SENEGAL RICE POLICY REFORM PROGRAM SECOND SITUATION REPORT

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EXECUTIVE SUMMARY

The Rice Sector Adjustment Program (RSAP) agreement was signed three years ago (February, 1994) by USAID and the Government of Senegal Most of the reforms that were focused on the buying and processing of paddy, and the distribution of local rice from the Senegal valley were accomplished in 1994 In contrast, most of the reforms that had to do with the operations of the CPSP (*Caisse de Perequation et de Stabilisation des Prix)* — importing broken rice and transporting, storing and selling rice in the country's major urban centers — took place in 1995 1996 was the first year when the impacts of the entire reform program could be gauged The APAP/UPA monitoring and evaluation program was designed and began to operate during this year as well The impact results that we report here are therefore preliminary They are presented to elicit comment, debate, and suggestions for further investigation This report has two main objectives They are to provide

- A clear narrative record of the events that have made up the reform program and how this chronology of events is linked to the most visible impact of rice supply and demand — the average retail price for broken rice (Section Two), and

- A preliminary reporting and assessment of the impacts of these reforms on the marketing system, on rice consumers, and on Senegal's rice farmers (Sections Three, Four and Five respectively)

Impacts on Rice Importing and Marketing Systems As predicted in our first Situation Report (January 1995), the biggest impacts of the reform program have been on the systems that import rice into Senegal and those that distribute both imported and local rice to both urban and rural consumers Within the space of a few months in late 1995 and early 1996, Senegalese importers (individual traders and those in groups, such as UNACOIS) demonstrated convincingly that they would have no problem in effectively replacing the CPSP in the importation of broken rice This transitional period was marked by unusually unstable and high rice prices This can largely be attributed to the poorly planned and implemented shut down of CPSP activities and to the fact that world rice prices hit a peak at just that time

Due to easier availability of data we have concentrated our analysis on the changes that have occurred in the rice importing system Private rice importing, in its first year, has been shown to be "not concentrated" (in structural terms) since there have been a large number of both sellers (sources of foreign exports) and Senegalese rice importers This will be an important structural element to follow in the future The majority of the broken rice imported during the year came from India, in contrast with previous periods when Thailand was the major source of supply

Of equal importance is the fact that rice markets in Senegal are rapidly restructuring, not only in terms of the private sector now being totally in charge of wholesale rice trade, but in terms of there being more varieties and qualities of rice available on the market at a wider range of prices Thus, within a few months this market has changed to give the Senegalese consumer substantially greater choice In addition, due to the intense competition in the market for imported rice, wholesale margins may now be starting to decline Gross margins going to private traders also seem to be substantially less than the margins fixed by the CPSP in the previous non-competitive situation All of these trends, particularly those related to efficiency gains, will be more fully documented in our last full year of APAP/UPA collaborative work

Impacts on Consumers While it is still too early to draw definitive conclusions on the effects of the RSAP reforms on Senegalese consumers, we can draw a number of preliminary conclusions on rice consumption patterns that will be further analyzed and monitored in the coming year For now we can say that

- Post-reform rice prices have been higher (particularly from mid-1995 to early 1996) and much more volatile than under the CPSP This has produced some short-run reductions in consumer income and somewhat greater food insecurity for consumers at lower income levels,

- However, on the positive side of the ledger, consumers have also been given greater choice in the type of rice they buy and its price Over time, with the development of more mature and stable rice markets, consumers should benefit from substantial improvements in marketing efficiency due to the dismantling of the CPSP The degree of savings will be seen will depend on how heavily the GOS decides to protect domestic rice production,

- The maintenance of relative price parity between rice and millet in Senegalese markets, and the continued availability of relatively low-priced broken rice from different origins (particularly India) indicate little evidence of significant changes in average rice consumption behavior, and

- However, with freer trade in rice and more diversity in rice origins, qualities, and prices, the Senegalese rice market is becoming more diversified Due to low average consumer incomes, the bulk of the market will be dominated by cheaper broken rice from a larger number of origins The most interesting parts of the market, from the perspective of strengthening domestic production and processing, will be the rice consumed by the "upper half" of households with higher levels of disposable income If local production can be oriented toward the quality characteristics that those consumers prefer, it will be possible to sell domestic rice at average prices significantly higher than those received today

Impacts on Rice Producers Since 1991-92 paddy production in the valley has suffered some decline in both the rainy and dry seasons This has occurred for a variety of reasons and despite the increase in nominal rice and paddy prices that has occurred since the 1994 CFA devaluation This decline has occurred principally for three reasons for the more input-intensive paddy production systems, input costs have increased faster than paddy prices, there have been a number of severe disruptions to the availability of CNCA credit due to repayment problems, and, finally, farmer-buyer or farmer-processor relationships have begun to rapidly change in the wake of the SAED withdrawal from paddy buying and processing in mid-1994

APAP/UPA analyses have demonstrated, as have those from WARDA and other organizations, that the economic costs and returns to rice production vary enormously from one production/marketing system to the next in the valley Under current price conditions it is quite possible for some paddy producers to make a good financial and economic return Other farmers, particularly those in larger perimeters with higher water costs, will have difficulty in making money in paddy production Leaving aside the type of paddy processing (*decortiquese* or larger rice mill), the most critical variables are paddy yield, and the cost of irrigation water and other critical inputs such as DAP and Urea

Use of simulation analysis of detailed rice production and marketing budgets has confirmed that farmer paddy income has become more volatile in the past few years The analysis further shows that, if the tariff protection system is working correctly, average net financial profitability should be higher in all systems than prior to liberalization, even though absolute returns will be more variable — some

higher and some lower than the pre-liberalization case Finally, sensitivity analysis shows that financial profitability will improve substantially if the quality of rice sold can be raised (more rice sold as whole grain than broken) so that farm production can be assumed to compete more directly with higher quality imported rice

Some of the disturbances to the rice subsector in the valley can be seen to be short-term by-products of the reform program, but certainly not all of them For example, the low price of broken rice on world markets (the standard of comparison for the value of Senegalese production) is not the fault of the RSAP Nor is donor overinvestment in poorly performing rice mills in the valley The poor performance of the CNCA credit system may be partially attributed to farmer and miller unmet rice price expectations, but this is not the total answer on why borrowers, in large numbers in the valley, did not repay their loans

Both the donors that invested and the GOS have an important stake in the successful development of irrigated agriculture in the valley Achieving that will require close examination of many policies affecting investment, input and product prices, and badly needed diversification of crop production Paddy production should continue to be strongly encouraged in those areas suitable production areas where water costs and yields are such that positive economic results can be sustained over time Where farmers are learning new production techniques for paddy or other crops and improving their productivity over time, highly targeted subsidy assistance (in the context of projects) may be warranted Large portions of the valley are still undeveloped "frontier land" rather than densely settled, sustainable irrigated perimeters Funds not spent on ineffective state marketing systems could be directed to other needed infrastructure investment

Summary View Overall the implementation of the RSAP program has gone fairly smoothly The private sector, when finally freed from needless restrictions from the public sector, has done a good job in keeping the country supplied with rice There have been no food riots While it is too early to provide a definitive evaluation of the RSAP in meeting its diverse objectives, we can offer a few conclusions about how the reforms were carried out

- The first conclusion is that lack of attention to the timing and coordination of different parts of the reform program often has lead to needless disruption of the private rice market,

- Second, changes in CPSP operating procedures during the close-out phase were so clumsy as to give rise to speculation that they were done deliberately to disrupt the market and/or for personal financial gain,

- Third, it is clear that there was not enough consultation with the private sector in advance of and during RSAP reform implementation, and

- Fourth, inadequate border protection measures were rushed into law 15 months ago, but have neither been implemented nor modified by additional legislation Limiting tariff protection to the 15 percent normal import duty has generally worked well during the recent period of high world rice prices But now, as world prices are declining (and the price of broken rice from other origins, such as India, is even lower), there is now a growing risk that rice production and marketing in the valley will be negatively affected more than necessary

Consumers have more choices in the rice market with price impacts ranging from neutral to slightly negative for the poorest groups Changes in market structure and improvements in operating

efficiency will take a number of years to fully materialize but will result in large savings for the Senegalese economy as a whole RSAP reforms have contributed somewhat to the complex set of problems in the valley However, raising Senegalese retail rice prices to new and politically-unacceptable levels will in no way solve the real problems in the valley

1. INTRODUCTION AND OBJECTIVES

In February 1994, USAID signed an agreement with the Government of Senegal (GOS) to liberalize importing, domestic marketing and pricing of rice This was part of a larger, multi-donor Agricultural Sector Adjustment Loan (ASAL), coordinated by the World Bank and the Government of Senegal (GOS) In February 1995, personnel from the USAID-funded Agricultural Policy Analysis Project (APAP) produced a first "situation report" on the Rice Sector Adjustment Program (RSAP) It described in detail the agreed-to reforms, progress made to that date in meeting reform objectives, and plans for a joint APAP/UPA program of monitoring and evaluation studies that would assess the impacts of the reform program on Senegalese farmers, consumers, and the national rice importing and marketing system [1]

Much has happened in the two years months that first situation report The Government of Senegal moved rapidly to implement the reform program, so much so that most of the reforms were accomplished by early 1996, at least a year ahead of the most optimistic calender foreseen in the original reform USAID-GOS agreement Once given the authorization to import in late 1995, the Senegalese private sector responded convincingly It quickly laid to rest all fears that it did not have the financial and management capacity to accomplish large-scale rice imports Rice import liberalization took place during a period of unusually high prices on world markets This, coupled with the devaluation of the CFA franc, might have resulted in disastrous consequences for consumer prices at the retail level However, with a few exceptions, consumer rice prices have remained at reasonable levels, and urban rice markets have begun to display a wider range of both quality and price

The rapid implementation of the rice reform program and the lack of major disruption to national rice markets have caused some to declare the program an early success For example, USAID/Senegal recently declared that its strategic objective of national policy reform (with the rice reform program a central focus) had "graduated" (or been removed from the overall program), since major portions of this program objective had been met While we agree that a large number of RSAP reforms have been accomplished, there are still important secondary development policy issues affecting the economic health of the rice subsector and its participants, from producers to consumers For example, due to a variety of factors, rice production in the Senegal River valley has declined somewhat over the past few years In addition, there have been transitional problems for some producers and rice millers as rice production, processing, and marketing in the valley begins the longer-term process of adjustment to new a economic environment At the other end of the marketing system, rice consumers (particularly the poorest groups) have suffered some loss of real income as average rice prices have risen faster than average family income We will explore these and other issues in this and future RSAP/APAP reports

For this second rice policy reform situation report, we have three objectives These are to provide

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[1] See David Wilcock, Steven Block, and David Tardif-Douglin, "Senegal Rice Policy Reform Situation Report" (RSAP/APAP/UPA Report No 2), February, 1995 For a list of all RSAP/APAP/UPA reports to date, see Annex 1

- An annotated "chronology of events" over the past two years as the rice reform program has unfolded and to identify lessons on how market and price reforms ideally should be conducted (Section Two),

- A mid-term assessment on the impacts the RSAP reform program has had on the rice importing and domestic marketing systems (Section Three), on consumers (Section Four), and on rice farmers (Section Five), and

- A brief description of the APAP/UPA technical assistance and training activities that have been undertaken from September 1995 through November 1996, and those that we anticipate doing from December 1996 through December 1997, the anticipated end of the RSAP buyin to the APAP III project

2. CHRONOLOGY OF THE RSAP REFORM PROCESS

The purpose of this section is "to tell the story" of the rice reform program over the years 1994-1996 We do this for three reasons

- To have a precise chronology of what happened and when for future reference,
- To assess the relationship between those events and the average retail price of rice across Senegal during that time period While the assessment of RSAP impacts on the Senegalese economy is more complex than just an average market price, that market price is the single best indicator of the overall impacts of the reform program, and
- To draw a few lessons on the process of rice reform implementation While, in general, the reforms have gone quite smoothly, there have been a few rough spots in the road due to how reforms were conducted

Since reforms in the rice subsector in Senegal have been underway since the late 1980s, it is useful first to briefly take a broader look at the overall reform of the subsector in order to set the stage for our more detailed examination of reforms under RSAP

2 1 Earlier Rice Subsector Reforms [2]

Commercial rice production is mostly in the Senegal River valley (hereafter referred to as "the valley") SAED was formed in 1965 to promote the organized development of the valley Given the amount of land that was potentially irrigable, SAED's approach to rice as a key component in regional development was conceived of as a classic state development agency substituting for the market and providing all needed services to farmers credit, input supply, tractor hire services, water and land management, paddy marketing and milling, and technical training of farmers About 20 years after SAED began operations (1984), the GOS defined a new agricultural policy strategy characterized by greater utilization of market mechanisms, making producers more responsible for their own affairs, and encouraging the private sector to resume or begin the provision of certain goods and services The withdrawal of SAED from its heavy administration of rice production and marketing took place in three waves, beginning in 1987, 1990, and 1994 Beginning in 1987 SAED withdrew from

- Direct management of irrigated perimeters, giving responsibility to rural communities,
- Provision of annual and equipment credit (this occurred simultaneously with the opening of a branch of the CNCA in St Louis),
- Sale of inputs to farmers, and
- Mechanical land preparation services

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[2] This section draws heavily on the very useful paper by Bélière, Havard and Le Gal, "Désengagement de l'Etat et dynamiques d'Evolution de la riziculture irriguee dans le delta du fleuve Sénégal" presented at a conference on the future of West African rice, Bordeaux, April, 1995

Beginning in 1990, SAED relinquished two additional services

- The initial construction and on-going repair of irrigation earthworks (the SAED unit that did this was privatized), and
- The production and marketing of rice seed

These reforms had mixed affects on farmers and rice production in the valley Some measures spurred on rapid opening of new private irrigated perimeters Other measures and circumstances contributed to a reduction in the repayment of credit and the use of some improved inputs The reforms unleashed a major restructuring of rice production and marketing in the valley which is continuing today

2.2 RSAP Reforms, 1994-1996

The major RSAP reform events are listed by date in Text Box 2-1 on the next page The list begins in January 1994, a month before the RSAP agreement was signed, when France and the governors of the BCEAO central bank agreed to the first ever devaluation of the CFA franc While not an official part of the reform program, this event did more than anything else to force the GOS to disengage from close management and subsidization of the rice subsector This was, as we pointed out in the first situation report, because the GOS was politically constrained not to fully pass on to consumers the doubling of its rice import costs The limited post-devaluation official rice price increases, coupled with a sharp rise in world rice prices, converted the CPSP rice importing and distribution system from a money maker for the GOS prior to devaluation, to a major source of subsidized budget losses after devaluation

1994 The first set of RSAP reforms came in June 1994 in the valley when the GOS simultaneously stopped buying, processing, and distributing locally-produced rice This also required that the official purchase price for paddy be eliminated and that SAED's URIC rice mills be sold to the employees to compete with other private rice mills These first reforms, centered on SAED and the valley, were really the end of the process of removing SAED from an active role in the management and financial support of the rice subsector in the valley that had begun years earlier

In December, 1994, the state, supposedly concerned about the ability of the private sector to import rice, organized a limited "test importing" of rice by the private sector Sixty thousand tons of rice were to be ordered by the CPSP and, when the rice arrived in Dakar port some months later, it would be turned over to six trade and fraternal groups which would then complete the import procedures and sell the rice through normal private sector channels While all six groups participated in this "test", only one, UNACOIS (a national association of traders) actually proceeded to sell the imported rice on its own The other groups simply took the fixed import profit margin and allowed CPSP to sell the rice through its normal import channels The "test" was little more than political patronage distributed to five socio-political associations and it had little real meaning in the reform process

Box 2-1: Chronology of Key Events (1994-96) in Rice Policy Reform

(x)= Key events shown on Figure 2-1

1994	January 12	Devaluation of the CFA franc (1)
	February 28	RSAP agreement signed between USAID and GOS
	June 6	Elimination of fixed producer paddy price (2)
	June 28	Sale of SAED/URIC rice mills (2)
	June 30	End of CPSP collection and processing of paddy, distribution of local rice (2)
	December	— APAP team begins to collaborate with UPA on rice reform program — Test period of "private sector imports" (60,000 tons) organized by the CPSP (imports occurred in April 1995)
1995	March 3	All rice marketing margins liberalized (3)
	April	CPSP raises wholesale price for broken rice due to higher world prices
	June	CPSP closes all interior warehouses and ends subsidies for rice transport away from Dakar USAID/UPA conducts field inspection of compliance with first tranche conditionality (4)
	August 29	Law on Rice Border Protection passes Parliament (but not implemented by 11/96)
	August-October	Increase in retail prices due to bottleneck created by CPSP system of authorizations required for private traders to take delivery of rice from CPSP Dakar warehouses (some rent taking) (5)
	September	(Decree 95-887 19/9/95) Private sector authorized to import broken rice (6)
	November	Large supplies of cheaper broken rice (Indian and other) cause Dakar wholesale and retail to begin to decline (7)
	December 29	(Law 95-35) CPSP is dissolved assets to be sold by a state-appointed "liquidator"
1996	February	— CPSP ends imports, private importers buy rice from shipments that had been ordered by CPSP (period of heavy use of "bateaux flottant"), month of Ramadan passes with large rice supplies and reasonable prices (8)
	March	— UPA teams conduct second field verification of RSAP conditionalities, — Ministry of Commerce warns rice traders on high prices
	May 8	(Decree No 96 345 and Ministerial Arrêté No 003600) The SIM-Riz is created in the Ministry of Commerce (Cellule de Gestion et de Surveillance des Marchés du Riz) and its organization and attributes are defined.
	July	Pressure from mills and rice self-sufficiency advocates in Valley for GOS support to rice prices

1995 The bulk of the major RSAP reform events took place during calendar year 1995 The first important measure was the elimination of all fixed rice price margins as of March 3 This measure, in conjunction with the CPSP raising the wholesale price for imported broken rice, allowed average market prices to increase at least 60 CFA/kilo over the following four months (Figure 2-1, event 3), reflecting a major jump in world rice prices that had begun at least eight months earlier This began a period of instability in market prices and rapid changes in market structure and functioning that lasted the next 8 or 9 months, until November or December, 1995

In June the biggest change in wholesale distribution of broken rice occurred CPSP, with very little warning to private traders, suddenly moved to close all of its wholesale warehouses in interior urban centers and end subsidizing rice transport from Dakar After last heavy CPSP sales in the regions, from that time on wholesale broken rice could only be obtained from CPSP's Dakar depots For the first four to six weeks, rice supplies outside Dakar were sufficient for prices to remain relatively stable By August, however, various bottlenecks in the CPSP wholesale supply system were beginning to drastically tighten the supply of broken rice and cause rapid, alarming price increases in some regions The major reason for this were the administrative procedures used by CPSP to allocate rice supplies to private wholesalers in Dakar This involved a system of signed authorizations ("bons") and payment procedures that were significantly slowing rice movements from CPSP warehouses This defacto rationing system was allowing rents to be collected through the resale of the authorizations

These last-minute abuses of the CPSP system were getting so flagrant that quick action was needed By mid-September a Presidential decree was signed that finally allowed the private sector to import broken rice The chaotic situation in the Dakar wholesale market and high price levels spurred on private importers and the race was on Average prices continued to rise through October but, by November surging imports of cheaper broken rice, particularly from new sources such as Uruguay and particularly India[3], had caused average price levels in Senegal to fall substantially (figure 2-1, events 5-7) By the beginning of the month of Ramadan (in January 1996), a time of increased rice consumption, the country was awash with imported rice This was fortunate for reasons of social and political stability

In August 1995 the law revising the system of tariff border protection was passed by the National Assembly This measure, which was part of the ASAL conditionality, aims at protecting local rice for three years, by taxing imported rice at a rate not to exceed 45 percent As explained by Kingsbury (RSAP Report No 3) and Ouedraogo and Gueye (RSAP Report No X), various aspects of the implementation mechanism of this law were flawed Most importantly, the world reference price to be used in calculating the tariffs was the price of "A1 special" (100 percent broken rice), f o b Bangkok This price, during 1995 had become much less useful as a predictor of the "world rice price" with the availability of large quantities of cheaper Indian rice [4]

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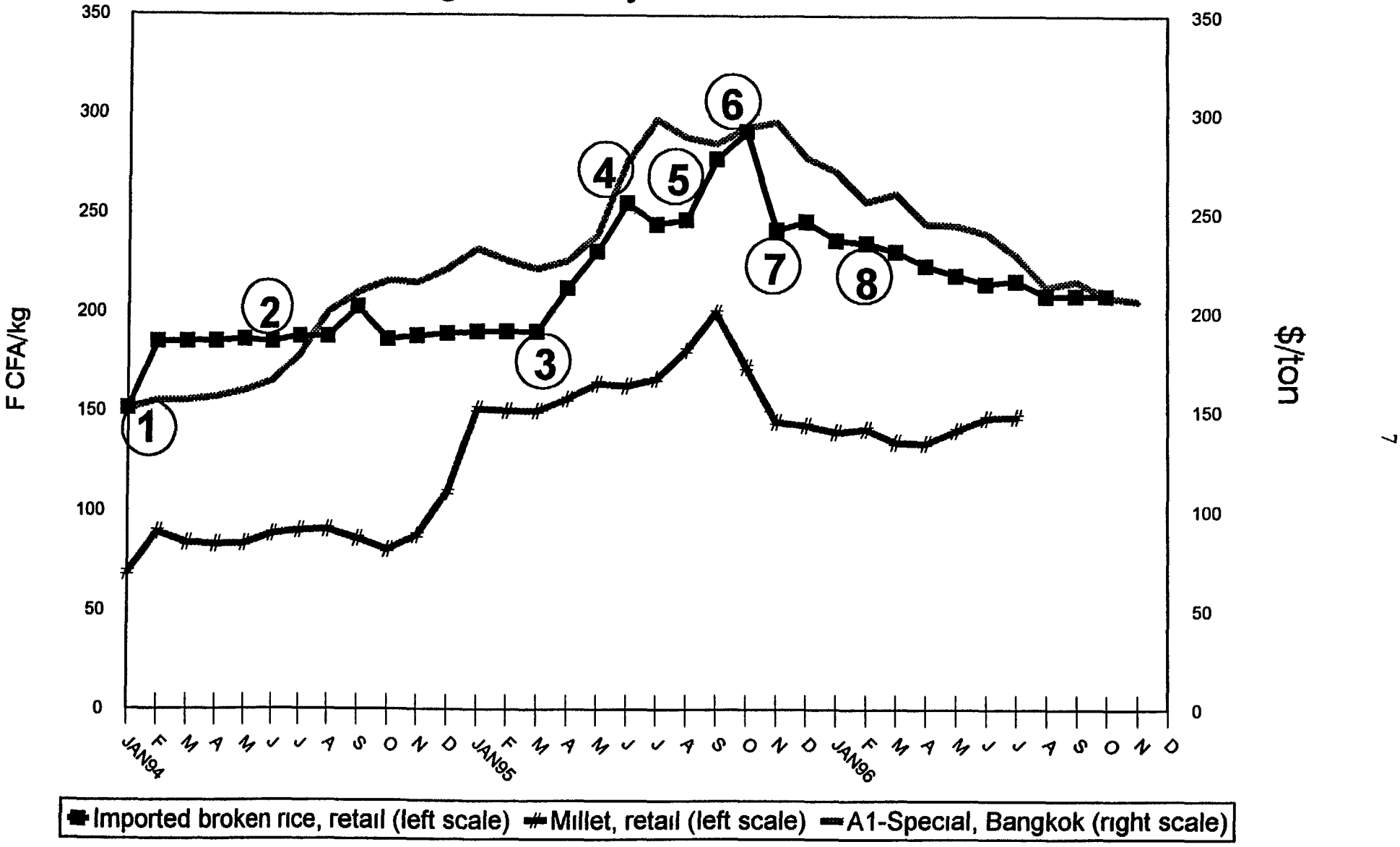
[3] The Government of India, after 8 straight good monsoons and with world rice prices at very high levels, began to organize much larger than usual sales from its large reserves as of early 1995 This rice, whether whole grain, 25 percent broken, or 100 percent broken, of generally lower quality, was provided to private Indian exporters at wholesale prices well below those prevailing on the world market at the time This catapulted India into the position of being the world's number two rice exporter for the year (for additional detail see Randy Schneph, "Rice Situation and Outlook Annual Report", November, 1995, pp 19-27)

[4] A revision to the border tariff mechanism, proposed by UPA based on the work of Ouedraogo and Gueye, was approved by an inter-agency GOS committee However, the timing of the upcoming legislative elections (November 1996) appear to have delayed the passage of the revisions to this law

Figure 2-1: Average Monthly Rice and Millet Prices



Note Encircled numbers indicate key policy measures listed in text box 2-1

Source CSA/SIM and USDA "Rice Outlook," November 13, 1996

The last 1995 RSAP event was the passage by the parliament of Law 95-35 in late December, dissolving CPSP and establishing the procedures for its assets to be liquidated in an orderly manner The fact that CPSP was being eliminated rather than being drastically scaled back, as had originally been agreed to in the reform program, was a sign of the confidence of the GOS that reform program would work without endangering the rice supply dimension of national food security

1996. Since the heart of the reform program was achieved in 1995, 1996 to date has been a period of consolidation of these previous gains In early 1996, even though it had been abolished by the national assembly, the CPSP was still trying to import its last shipments of rice However, by February, the Ministry of Finance had refused to approve any further financing and the CPSP had to inform trading companies that it could not take possession of rice that was on ships waiting to enter Dakar harbor Private Senegalese companies then entered into negotiations with the cargo owners to take delivery of this rice This was the most extensive use in the past year of "bateaux flottant" and further contributed to large rice stocks in early 1996

In late March 1996, the Ministry of Commerce sternly castigated rice traders for charging what were perceived to be high prices for retail rice The Minister suggested that retail prices could be lowered by some 30 F/kg Though no action was taken, the episode indicates the government's ambivalence regarding market liberalization The GOS is gradually adjusting to the end of the previous organization and control of national rice markets where it could impose both stable prices for imported rice and subsidized high prices for local rice Liberalization has put into sharp contrast these conflicting policy objectives which previously were obscured in the murky finances of the CPSP

In May, the government moved to create the *Cellule de Gestion et Surveillance des Marches du Riz* in the Ministry of Commerce, which is essentially supposed to be a market information system for rice, covering both the international and domestic rice markets and disseminating information to both public and private users The heart of this unit is made up of a small group of experienced former CPSP employees They are to receive some initial material and technical assistance from USAID funds which had come from the earlier sale in Senegal of PL480 rice

By July, 1996, some rice policy backlash had developed in the valley Partly because the border tariff protection had not been implemented, and partly because of some inefficiencies in the local rice subsector, large quantities of local rice were left unsold because owners do not want to accept low market prices Valley farmers and millers have lobbied the GOS to provide price supports or subsidies for milled local rice At one point last summer these efforts appeared to have worked but then the GOS recanted when donors, particularly USAID, reminded it of its commitments not to enact such measures It would appear, however, that millers have since then have lowered their prices to clear stocks, perhaps thinking that subsidies still would be forthcoming, particularly in this election year In Saint Louis by mid-July, local rice was retailing at 200 f/kg, a price at which millers had refused to sell rice before

2 3 Reforms and the National Average Rice Price

In the paragraphs above and in Figure 2-1 we have noted the clear relationship between specific rice policy change events and movements in the average price for broken rice across Senegal This price is an average of local market prices across the country, collected by the CSA Price variation in individual markets was, of course, greater than movement in the average price series These regional price movements also confirm (often in a more exaggerated way) the relationship between market price

and specific changes in policy The fact that one can observe this relationship between "policy events" and prices, averaged across markets in all corners of the country with different local supply/demand characteristics, demonstrates the degree of which the national market in broken rice is integrated In the 1997 work plan this national average price series and its local and regional components will be subjected to more detailed analysis, specifically to look at the degree of national market integration and whether or not there are regional price trends (in the valley for example) that run counter to this overall pattern and deserve to be analyzed separately

There are three general observations that we can make concerning this average broken rice price for Senegal, and its relationship to national millet and international rice prices as demonstrated in Figure 2-1

- Sudden changes in CPSP policies and procedures in rice importation and distribution systems, in the eight month period between March and November, 1995, led to a period of great market change and price instability that is clearly visible even in this highly aggregated price series Since November 1995, the "national broken rice market" has returned to much greater average price stability,

- The relationship that has been observed historically between broken rice and millet prices, with some correction for changes in millet supply that occur after the millet harvest, is maintained throughout this period What is particularly significant is that when rice supply is strongly affected and prices rise or fall sharply, the same pattern is generally seen in millet prices, reflecting an aggregate substitution relationship between the two cereals, and

- The relationship between the average broken rice price in Senegal and the most widely used international price series for broken rice, the f o b price for "A 1 Special" in Bangkok, deserves further monitoring and analysis in future From Figure 2-1 we can draw the following tentative conclusions (a) the average price in Senegal and the "world price" in Bangkok are clearly correlated, (b) the Thai price for A 1 would be expected to be more volatile than they average price in Senegal because of the "lumpiness" of shipload injections into the Senegal market (one 40,000 ton ship might constitute a tenth of all imports for the year and that rice, once in the country, would tend to be sold at relatively fixed prices) Further, Senegalese importers will turn to other sources of broken rice (such as India in 1995) if the Thai price gets too high The Indian government and exporters clearly took advantage of the much higher Thai price but were careful to keep their wholesale price lower in order to increase their market share This relationship between world rice prices and Dakar wholesale prices (a price series that urgently needs to be created) will be critical to the new rice MIS system in the Ministry of commerce [5]

[5] The price gap between the "world price" for higher-quality whole grain rice and that for broken rice is also regularly monitored (by USDA, for example, in its monthly rice situation and outlook reports) It is generally observed that when prices are high for whole grain rice, the gap between the whole grain and broken rice price narrows, and vice-versa

2.4 Preliminary Conclusions on the Process of Implementing the Rice Marketing Reforms

While it is too early to provide a definitive evaluation of the RSAP in meeting its diverse objectives, we can offer a few conclusions about how the reforms were carried out

The first conclusion is that lack of attention to the timing and coordination of different parts of the reform program often has lead to needless disruption of the private rice market For example, in 1995, the March elimination of fixed rice price margins and the June closing of CPSP wholesale warehouses outside of Dakar were not coordinated with allowing the private sector to begin to import broken rice The imported rice, as subsequent events have shown, would have moderated supply shortages and excessive price increases which arose due to imperfections in the CPSP's final wholesale distribution procedures

Second, changes in CPSP operating procedures were so clumsy as to give rise to speculation that they were done deliberately to disrupt the market and/or for personal financial gain For example, the closing of the CPSP regional distribution centers caused the biggest problems since the closures came after giving the private sector trade only a week's notice at best Then, when all wholesale sales were moved to Dakar, the facilities and control procedures were such that not enough rice was being sold to meet total demand, leading directly to sharp price increases, shortages and opportunities for quick insider profits by reselling authorizations for rice delivery One reason that this may have occurred was that the implementation of reforms was largely left to the CPSP, the agency that had the most to loose in the reform process

Third, it is clear that there was not enough consultation with the private sector in advance of reform implementation Some of the reform procedures, such as selling all rice from the Dakar warehouses, could have been done much more easily, without disturbing the market to the same degree, if traders had been consulted in advance about the sales procedures In addition, it is clear that private importers could have done a better job importing had they had better information on the timing of policy changes and the state of world rice markets Not only are private actors not consulted sufficiently by appropriate government figures, private traders are periodically threatened by officials in ministries that should be promoting their interests Even if these threats are made for easy political gain in Dakar's popular press, they still reflect widespread suspicion of the private sector This constitutes an important part of a negative business environment which makes it more difficult to attract the private investment that is so desperately needed to promote real growth in Senegal's agricultural sector

Fourth, inadequate border protection measures were rushed into law 15 months ago, but have neither been implemented nor modified by additional legislation Limiting tariff protection to the 15 percent normal import duty has generally worked well during the recent period of high world rice prices But now, as world prices are declining (and the price of broken rice from other origins, such as India, is even lower), there is a growing risk that rice production and marketing in the valley will be negatively affected more than necessary It is important that a realistic level of tariff protection be applied to all imported rice, not using the Bangkok A1 Special price as the reference price The GOS was lucky to have had Indian rice available on the market at lower prices than "le vrai Siam" but risks excessively punishing Senegalese producers in the valley if a more realistic protection system is not put in place soon It also desperately needs to have the Rice MIS system in place so that it will have a professional source of better information on the evolution of world rice markets

3. IMPACTS ON THE RICE IMPORTING AND DOMESTIC MARKETING SYSTEMS [6]

Since RSAP is basically a marketing reform program, the biggest impacts from these reforms can be anticipated to be changes in the structure and functioning of Senegal's two major rice marketing systems that for importing rice, and the internal marketing system for imported or domestic rice The market impacts group devised a monitoring and evaluation program (see APAP/UPA Report No 8) that would examine the changes in both of these systems To date there have more results from the monitoring of the rapidly evolving rice importing system, largely due to the relatively easy availability of data from two major data collection organizations, the *Societe Generale de Surveillance* (SGS), which has a contract with the Ministry of Finance to provide trade data and pre-inspection services, and the GOS Customs Service While only 6 to 8 months of data have been available, they have been very informative

The design of the market impacts monitoring system relies on the structure, conduct, performance (SCP) paradigm, widely-used in agricultural marketing studies since it offers a convenient way to systematically organize data collection on key variables It also suggests relations running from structure to conduct and to performance of the marketing system

3 1 Impacts on the Structure and Functioning of the Rice Importing System

Rice importing was liberalized in October 1995, though private traders had been allowed to import whole grain rice before then Despite the announced liberalization, the CPSP contracted for large shipments of imported rice in late 1995 and early 1996 Observers report that either the CPSP feared that private imports would not adequately cover market needs, or may have believed that the GOS would not actually be able to carry out its declared program to eliminate the organization

3 1 1 Rapid Emergence of Private Imports

There had been frequently voiced concerns at the beginning of the RSAP reform period that Senegalese importers would not be able to easily replace the CPSP in importing large quantities of rice This was convincingly shown to be false as demonstrated by the figures in Table 3-1 covering the actual quantities imported between January and July 1996 by the CPSP and by private importers Of 338,077 MT of rice imported during that period, 81 percent was imported by private importers The CPSP's imports largely stopped after January, 1996 even though shiploads of rice they had ordered were sitting offshore waiting to be unloaded Broken rice made up 82 percent of total imports, 77 percent of brokens were imported by private importers [7]

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[6] This section was largely prepared by Ismael Ouedraogo

[7] Note that whole grain rice is defined as rice with less no more than 15 percent broken grains, intermediary rice as rice with between 15 percent and 55 percent broken grains, and broken rice with more than 55 percent broken In fact, in Senegal, broken rice is 100 percent broken

Table 3-1 Rice by Type Imported by CPSP and Private Importers, Jan -July 1996

	Quantities Imported (MT)		Percentages	
Type of Rice	CPSP	Private	CPSP	Private
Whole Grain	0	10,339	0 %	100 %
Intermediate	0	49,668	0 %	100 %
100 % Broken	65,026	213,044	23 %	77 %
Total	65,026	273,051	19 %	81 %

Source ACG, "Etude Relative à l'Impact de la Liberalisation sur les Couts d'Importation du Riz au Sénégal", Dakar, September, 1996

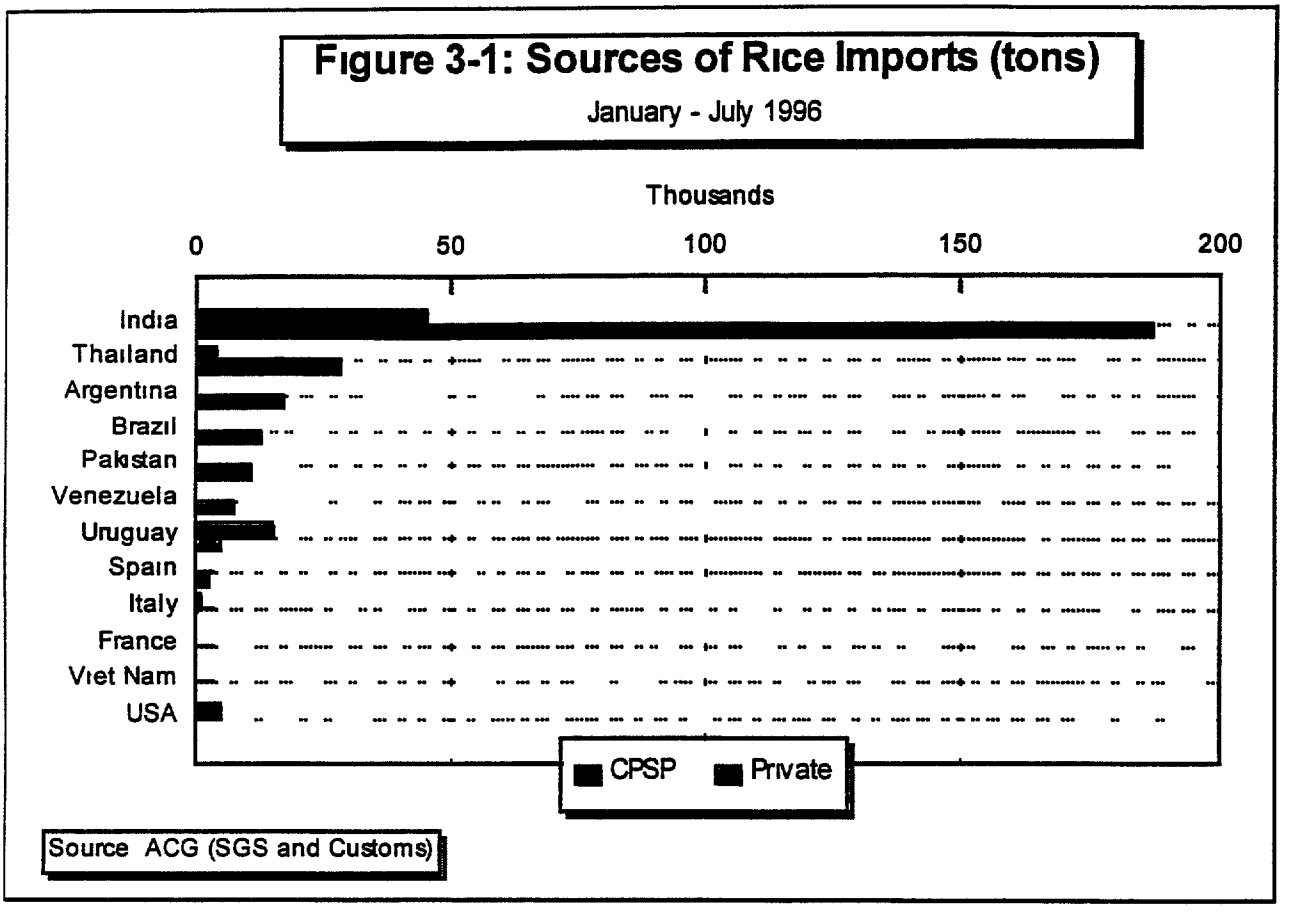
What is most important to emphasize here is that one of the largest commercial markets in Senegal — rice importing — has been completely and effectively taken over by the private sector in the space of just a few months As we stressed in Section Two, this transition took place with only a moderate amount of market disruption and that much of the disruption was directly due to the poor planning of the termination of CPSP activities The only "criticism" that has been voiced of the new importing system is "there is too much rice in the country", generally voiced by those who feel this is contributing to wholesale rice prices being too low to provide adequate incentives to producers in Senegal Presumably as the market stabilizes and information systems improve, smaller quantities of rice will be imported than those in the first half of 1996

3 1.2 New Dominance of Indian Broken Rice

A second important shift that also took place during this transitional period was the change from buying Thai rice ("Siam")[8] to rice from other sources (see Figure 3-1) During a period of unusually high world rice market prices, India became the dominant supplier of rice to Senegal The Government of India sold rice out of its massive stocks in order to accomplish needed technical rotation at the best possible prices, but still significantly below the Thai price [9] For example, over October 1995 to May 1996, Indian broken rice was selling at a 24 percent to 38 percent discount compared to Thai broken rice Available data confirm that this shift in rice suppliers was initiated by the CPSP As the "perequation" (or stabilization fund) became negative following the CFA devaluation, the CPSP sought lower-cost supplies and found them in India, Uruguay and Brazil In fact, the CPSP totally

[8] "Siam", in fact, has become a generic term for cleaned, homogenous 100 percent broken rice

[9] Randy Schnepf, "India A New Rice Exporting Superpower?" USDA Rice Situation and Outlook Yearbook, USDA/ERS, November, 1995, pp 19-27



abandoned Thai rice from October 1995 to May 1996 for Indian and Uruguayan rice, whereas Thailand was still the second leading source for private importers (Figure 3-1) Thus, private importers may not be entirely credited with the move to securing lower priced imports However, they clearly realized the gain in doing so by following in the CPSP's footsteps

3 1 3 Market Structure

Available data from SGS allow us to establish a (preliminary) baseline for the assessment of concentration of rice importers and exporters, one of the most important structural parameters for any market system The importance of *bateaux flottants* may also be inferred from this data set

Concentration of Importers Except for natural monopolies, such as in utilities (water, electricity, gas, telephone), concentrated market power in the hands of one or a few private businesses usually raises government's concerns With high concentration may come monopolistic or collusive behavior, and thus high prices for consumers One key indicator of market concentration is the cumulative market share of a given number of the largest firms, for example, the four largest firms Table 3-2 shows that for rice importing into Senegal the four-firm-concentration measure is a rather low 53 percent Based on SGS data, over twenty private importers participated in rice import from

October 1995 to May 1996 However, the small volume reported by some tends to indicate that many such importers acted as part of a group to import rice

Table 3-2 Market Concentration among the Ten Largest Rice Importers, January-July 1996

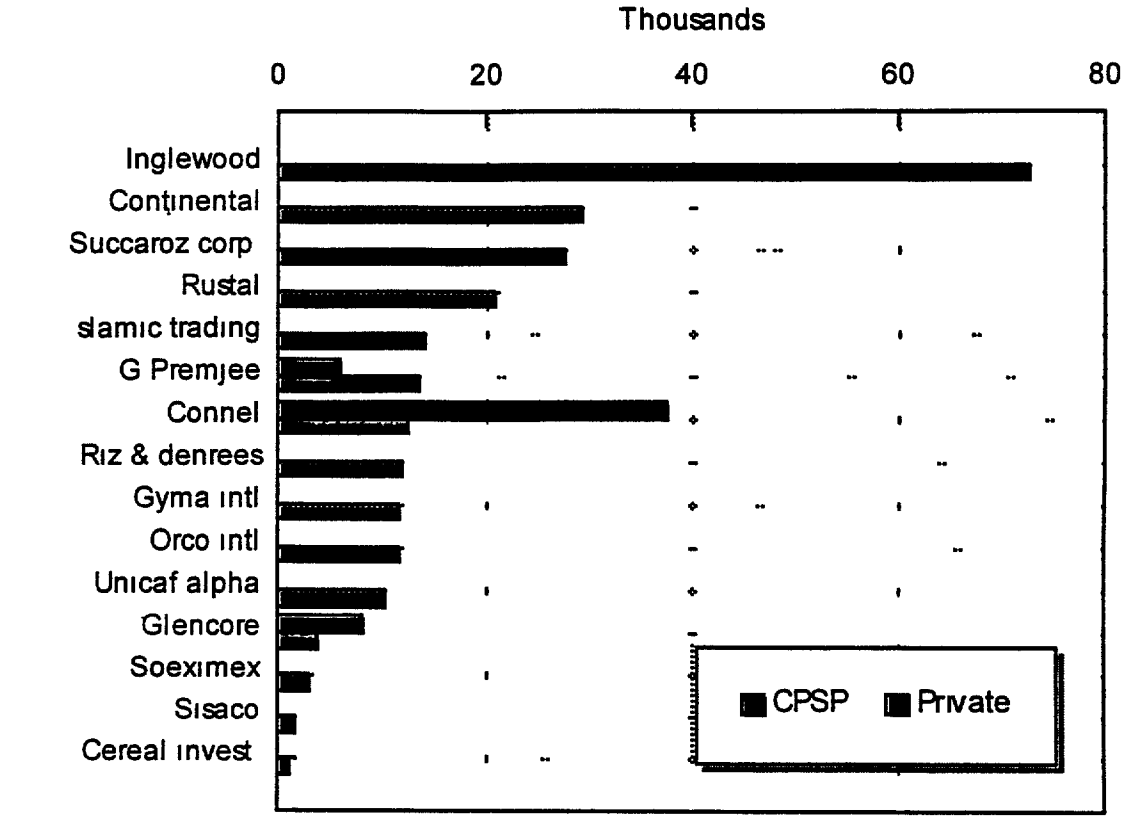
Rank	Private Importer	Tons	% Share	Cumulative %
1	UNACOIS	61,650	23 %	23 %
2	Bocar Samba Dieye	29,760	11	34
3	Distribution Denrées Sénégal	28,025	10	44
4	Finatrade	25, 732	9	53
5	Connell Senegal, Inc	16,691	6	59
6	Recofi	14,315	5	65
7	Banque Islamique du Sénégal	13,968	5	70
8	Abdoulaye Dieng	11,703	4	74
9	Ets Moustapha Tall et Cie	10,748	4	78
10	Rabico Limited	9,977	4	82

Source ACG (Customs, SGS Data)

Concentration Ratio of Exporters Similarly, the concentration ratio of exporters could be of concern to the government A *tête-a-tête* between the monopoly CPSP and one or a few exporters would not have raised concerns both could be seen as having adequate countervailing market power With liberalization, however, a concentration of exporters could viewed as impeding competition The opposite, a diversified source of supply suggests competitive prices for the benefit of Senegalese importers and consumers In fact, from October 1995 until its demise in February 1996, the CPSP contracted to buy rice from three exporters only In contrast, private importers contracted with 15 exporters to buy rice from October 1995 to May 1996 Incidently, the largest exporter for CPSP was ranked only 7th on the list of exporters for private importers Figure 3-2 shows that the market share of the four largest exporters selling to private Senegalese importers was about 60 percent in volume That would suggest that private importers have a diversified base of supply (As with import data, a few exporters with low volume raise question about their being genuine exporters or likely to last long in a competitive market)

Figure 3-2 Concentration of Rice Imports to Senegal

Quantity in metric tons, October 1995 - May 1996



Source SGS

Note Contracts cleared with customs

Bateaux Flottants (or "floating ships") This curious term refers to ships whose cargo ownership can be quickly negotiated or renegotiated, shortcutting the usual international ordering process There is often a somewhat ominous tone to the use of the term although exactly who would loose or benefit in buying rice in this manner is not clearly specified According to some rice market observers, the importance of bateaux flottants is likely to grow in Senegal with the advent of market liberalization One major reason is increased competition among exporters, some of whom were bypassed by the CPSP To penetrate the Senegalese market, some exporters are taking chances in sending shiploads of rice to Dakar before having a firm contract with an importer Then, they attempt to sell this rice to importers while the ship is en route In addition, in early 1996, when the Ministry of Finance refused CPSP further funds to take delivery of rice on ships already waiting just outside Dakar, these ships became, in effect, bateaux flottants, with the cargo owners forced to rapidly seek a new private importer

Data on bateaux flottants is sketchy The ideal source of information is the Dakar Port Authority, but arrangements are still being worked out to secure such data Instead of this information, the importance of bateaux flottants is inferred from SGS data SGS provides information on where it checks the volume, quality and price of rice bound to Senegal When SGS does not get advance notice of shipments to Senegal, it checks the shipload when it gets to Dakar One may infer that these cases refer to bateaux flottant This reduced data set shows that from October 1995 to May 1996, 13 percent of rice imported to Senegal was checked by SGS in Dakar This share is relatively low given the chaos surrounding the dissolution of the CPSP This is a topic that should be carefully monitored by the Ministry of Commerce SIM-Riz

3 1 4 Performance Indicators

One important change in the rice marketing system after liberalization is the choice of quality now offered to consumers Before market liberalization measures, the CPSP often withdrew high quality Siam broken rice in order to unload its stocks of lower quality rice at the prevailing government fixed price Today, though there exists — side-by-side — both poor and higher quality Indian rice In Saint-Louis, retailers further sort local rice to offer homogenous broken rice in an attempt to compete more effectively against Indian rice There is also anecdotal evidence to suggest that some importers in Dakar also clean imported rice before offering to consumers One disturbing observation, however, is that the different qualities of Indian rice are generally offered at different prices, whereas different local rice qualities, sorted by retailers in Senegal, fetch the same price This is likely to change as local rice markets mature As noted by Ouedraogo and Gueye (APAP/UPA Report No 11), quality differentiation in local rice offers up niche market opportunities for restaurants and traders

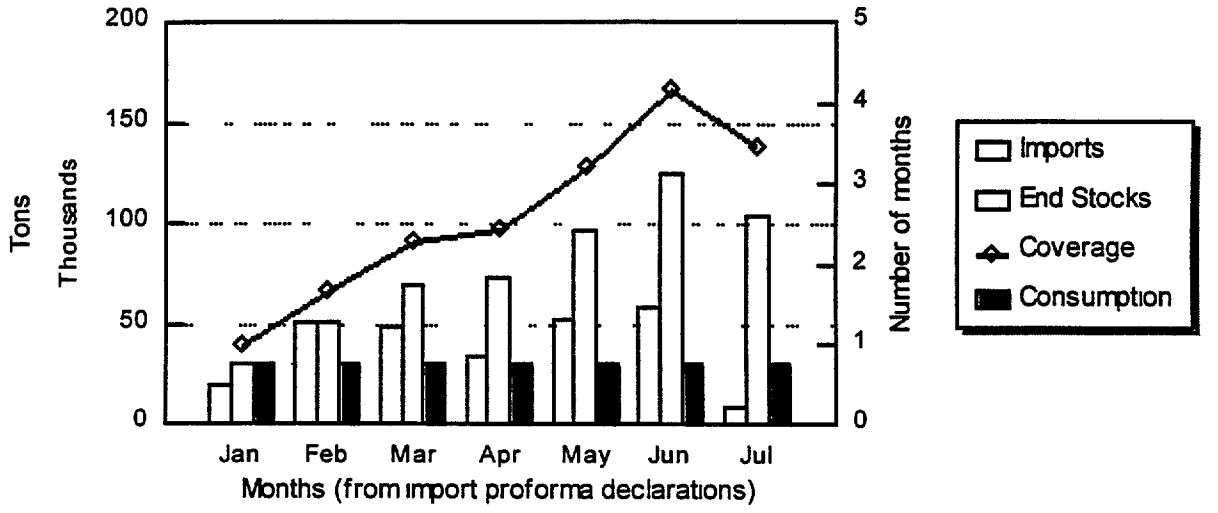
Possible performance indicators include the number of months of "normal" consumption covered by available import, aggregate gross margins, variability of world price and retail price of imported rice, and handling costs at the port as measure of the efficiency of port operations Until additional survey data become available, however, only the first two measures have been attempted and should only be considered indicative at this time

Ratio of Rice Imports to "Normal" Consumption Some observers have suggested that the CPSP had ordered large quantities of rice before February 1996 because it was concerned that private importers might fail to import adequate quantities to cover normal consumption Was that fear justified? Figure 3-3 attempts to show the level at which rice imports covered normal consumption since liberalization The results include rice ordered by the CPSP, which private importers must have taken into account The results are also based on two strong assumptions (a) beginning stock at the start of the period is zero, which obviously minimizes the coverage ratio, and (b) normal consumption is set at 30,000 tons per month These are strong assumptions because beginning stock was not zero at the start of the period, since CPSP had allowed a few private traders to import whole grain rice before liberalization Also, the normal consumption of 30,000, though often cited, is not documented

The calculations, however, serve to show that since liberalization imported rice alone has covered at least an average of 1 8 month worth of normal consumption As noted, it is a minimum coverage level because beginning stock of imported rice was obviously positive Also this measure does not include local rice On that count, thus far, private importers have responded well to the challenge As other information on wholesale rice stocks is collected by SIM-Riz, it will be useful to further develop and monitor this coverage ratio

Aggregate Marketing Margins There are many alternative measures of aggregate gross margins (see the RSAP market monitoring program, APAP/UPA Report No 8) Available data thus far allow the computation of the difference between retail price of broken rice in Dakar and C I F of similar quality of rice landed in Dakar The small sample size of import transactions with sufficient data to calculate this ratio limits meaningful conclusions Table 3-3 suggests low variability for both C I F and retail prices, and somewhat higher variability for absolute gross margins When more data become available, marketing margins and other performance measures will be analyzed in relationship with other dimensions of the marketing system

Figure 3-3 Rice Imports and Assumed Consumption Coverage
From January to July, 1996 for a "normal" consumption of 30 000 tons/month



Source ACG (Douanes and SGS)

Table 3-3 Aggregate Gross Margins for Sample Transactions of Imported 100 Percent Broken Rice, Dakar, Jan - July 1996

Date	Import F/Kg	Retail F/Kg	Gross margin	
			F/Kg	% of retail
Jan 96	149 84	NA	NA	NA
Feb 96	151 28	250 00	98 72	39 49%
Mar 96	153 56	244 00	90 44	37 07%
Apr 96	139 87	245 00	105 13	42 91%
May 96	148 06	228 00	79 94	35 06%
Jun 96	162 21	225 00	62 79	27 91%
Average	151 00	238 40	87 40	36 49%
CV	4 82%	4 18%	17 07%	13 77%

Source ACG/SGS and CSA Data

3.2 Impacts on the Structure and Functioning of the Domestic Rice Marketing System

As was earlier mentioned, the market impacts group has much less to report at this stage in its applied research on impacts on domestic rice market channels These have changed almost as much as the changes in rice importing with private wholesale traders now moving all imported rice inland to wholesale and retail markets In the valley, marketers and processors are buying paddy from producers and putting locally processed rice on the market With some reduction in wet season production and substantial reductions in the more limited dry season production (see Section Five for more details), problems in credit provision and repayment, and the dismantling of the previous SAED/CPSP marketing and processing system, there have also been very major changes in paddy and rice marketing in the valley Recently, a politically-tense situation developed in the valley in which farmers and SAED lobbied hard to have the GOS subsidize purchases of local rice or levy high import taxes to protect local rice At a meeting in Dakar, however, a farmer group representative stated that the situation would not have occurred if the promised tariff protection of local rice had been in place

One of the bigger changes that one can anticipate in domestic rice markets is the development of a wholesale rice market in Dakar that will serve most of the country, either in terms of physical supply or in terms of setting reference prices that will tend set prices in other regions (Dakar price plus transport, handling, and profit) This will be particularly important for importers who import rice but do not have a predetermined list of wholesale clients In addition, when wholesale orders are canceled, a wholesale market mechanism will be useful for disposing of surplus commodities Eventually one can envision the development of simple contracting mechanisms that will allow buyers and sellers to conclude sales for future delivery (an important step in integrating risk-reduction mechanisms into a market with fluctuating prices, the greater the price fluctuations, the greater the need for risk reduction mechanisms)

In terms of market structure, anecdotal evidence suggests that the number of wholesalers and wholesalers-retailers has increased substantially with market liberalization Many more smaller traders are actively participating in the market, which CPSP had discouraged through its operating procedures A recently initiated survey by ISRA/IFPRI in the valley confirms that a large number of traders are involved in the rice trade Some have established elaborate networks that cover several villages in the valley region A noteworthy new-comer in rice retailing in Saint Louis is the Mimran Group (the group which has a monopoly on sugar production and processing in Senegal) Reportedly, government authorities, fearing that private importers would fail to import adequate supplies of rice, encouraged the Mimran Group to use its large financial resources and truck fleet to import rice to reduce the risk of failure of private rice trade The Group has also ventured into Kaolack, where it uses warehouses that belonged to the defunct ONCAD

In terms of market conduct, a rapid survey in Dakar, Saint-Louis, Louga and Kaolack shows a healthy level of competition among wholesalers of both imported and local rice In Saint-Louis, notably, there is strong competition between imported and local rice, as there is among wholesalers of imported rice For example, Delta 2000, which sells local rice, was actively competing with wholesalers of imported Indian rice and was apparently not faring particularly well Among wholesalers of imported rice, the national traders' union, UNACOIS, is competing with the Mimran

Group (Denrees Alimentaires) for market share In Kaolack, in mid-1996 traders appeared to be boycotting the Mimran Group, which is perceived as a government favorite [10]

As noted above, the great burst of market activity that was brought about by the RSAP reforms has resulted in substantial rice stocks accumulating in market channels These large stocks have effectively prevented most local price gouging Furthermore, there is substantial evidence to suggest that these stocks are putting downward pressure on prices in general (as is shown in the average rice price level in Figure 2-1), although some consumers have complained of collusive behavior by established retail sellers in particular urban markets, none of which has been clearly documented

A final priority for the markets impact group in the coming year is to estimate some of the cost savings that have resulted from the elimination of the CPSP market control system It is clear that there are two kinds of efficiency savings that may be estimated those that are attributable to simply eliminating the CPSP, and those that will occur in the market place as traders offer consumers a wider range of rice types at different prices As the market matures, additional gains in transportation and handling efficiency are also likely However, it should be noted that while these efficiency gains (the major rationale for the overall RSAP reform program) are theoretically easy to understand, they are often difficult to demonstrate in practice due to the ever-changing ebb and flow of supply and demand for a set of increasingly differentiated products

[10] The reasons for this conflict may lie outside rice imports Many traders, particularly the UNACOIS Group, have been upset with the results of the trial of the magazine *Sud Hebdo* It lost a suit brought by the Mimran Group regarding what the magazine charged were fraudulent sugar imports by Mimran

4. IMPACTS ON SENEGALESE CONSUMERS[11]

In establishing a system to monitor and evaluate effects of rice sector reforms on consumers, the APAP/UPA "consumer impacts group" has employed price data collected by CSA, conducted consumer panel interviews to better understand better the qualitative nature of consumer demand for rice and other cereal, and has arranged with the Statistics Unit (DPS) of the Ministry of Finance to analyze data on consumer food spending habits from the *Enquête Sénégalais auprès des Menages* (ESAM) The consumer group will continue to utilize these approaches in its second year of collaborative work

4 1 Importance of Rice in the Senegalese Diet

Rice is an extremely important food in Senegal More millet/sorghum is produced and consumed in Senegal than rice, but most of the former never enters the market, making it less visible in the monetized economy Rice is not only a highly marketed food, it is mostly imported, thereby adding to its perceived importance Roughly 80 percent of 1994/95 estimated rice consumption was imported

4 1 1 Per Capita Consumption

Estimated average annual per capita consumption for the last three years of data (1993 - 1995) was roughly 58 kilograms of rice per person As Figure 4-1 shows, consumption grew from an average of 46 kilograms in the early 1970s to 70 kilograms in the first half of the 1980s Thereafter, it leveled out and has begun to exhibit a slightly downward trend, fluctuating around 60 to 65 kg/capita

Earlier studies, generally of limited samples, have estimated annual per capita consumption levels of 50kgs (Kolda, Kolda Rural Forestry Project, 1989), 60kgs (1977/79, SONED/ORANA, from Kite, 1992) and 72kgs (1982/84, SONED/ORANA) This growth and relative stability of rice consumption contrasts sharply with the steady decline in per capita availability of millet/sorghum, from 117 kilograms in the early 1970s to 83 in the first half of the 1990s

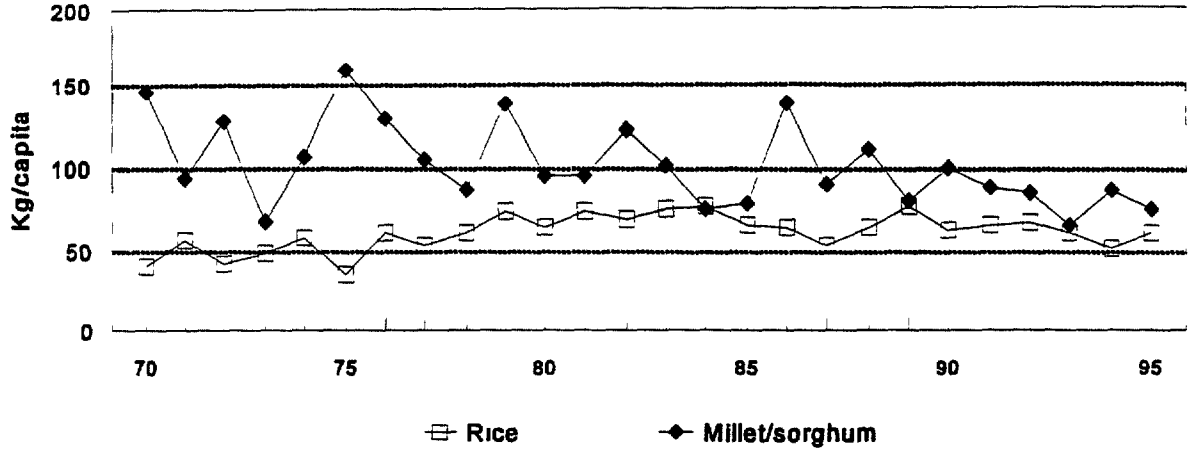
Household Income Quartiles	Kilograms of Rice
Quartile 1	66
Quartile 2	65
Quartile 3	67
Quartile 4	71
All Households	68

Annual Per Capita Rice Consumption of Urban Households (DPS/ESAM 94/95)

[11] This section was written mostly by David Tardif-Douglin

Figure 4-1 Per Capita Availability of Millet/Sorghum and Rice

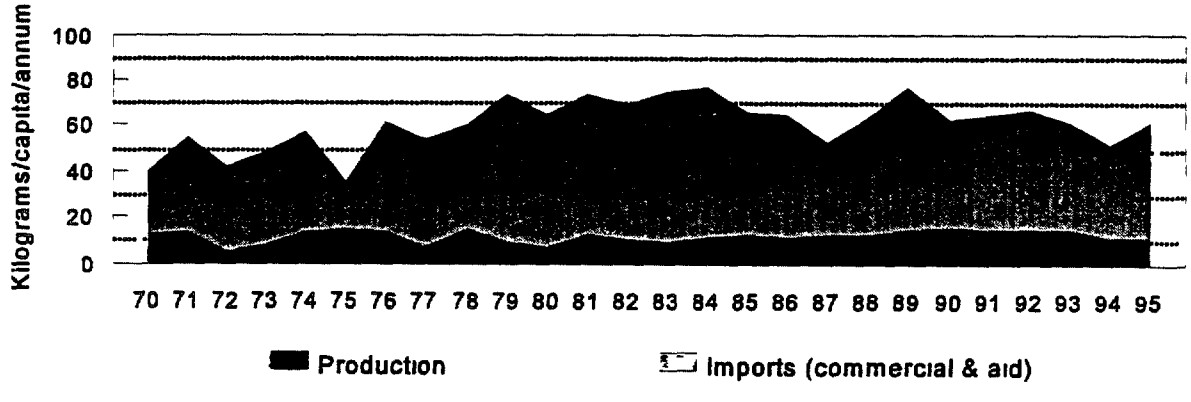
Senegal, 1970-1995



Source UPA database and World Bank World Development Report 1993

Figure 4-2 Per Capita Production and Imports of Rice

Senegal, 1970-1995



Source UPA data base and World Development Report, 1993

Rice consumption rates vary across urban and rural residents as well as across income levels According to the DPS ESAM data, 1994/95 per capita urban consumption of rice was 68 kilograms annually Stratification of urban households by income grouping shows a relatively small income-related variation in per capita consumption Rural data were not yet available at the time of this report A previous study estimated annual rural per capita consumption to be 42 kgs in 1977/79 (SONED/ORANA from Kite), when urban consumption was estimated at 96 kgs, which seems a bit high for the urban population at that period

4 1 2 Consumer Rice Preferences

For historical and cost reasons, Senegalese consumers prefer "100 percent broken" rice, which has generally been imported from Thailand To explore in detail this consumer preference the APAP/UPA team engaged the services of an experienced French market research firm, ICEA-Entreprise Their study report shows that these preferences are based on a complex mix of tradition, taste, and cost [12] The past dominance of Thai "brokens"gave the name "Siam" to what has become a clear type of rice on the increasingly differentiated Senegalese rice market

In the hierarchy of rice types on the market in Senegal, 'Carolina' whole grain rice is the most expensive Only the richest households purchase it regularly It is noted for its taste, homogeneity, cleanliness and ease of preparation Carolina rice probably has never represented more than 5 percent of the market Some individuals attest to a preference for this type of rice for any meal, suggesting that cost is the only reason whole grain rice is not used in all meals More generally, however, women state that whole grain rice is best with "sauce-based" meals, where rice and sauce are cooked separately

"Siam" rice does not include all 100 percent broken rice There is a striking concurrence of views on what makes a rice "Siam" Almost without exception, the women in consumer panels conducted by ICEA for the project stated that "real" Siam rice, regardless of actual origin, was " imported 100 percent broken, with medium-sized and uniform grain, clean and of a white-to-beige color "[13] Currently, as will be shown below, much of the Siam-quality rice has non-Thai origins

In addition to Siam-quality rice, there are less expensive and less desirable qualities of broken rice on the market They have been imported largely from India and Pakistan These qualities sell at a substantial discount to "Siams" because they have a higher proportion of impurities (which require substantial cleaning before they can be cooked), lack of homogeneity in their degree of "brokenness" (it is hard to have rice cooked evenly if particle sizes are not homogeneous) and, at times, they have a bad odor and flavor Siams and other broken rice are traditionally preferred for popular dishes such as Chebujen (fish/rice dish) in which condiments (fish, oil and vegetables, etc) are cooked directly with the rice

Locally produced rice from the Senegal River Valley and Delta fall between Siam quality rice and other broken rice in price, quality and preference "Richard Toll" [14] rice is often considered to taste good, but is criticized for its short and non-uniform grains, which make it an intermediary rice, not the first choice for use in any dish There is no confusing "Richard Toll" rice with the higher value "Carolinas" and other imported whole grains, although competing in this "niche" in the market should be a consideration for Senegal Valley rice producers and marketers As currently produced, however, local rice apparently has an excessively high ratio of "brokens" to whole grains, most of the latter being too short to be classified, by housewives as "Carolinas"

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[12] Baudouin Michel Emmanuel Simantov "Caracteristiques qualitatives de la demande de riz et autres cereales locales au Senegal," PASR/APAP Report No 9, September 1996

[13] ibid

[14] Local rice is often called "Richard Toll" rice, in reference to the region along the valley where the earliest rice mills were set up Practically no rice from the Casamance enters the market

4 1 3 The Dominance of Imported Rice

The dominant position of imported rice in the Senegalese rice market is clear from Figure 4-2, which shows per capita production and imports of rice While actual year to year levels have fluctuated sometimes sharply, imported rice has averaged around 80 percent of total rice availability It reached as high as 90 percent in 1973 and 81, and as low as 60 percent in 1975

This represents an important foreign exchange cost to Senegal, whose consumers had to pay the FOB price of approximately $100 million US to import 440,363 MT of rice in 1995 [15] Nervousness about this foreign exchange cost is one of the main reasons behind the policy of promoting local rice production in the Senegal River Valley Before concluding that local production necessarily saves foreign exchange, however, a thorough understanding of the full foreign exchange costs of local production under various world price and local quality combinations is of utmost importance (see the following section on production impacts for more details on this analysis)

4 1 4 Heavy Weight of Rice Expenditures in Urban Household Budgets

Detailed analysis of results from the 1994-95 DPS ESAM will be conducted during the coming year At this point we will make cautious use of preliminary results from the urban sample which was available in preliminary form in mid-1996 From this data and the earlier *Enquête sur les Priorites* (EPS) conducted in 1992, we know that rice expenditures represent a major portion of all expenditures of the average urban household Summary results from those two sources are contained in Table 4-1 Roughly 40 percent of the Senegalese population resides in urban areas where rice consumption is a major part of the diet and where households are more dependent on this food source since there is less access to other foods than there is in rural farming areas

Table 4-1 Urban Household Rice Expenditures, 1992 and 1994-95 (in cfa francs)

Category	ESP - 1992	ESAM - 1994-5
Average Monthly HH Rice Expenditure	9,835	11,146
Average Monthly HH Food Expenditure	55,000	61,922
Average Monthly HH Income	110,708	437,235*
Rice as a Percent of HH Food Expenditure	18 %	18 %
Rice as a Percent of HH Income	9 %	3 %*

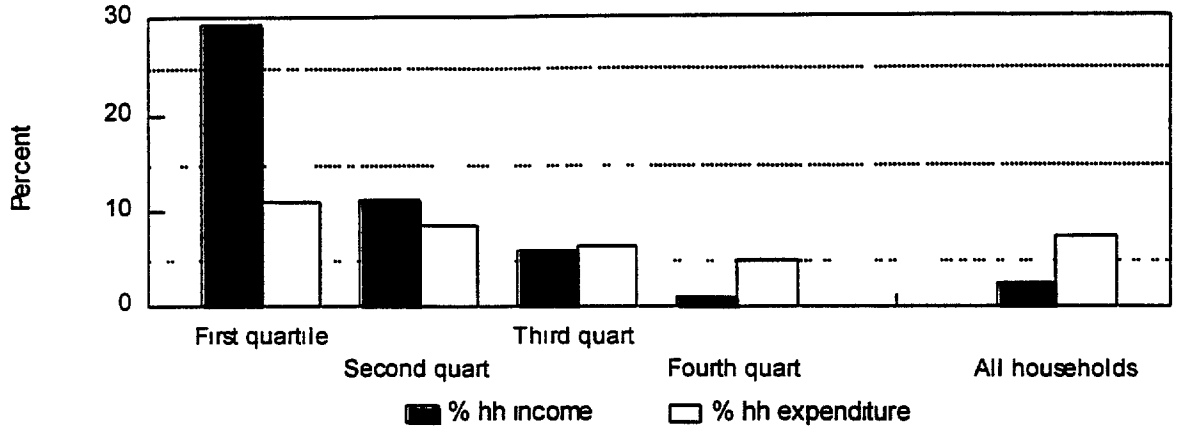
Source DPS Publications (EPS) and Preliminary Tabulations (ESAM) * Figures to be reexamined

Table 4-1 shows that rice purchases claimed a large portion of urban Senegalese household food budgets in both 1992 (pre-devaluation) and 1994-95 (post devaluation but pre-market liberalization

[15] A rough estimate based on USDA estimates of A1 Thai 100 percent "brokens" FOB price in 1994/95 of $232 USD/MT, Rice Outlook, June 13, 1996, Economic Research Service, USDA Note that computations from ESAM urban household rice expenditure estimates indicate the equivalent of approximately $77 million US in Cfa francs were spent on rice annually

Figure 4-3 Rice Expenditure as Percent Income and Expenditure

Urban Senegal households, 1994/1995



Source DPS/ESAM 1994/1995

Note Average annual figures for expenditure and income

and before the sharp rises in rice prices that began in mid-1995) It should also be noted that the figure for 94-95 average household monthly income probably represents a computational error in the preliminary ESAM tabulations [16] When the full ESAM data set is available it will also be possible to examine these patterns of rice consumption on a regional basis

Urban households in the bottom income category (first quartile) are most vulnerable to fluctuations in rice prices because they spend larger shares of their expenditure (and income) on rice (Figure 4-3) These households spend 7,930 Cfa francs or 29 percent of household income on rice By contrast, the richest households spend 14,888 francs or 1 percent of household income on rice

Rice is also more important, in terms of overall food expenditure, for the poorest urban households It represents more than 20 percent of food expenditure for the lowest income quartile, but only 15 percent for the highest income quartile This confirms that, in urban areas at least, rice has ceased to be a luxury food, becoming instead a basic staple or possibly even an inferior good As income increases, rice takes a smaller share of overall and food expenditure

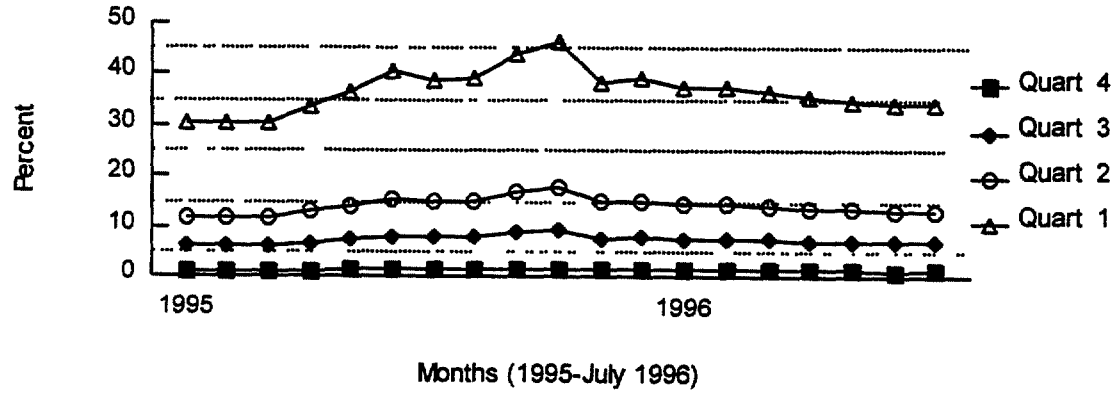
The implication is that price fluctuations are likely to have had much more dramatic effects on poorer urban households than richer in the short run The full extent of this difference depends on price elasticities of demand of the different income categories, and ability and willingness of individuals to buy and consume lower quality, lower price rice Updated estimates of price and income elasticities and what they indicate about the consumer effects of changes in the rice market will be done once the necessary data is available

[16] At this preliminary stage, ESAM figures for monthly household income should be used with caution It is unlikely that income levels experienced a four-fold increase over a two to three year period These results need further verification

Average nominal rice prices increased by 23 percent between the first quarters of 1995 and 1996 Consequently, the poorest households experienced substantial downward pressure on their incomes In 1994/1995, when the ESAM survey was being conducted, average rice prices were roughly 185 Cfa francs per kilogram On average, the monthly quantities of rice consumed by the poorest quarter of households was 43 kilograms [17] We can assume this amount remained largely unchanged, at least in the short run By the first quarter of 1996, average first quartile household expenditure for rice would have reached as much as 10,032 Cfa francs per month Assuming further that income levels remained largely unchanged, between the first quarters of 1995 and 1996, rice expenditures grew to 37 percent of average household income (see Figure 4-4) When rice prices reached their peak, in October 1995, probable monthly rice budget shares for the poorest quartile households were as high as 45 percent Figure 4 4 illustrate dramatically how much more sensitive the poorest 25 percent of the urban population is to rice price increases than the average urban household

Figure 4-4 Estimated Fluctuations in Monthly Rice Budget Shares

Urban Senegal Households, 1995-1996



Source DPS/ESAM 1994/1995

4 1 5 Trends in Whole Grain and "Non-Siam" Rice Less Clear

Trends in "Siam" rice prices have been closely watched However, as a much wider variety of broken rices become available on the market in different quality/price combinations, the price data system focused largely on Siams, becomes less useful This issue is the "wild card" in analysis of consumer effects of rice market reform Before the reforms, the vast majority of Senegalese rice consumers bought 100 percent broken Thai rice They had little choice, as that is what the CPSP imported and placed on the market where and when local rice was unavailable Consequently, price reporting systems reported nearly exclusively on this type of rice, with some reporting on local rice and the tiny amounts of imported whole grain rice on the market Since full liberalization of the rice market, a wide range of rice qualities, implying a similar range in prices, has been imported But, price recording systems have not yet systematically begun to record prices of new types of rice on the

[17] Average monthly household expenditure for rice (7,930 Cfa francs) divided by prevailing per kilogram price of 185 Cfa francs This estimate is for bottom 25 percent household income group

market A key issue, here, is that price changes in "Siam" rice may no longer have the same impact on consumer income and expenditure as in the past With the appearance of cheaper qualities of broken rice from India and Pakistan, consumers have been provided an alternative to the more expensive "Siam" rice Anecdotal evidence suggests poorer households have switched to cheaper rice, which has helped them cope with the income reducing effect of increases in "Siam" prices

4 2 Little Evidence of Change in Rice Consumption Patterns

In spite of recent price instability and increases, preliminary indications are that Senegalese rice consumption patterns seem to have changed only slightly, if at all Rather than a significant shift away from rice, Senegalese statistics and anecdotal evidence suggest rice is continuing to gradually push millet/sorghum and other grains out of the average household's diet

In fact, while nominal prices became more variable in the wake of reforms (see Figures in Chapter 2) rice prices deflated by millet prices (rice-to-millet price ratio) have remained relatively unaffected by the reforms, as have GDP-deflated real prices The rice-to-millet price ratio is particularly important for two reasons First, Senegalese have traditionally eaten millet-based meals, which remain the primary cereals substitute to rice-based meals Hence comparison of rice to millet prices is a useful first cut at determining the likelihood of substitution Secondly, observation of the price ratio movements seems to prove the anecdote that Senegalese farmers price their millet to rice prices As rice prices increase so do millet prices, nearly in lock-step This is borne out in Figure 2-1, which shows an extremely high correlation between monthly millet and rice prices, especially in the period following rice market liberalization

Box 4-1: Reasons for Dominance of Rice in Mid-Day Meals

- Rice is quickly and easily prepared in contrast to the often time-consuming processing or preparation of local cereals (millet, sorghum, maize)
- Rice is filling without leaving a heavy feeling, whereas millet/sorghum-based meals, "lakh" (milled cereal and yogurt product) and couscous, are respectively too light or too heavy for the mid-day meal
- Children are used to having rice-based meals at noon and demand rice
- Local cereals-based meals, when consumed at mid-day are associated with poverty

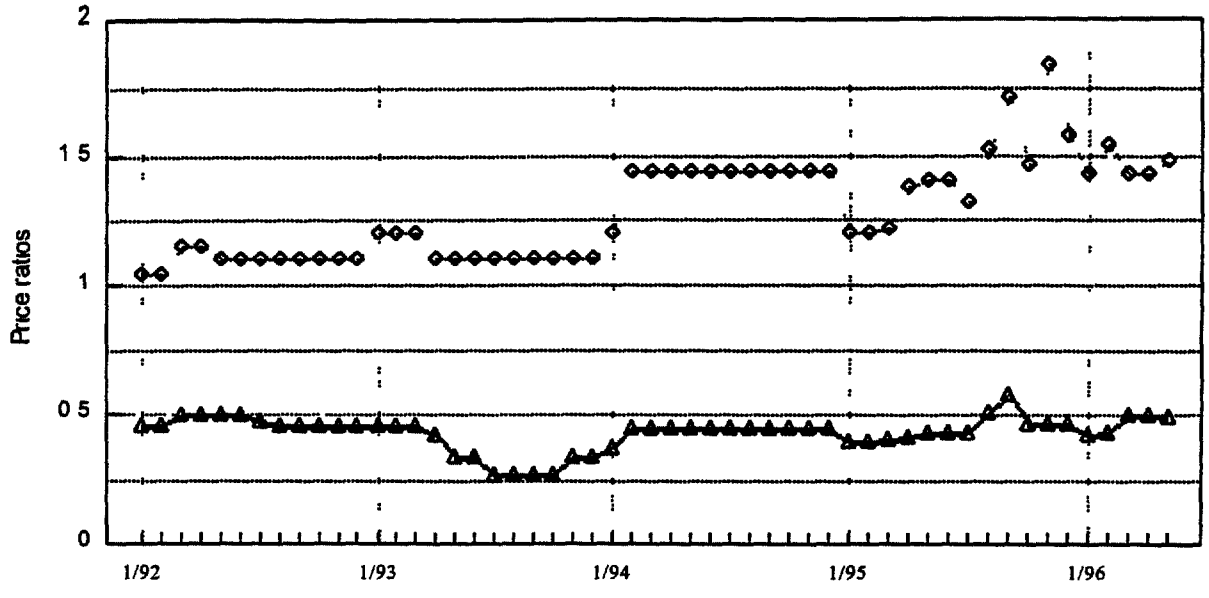
Source ICEA, APAP/UPA Report No 9, 1996

The ICEA consumer panel study of rice consumption confirms the view that rice has attained a nearly unshakable position in Senegalese meals, for which few if any other local cereals provide viable alternatives This is especially so of the mid-day meal, for which the ICEA report states, "In urban or semi-urban settings, rice-based meals have almost no competition or substitutes regardless of region or socio-economic categories " A corollary to ease of rice preparation as reason for rice preference is the competitive cost of rice-based versus millet/sorghum-based meals

When comparing millet prices to rice, it is important to distinguish between levels of processing Because of their availability, whole millet prices tend to be compared to rice prices, and conclusions about consumer demand made in consequence In fact, this is a poor comparison since rice as it is found in the market is "ready to cook" Whole millet must extensively be processed before it is ready for preparation in the kitchen Prices for most processed millet and sorghum products (particularly "couscous" and "semoule") tend to be more expensive than broken rice, the rice-to-

semoule de mil price ratio is well below 1, as is shown in Figure 4-5 Commercially processed "couscous" is priced in the range of high quality whole grain 'Carolina' rice Thus rice based meals are often less expensive than millet-based meals

Figure 4-5 Ratio of Broken Rice Price to Millet and Millet "Couscous" Prices
1992-May 1996, Dakar



Souce UPA Ministry of Agriculture

This explains why households that consume rice for the evening meal are considered poorer than those eating local cereals-based meals Traditionally, millet and sorghum (and maize, in a more geographically localized sense) are the base of evening meals Poorer households are less able to afford millet products for the evening meal This is especially so of poor urban households

Given the competitive price of rice, its solid establishment in mid-day meals, and the fact that rice sector reforms have not substantially changed the ratio of rice prices to prices of local cereals, it should not be surprising that Senegalese consumers have not shifted from rice to local cereals

Furthermore, previous statistical demand analysis indicates that the elasticity of demand for rice is generally highly inelastic to price changes, within the predominant price range [18] Anecdotal evidence is that demand for local cereals has increased somewhat, but not substantially Discussions with

[18] For many Senegalese households, rice is considered a basic necessity, for which response to price changes is limited Elasticity estimates, as Rod Kite points out, have tended to be made on scanty and highly regionalized information, they have not been very reliable Kite summarizes the findings of consumer studies conducted in Senegal and relevant neighboring countries He points out, further, that because of the relatively small share of rice (or other cereals) in overall cost of meals, households are unlikely to respond strongly to price increases See Rod Kite, "Evidence on Food Consumption Patterns and Behavior in Senegal Implications for the Food Policy Dialogue," Economics Division, Agriculture and Natural Resources Office, USAID/Dakar, March 1992

processors and merchants of processed millet, sorghum and maize-based foods suggests increased consumer interest and increased sales, but hardly enough to show up in more aggregate statistics

Food habits change with cost, over time But, at least in the short-term, there appears to be strong resistance to substituting millet, sorghum or maize-based meals for rice-based meals at noon This preference for easily prepared rice based meals will increase with greater urbanization It will take a combination of technological changes in local cereals processing, increased marketed surplus, and changes in food habits to substantially increase local cereals consumption

One advantage of our continued analysis of the large ESAM sample is that it should be possible to disaggregate the sample by income groups and region to estimate group income elasticities of demand for rice and millet/sorghum This should help move policy makers and analysts towards a more complete understanding of likely consumer responses toward rice consumption and the consumption of substitutes in the wake of rice market reforms

4 3 Preliminary Conclusions on Consumer Impacts of RSAP Reforms

While it is still too early to draw definitive conclusions on the effects of the RSAP reforms on Senegalese consumers, we can draw a number of preliminary conclusions on rice consumption patterns that will be further analyzed and monitored in the coming year For now we can say that

- Post-reform rice prices have been higher (particularly from mid-1995 to early 1996) and much more volatile than under the CPSP This has produced some short-run reductions in consumer income and somewhat greater food insecurity for consumers on lowest income levels,

- However, on the positive side of the ledger, consumers have also been given greater choice in the type and price of rice they buy Over time, with the development of more mature and stable rice markets, consumers should benefit from substantial improvements in marketing efficiency due to the dismantling of the CPSP The degree to which savings will be seen will depend on how heavily the GOS decides to protect domestic rice production,

- The maintenance of relative price parity between rice and millet in Senegalese markets, and the continued availability of relatively low-priced broken rice from different origins (particularly India) seems to have strongly contributed to there being little evidence of large changes in average consumer rice consumption behavior,

- However, with freer trade in rice and more diversity in rice origins, qualities, and prices, the Senegalese rice market is becoming more diversified Due to low average consumer incomes, the bulk of the market will be dominated by cheaper broken rice from a larger number of origins The most interesting parts of the market, from the perspective of strengthening domestic production and processing, will be the rice consumed by the "upper half" of households with higher levels of disposable income If local production can be oriented toward the quality characteristics that consumers prefer it will be possible to sell it at average prices significantly higher than those received today

5 IMPACTS ON PRODUCERS [19]

5.1 Major Farm-Level Trends

5 1.1 Rice Production

The Senegal River Valley Rice production in the Senegal River Valley rose dramatically beginning in 1989 and peaking in 1994, but it has stagnated since then The initial rise was due largely to investments made by the private investors to expand irrigated areas on their own Private investments in new irrigated perimeters were facilitated by the transfer of land management from SAED to rural communes In addition, relatively cheap financing for this expansion was made available through the establishment of a CNCA office at St Louis in 1987 Finally, with the completion of the Manantali Dam, flood control measures and year round availability of fresh water in the Senegal River were introduced in 1988, permitting improved irrigation planning for agriculture

Rainy season rice area reached peak of 26,500 hectares in 1991/92, and with the exception of a second spike in 1994/95, has fallen gradually to 20,500 hectares in 1995/96 (See Graph 5 1-A) There are indications that hectares actually harvested are substantially lower Hot dry season planting shows an even more rapid decline recently from a height of 7,300 hectares in 1992/93 to only 2,700 for the 1995/96 dry season which has just been completed

Productivity for rice also appears to have stagnated in recent years after rising steadily during the previous decade Yield data from SAED show an upward trend for both rainy season and dry season yields through the early 1990s Rainy season rice yields (Figure 5 1-B) reached a high of more than 5 5 tons in 1990/91 and 1991/92 They took a strong dip in 1992/93, but rose to a record of 6 4 tons the following year In the last two years they have fallen back to the lowest levels of the previous decade The sudden drop in yields is attributed to a scarcity of high quality seed and inadequate input usage associated with increasing costs since the devaluation Another problem has been delays in planting due to delays in delivery of water and input particularly in perimeter areas under group management These delays have in turn been attributed to credit problems of members of these groups

Yields for the dry/hot season crop peaked in the 1991/92 season at just over 5 tons/hectare and again reached nearly the same level in 1994/95, but fell by nearly half a ton last year This fall has also been attributed in large part to the difficult credit situation to finance inputs for that season which arose as a result of rice marketing problems for the previous season

The particularly poor results this last season (1995/96) are explained in large part by low market prices caused by the arrival of cheap Indian rice imports just as the harvest was occurring Uncertainty as to what paddy prices would be for the hot season harvest was a direct disincentive to plant In addition, turmoil in the marketing of the previous crop held up credit for the hot season planting as farmers held off selling their paddy to reimburse their rainy season debts in hopes that the price would rebound

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[19] This section was written primarily by Dr Jeffrey Metzel

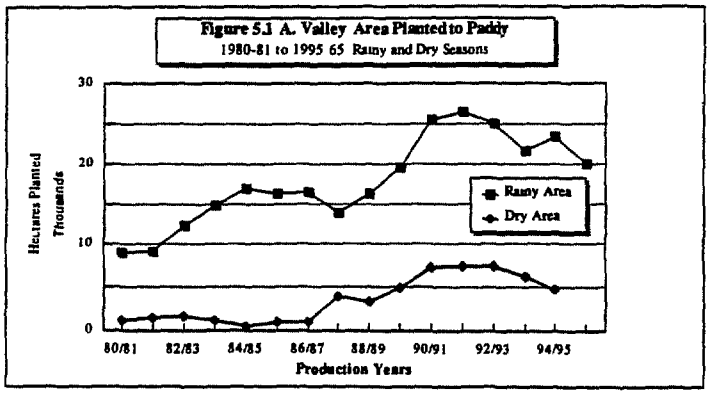
Figure 5.1 A. Valley Area Planted to Paddy
1980-81 to 1995 65 Rainy and Dry Seasons
Hectares Planted Thousands
30
20
10
0
Rainy Area
Dry Area
80/81
82/83
84/85
86/87
88/89
90/91
92/93
94/95
Production Years

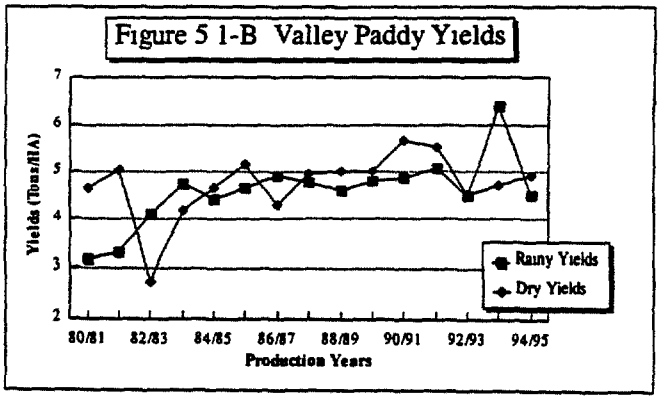
Figure 5 1-B Valley Paddy Yields
Yields (Tons/HA)
7
6
5
4
3
2
Rainy Yields
Dry Yields
80/81
82/83
84/85
86/87
88/89
90/91
92/93
94/95
Production Years

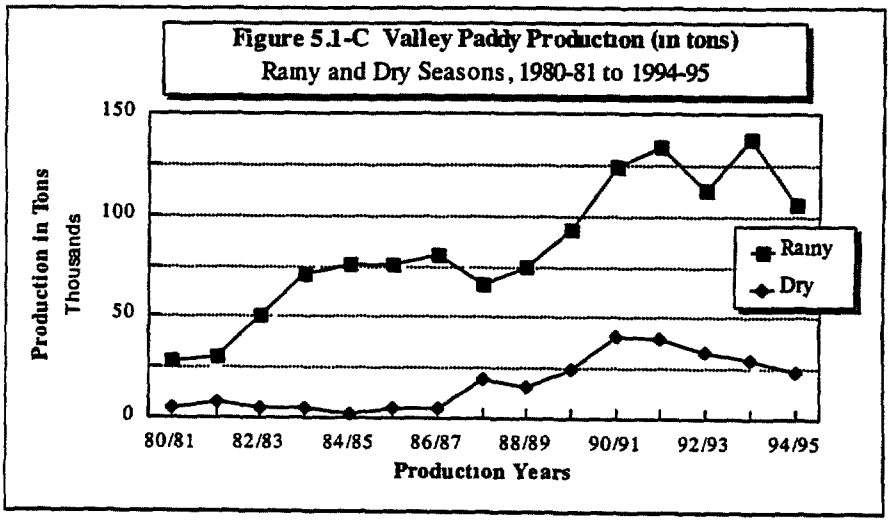
Figure 5.1-C Valley Paddy Production (in tons)
Rainy and Dry Seasons, 1980-81 to 1994-95
Production in Tons Thousands
150
100
50
0
Rainy
Dry
80/81
82/83
84/85
86/87
88/89
90/91
92/93
94/95
Production Years

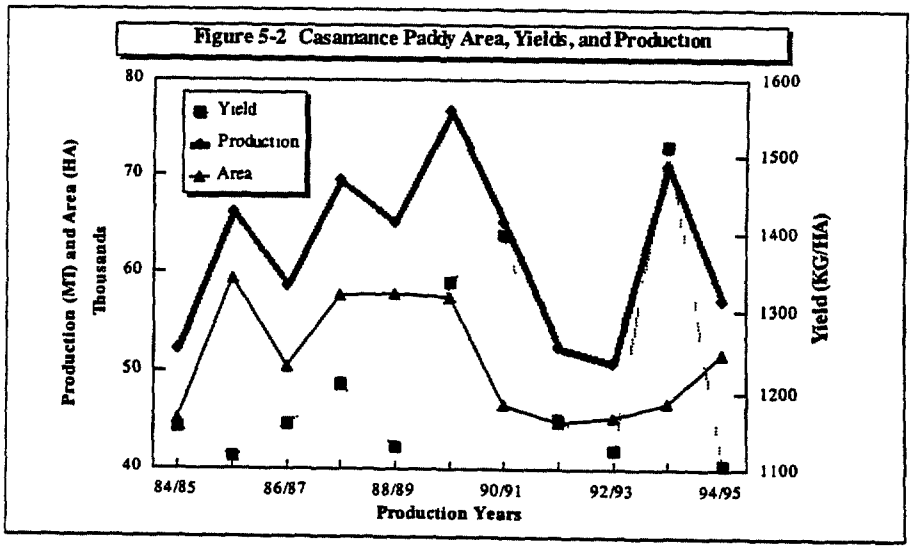
Figure 5-2 Casamance Paddy Area, Yields, and Production
Production (MT) and Area (HA) Thousands
80
70
60
50
40
Yield
Production
Area
1600
1500
1400
1300
1200
1100
Yield (KG/HA)
84/85
86/87
88/89
90/91
92/93
94/95
Production Years

The Casamance Rice production has remained relatively stagnant in the south of the country over the past decade, although a production peak in 1989/90 exceeded average levels by nearly 25 percent A second minor peak occurred in 1993/94 In both cases, the apparent cause for high production was high yields in Ziganchor, but an explanation of these exceptional yields is not available (Graph 5 2) The area trend line for the entire Casamance suggests that area planted has been falling gradually over the past decade, while aggregate yield trends suggest a very slight increase Neither trend is highly significant and together they result in an essentially stagnant production trend

These trends suggest a production environment which is largely dissociated from nation rice sector policies These conclusions are not surprising given that rice is produced principally as a subsistence crop in the region, while commercial rice trade is largely confined to the few urban centers The local rice economy also appears to be largely immune to the internal security problems that have existed in the last decade, although the gradual decline in areas planted may be partially attributable to these problems

5 1 2 Evolution in Production Practices in the Valley

In the wake of the withdrawal of SAED from many aspects of rice production in the late 1980s, and more recently, the devaluation of the CFA franc, changes in management practices with respect to rice production are to be expected The withdrawal of SAED might be expected to have imposed more costly solutions on farmers with regard to water management, input delivery, and machine services, since these are activities that SAED used to support either directly or indirectly Similarly, because they withdrew from direct involvement in credit provision for seasonal financing, farmers might be expected to seek less credit intensive solutions to their production activities

Similarly, the devaluation of the CFA in 1994 would be expected to move production towards techniques which make relatively more use of nontradeable inputs, particularly labor, while reducing the relative reliance on tradeable inputs such as commercial fertilizers and crop protection chemicals Machine services which are heavily tradable in cost would be expected to be displaced by more labor intensive techniques for production Available data is insufficient to evaluate the extent to which these expectations have been borne out, although anecdotal information discussed below appear to be relatively consistent with these hypotheses

Changing Use of Commercial Inputs Prior to devaluation, a 1993 survey by SAED found that average dosages of fertilizers were close to norms established by the extension service Indeed, DAP use was slightly above recommendations On the other hand, herbicide use was closer to half recommended doses, although these products are typically adjusted from season to season based upon immediate problems with weeds, and can be substituted for by manual or mechanical weeding

	Recommended dose	1993 use rates
Fertilizers		
DAP (kg/ha)	125	131
Urea (kg/ha)	250-300	241

Phyto-sanitary Products		
Propanyl (l/ha)	10 0	5 13
Weedon (l/ha)	2 5	1 35

Only anecdotal information is available concerning use of inputs since the devaluation at the beginning of 1994 [20] In interviews with a few farmers in the delta and middle valley, farmers claimed to have cut dosages of fertilizers and herbicides both for reasons of high price, and because of credit constraints Farmers also claimed to have reduced use of certified seeds, but primarily for reasons of insufficient supply, rather than due to increased costs, despite the fact that certified seed costs have increased by 33 percent since the devaluation

Overall, strong evidence is not yet available of changing input use for rice production, however, recent downturns in yield averages in both seasons are an ominous sign that farmers are reducing dosages In discussions with farmers, the problem of insufficient credit received a greater priority in limiting input use than either price, or availability

Changes in Use of Machine Services. With respect to machine services, the rate of use of these services has not declined substantially according to both farmers and extension agents This is explained in part by the fact that as a share of production , machinery service costs have not risen much Most farmers pay for machinery services with a percentage of the harvest Prior to the devaluation the standard payment was 15 percent of production In 1996 this share had only risen to 17 percent This is in part because rice values have also gone up, and in part because most machinery currently in use was purchased prior to the devaluation Recurrent costs of their maintenance have since gone up, but their prices have not yet risen fully to absorb the higher investment costs for future replacement equipment This fact implies that within a few years, costs will rise again as machines are renewed, and there is likely to be increasing shortages of machine services This eventuality is also presaged by the CNCA which notes that in 1996 there have been very few requests for agricultural equipment loans in the region [21]

Some farmers claim to be resorting more to manual harvesting instead of hiring combine harvesters In this regard, the principal complaint was in obtaining access to these services, however, rather than their cost On the other hand, none claimed to be shifting out of more mechanized techniques to less mechanized ones for land preparation

5.1 3 Investment and Credit Trends

Farmers complain that seasonal credit for rice production has become progressively more constraining in the valley in the past five years because of the reorganization of the structure of the credit process due to the withdrawal of SAED from rice marketing, increasing credit requirements due to rising costs of inputs since the devaluation, increased tightening of credit requirements placed on farmers by the CNCA, and dislocation in the repayment of credit due to problems in the marketing of rice Table 5 1 confirms this constraint for CNCA credit, which represents by far the most important

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[20] SAED is in the process of evaluating data of 1994 on input use, the results should be available later this fall

[21] Interview with M Diouf, Directeur CNCA St Louis Data were not available

source of formal credit available to farmers Credit availability has fallen precipitously from 5 6 billion CFA in 1991 and is less than one fourth that level now A second disheartening trend has been the steady erosion of reimbursement rates since the establishment of the CNCA office in St Louis, although apparently in the last year these rates have begun to improve

Table 5 1 CNCA Credit Disbursements For The Senegal River Valley
(Million CFA)

	Diagana	Rest of Valley	Total	Reimbursement Rate	
1987/88	149	0	149	100%	
1988/89	742	61	802	98%	
1989/90	1765	292	2057	96%	
1990/91	4744	847	5591	86%	
1991/92	4061	907	4967	80%	
1992/93	3063	613	3676	63%	
1993/94	2237	708	2945	na	
1994/95	na	na	2596	na	
1995/96	1222	400	1623	60%	**
1996/97*	1257	571	1828	>70%	**

Notes * through August 1996 ** unofficial estimates
Source SAED, Suivi de la Commercialisation, Aout, 1996, J F Beliérès, Le cas de la riziculture irriguée dans le delta du fleuve Sénégal, CIRAD, 6 Sept, 1995

Access to CNCA credit appears to have marginally improved in the valley in the past two years, however On a valley-wide basis, 18 percent more producer groups had been accorded 7 percent more credit by the beginning of August of this year, than had been accorded by the beginning of September in 1995 The increase appears to be in large part to a very substantial increase in credit demand in the Matam zone this year Even ignoring the substantial increase at Matam, there was also minor increases in the Podor and Dagana zone allocations No credit has been given in either year in the Bakel zone This is explained by the absence of a CNCA office in Bakel, on the one hand, (which is in turn due to the low level of intensive agriculture in the region), and by the apparent greater availability of alternative sources of credit among farmers in the Bakel region (primarily from remittances from out-migrant labor)

5 1 4 Evidence of Crop Diversification

The realization that rice farmers are too dependent on rice production income appears to be a present concern of both research, extension, and credit institutions as well as farmers This realization has been a part of many recent assessments, but what may have driven it home to actors in the valley has been the dramatic oscillations in the fortunes of rice production since liberalization measures have been introduced

Efforts to diversify production are not new to the river valley Since the early seventies, plans for irrigation have included strategies to raise other grains (primarily maize and sorghum) as well as a variety of vegetables, fruits, legumes, forages and cash crops Nonetheless, large efforts to promote other crops have been largely limited to tomatoes (based around two tomato canneries in the Delta), and sugar (for which all production is by a single sugar company at Richard Toll) Of these, tomato

production reached a maximum of 80,000 tons in 1990, but since has fallen off precipitously to 24,000 tons in 1996/97 This fall was in part due to a very poor harvest caused by a disease problem

Vegetable production is the only crop category which has grown rapidly in recent years Production increased by more than 60 percent last year surpassing tomato production for the first time This production appears to have come entirely from private investments in the area Production includes, onions, gumbo, peppers and potatoes Onion production is the most important activity and has grown rapidly since the importation of a variety from Niger, *Violet de Galmi*, which grows well in the region and preserves well The market for these vegetables is currently principally the large urban centers in Senegal which suggests that unless more distant markets can be developed, demand may become saturated easily

SAED and the ISRA research stations have also conducted substantial research on maize and sorghum, and some vegetables and extension efforts have been successful in introducing these crops in the middle and upper valley However , yields for these crops have not improved noticeably over this period, and there has been very little expansion of production Nonetheless, research for diversification has become a principal theme of the ISRA St Louis program, and is also the focus of a FED project housed in SAED Finally there is an Israeli pilot project at Lac de Guere which is also concentrating on developing horticultural production

Several new crops are only now being tried in the valley under irrigation SODIFITEX has begun to test cotton production under irrigation, with the intention of initially developing the production of cotton seed Because of irrigation and the ability to produce two crops per year, the rational is that production in the valley would allow much faster replication of cotton seed, and much better control of seed quality This year the company has written production contracts for cotton with several large private farmers to test the viability of this venture Similarly, there is interest in producing peanut and potato seeds in the region, although these initiatives have not yet been put in place Lastly, Spanish peanut production (arachide de bouche) has also begun in several areas and is reported to have expanded rapidly

5 2 Impact of Liberalization Policies on Rice Production

5 2 1 Paddy Price Trends

To understand production trends in recent years, it is instructive to review the evolution of rice sector policy and its influence on price trends for paddy Through 1993, paddy prices in the Senegal River Valley were set by SAED, which also assured the marketing of paddy sold to its URIC and contract rice mills At the same time, a private market for paddy had also developed although its prices were substantially below SAED prices Thus, from 1989 to 1993, the official paddy price was 85 CFA/kg, whereas the parallel market price varied between 50 and 70 CFA Despite the lower price, the parallel market existed for two principal reasons First, whereas in the administered market, farmers had to wait up to nine months to obtain payment for their production, the parallel market operated on a cash basis Secondly, seasonal credit loan repayments to the CNCA were automatically deducted from SAED payments to farmers, so farmers seeking to avoid reimbursement of their credit used the parallel market instead

Immediately after the January 1994 devaluation, SAED's administered price was raised to 90 CFA/kg for the 1993/94 rainy season harvest This slight increase was justified by the fact that most costs of production for that season had already been incurred at pre-devaluation prices By the following harvest, for the 1994 hot dry season, however, SAED had withdrawn from rice marketing entirely, leaving only the private market to handle production However, the CPSP continued to control consumer prices (180 CFA/kg for broken rice) Since the CPSP guaranteed consumption needs at this price through imports, this price in turn determined producer price levels The equivalent paddy price therefore settled between 100 and 110 CFA/kg for the hot season harvest of 1994, and this range persisted through the rainy season harvest of 1994/95

In April 1995, the consumer price for broken rice was raised by 25 percent to 225 CFA/kg due primarily to rising world prices for rice This resulted in a paddy price rise to 105-115 CFA/kg However, continuing world price increases, and rice shortages in urban areas (described in Section 2), resulted in paddy prices rising to as high as 150 CFA in September 1995 Basing their expectations for the rainy season harvest on these prices, some producer groups took agricultural loans with the expectation of reimbursing at 120-125 CFA/kg However, by November 1995, urban markets were flooded by imports of cheap Indian rice at well below projected prices, resulting in paddy prices dropping back to 100-110 CFA/kg This drop was all the more severe because the border protection tariff protection mechanism failed to protect adequately against these imports These prices persisted through the hot season of 1996 [22]

5 2 2 Trends in Input Costs to Rice Production

Concurrent with changes in paddy price, where changes in the costs of inputs to agriculture The first important effect of the liberalization process on inputs to production was the withdrawal of SAED from the provision of inputs to production as of June 1988, although all its inputs stocks were not liquidated until 1990 This withdrawal resulted in an influx of private providers of these services and inputs Price data suggests that this process occurred smoothly as prices did not raise significantly for the next four years

A much more important impact on production costs was the January 1994 devaluation A SAED analysis in the first year after the devaluation estimated rice production cost increases at 44 percent under mechanized techniques in the Delta [23] A more recent ISRA analysis, based on 1995 prices, found an increase of 50 percent for both mechanized and manual techniques [24] However, both of this analysis exclude the implicit costs of family labor and land Both land and labor costs are known to have risen substantially less than general inflation, implying that an analysis inclusive of these implicit costs would show a lower overall cost increase, particularly for manual cultivation

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[22] Adequate border protection was not provided since the new tariff law had been passed by the national assembly but not implemented Even if it had it would not have been sufficient since the tariff level was set every six months and was linked to a Thai reference price (regardless of using the c i f regardless of origin)

[23] Jean Francois Belieres Seydou Camara Adama Toure, *Les Exploitations Agricoles du Delta et Leurs Resultats Technico-Economiques Pour la Production Rizicole en 1993*, SAED/DPDR et Delegation Dagana October 1994

[24] Abdoulaye Fall, *Rapport Analytique 1995 Gestion des Exploitations Agricoles Productions Agricoles et Commercialisation des Cereales* ISRA/ URR-Fleuve, March 1996

techniques for which family labor is known to contribute a substantial proportion of total costs A second aspect not accounted for in either analysis is the change in production techniques due to changes in costs With rising relative costs of machinery services, for example, one would expect greater use of manual alternatives (This issue is examined in the section below)

Despite these caveats, both SAED and ISRA analyses suggest that overall net financial returns to rice production have fallen since devaluation This conclusion is counter to expectations of the effects of a devaluation on a tradeable commodity like rice, but are explained by the fact that simultaneously with the devaluation, the market was liberalized to move producer prices in line with world markets Because, producer prices had been substantially protected prior to liberalization, the loss of this protection countered the positive impact of the devaluation on production Thus whereas the producer price should have nearly doubled with the devaluation if it had reflected world market prices, instead, it rose by only 30 percent, which was not sufficient to compensate for a 40-50 percent rise in costs

5.2 3 Income Variability for Rice Producers

Variability of rice producer incomes is thought to have increased in recent years with liberalization of the sector Price shocks induced by the currency devaluation of 1994 temporarily increased income variability as unadministered prices of all tradeables rose commensurately, and eventually inflation raised other prices as well

In addition to product price risk, producer incomes are also subject to price variations for inputs, and production risks due to yield variability Tradeable input prices are subject to the same sources of variability as paddy (world prices and exchange rates) Rice yield variability may also be a function of policy to the extent that management practices, input doses or the level of effort on the part of farmers are influenced by the prices of products, inputs, or factor costs However, other factors, which are largely exogenous to policy may also affect yields including, most notably, weather and pest attacks

Using the PAM analysis recently conducted by WARDA for seven rice production and marketing susbectors or "marketing channels" (*sous-filieres)* in Senegal as a starting point, a combined analysis of the influence of these various factors on net returns to rice produces have been estimated using a monte carlo simulation technique In this approach the independent probability distributions for all exogenous variables — world prices of rice and important tradeable inputs (DAP and Urea), the exchange rate and, paddy yield variations — are jointly sampled through repetitive simulations to examine their simultaneous impact on producer net income The analysis was carried out under three scenarios

- Probability distributions prior to 1994,
- Distributions post-reform with the border tariff protection as designed, and
- Post reform without adequate border protection — as was the case this past year

Table 5 2 Net Financial Return Per Ton of Rice under Alternative Policy Scenarios (in '000 CFA/ton)

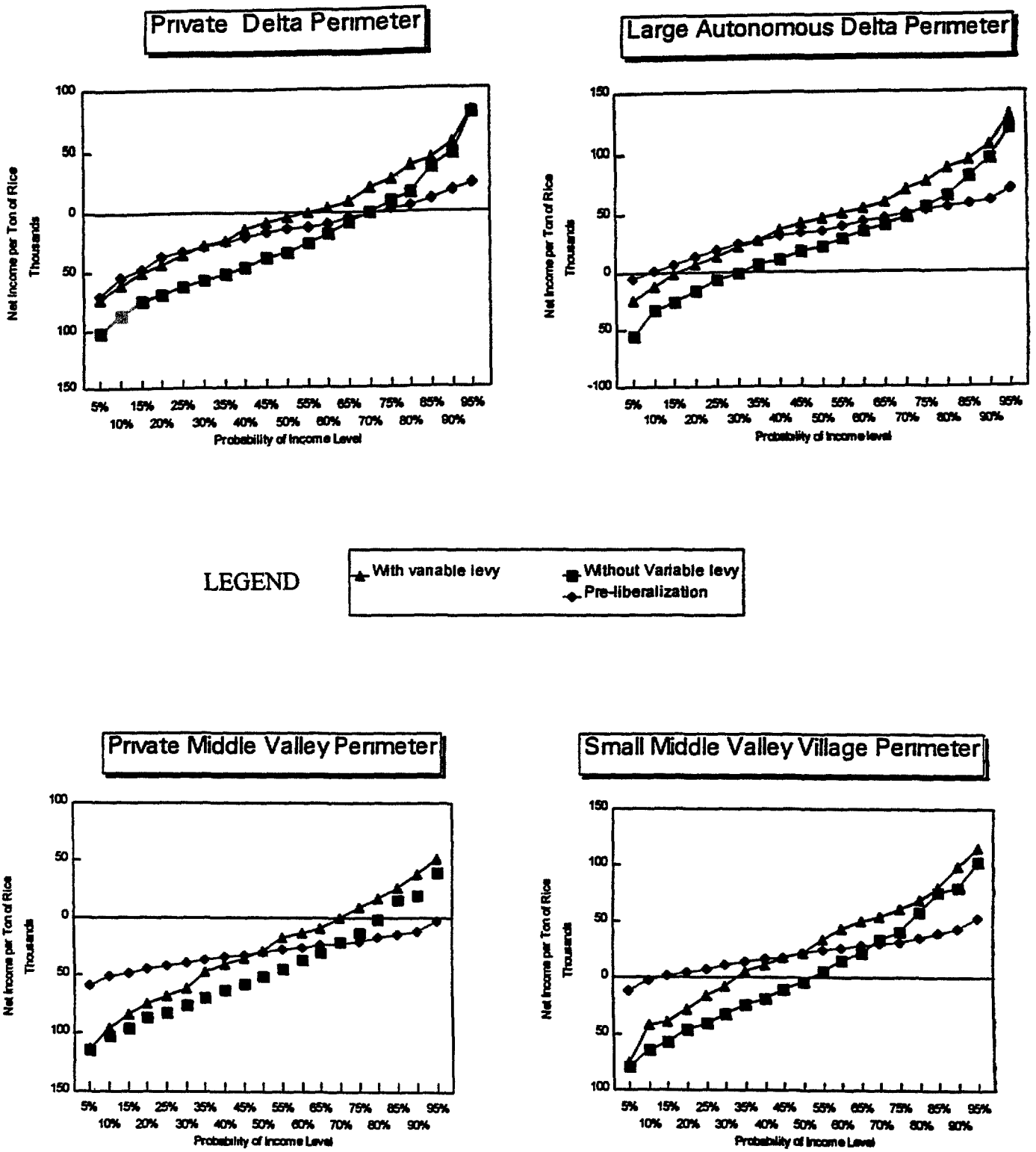
Scenarios	Rice Production and Marketing Subsectors						
	Casamance Traditional mangrove	Casaman Traditional bas fonds	Delta Large Self-managed	Delta Private SRV	Mid-Val Large Self-managed	Mid-Val Private SRV	Mid-Val Village Perimeter
Pre-liberalization							
Mean	na	na	35	-16	-4	-30	21
STD	na	na	24	28	16	16	19
Current, with Levy							
Mean	-41	43	48	-1	-1	-29	24
STD	73	73	49	48	54	52	56
Current, w/out Levy							
Mean	-72	14	28	-23	-17	-43	6
STD	87	80	52	56	53	52	61

The summary results presented in Table 5 2 show for all production systems that, prior to liberalization, probabilities were better of getting higher net incomes than is the case under liberalization without adequate border protection With the variable levy, however, mean net incomes are higher or similar to those prior to liberalization Both liberalization scenarios show much higher variability in incomes, however, than was the case prior to liberalization

The graphs in Figure 5-3 the next page give a better sense of the change in income variability They present the cumulative probabilities of falling below each income level The zero line in each model identifies for each of the three scenarios where the producer begins to lose money in production Probabilities for falling below zero are clearly highest for private farmers in the Senegal valley This is primarily because of the relatively low yields obtained by these production systems In all cases, administered prices prior to liberalization were better at assuring that incomes did not fall to very low (or negative) levels than with or without the variable levy post-liberalization On the other hand, liberalization with or without the variable levy increases the probability of occasionally obtaining very high incomes as well Thus, incomes show a much greater range of variability than was the case prior to liberalization Comparisons of liberalization with or without the variable levy show that the levy serves to raise income probability curves at low income levels, but income probabilities converge at high income levels

In an overall context, the results of this analysis should be encouraging to producers in that they suggest that, with the variable protection in place and correctly functioning, average net profitability should be higher than was the case prior to liberalization Moreover, financial profitability should improve substantially if the quality of rice can be raised so that production is assumed to compete with, and therefore command the price of, better quality rice

Figure 5-3: Probabilities of Net Financial Returns to Rice (CFA/ton) for Selected Production Systems of the Senegal River Valley



5 2 4 Input Market Performance

As we noted in Section Two, liberalization of input markets in the Senegal River Valley occurred in 1988 when SAED withdrew from fertilizer and crop protection chemical delivery At this time there was a rapid proliferation of input suppliers in the valley These suppliers rapidly filled the vacuum created by the withdrawal of SAED services, particularly in the Delta where there was a concentration of users These suppliers, however, rely on a small number of sources of supply The largest supplier is SenChim, which is the distribution affiliate of *Industrie Chimie du Senégal* (ICS), the only phosphate producer in Senegal SenChim is jointly owned by ICS and a European agrochemical firm This position gives it sole rights to sell ICS production in Senegal Its European partners also allow it to provide other inputs to the Senegalese market at attractive prices The second largest player in the input market is SIPA, a private industry which imports plant protection chemicals, and mixes a few of these For rice production, SIPA is a principal provider of Propanil, which it produces at its plant in Louga

In interviews with producer groups in the valley, several raised the problem of price gouging by wholesale input suppliers These claims were corroborated by a small input supplier who claimed that SenChim undermined its efforts to import and sell urea in 1994 SenChim offering to buy its stocks of urea at cost, and when it refused, slashing its own price to force the small supplier out of business

To test the efficiency of the internal market in providing these products to farmers in the Senegal Valley, SENAGROSOL, under contract with RSAP, carried out a rapid study to assess costs and marketing margins for the importation or local production of the most important inputs to rice production DAP and urea, the principal fertilizers, and Propanil, Weedon and Furadan (the principal crop protection chemicals) Of these, only DAP and Propanil are produced in Senegal, while the others are imported [25]

Preliminary results indicate that market prices for most of these products closely reflect costs of production or importing plus transaction margins in moving these productions to points of sale Differentials between wholesale costs and market prices are less than 10 percent in all cases in the Senegal river valley On the other hand, in southern Senegal, these differentials appear to be over 50 percent suggesting that markets are operating imperfectly in the Casamance This poor performance is not surprising given the presence of only one distributor of fertilizers in Ziganchor The lack of competitors is explained by the very low volume of commercial inputs used in the region

SENAGROSOL found that market nominal protection coefficients — the ratio of market prices to economic costs of delivery to points of sale — are typically less than 5 percent for fertilizers and less than 15 percent for crop protection chemicals These margins reflect primarily indirect taxation of transactions cost in the case of fertilizers, while the TVA is also a component of taxation for crop protection chemicals

These results suggest that despite stories of irregular behavior by input suppliers, there is little evidence that this is an important problem in the valley This is not to say that individual suppliers do not resort to unscrupulous means, nor that prices do not vary substantially Prices for inputs, as those for rice, now reflect variation in world market conditions These variations are important and are

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[25] SENAGROSOL-CONSULT, "Etude d'evaluation des prix et côuts dans la filière d'approvisionnement des intrants agricoles destines a la production de riz", Preliminary Version, Dakar, October, 1996

liable to continue to draw some complaints from farmers On the other hand, in Casamance, there appear to be very large "rents" in the market, due primarily to its small size

5 3 The Comparative Advantage of Rice Production

An Policy Analysis Matrix (PAM) analysis of comparative advantage prepared by WARDA has been used as the beginning point for reviewing the economic value of rice production in Senegal The analysis examines the value of rice production in the context of the alternative of importing Senegal's rice needs and using resources currently engaged in rice production for alternative uses The most crucial variable in the analysis is the assumed value of rice on the world market, to which domestic rice production is compared The WARDA analysis used as a world market comparison the price of 100 percent broken on the world market of $200 per ton This price reflects the value of the lowest quality rice on the world market

Analysis of the economic value of Senegalese rice production, using the WARDA technical models, were conducted both by the APAP production economist (only varying world price) and personnel from SAED (using a set of very optimistic production assumptions) One summary economic performance measure, the domestic resource cost (DRC) coefficient, was used to compare different rice production and marketing systems and are shown in Table 5 3 [26]

DRC results in the Policy Analysis Matrix method must be interpreted with a great deal of care First, the results are highly dependent on the levels chosen for certain key variables, as the results in Table 5 3 indicate Second, the normal use of the method is based on data collected for the average or representative producer (Thus, the SAED analysis apparently reflects targets that the agency hopes producers, if all following recommended practices under optimal conditions, might obtain It is thus an unconventional use of the PAM method and its results must be considered overly optimistic)

The WARDA baseline results suggest that, in competition with brokens imported at $200/ton f o b , no Senegalese rice production systems, except production on small village perimeters in the middle valley, are economically competitive at that price level These conclusions are not surprising given that all other systems are either more input intensive and based on higher irrigation development costs, such as is the case with large scale perimeters in the valley, or are considerably less productive than these perimeters, as is the case of private irrigation perimeters in the valley and traditional mangrove and bas-fond production in the Casamance (In the WARDA analysis, the DRC for all Senegalese rice, weighted by share of total production, was 1 47)

The APAP production impacts team recomputed the WARDA budgets under alternative world price scenarios, using prices that were applicable early in 1996 In the second column of Table 5 3, when world price for brokens is assumed to be $243/ton f o b Bangkok, then the economic performance of Senegalese rice improves somewhat — traditional lowland rice in the Casamance also becomes competitive on the average (this, plus the village perimeter rice from the middle valley, might

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[26] Note that DRCs are a ratio of the value of domestic resources used in production to the tradable value added in production Thus a DRC ratio below one indicates that the tradable value added in production exceeds the resource costs used in production, and thus confirms an economic surplus and a "comparative advantage" in production A DRC greater than one, indicates the opposite and therefore implies that economic value for the average producer, in that production/marketing subsector, and under the assumed yield and input prices, is negative

represent 30 to 35 percent of rice produced in the country) Similarly, if the prices for 35 percent broken and 5 percent broken were used (scenarios APAP 2 and APAP 3, much more of Senegalese rice becomes competitive (approximately 2/3 in APAP 2, approximately 85 percent in the APAP 3 case)

Table 5 3 Domestic Resource Cost (DRC) Coefficients for Seven Major Rice Subsectors in Senegal under Different Price and Technical Assumptions

	Assumption Sets and Prices Used in Analysis				
Production Systems	WARDA baseline $200/ton	APAP 1 $243 (100% broken)	APAP 2 $262 (35 % broken)	APAP 3 $344 (5 % broken)	SAED/FAO $225, mean of upper quartile*
Casamance Traditional Mangrove	2 21	1 38	1 27	1 03	N A
Casamance Traditional Bas-Fond	1 53	0 98	0 90	0 73	N A
Delta Large, self-managed	1 52	1 31	1 11	0 83	0 85
Delta Private Perimeter	1 34	1 13	0 94	0 69	0 85
Mid-Valley Large, self-managed	2 26	1 81	1 55	1 13	0 89
Mid-Valley Private perimeter	1 66	1 20	1 01	0 72	0 53
Mid-Valley Small village perimeter	0 85	0 74	0 67	0 55	0 83

* SAED "Etude de Rentabilité de la Riziculture Irriguée au Sénégal", FAO, Working Paper, June, 1996

Sensitivity to Important Assumptions To examine the sensitivity of these conclusions to variability in the principal assumptions of the WARDA analysis we evaluated the sensitivity of net economic benefits by calculating correlation coefficients between the independent variable and Net Economic Benefit The results are that the following variables are the most important contributors to model results (in declining order) yields, world price, exchange rates, and fertilizer prices These results are fairly constant across different subsector systems

The results suggest that there is very little prospect that either large-scale, self-managed perimeters, nor private perimeters will be economically competitive with imported rice unless there is substantial tariff protection Small scale village perimeters are economically competitive in most years, though this competitiveness in not robust For large autonomous perimeters and private perimeters, however, the DRC distributions illustrate that even with considerably variability in these assumptions, probabilities are low that in any given year other production systems will produce at economically competitive levels (i e the DRC will fall below 1 0)

Sensitivity to Price While the price for 100 percent broken rice is accurate for use in comparison with current local production, given that most imports to Senegal are of this grade, it does not reflect fully the potential value of locally produced rice Given that farmers produce whole grain,

and can produce varieties of high quality, it is plausible that domestically produced rice could be upgraded in quality to the equivalence with higher quality world market grades If, in addition, this production could find either domestic or regional markets its reference value would increase dramatically The results presented in Table 5 3 (APAP 2 and 3) show a much more favorable assessment of the comparative advantage of domestic production assuming that the quality of domestic production can be raised and that it can be targeted to markets that value this quality The most attainable scenario is that Senegalese rice is able to compete with 35 percent broken rice in Senegal and other regional markets Guinea and Cote d'Ivoire, in addition to Senegal, already import rice of this quality, and domestic production in Senegal already approximates 35 percent brokens from some rice mills Thus this prospect appears feasible in the near future At these prices, private production systems become competitive and private schemes in the middle valley are only marginally unattractive (DRC =1 01)

A longer term prospect is the assumption that at least some Senegalese rice could compete with 5 percent brokens (Thai grade b) At prices fetched by these qualities, large autonomous schemes of the Delta, where currently much of the rice is produced also become competitive Of course the analysis does not factor in any additional harvesting and processing costs that might be necessary to obtain this level of quality What the analysis does show is that even ignoring these costs, and assuming attainment of these quality markets, large scale self-managed systems in the mid-valley and traditional mangrove systems in the Casamance remain uncompetitive

Two important caveats to these conclusion are, first, that the analysis does not allow for continued adaptation of production systems to the new economic environment, and second, that the analyses masks important variation within producing systems Private producers in particular are an extremely dynamic and heterogeneous group The principal failure of these systems in the recent past has been in their low yields, and yet some private producers obtain very high yields and are likely to be among the most profitable producers in the valley Thus while private production currently shows weak economic value, it is also the system most likely to adopt technical improvements to become competitive These issues of improving the competitiveness of Senegalese rice, at reasonable price levels, will be explored further in the last year of APAP assistance to UPA/RSAP

6. TECHNICAL ASSISTANCE AND TRAINING ACCOMPLISHMENTS AND FUTURE ACTIVITIES

For some readers it will be useful to have an overview of the RSAP/APAP buyin project's activities to date and a quick review of the activities planned for the coming year This is the purpose of this final section

6.1 Project Activities to Date

The APAP buyin team, together with its partners at the MOA/UPA defined a two year work plan for the RSAP project in December 1994 Due to delays in contracting, implementation of this work plan did not begin until late August, 1995 The first year and three months of implementation have been quite active and successful for a project of this level of funding APAP technical assistance resources have been used for four types of activities during this period (described in detail in Table 6-1, beginning on the next page)

- **Analysis of specific technical topics** related to the RSAP reform program APAP provided in-depth help with the need for a GOS rice market information system (MIS) and at two different times detailed help on the design or modifications to the rice tariff protection system which previously had been devised by a mixed GOS/World Bank group (unfortunately prior to the detailed APAP study in Report No 3) The APAP work was, however, very useful in proposing badly needed changes to the rice tariff system,

- **Design and implementation of a comprehensive monitoring and evaluation (M&E) system** to assess impacts of RSAP reforms on consumers, rice producers, and the rice importing and marketing systems This has absorbed the bulk of buyin resources and was the main purpose to the APAP contract Each of the three M&E impact teams is composed of an APAP staff member and a UPA staff member All of them are making active use of other local centers of expertise (ISRA, MOF/DPS, CSA, SAED, and local consulting firms) to conduct much of the field work,

- **Analysis of UPA structure and functioning** and proposal for a restructuring of the institution in order to do a more thorough job of agricultural policy analysis In addition, APAP team members have spent substantial time interacting with World Bank and other donor personnel on questions involving future directions for the UPA, and

- **Training provided to UPA and other GOS personnel.** Two formal training efforts were funded with buyin resources (a) providing a detailed, hands-on computer-based training program in the Policy Analysis Matrix technique to 25 GOS personnel in February 1996 and (b) organizing and leading 14 GOS agricultural policy personnel on a 10 day study tour of agricultural policy institutions in Morocco (these institutions had been strengthened through 10 years of USAID investment in personnel training and technical assistance) In addition, on-the-job training sessions were provided to UPA personnel on a variety of topics such as monitoring and evaluation, computation of demand elasticities, and use of stochastic simulation in conjunction with PAM analysis

Table 6-1 Accomplishments of the APAP/UPA Team (8/95-11/96)

Task Order Number	Consultant/ Organization	Accomplishments
1	Kingsbury (DAI)	8-10/95 Extensive work with the RSAP/GOS reform coordinating committee Report produced "Analyse du Méchanisme de Protection du Riz Local au Sénégal", APAP/UPA Report No 3
2	Wilcock (DAI)	9/95 Planning of Monitoring and Evaluation system
3	Dorosh (ISTI)	12/95 Study of the need for a rice MIS Report produced "Expansion of the GOS Rice Market Information System", APAP/UPA Report No 4
4	Ouedraogo (Abt)	3-4/96 Did detailed planning of the impacts on the marketing system portion of the M&E program Reports produced (with AA Gueye) " Impacts sur la Structure et le Fonctionnement du Système de Commercialisation du Riz", APAP/UPA Report No 8 and (also with AA Gueye) "Protection du Riz Local au Sénégal Quel Mécanisme de Prélèvement Dégressif sur le Riz Importé?", APAP/UPA Report No 10
5	Ndiaye (ACG) Diouf (ACG)	Worked with Dorosh on T O 3
6	Wilcock (DAI)	1/96 Task order planning
7	**--Canceled--**	
8	Randolph (DAI)	2-3/96 Randolph was principle teacher in 7 day PAM training course given at Saly Portugal for 25 GOS trainees TO included rental of training facilities, participant per diem, etc
9	Wilcock (DAI)	2-3/96 Covered Wilcock participation in PAM training
10	Metzel (AIRD)	2-3/96 Metzel worked with Youssou Diagne on detailed planning of producer impact studies Report produced " Rapport de Mission sur l'impact des Réformes au Niveau des Producteurs", APAP/UPA Report No 6
11	Poulin (DAI)	2-6/96 Poulin worked with UPA to understand their mandate and performance to date and to propose institutional restructuring Report produced "Restructuring the Unité de Politique Agricolein Senegal", APAP/UPA Report No 5
12	Tardif-Douglin (DAI)	3-4/96 Consultant worked with A Diouf of UPA on the consumer impacts of RSAP Report produced "Plan Opérationnel pour le Suivi et l'évaluation de l'impact des Réformes du Secteur Riz sur les Consommateurs Sénégalais", APAP/UPA Report No 7

13	Wilcock (DAI)	5/96 Help in planning consumer panel study, follow-up on M&E studies, and task order planning
14	Baudoin, Simantov (DAI)	5-9/96 With local consulting firm IRIS, conducted consumer panel interviews on rice Results are summarized in "Caractéristiques Qualitatives de la Demande de Riz et autres Céréales Locales au Sénegal", APAP/UPA Report No 9
15	Tardif-Douglin (DAI)	4-8/96 Implementation of first activities under "consumer impacts" portion of RSAP M&E program Input into Second Situation Report, APAP/UPA Report No 12
16	Ouedraogo (Abt)	4-8/96 Implementation of first phase of "marketing system" portion of the RSAP M&E program Input was prepared for the Second Situation Report, APAP/UPA Report No 12 Additional paper prepared (with AA Gueye) "Un Atout du Riz Local Oublié pour Trop Longtemps La Carte des Restaurants", APAP/UPA Report No 11
17	Metzel (AIRD)	4-8/96 Implementation of the first phase of the "producer impacts" portion of the RSAP M&E program Input was prepared for the Second Situation Report, APAP/UPA Report No 12
18	Kebe Fall (ISRA-Abt)	12/96-5/97 Funding for using ISRA personnel to implement a portion of the marketing system impacts portion of the RSAP M&E program
19	Wilcock (DAI)	10/96-1/97 Funding for 14 GOS cadres for a study tour of agricultural policy institutions in Morocco (organized and lead by Wilcock) and for Wilcock to write and assemble the report "Senegal Rice Policy Reform Program Second Situation Report" APAP/UPA Report No 12
20	Tollens (DAI)	1-6/97 Funding provided for Prof Tollens to work with the CGSMR of the Ministry of Commerce to produce and begin to implement an "Action Plan" for the GOS Rice MIS Provides for three trips for consultant

The APAP team, working with USAID mission personnel, devised a streamlined task order system which has allowed this long-term technical assistance project to conduct activities in the field without having to maintain personnel permanently in Dakar at considerable expense

6 2 Planned Future Activities

The following paragraphs briefly summarize the activities that are planned for the final year of this RSAP technical assistance contract

6.2 1 Technical Support to the Rice Reform Effort

Two efforts are planned in this area One has not been specified in order to leave a little flexibility to respond to suggestions that may arise in the seminar planned for late February, 1997 The second technical effort is support to the CGSMR "SIM-Riz" in the Ministry of Commerce Professor Eric Tollens, and a local consulting company recruited by USAID, will provide assistance to the *Cellule* over the period of January-June

6.2.2 Continuation of Monitoring and Evaluation Activities

The bulk of the APAP/UPA effort will be concentrated on finishing the monitoring and evaluation of reform impacts on the marketing system, on consumers, and on producers The original M&E programs will be modified after feedback on this report and debate of its results at a public seminar scheduled for late February or early March, 1997 The M&E effort will be capped off by detailed final reports in each of these three areas and a third and final "Situation Report" in late 1997 summarizing our understanding of reform impacts two and a half years after the most significant of them went into effect

Impacts on Rice Importing and Marketing Systems. Four activities are likely to make up the bulk of the work of this team

- **Continuation of Analysis of SGS/Customs Data on Rice Imports** This data set will be critical to the work of the CGSMR and therefore access to the data for APAP/UPA analysis should be easier than it has been to date However, there are still incompatibilities in the formats, numbering systems, etc of data provided by SGS, customs, and the port authority which need to be reconciled In addition, under current conditions, wholesalers have not been very forthcoming in providing data on rice stocks and sales, so some work is required in this area as well,

- **Field Survey in Valley** The objective of this 2-month survey is to provide critical field data to calculate marketing costs and identify new developments on the main rice marketing channels in the Valley,

- **Estimation of Efficiency Gains** With ISRA/BAM staff in Dakar, information will be collected and analyzed to estimate some of the static gains in efficiency that come from the elimination of CPSP In addition, some effort will be given to the difficult task of estimating gains in efficiency that are likely due to greater competition in rice distribution, and

- **Research Proposal for the Promotion of Higher-quality Local Rice:** Ouedraogo and Gueye initiated a small-scale experiment to assess the potential for marketing high-quality local rice to urban consumers, particularly in Saint-Louis and Dakar This experiment involved working with local restaurants which were asked to sort local rice to produce quantities of whole grain rice capable of being substituted for imported rice The initial results seemed quite promising and should be verified by additional, systematic field testing if project resources allow The suggested research proposal includes an assessment of the potential demand for higher quality local rice by restaurants in Dakar and Saint-Louis, an assessment of the production and processing constraints for producing higher quality rice, an assessment of the market

coordination needed to supply restaurants with such rice, and a refinement of the cost-benefit analysis of this substitution

Impacts on Consumers The monitoring portion of this group's work involves data from two sources The first involves continued analysis of CSA market price data for rice, particularly with the addition of new data on the prices of lower quality ("non-Siam") broken rice that were to have started in November 1996 Also, analysis of changes in spatial price differences can be done once the markets have had a chance to respond more fully to liberalization (and once CPSP rice is completely off the market) The second involves consumer views about the availability and price of rice in the market that can be assessed on the basis of polling that is now being done quarterly by CSA enumerators

"Evaluation" of consumer effects will rely heavily on analysis of the ESAM data set for which DPS has only produced a limited number of summary tables In addition, the APAP/UPA team has not had access to the data base at the household level, so more detailed analyses planned still wait to be done However, as we have noted, the ESAM data set pertains essentially to the pre-reform period, data were collected from March 1994 to April 1995 Most households were sampled before key reforms were enacted This has allowed to set a "pre-reform consumption baseline" In 1997 it would be desirable for a number of donors to fund either a full "ESAM II" or a re-interviewing of a significant sample of the original ESAM household to ascertain how households may have altered their rice buying and consumption habits in the wake of the RSAP reform program RSAP does not have the resources needed to accomplish such a survey but one is needed in order to definitively analyze the longer term impacts of the reform program

Impacts on Producers The production impact group has initiated a number of activities that will be on-going in the coming year

- **Farm Modeling** This work is being done with Youssou Diagne of UPA The models will allow the relative returns to rice and other irrigated crops (with a diversification strategy) to be tested at the household level,

- **Input Market Analysis** This work has had two components, one conducted under contract by SENAGROSOL, and the other to be done in collaboration with ISRA/BAM in St Louis The first is largely complete and principle results were reported in Section 5 and the second has been delayed for logistical reasons How much priority to be placed on this activity will be determined in early 1997,

- **Determinants of Rice Production in the Valley** This is work that is being done jointly with SAED and its objectives are to evaluate structural, farm management, and market variables that affect rice yields, to develop a short-term supply function for rice in the valley, and to develop a short-run projections model for rice production in the region, and

- **Risk Analysis and PAM** Additional work will be done with UPA and other colleagues to make further use of the @Risk simulation program in conjunction with the evolving efforts to develop a more come set of PAM matrices on rice and other crops that may enter into needed crop diversification in the valley

6 2 3 Analytical Training to be Provided to UPA and Other GOS Personnel

APAP personnel will continue to provide specific on-the-job training in various software packages and analytical techniques as part of their RSAP work In addition, two specific short courses have been proposed (a) a course in advanced spreadsheet techniques for project cost-benefit analysis for UPA personnel, and (b) further training and R&D work in the development of PAM analyses for other crops and livestock product activities in addition to rice

ANNEX

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