceren van een goede kwaliteit eindprodukt. Boeren alsook verwerkers en exporteurs van padi zijn bewust van het gebruik van mindere kwaliteit zaaizaad, maar in de bedrijfseconomische doorwerkingseffecten heeft men onvoldoende inzicht.

- Er is een dringende noodzaak om de grote behoefte aan goed zaaizaad tegen betaalbare prijzen structureel te organiseren. De mogelijkheid om het bedrijf van de SEL in de Prins Bernard polder hiermee te belasten moet serieus onderzocht worden. Hiermee kan een goede basis gelegd worden in de garantie van aanmaak en marktleveringen van uniform goed zaaizaad
- Aditioneel kan een goede promotie instructiefilm worden gemaakt door het ADRON over hoe kwaliteits zaaizaad te produceren gekoppeld aan een stuk persoonlijke begeleiding. Hiervoor dienen (T.A.) fondsen beschikbaar gesteld te worden

### **Input voorziening**

De input voorzieningen vanuit de marktsector van machines en onderdelen, meststoffen , landbouw chemicalien etc., zou tegen de achtergrond van de ordening van de sector nader bekeken dienen te worden.

- Gedeeltelijke of algehele afschaffing van belastingen op inputs en machines zou overwogen kunnen worden om de concurrentiepositie van onze rijstexporten en de rentabiliteit van producenten en dienstverlenende en verwerkende bedrijven te verbeteren. Een en ander past binnen de voorziening van het huidige grondstoffen besluit.
- Vanuit de gebruikers van meststoffen zijn er tekortkomingen geconstateerd bij de importeur/groothandel . Tijdige beschikbaarheid, gegarandeerde kwaliteit, redelijke prijs zijn voor

gebruikers van groot belang en op deze punten kan het nodige nog verbeterd worden. De oligopolie in de kunstmestmarkt werkt niet in het voordeel van doorzichtigheid van de markt en prijsvorming. Boerenorganisaties/cooperaties zien in het zelfstandig organiseren van kunstmestimporten een goede mogelijkheid hun organisaties financieel te versterken.

- Er zijn prijsverschillen bij landbouwmachine –onderdelen tussen Guyana en Suriname die maken dat het interessant is om deze zaken in Guyana in te kopen. De overheid zou moeten overwegen om de verschillend prijsverhogende heffingen (deels) af te schaffen om niet alleen prijsverschillen te minimaliseren, maar ook een gericht stimuleringsbeleid te voeren ter vervanging en modernisering van het machinepark, waar volgens de recentste informatie nu zelf sprake is van een absoluut tekort in sommige polders en ernstige bedrijfsonzekerheid van functioneren (combines,tractoren). Dit beleid zou de overheid kunnen coördineren i.s.m. importeurs en dealers van machinediensten die op deze wijze aangemoedigd kunnen worden hun marges aan te passen

### **Krediet faciliteiten**

De financiering van productie en –ontwikkeling is met het huidige impliciete (restrictieve) bankbeleid naar de rijstsector toe, alsook door de hoge rentetarieven haast onmogelijk en onaantrekkelijk.

- Het schuldenvraagstuk vormt een obstakel voor produktiestimulering en (financieel)ordering van de sector. De overheid zal samen met banken en producenten/stakeholders organisaties op korte termijn het schuldenvraagstuk adequaat moeten oplossen om zodoende de weg vrij te maken voor betere garanties van beschikbaarheid van bankkredieten.
- Er is een dringende en grote behoefte aan zowel seizoen kredieten alsook aan investeringskredieten om moderniserings- en vervangingsinvesteringen te plegen. Noodzakelijk is dat deze tegen internationaal gangbare marktconforme rentes beschikbaar komen (rente-tarieven tussen de 7 en 11 procent)
- Hoewel de concrete behoefte en invulling van de EU voorziening mbt kredieten nog niet bekend is, valt aan te bevelen om de kredietfaciliteit die (mogelijk) vanuit de NHAS middelen voor de gehele landbouwsector beschikbaar komt hiermee te “twinnen” en een breder pakket aan gedifferentieerde kredietverlening aan te bieden en mogelijk te maken.

### **Format standaard kontrakten**

Het komt vaak voor dat boeren in een schuldpositie jegens verwerkers en exporteurs van padie verkeren hetgeen hen vaak in een afhankelijke positie plaatst bij de verkoop van hun produkt. Boeren moeten vervolgens vaak te lang wachten op betalingen bij geleverde padie hetgeen erop neer komt dat verwerkers en exporteurs werken met het vermogen van boeren.

- De overheid zou format standaard kontrakten kunnen maken die partijen bij het aangaan van wederzijdse verplichtingen kunnen hanteren. Op deze wijze zou de overheid boeren kunnen faciliteren om rechtmatige verplichtingen niet alleen te kunnen afdwingen, maar ook verkort afdwingbaar te maken. Een stuk standaardisatie in leveringsvoorwaarden wordt hiermee bewerkstelligd

### **Padie droog-, opslag- en verwerkings aspecten**

In de padie droog opslag en verwerkende industrie zijn grote verschillen. Er zijn enkele bedrijven die goed aansluiten bij een internationale bench marking, maar het gros is verouderd en er zijn aanzienlijke efficiency- en rendementsverbeteringen te realiseren.

- Er is geen eenduidig systeem of opstelling van droog/opslag installaties. Onderzocht dient te worden welk droog/opslag systeem en installatie opstelling het meest efficiënt is en in het hoogste

kwaliteitsrendement resulteert . Prioriteit dient hieraan gegeven te worden omdat dit de eerste verwerkingsschakel is en met de kwaliteit van de output het verwerkingsproces verder moet gaan.

- Gebleken is dat er grote efficiency verbeteringen moeten worden gerealiseerd en ook haalbaar zijn in de paddie-pel fase tot cargo rijst en het volgende stadium van het slijpen en polijsten van cargo rijst tot witte rijst. De gemiddelde resultaten liggen ver beneden benchmark industriën in binnen en buitenland. Er is reeds beperkt onderzoek naar verricht , maar het valt aan te bevelen om nadere onderzoeken te verrichten en voorstellen uit te werken om tot efficiency- en produktiviteitsverhoging en kwaliteitsverbetering te geraken. De baten van deze inspanning kunnen en zullen deels teruggekoppeld kunnen/moeten worden naar de primaire productieschakel.
- Er is sprake van een ernstige overcapaciteit in de verwerkende industrie , hetgeen resulteert in een lage benutting van geïnstalleerde verwerkingscapaciteit (gemiddeld 30%) m.a.g. verhoogde kosten die in steeds sterkere mate slechts naar de primaire producent kan worden afgewenteld in een open markt met toenemende concurrentie. Een gericht vergunningen en vestigingsbeleid is noodzakelijk om tot een enigszins planmatige integrale keten management te geraken . Een gericht beleid op dit vlak ook mbt te realiseren schaalvoordelen, schaalbenutting en technologische vernieuwing en logistieke planning is dringend aan te raden. Korte termijn technische assistentie op dit vlak is wenselijk, waarbij naast technische aspecten ook de (bedrijfs)economische effecten onderzocht dienen te worden en realistische implementeerbare voorstellen worden geformuleerd.
- De familieinvloeden in rijstverwerkende bedrijven is erg groot, hetgeen aangeeft dat nog niet voldoende op een bedrijfsmatige wijze de bedrijven gestoeld zijn. Dit bemoeilijkt implementatie van noodzakelijke rationaliserings- en management veranderings-processen. Het bewustzijn dat modernisering en verandering noodzakelijk is is wel aanwezig , maar resulteert onvoldoende in een meer moderne en bedrijfsmatige opzet , waarbij kennis, competentie en georganiseerde en geplande werkwijze de basis vormen. Dit is misschien ook de reden waarom de belangstelling voor trainingen en kwaliteitsverbeteringen niet zo'n prioriteit genieten.

### **Toegevoegde waarde mogelijkheden**

Verwerkers zien weinig mogelijkheden in toegevoegde waarde vergroting van de rijst industrie. Redenen die aangedragen worden zijn de kleine schaal van onze (binnelandse) afzetmarkt, de hoge investeringen in verwerkings units en deskundigheid, de gesubsidieerde export van vele produkten uit het buitenland , de hoge drempels op potentiële exportmarkten.

- Mbt "parboiled rijst" wordt aangegeven dat er tevens voldoende water van goede kwaliteit en goedkope energie aanwezig moet zijn, hetgeen veelal een bottle-neck is bij huidige vestigingsplaatsen van verwerkende rijstindustriën.
- Toegevoegde waarde mogelijkheden uit kaf en stro daar zijn mogelijkheden, maar de verspreide ligging met de logistieke beperkingen alsook de schaal zijn tot nogtoe te hoge drempels voor particuliere initiatieven op dit vlak. Vanuit milieu oogpunt moet de overheid wetgeving maken dit niet alleen mogelijk te maken , maar zal een formule moeten worden uitgewerkt waarbij algemene middelen hiertoe verantwoord aangewend kunnen worden.

### **Padie en rijstmarketing aspecten**

Rijst exporteurs en hun organisatie ,de VRE, zien met de huidige EU regelgeving geen toekomst meer in de EU als afzet markt. De afzet richt zich immers in de richting van witte rijst exporten naar de Caricom en de regio.

- De lokale markt van rijst en rijstprodukten in relatie tot de verwerkende industrie en relaties en ontwikkelingen in afzetkanaal keuzes en prijs en kwaliteitsontwikkeling zijn onvoldoende onderzocht en ondoorzichtig. Een studie naar ontwikkelingen op de lokale afzetmarkt, inclusief adviezen mbt

- De VRE ziet een toenemend container transport van rijst en bacoven over de weg naar de haven in Paramaribo. Een transportstudie naar de mogelijke voor en nadelen van container overslagmogelijkheden vanuit de haven van Nickerie moet verricht worden om macro- en bedrijfseconomisch door te rekenen of overslag en zeetransport naar Paramaribo voordeliger is dan wegtransport naar Paramaribo.
- Er is een noodzaak voor betere marktinformatie en marktonderzoek zeker als zaken mbt het op te zetten “Produktschap rijst” een rol zal spelen. Vanwege schaalaspecten en verticale linkages in de industrie wordt het noodzakelijk afzet en marketing te professionaliseren en bijeen te brengen.

### Overige zaken

- In het kader van de agrarische sektorstudie (ASP) zijn er naast het hoofd rapport deelstudies geschreven die raakvlakken hebben met het EU ondersteuningsprogramma voor de rijstsector. Hier moet nuttig gebruik van worden gemaakt.
- Vele stakeholders en stakeholders organisaties maken zich ernstig zorgen om het tekort aan landbouwtechnisch kader en de belangstelling voor een beroep in de landbouwsector. Er moeten programma’s komen om de belangstelling voor agrarische opleidingen en het uitoefenen van agrarische beroepen aan te moedigen.
- Er moet meer gedaan worden mbt het versneld uitvoeren en implementeren van research uitkomsten mbt het verhogen van de produktie per hectare
- De noodzaak voor betere voorlichting, training en communicatie wordt algemeen onderkend
- De VRE heeft aangegeven dat er innovatieve kredietbehoefte bestaat om met name opslagfaciliteiten te moderniseren om daarmee kwaliteitsverbetering van de opslag en verwerking van verschillende kwaliteiten onvangen en te verwerken produkt mogelijk te maken.
- De padieboeren organisaties hebben aangegeven dat er een grote behoefte is aan seizoenkredieten (met name voor de aanschaf van meststoffen) alsook dat er dringend kredieten noodzakelijk zijn voor vervangings- en uitbreidings-investeringen van landbouwmachine
- Padieboeren en hun organisaties vragen de mogelijkheid te bekijken om op korte termijn de overheidsheffingen op met name meststoffen en landbouwmachines en –onderdelen op te heffen om daarmee de produktiekosten te drukken en de konkurrentiepositie te verbeteren
- Padieboeren te Saramacca gaven aan geïnteresseerd te zijn in mogelijkheden voor een betere en moderne aanpak voor het produceren van (vee)voeder padie. Technische assistentie mbt toegespitste voederrijstrassen dienen serieus bekeken en getest en economisch uitgerekend te worden. Het ADRON i.s.m het Celos of een private onderzoeker/ondernemer zou een pilot projektstudie op dit vlak van diversificatie en toegevoegde waarde ontwikkeling moeten starten.
- Padi boeren in Saramacca zien goede mogelijkheden voor het garanderen van water van de tweede oogst in “spaarwaterbekkens”. Zij willen dit technisch graag uitgezocht hebben.

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## List of abbreviations

ABS	General bureau for statistics in Suriname
ACP	Asian Caribbean and Pacific countries
ADRON	Anne van Dijk Rijst Onderzoeksinstituut Nickerie
ASP	Agriculture Sector Plan
CARICOM	Caribbean Community
CELOS	Centre for agriculture research in Suriname
EDF	European Development Fund
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Development Product
IMF	International Monetary Fund
LVV	Ministry of agriculture, animal husbandry and fisheries
MAAHF	Ministry of Agriculture Animal husbandry and Fisheries
NHAS	Nederlandse Hulpallocatie Suriname (Dutch aid funds)
OCT-route	Overseas Colony Trade –route
SEL	Stichting Experimentele Landbouw
SML	Stichting machinale Landbouw
SRD	Suriname dollar
SRG	Suriname guilder
TA	Technical Assistance
WTO	World Trade Organization

## Annex 1: SWOT ANALYSIS OF RICE INDUSTRY IN SURINAM, (Agrotec study)

### STRENGTHS

	<b>INTERNAL</b>	<b>EXTERNAL</b>
<b>PRODUCTION PROCESSING</b>	<ul style="list-style-type: none"> <li>- competitive advantage in land / soil / water / location</li> <li>- long and sound history in rice cultivation</li> <li>- competent, dedicated and experienced farmers willing to continue producing rice</li> <li>- climate provides opportunity of 2 crops per year</li> <li>- presence of large infrastructure for water management</li> <li>- medium production costs</li> <li>- mechanized production techniques</li> <li>- established growers association</li> <li>- high quality processing up to international standard</li> <li>- appreciation of the potential value of extension services</li> <li>- many sound, modern installations</li> <li>- progressive, profitable companies exist</li> </ul>	<ul style="list-style-type: none"> <li>- still operating and exporting in the world market in spite of very low prices</li> </ul>
<b>MANAGEMENT</b>	<ul style="list-style-type: none"> <li>- reduced dimensions of the operators</li> <li>- flexibility</li> <li>- capacity to adapt supplies to customer demand</li> </ul>	
<b>MARKETING</b>	<ul style="list-style-type: none"> <li>- presence in EU market with specialty products</li> <li>- marketing intelligence available for major current markets</li> <li>- farmers willing to adapt new technology</li> <li>- potential regular supply and high quality</li> </ul>	<ul style="list-style-type: none"> <li>- proximity to large consumption/import regions (Caribbean region: more than 500,000 tons traded yearly; L.A. more than 1,000,000 traded yearly)</li> <li>- established presence in remunerative markets</li> </ul>
<b>FINANCE</b>		<ul style="list-style-type: none"> <li>- potential access to external funding at favorable conditions</li> </ul>
<b>POLITICS</b>	<ul style="list-style-type: none"> <li>- awareness at highest levels of the importance of rice sector in the economy</li> </ul>	

## WEAKNESSES

	<b>INTERNAL</b>	<b>EXTERNAL</b>
<b>PRODUCTION PROCESSING</b>	<ul style="list-style-type: none"> <li>- underutilization of physical production and human resources</li> <li>- low yields at farm level</li> <li>- low output in head rice</li> <li>- de-capitalization of the industry to keep it running (production continues without capital substitution/amortization)</li> <li>- lack of infrastructure maintenance</li> <li>- unsatisfactory state of drainage and irrigation infrastructure and unresolved problem of maintenance/operation</li> <li>- use of some varieties of limited yield potential</li> <li>- no assurance of quality seed and inputs supply</li> <li>- susceptibility to pest and disease attacks</li> <li>- poor, or no, on-farm handling, drying, storage</li> <li>- ineffective extension capability /outreach</li> <li>- no incentives for producing higher quality</li> <li>- inadequate drying/storage facilities</li> <li>- overcapacity in milling sector</li> <li>- sub-optimal management and performance of milling;</li> <li>- some old, too small, inefficient installations involved in exporting processing</li> </ul>	<ul style="list-style-type: none"> <li>- presence in world markets of large operators able to produce at lower prices and to sustain critical situations for long time (in a number of cases thanks to public support)</li> </ul>
<b>MANAGEMENT</b>	<ul style="list-style-type: none"> <li>- lack of cohesion/credibility in industry</li> <li>- inability of management at all levels to adapt to changed environment</li> <li>- lack of horizontal / vertical integration (except for few cases and not always satisfactory)</li> <li>- cumulated bad investments</li> <li>- over-mechanization at farm / mill levels and incapacity to optimize use of equipment</li> <li>- weak institutions and financing mechanisms to provide and ensure sustainability of operation and maintenance of drainage/irrigation infrastructure</li> <li>- oligopolistic millers in Surinam control and reduce farm gate price making rice production unprofitable or less profitable</li> <li>- research and extension services inadequate and without proper relations with market demand</li> </ul>	<ul style="list-style-type: none"> <li>- one-person monopolist controls and hikes up the urea price making rice production unprofitable or less profitable</li> <li>- limited funding for research</li> <li>- limited funding and staffing of extension</li> <li>- inadequate linkages of services with market demand</li> </ul>
<b>MARKETING</b>	<ul style="list-style-type: none"> <li>- trade association disunity</li> <li>- unreliable commercial, trading systems</li> <li>- absence of Marketing Information System</li> <li>- presence of many small operators (large profit stay with foreign traders)</li> <li>- average sale contract small</li> <li>- incapacity to get low shipping rates</li> <li>- MAAHF grading not accepted for some exports</li> </ul>	<ul style="list-style-type: none"> <li>- selling premium product for commodity price</li> <li>- over-reliance on preferential markets</li> <li>- fragmented, inconsistent marketing approach</li> <li>- exporter disunity</li> <li>- loading facilities at ports not adequate</li> </ul>
<b>FINANCE</b>	<ul style="list-style-type: none"> <li>- amount of industry debts larger than overall yearly production</li> <li>- indebtedness of smallholders</li> </ul>	

	<ul style="list-style-type: none"> <li>- lack of financial resources for working capital</li> <li>- financial fragility of some businesses</li> </ul>	
<b>POLITICS</b>	<ul style="list-style-type: none"> <li>- dysfunctional social system in Surinam</li> <li>- political, religious and socio-cultural divisions play an important part in decision-making policy towards implementation</li> </ul>	<ul style="list-style-type: none"> <li>- preferential quota system with EU not adequately managed in Surinam interests</li> </ul>

## OPPORTUNITIES

	<b>INTERNAL</b>	<b>EXTERNAL</b>
<b>PRODUCTION PROCESSING</b>	<ul style="list-style-type: none"> <li>- potential high increases in yields at farm levels (from 4t/ha to 6t/ha)</li> <li>- availability of physical production structure and human resources</li> <li>- Potential high increases in head rice output (from 40% to 60%)</li> <li>- capacity to reduce substantially production costs</li> <li>- decrease of the high interest rate</li> <li>- still scope for better husbandry, increased yield and ex-farm quality</li> <li>- potential for improved milling out-turns</li> <li>- bulk loading can reduce shipping costs</li> <li>- potential for value-added programmes</li> </ul>	<ul style="list-style-type: none"> <li>- Potential increases in the per capita consumption of Caribbean region population (now 18kg/year against 37kg/year for L.A.)</li> </ul>
<b>MANAGEMENT</b>	<ul style="list-style-type: none"> <li>- rationalization and consolidation of research on varieties and pest control</li> <li>- formation/support of farmer organizations to: facilitate input supply and group marketing; undertake D&amp;I maintenance and operation or capacity build RDCs/NDCs to do so</li> <li>- restructure, commercialize extension service</li> <li>- commercialization of seed supply</li> <li>- diversification for small rice farms</li> <li>- capacity to improve industry integration to achieve better management practices</li> </ul>	<ul style="list-style-type: none"> <li>- privatization of quality control responsibility productive of better acceptance in world markets</li> </ul>
<b>MARKETING</b>	<ul style="list-style-type: none"> <li>- capacity to gain niche markets in sophisticated countries such as Europe, Caribbean, Central America, Brazil and the rest of South America for extra long /biological</li> <li>- creation of Surinam brand name for quality products</li> <li>- reform/enforcement of trading processes</li> <li>- Promotion of joint marketing, branding for higher penetration and prices.</li> </ul>	<ul style="list-style-type: none"> <li>- last three years world consumption larger than production, then reduction of stocks</li> </ul>
<b>FINANCE</b>		<ul style="list-style-type: none"> <li>- availability of external financial resources</li> </ul>
<b>POLITICS</b>		<ul style="list-style-type: none"> <li>- ACP preferential quota lasts to 2008, no other rice exporter countries are foreseen</li> <li>- application of CET on rice import to safeguard Caribbean market for regional producers</li> </ul>

## THREATS

	<b>INTERNAL</b>	<b>EXTERNAL</b>
<b>PRODUCTION</b>	<ul style="list-style-type: none"> <li>- lack of steady product quality</li> <li>- pathologies / pests / etc not easily contained</li> <li>- need to improve infrastructure management with large investments</li> <li>- introduction of varieties without proper and long tests</li> </ul>	<ul style="list-style-type: none"> <li>- continuous existence of large stocks in many exporting countries</li> <li>- continuing stagnation or real decline of prices</li> <li>- continuing increase in real costs of inputs</li> <li>- further decline of D&amp;I infrastructure as Public institutions continue to neglect provision of drainage and irrigation</li> <li>- urea supply monopoly will be protected</li> </ul>
<b>MANAGEMENT</b>	<ul style="list-style-type: none"> <li>- lack of consolidated leadership in adequately organizing paddy and rice producers in a Rice Board</li> <li>- incapacity to organize research and technological advance in support to market / product choice (research re-active and not pro-active)</li> <li>- lack of respect of contracts with foreign traders</li> </ul>	<ul style="list-style-type: none"> <li>- marginal role of Surinam in world markets (only 1,5% of world trade)</li> <li>- oligopoly in processing/milling will be protected</li> </ul>
<b>MARKETING</b>	<ul style="list-style-type: none"> <li>- incapacity to define long term market strategies</li> <li>- need to build a consistent niche for extra long grain will mean investments and strong commitments</li> </ul>	<ul style="list-style-type: none"> <li>- consequences of European Union EBA decision</li> <li>- US PL 480 / food aid to Caribbean Region</li> <li>- regional markets more price sensitive than quality sensitive</li> <li>- Intense competition for markets (EU/WTO).</li> </ul>
<b>FINANCIAL</b>	<ul style="list-style-type: none"> <li>- burden of cumulated debt could marginalize many operators</li> <li>- scarce inclination of many operators to continue investing in the industry</li> </ul>	<ul style="list-style-type: none"> <li>- bankruptcy law not always respected</li> <li>- procedures in civil courts too exasperating long</li> <li>- unwillingness of credit institutions to provide financial resources</li> <li>- existence of large amounts of financial resources coming from suspicious sources directed to the sector as laundering instrument</li> <li>- high rates of interest on borrowing</li> </ul>
<b>POLITICS</b>	<ul style="list-style-type: none"> <li>- adjustment process could push out marginal producers / processors with important social consequences</li> <li>- agreement to reschedule debts of small farmers still to be implemented</li> </ul>	<ul style="list-style-type: none"> <li>- unresolved issues / conflicts between Guyana and Surinam</li> <li>- inadequate coordination between Guyana and Surinam in facing the rice industry problems could damage relations with donors</li> <li>- application of WTO rules of origin</li> <li>- preferential quotas disappear</li> <li>- CARICOM monitoring mechanism not working</li> <li>- application of CET not always enforced</li> </ul>

## Annex 2: ADRON report no. 6

### 11 CONCLUSIES en AANBEVELINGEN

Een doelstelling van het Vergelijkend Veldonderzoek is de analyse van het teeltsysteem. Op grond van deze analyse zijn de meest urgente onderzoeksthema's op het gebied van Agronomie bepaald (aangegeven in de box hiernaast) en is een conceptueel model opgesteld (zie onderstaand diagram).

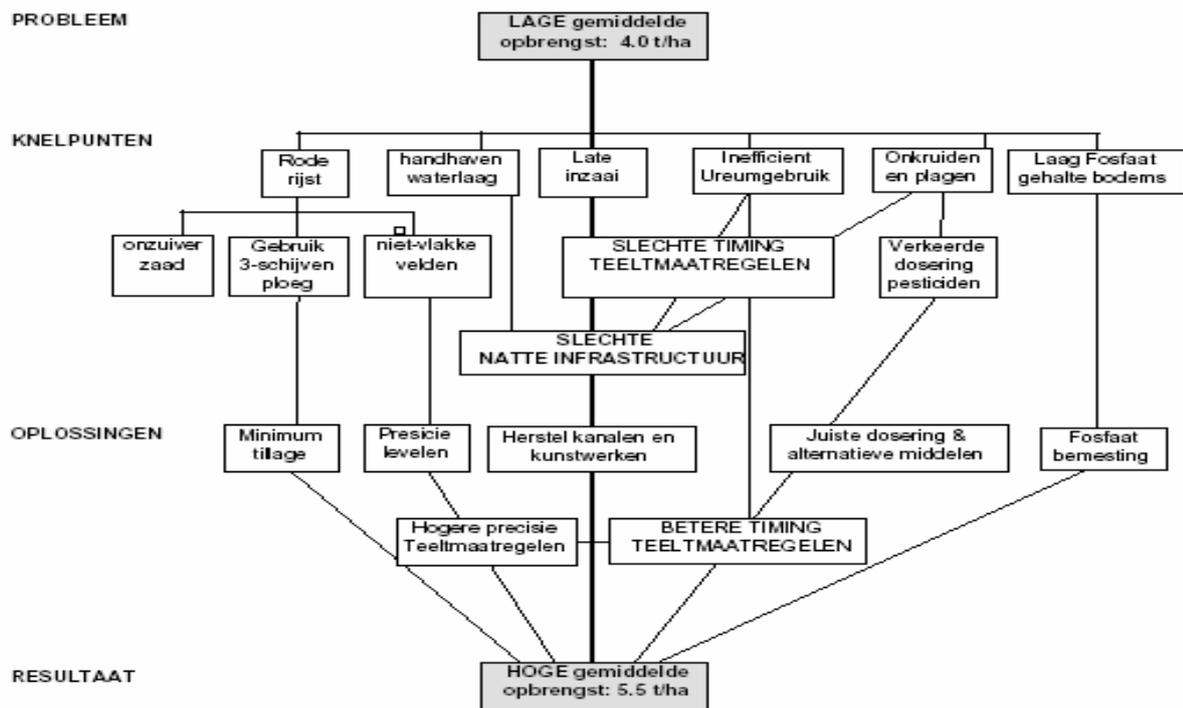
#### De belangrijkste onderzoeksthema's Agronomie:

- Rode rijst en andere onkruiden
- Grondbewerking
- Ureum- en Fosfaatbemesting
- Waterbeheer op veldnivo
- Insecten en ziekten

Zoals uit het diagram kan worden afgeleid, is het herstel van de natte infrastructuur cruciaal. Dit brengt ons op een dilemma bij het bepalen van de onderzoeksagenda van ADRON: gaan we uit van beperkte waterbeheersmogelijkheden en zoeken we naar aanpassingen op veldnivo, zodat de gemiddelde opbrengst niet verder daalt? Of gaan we uit van verbeterd waterbeheer, en zoeken we naar nieuwe betere produktietechnieken en variëteiten zodat de gemiddelde opbrengst omhooggaat?

Het is ADRON's stellige overtuiging dat voor de laatste optie gekozen moet worden, omdat de eerste een doodlopende weg is. De overheid zal hier een belangrijke rol moeten spelen.

Conceptueel model tot verhoging van de gemiddelde opbrengst van het teeltsysteem in Nickerie:



## Annex 3: ADRON report 9a. , logical frameworks of research program

**Table 4.2:** Logical Framework Breeding Program.

<b>Intervention Logic</b>	timing	Objectively Verifiable Indicators
<b>Overall Objectives</b>		
Generation and transfer of improved varieties and production technologies to rice farmers and processors		The number of varieties released and the % of fields planted with improved varieties
<b>Breeding purpose</b>		
Three types of improved varieties developed: short duration with yield equal to Eloni, long duration with superior yield and aromatic varieties, all with higher qualities		Developed and in the field: varieties with a shorter growth duration than Eloni and at least the same yield varieties with the same growth duration as Eloni and a higher yield aromatic varieties
<b>Results</b>		
1) parents are identified and crossed	6	successful cross
2) F1-population developed	6	good germination of embryo's uniform planting per cross
3) F2-population developed	6	heterogeneous population
4) Pedigree Nursery completed	24	characteristics as grain lengths fixed, time of flowering, plant type, flavor etc. tested against criteria
5) Observational Yield Trial executed	6	uniform plants per cross, tillering, straw stiffness, plant height, sterility, yield, amylose contents, milling yields, etc. tested against criteria
6) Replicated Yield Trial executed	18	idem, statistically tested
7) Farmers Field Yield Trial executed	18	on-farm trials successfully installed, yield, plant height and milling yields, statistically tested against criteria
8) Ripening trial executed		milling yields as function of maturity determined
9) Large scale industrial processing tests executed	12	milling yields determined in commercial mills
10) Pre-basic seeds produced		uniform planting, free of off-types
Total timing breeding cycle:		<b>96 months</b>

**Table 4.3:** Logical Framework Seed Production Program.

Intervention Logic	Objectively Verifiable Indicators	Assumptions
<b>Overall Objectives</b>	see Table 4.1	
Generation and transfer of improved varieties and production technologies to rice farmers and processors		
<b>Seed Production purpose</b>		
Production system in place for sufficient and high quality seed for commercial production	± 25 seed farmers and 1500 ha involved in seed production	growing paddy for seed is profitable
<b>Results</b>		
1) 2 ha produces at least 8 ton of high quality basic seeds	basic seed of high quality delivered to seed farmers	Pre-basic seeds available
2) seed farmers and fields selected	Farmers registered at ADRON	Selection criteria defined
3) recommendations for seed crop management transferred to seed farmers	Training manuals	Recommendations for seed crop management available Training of seed farmers
4) Seed farmers produce seeds according to standards	Seed quality tested	Seed quality criteria defined
5) Produced seeds are properly cleaned, dried and stored		seed handling & storage system operational

**Table 4.4:** Logical Framework of the Crop Management Research Program

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>	see Table 4.1	
Generation and transfer of improved varieties and production technologies to farmers		
<b>Crop Management Purpose</b>		Effective communication with farmers
Farmers understand and apply improved crop management methods	Increased paddy yields from 4.0 to 6.0 ton/ha	
<b>Results</b>		
1) Farmers understand and apply improved fertilization methods	improved methods of fertilization are identified and applied on >50% of the fields	
2) Farmers understand and apply effective and balanced control of pests and diseases	On 50% of the fields the number of sprayings per crop is reduced from 3-4 to 1-2 in 5 years	Natural enemies are effective Alternative pesticides are affordable
3) Farmers understand and apply effective and balanced control of weeds	Effective weed control methods are known and applied on >50% of the fields.	

	Within 2 years red rice in farmers fields strongly reduced.	
4) Farmers and authorities understand and apply more effective soil tillage methods	Farmers use the proper soil tillage machineries Farmers have level fields Costs of soil tillage reduced through minimum tillage	
5) Farmers understand and apply more efficient water management methods	Efficient methods for weed control in cannels and field ditches are identified and applied for maintenance of the infrastructure Effective water management methods are identified and applied on farmers' fields	ADRON'S fields are re-arranged as described by Wormgoor, 2000

**Table 4.5:** Logical Framework of the Fertilization Research Program.

Intervention Logic	Objectively verifiable indicator
<b>Overall Objective</b>	see Table 4.4
Farmers understand and apply improved crop management methods	
<b>Fertilization Program Purpose</b>	
Farmers understand and apply improved fertilization methods	improved methods of fertilization are known and applied on >50% of the fields
<b>Results</b>	Data base compiled
1) Diagnosed farmers' practice and soil farmers' fields sampled	
2) Response to phosphate and potash determined	
3) Response to urea for promising new varieties determined	
4) Methods of application and fate of nitrogen determined	
5) Economical and agricultural recommendations worked out	
6) Communication program executed	Communication materials available > 50% of the farmers apply ADRON's recommendations

**Table 4.7:** Logical Framework of the IPM Research Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>		see Tables 4.1 and 4.4
Farmers understand and apply improved crop management methods		
<b>IPM Purpose</b>		Effective communication with farmers
Farmers understand and apply effective and balanced control of pests and diseases	on > 50% of the fields the number of sprayings per crop is reduced from 3-4 to 1-2 in 5 years  For pilot polder, the number of sprayings per crop is reduced from 3-4 to 1-2 in 2 years on > 50% of the fields	
<b>Results</b>		Natural enemies are effective  Alternative pesticides are affordable increased personnel
1) Diagnosed field situation	Database compiled Identified diseases and pests (April 2002) Identified natural enemies (April 2003)	
2) Table compiled of existing diseases and pests related to growth of rice, weather conditions and cultural practices		
3) Alternative pesticides tested	Mid term evaluation April 2002	
4) IPM strategy determined	Pilot IPM strategy approved by ADRON's management team (November 2002) Facilitators identified and trained (March 2003) Start pilot FFS in pilot polder (May 2003) Adapted IPM strategy approved (November 2003)	

**Table 4.9:** Logical Framework of the Weed Control Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>		see Table 4.1 and 4.4
Farmers understand and apply improved crop management methods		
<b>Weed Control Purpose</b>		Effective communication with farmers
Farmers understand and apply effective and balanced control of weeds	Effective weed control methods identified and applied on >50% of the fields.  Within 2 years red rice in farmers fields strongly reduced.	
<b>Results</b>	Database compiled	Alternative

1) Diagnosed field situation		herbicides are affordable
2) Table compiled of major and minor weeds and their characteristics		
3) Improved Weed control strategy developed	Weed control recommendations approved by ADRON's management team	
4) Communication program executed	Communication materials 50 % of the farmers apply ADRON's recommendations	

**Table 4.11:** Logical Framework of the Soil Tillage Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>	see Table 4.1 and 4.4	
Farmers understand and apply improved crop management methods		
<b>Soil Tillage Purpose</b>		Effective communication with farmers
Farmers understand and apply more effective soil tillage methods	Farmers use the proper soil tillage machineries Farmers have level fields Costs of soil tillage reduced through minimum tillage	
<b>Results</b>		cooperation with dealers and factories
1) <u>Increased technical efficiency</u> Diagnosed field situation tractors and machines Optimal combination tractor type and machinery determined Adapted machinery developed	Database compiled idem prototype constructed	sufficient qualified research personnel available
2) <u>Laser guided land leveling operational</u> Improved land leveling system determined cost/benefit analyzed Farmers understand the advantages of level fields	Farmers have leveled fields	
3) <u>Minimum tillage developed</u> Number of soil tillage runs is reduced farmers understand and apply minimum tillage	> 50% of the farmers apply minimum tillage at least once a year	use of glyphosate is environmentally acceptable
4) Communication program executed	Communication materials 50 % of the farmers apply ADRON's recommendations	see also Tables 4.1 and 4.4

**Table 4.12:** Logical Framework of the Water Management Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>		see Table 4.1 and 4.4
Farmers and authorities understand and apply improved crop management methods		
<b>Water Management Purpose</b>		
Farmers understand and apply more efficient water management methods	Efficient methods for weed control in cannels and field ditches are identified and applied for maintenance of the infrastructure  Effective water management methods are identified and applied on farmers' fields	ADRON's fields are re-arranged as designed by Wormgoor, 2000
<b>Results</b>		
1) Alternative methods for weed control in cannels are identified	Database trial & test results compiled	Alternatives are environmentally acceptable
2) Improved Water management methods identified	Database trial & test results compiled	Experimental water management field designs fully operational
3) Communication program executed	Communication materials  Authorities responsible for infrastructure maintenance apply ADRON's recommendations  50 % of the farmers apply ADRON's recommendations	

**Table 4.13:** Logical Framework of the Post Harvest Technology Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>		see Table 4.1
Generation and transfer of improved varieties and production technologies to rice processors		
<b>Post Harvest Technology Purpose</b>		see Table 4.1
Processors understand and apply improved Post Harvest Technologies	Within 2 years improved post harvest technology on > 50% of the mills  No claims on exported of rice products	
<b>Results</b>		
1) Millers know how to avoid or to reduce discolored rice in products	Database trial & test results compiled discolored rice in products below the criterion	ADRON's Post Harvest Laboratory fully

	percentage foreign elements reduced to criterion	equipped and operational
	average milling yield improved with 2%	
	processing costs reduced with 10%	qualified Post Harvest researcher fully available
2) Millers understand the benefits of pre-cleaning of paddy		
3) Millers understand the relation between moisture content and milling yields		
4) Millers understand that letting paddy to rest after drying, milling yields can be higher		
5) Communication program executed	Communication materials prepared and distributed 20 mills are visited 20 millers attend ADRON's workshop	

**Table 4.15:** Logical Framework of the Communication Program.

Intervention Logic	Objectively verifiable indicator	Assumptions
<b>Overall Objective</b>		see Table 4.1
Generation and transfer of improved varieties and production technologies to rice farmers and processors		
<b>Communication Purpose</b>		
Effective communication with farmers and processors	Degree of adoption of improved varieties and production technologies	developed varieties and production technologies fit well in farmers and processors production systems
<b>Results</b>		
1) Farmers and processors involved in technology development through increased participation	Participation of farmers and processors in ADRON's on-farm and on-mill research activities  Attendance and participation of farmers and processors in meetings and workshops of ADRON	Cooperative attitude farmers and processors
2) Staff development of external Extension unit on participatory extension methods	Training programs and materials prepared by ADRON's staff	Extension unit Productschap in place
3) Communication programmes developed	Communication materials as ADRON's News letter, contents of local Radio and TV programs  Farmer Field Schools functioning	Cooperation of local radio and TV stations

## Annex 4: Number of organizations operating in the rice sector (1988)

### Paddy Producers

Region West

NR	Name of organization	NR of members	Acreage (1998)	
1	Product- en Verwerkings cooperatie van Euroboeren	176		2000
2	Produktie- en Verwerkings cooperatie van Groot Henar	73		450
3	Produktie- en verwerkingscooperatie van Uitbreiding Groot Henarpolder 1	107		1185
4	Cooperatie van 2 <sup>e</sup> Uitbreiding Groot Henarpolderboeren	64	690	
5	Produktie- en verwerkings- cooperatie van Middenstandsboeren	20		500
6	Cooperatie van Coroniaanse boeren	186		1396
7	Landbouwerscooperatie Coronie	110	1511	
8	Vereniging van Grootlandbouwers	n.a		n.a
9	Belangengroep Paradise	N/A		N/A
10	Vereniging van Padie Producenten	n.a		n.a
11	Organisatie van Kleine Padie Producenten	n.a		n.a
12	Landbouw Cooperatie Lareco (LACOLA)	n.a	n.a	
13	Cooperatie van rijstboeren in Saramacca(CORSYSA)	n.a	n.a	
14	Landbouw Cooperatie Wayambo (LACOWA)	n.a	n.a	

### B. Waterboards

1. Waterschap Klein Henar Polder
2. Waterschap Hamptoncourt Polder
3. Waterschap van Drimmelen Polder
4. Waterschap van Corantijn Polder
5. Waterschap van Sawmill Polder

### C. Millers/Exporters

1. vereniging van Rijst Exporteurs		21	N/A
2. Surinaamse Rijstindustrie en Molenaars Associatie	N/A	N/A	

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