

Improvement of Postharvest Grain Systems

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***EVALUATION OF RICE IMPORT
OPERATIONS OF THE CAISSE DE
PEREQUATION ET DE
STABILISATION DES PRIX SENEGAL***



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SUMMARY STATEMENT

This evaluation encompasses the technical operations performed by the Caisse de Péréquation et de Stabilisation des Prix (CPSP) in rice importations. These rice importations make up 40 percent of the total cereal grain consumption of the Senegalese population. The operations reviewed include purchasing, port operations, and distribution and sales. In addition to needed operational improvements, the report also addresses recommendations for policy modifications. Without these policy modifications, any improvements in technical operations will have only an insignificant effect on the financial position of the CPSP.

EVALUATION OF RICE IMPORT OPERATIONS OF THE
CAISSE DE PEREQUATION ET DE STABILISATION DES PRIX
SENEGAL

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EXECUTIVE SUMMARY

The deficiencies in the rice import operations of the Caisse de Péréquation et de Stabilisation des Prix (CPSP) can be divided into technical operational deficiencies and management/policy deficiencies. While the deficiencies in the technical operations are not considered major faults, the areas which need to be strengthened are market information collection and market analysis; quality preservation programs in warehouses; and grain, financial, and cost accounting systems. However, eliminating the technical deficiencies without resolving the major deficiencies which lie within the management/policy area would not create much of an improvement in CPSP financial operations. The principal effort should be directed towards correcting the management/policy deficiencies regarding the past intervention of intermediaries in the rice purchasing operation, the subsidization of transporting rice to inland warehouses, and the sale of rice on credit.

The technical operational deficiencies can be easily resolved. However, the author wishes to set forth two cautions. The first is in the area of improving grain and financial accounting practices. The idea of using computerization to achieve improved performance has arisen in discussions. It is strongly suggested that this is extremely unwise. Computerizing a grain or financial accounting process requires the existence of a strong workable manual system producing the needed management information. This is not the case within the CPSP. The second caution refers to bulk versus bag rice purchases. A procedural change from purchasing rice in bags to purchasing in bulk and then bagging the rice at the Dakar port area requires an extremely careful, in-depth analysis. There are many elements to be considered before deciding to buy in bulk rather than in bag.

The changes in the management/policy area will require that principal decision-makers in the government assess the current situation and set forth stated policies to correct defects in the system. It appears that the issue of intermediaries acting as agents between the CPSP and import sources has been corrected in 1984 calendar year operations. If these intermediaries are not reintroduced into the purchasing procedures, then this policy issue can be considered to be resolved.

The issue of freight subsidization to inland warehouses is basically a price policy issue. The question of recovering freight costs through price adjustments or continuing to subsidize these costs must be decided at the level of policy decision within the GOS, not within the CPSP.

The issue of credit sales policy needs to be addressed given the large increase in accounts receivable. If credit sales are to continue, then there should be a decisive policy of how to control credit and collect debts. If they are not to be continued, then there should be a decisive policy on how to monitor CPSP actions in order to ensure adherence to the policy of cash sales only.

Finally, one other policy issue needs to be clarified. This is the issue of whether the CPSP import operations are to be a mechanism for providing cereal grains for human consumption at the lowest possible price, or a mechanism for generating net income to support other subsidization actions of the CPSP.

Since the major concern seems to be the financial position of the CPSP, there are five possible options to choose from concerning the import operations.

1. Retain the import operations within the CPSP as it now operates, introduce needed technical operational improvements and resolve the policy problems previously discussed.
2. Retain the import operations within the CPSP but reduce operations to purchasing and port operations with sales to wholesalers being cash terms FOB port (or local Dakar warehouses).
3. Shift import operations to a parastatal organization.
4. Shift import operations to the private sector.
5. Allow an international trader to establish operations in the port area. This trader would import cereals and store them within the port area, then sell the commodities to wholesalers cash basis FOB the Port of Dakar.

On the whole, the major deficiencies of the CPSP are policy-oriented. The deficiencies in operations could easily be rectified if the Direction Commerciale (DC) were willing to accept assistance in its import activities.

Because of cost structure involved in importing a cereal grain creates a balance of payments problem, two alternatives can be envisioned to reduce the cost of imports. These alternatives are diversifying sources of supply and finding an acceptable substitute grain.

If diversification is viewed as a policy of attempting to purchase a given quality standard at the lowest price, then diversification should be addressed through an improved market information and market analysis system.

Finding a substitute grain for rice which could be obtained at a lower price seems to have captured the attention of the donor community. However, when dealing with this issue, several considerations need to be examined. Comparing polished rice to possible alternatives such as sorghum or corn is like comparing a cereal grain to a coarse grain, as well as comparing a processed product (polished rice) which is ready for distribution to an unprocessed product (sorghum) which must be processed in the home before consumption. When comparing grains, one must deal in equivalent terms.

Dealing with the question of acceptable substitutes for cereal grains requires a long-term approach. Food consumption habits are adopted slowly over a long period of time. This is generally encouraged by the development and introduction of new products. If donor agencies wish to emphasize the potential for the substitution of cereals so as to enhance the economic position of Senegal, then this must be viewed in the long-term context of the problem. Donor agencies must be committed to this effort, and assist with technical resources and leadership.

SECTION I

BACKGROUND

The Caisse de Péréquation et de Stabilisation des Prix (CPSP) is a government agency whose responsibilities are: (1) stabilization of revenues for operating companies in the agricultural product export sector; (2) execution of Government of Senegal (GOS) policy with respect to prices for agricultural inputs such as seeds and fertilizers; (3) stabilization of prices for basic food staples such as rice, sugar, flour, and vegetable oil; and (4) importation of cereal grains (with the exception of wheat) which for the most part has consisted of broken rice, and distribution of these cereals at a fixed scheduled price within the country.

Current Situation

The CPSP accounts have been in deficit since the mid-1970s and in spite of the increasing retail prices for food staples, little progress has been achieved towards alleviating this deficit. Basically, the revenues generated by the CPSP do not offset the expenditures incurred in carrying out its responsibilities, as shown in Table 1, Appendix B.

As a result of the recurrent CPSP account deficits, the GOS has requested donor agencies to conduct a study of the three key commodity sectors involved in the CPSP operations: sugar, groundnuts, and rice. This evaluation is part of an overall study of CPSP activities carried out according to the parameters set forth in the statement of work in Appendix A. This evaluation concerns itself specifically with the CPSP cereal importation operation.

With the dissolution of the Office National de Coopération et d'Assistance au Développement (ONCAD) in 1979, the CPSP was given the responsibility for carrying out commercial cereal importation in late 1979. The cereal grain imported consists almost exclusively of 100 percent broken rice, with minor amounts of whole rice and sorghum in the past few years. Responsibility for the importation of wheat does not fall under the CPSP's jurisdiction.

Cereal Grain Production and Imports

Domestic cereal production in Senegal has been supplemented by imports for more than the past four decades. The annual growth rate of domestic cereal production is approximately 1.0 percent.¹ This is far below the population growth rate, estimated to be 2.7 to 2.8 percent. Domestic production of cereals has been able to supply only about 60 percent of needs over the last decade. As a result, substantial levels of cereal imports have been and are still required to feed the population of Senegal. The production and imports of cereal grains are detailed in Tables 2 and 3, Appendix B, respectively.

Cereal grains imported for direct distribution (excluding wheat) consist primarily of rice, which has accounted for over 90 percent of the imported quantities. The growth rate in these cereal imports is 5.3 percent annually.

¹Even with the years of drought factored out, the annual growth rate for domestic cereal production is only 2.4 percent.

These imports are just sufficient to meet the cereal consumption requirements of Senegal as shown in Table 4, Appendix B.

Rice importation has increased dramatically in the last 5 years to cover domestic cereal production deficits and increasing population needs. This scenario will continue into the future along the lines described in the Senegal Agricultural Policy Analysis. As a result, imports of cereals will be an important element in the operations of the CPSP in the near term.

SECTION II

CPSP RICE IMPORT OPERATIONS

Commercial cereal import operations are under the auspices of the Direction Commerciale (DC) located within the CPSP. Essentially, the DC operates as a separate entity within the CPSP, working under established government guidelines and parameters such as fixed official selling prices and import purchasing procedures.

The DC is in charge of activities in three areas: commercial imports of rice and sorghum, purchases of domestic polished rice from parastatals, and reception and sale of PL 480 Title III rice and sorghum. Domestic rice purchases and PL 480 imports, shown in Tables 7 and 8, are a relatively minor portion of the volume of cereal grains handled, amounting to less than 7 percent of the total volume of rice and sorghum imported into Senegal.

The DC has three operating divisions: (1) the Supply Division, (2) the Port Operations Division, and (3) the Distribution Division. The Supply Division is responsible for the arrival of imported grain at the port. The Port Operations Division then handles the unloading of the imported grain, and the Distribution Division is responsible for transporting the grain to inland warehouses via private-sector trucking firms, and selling it to private-sector wholesalers from inland warehouses or from the port area. In the past, rice was the only cereal grain commercially imported. However, beginning in 1983 a small amount of grain sorghum has also been imported.

The current storage policy calls for a rice reserve of 90,000 MT at all times. In practice, however, the reserve amounts to 60,000 MT: 30,000 MT in the distribution channel and 30,000 MT held in storage for future distribution.

Purchasing

The responsibilities of the supply division include issuing international tenders, finalizing contracts, chartering ocean transport, arranging for cargo insurance, checking documentation for payment, and collaborating with the brokers who give advice and assistance to the DC.

As pointed out earlier, the vast majority of cereal grain importations for direct distribution (excluding wheat, which must be processed) consist of rice. Imported rice has generally been 100 percent broken rice which is cheaper and supposedly preferred by the Senegalese population. A small portion of the imported rice has been whole-grain rice purchased under the United States Agency for International Development (USAID) PL 480 Title III program (20 percent broken rice). A very small number of floating cargoes of broken rice have been purchased, generally because of emergency requirements. The main source of imports has been Thailand, with minor amounts purchased from Pakistan, Burma, China, the U.S. (PL 480), and India. A description of imports by source is given in Table 6.

Sorghum is a relatively new commodity for the DC. Sorghum imports began in 1983 with purchases from Thailand. Sorghum purchases have amounted to only 13 percent of the total 1983 cereal grain imports, and an estimated 14 percent

for 1984, not including PL 480 Title III imports handled through the DC. The sources for sorghum imports are the U.S. and Thailand.

Current import procedures were initiated at the beginning of 1984. The first step is to issue international tenders to bid based on a CF price¹, Port of Dakar. Bids received from these tenders are then reviewed and selections made. There are some exceptions to this practice, as evidenced by a shipment of rice which had been purchased FOB Port of Rangoon with the DC chartering the ocean freight.

A current government-to-government contract for rice imports exists between the GOS and the Government of Thailand (GOT). An amendment to this contract allows the GOS to count rice purchased on international tender against the amount stipulated in the contract, when the import source is Thailand.

The insurance on all cargoes is provided by the DC through the Compagnie Nationale d'Assurance (CNA), the government-owned insurance company. Insurance premium costs are stated as ranging from 1.7 to 2.4 percent of the value of the cargo, depending on the source of the information.² A review of DC income and expense statements implies that insurance premium costs are in the average range of 1.5 percent of cargo value CF Port of Dakar. With freight factored out of the CF cost, the average premium cost for insurance is 1.7 percent of the value of the cargo.

While insurance premium rates appear to be approximately 20-40 percent above international market premium rates for excess lines insurance, there are several offsetting factors. First, it is decreed by law that the insurance coverage be provided by CNA. Secondly, the amount involved in the difference of premium rates amounts to a small fraction of other costs, and being insured by the CNA allows the DC to negotiate any claims with a domestic company rather than an international carrier. Thirdly, by paying insurance premiums in FCFA, the foreign exchange requirement of purchasing cereals is reduced. It is calculated, based on past levels of imports, that foreign exchange savings have averaged nearly \$US 900,000 per year.

The basis of all DC purchases is CF Port of Dakar. A review of freight costs and rates provided reveals no undue excessive ocean freight costs given the cargo loads, deadweight of ships, and shipping routes. Variations occur over time and between individual shipments, which is normal for the competitive position of ocean freight. A comparison of average ocean freight rates for imported rice and major grain shipments, Figure 1, Appendix B, reveals the same basic trends in rates. Comparative ratios indicate that the freight rates paid for imported rice in Senegal have declined more than rates in major grain shipping channels.

All contracts and charters reviewed were standard, and the procedures for handling these are normal. While the supply division does have some market information on rice and ocean freight rates, the amount is limited. Analysis performed is very restricted in scope and usefulness.

¹Cost and freight.

²Source: Arthur Andersen, CPSP.

The historical cost of imported rice has been affected by two factors. The first factor is whether purchases were made under government-to-government contractual terms with stipulated contractual prices, as in 1982-83, or under government-to-government contractual terms with allowance to tender for imports at market prices, as in 1984. The second factor is whether the DC used intermediaries or not to do its purchasing. From 1981 through 1983 the DC used intermediaries, while in 1984 it did not.

The first factor greatly depends on the overall policy for importation of cereals. If it is a policy of first assuring the availability of rice for import with price being a secondary consideration, then contractual terms with stipulated prices would be preferred. If the policy is one of trying to purchase at the lowest possible price with assured availability being a secondary consideration, then contractual terms allowing for international tendering are preferred. Discussions with GOS officials failed to indicate the exact purchasing policy of the GOS, nor could this information be obtained from reference sources.

The inherent risk in pursuing either policy is that of price movements and volatility. In the case of contractual agreements, the FOB prices in 1982 were above the average FOB market prices as market prices declined throughout the year. In this instance, the added cost of rice imports due to the fixed contractual price was \$US 1.1 million. In 1983 the FOB contractual prices during the first half of the year were above the average FOB market prices, but during the latter half of the year there was a reversal as market prices increased. The net result for the year was a savings of slightly over \$US 850,000 in import costs because the contractual price was fixed early in the year. Therefore, the cost of establishing a policy to assure availability of rice with price being a secondary consideration was approximately \$US 250,000 for this two-year period.

In the case of using international tenders to purchase rice on a CF basis, in 1984 the import prices were below the average FOB prices when the average freight cost was factored out of CF prices. The net result of tendering on a CF basis was a savings of slightly over \$US 1.8 million in purchase costs by mid-August.

Since the world rice market is a thin market (see Appendix C) which can be dramatically affected by world production, it is subject to price volatility. Therefore, a policy addressing the import procedures for rice should be established to allow for policy alternatives which would achieve the maximum result in terms of price and supply availability. This policy should be based on market analyses that generate information and forecasts on prices and supply and demand.

Prior to 1984, the policy governing import purchases of rice called for the intervention of private-sector intermediaries between the commodity source and the CPSP. These Senegalese companies were allowed to purchase rice FOB Bangkok or other sources, and resell the rice CF Dakar to the CPSP at a fixed contractual price. These intermediaries acted as a merchandising agency between the GOT and the GOS in the government-to-government contract that existed from 1980 through 1983. As a result of such actions, the CPSP incurred higher import costs because the CF price charged by the intermediaries was substantially in excess of the actual FOB and freight costs of the commodity. The immense

margin received by the intermediaries in no way reflects the slight amount of services provided.

Due to this policy, the additional cost of importing rice amounted to FCFA 2.527, 2.233, and 2.514 billion for 1980, 1982, and 1983, respectively.¹ Essentially, this policy has cost the CPSP well in excess of FCFA 7 billion since the CPSP was given the responsibility for the rice importation operation.

Port Operations

The Port Operations Division of the DC is responsible for supervising the unloading of vessels and the storage and security of the commodity at the port while awaiting outbound movement. Rice arrives in bags ranging from 50 to 100 kg, depending on the source. Standard procedures are followed in the unloading operation. Unloading is performed by stevedore companies which have been selected by a bid process after notice of ship arrival date is received by the Port Operations Division.

Upon arrival of the vessel, the cargo is inspected for damage by a team consisting of representatives of the consignor, the stevedoring company, the insurance company, the CPSP, and an arbitrator (P&I Club). After inspection and certification of any damage to commodities, the unloading process is undertaken. Port storage facilities for the arriving commodities are extremely limited, consisting of one warehouse of approximately 12,000 MT capacity and outside storage space (dock bays) for ±20,000 MT of grain. Available storage space is strained and this requires a fast turnover of grain to assure storage space for incoming cargos. In the confined area of the port where the Port Operations Division is currently operating, not much additional space can be acquired to alleviate the situation.

All stock is stacked on pallets covered with tarps. Stocks within the warehouse are well stacked with appropriate aiseways, given the fact that the turnover is rapid and that it is not long-term storage. Outside storage is a pyramid stack on pallets and tarps, with the tarp wrapped two tiers up. The entire pyramid is covered with a tarp, giving it good protection from weather and enhancing security.

Count control and the separation of damaged from sound goods is conducted during the unloading process. Damaged goods and sweepings are stored separately from sound goods and from each other. Damaged commodities are divided into four categories: wet, damaged (torn sacks), wet and damaged, and underweight sacks. All damaged commodities are weighed by a public port weighing service (for insurance claims). The weight of undamaged goods is calculated by sack count, since to do otherwise would impede the unloading process to such an extent as to cause ship delays. However, commodities shipped inland from the port are weighed in outbound transit and the weights are assessed back to ship statements.

Transit of rice inland from the port is conducted under a controlled procedure with complete documentation. All outbound loading and movement is supervised by Port Operations Division personnel. Telex notification is sent to inland warehouses upon truck departure.

¹1981 data not available.

Grain accounting procedures are conducted on a ship basis with accounts for shortages off ship, damaged commodities, and sweepings. Aggregate book inventories are maintained and physical inventories are said to be conducted. Overall, the system for unloading, storage, and inventory control is sufficient, if everyone performs his assigned responsibilities.

Distribution

Distribution of stocks is managed by the Distribution Division of the DC. This includes arranging transport from the port to inland warehouses, storage at inland warehouses, inventory control, and the sale of the commodities at inland warehouses (or at the port) to wholesalers according to a quota system.

Distribution patterns for 1982, 1983, and 1984 are detailed in Table 14 with the patterns illustrated in Figure 2. Over this time period, 63 percent of the imported rice was sold in the Cap Vert region, with the balance being sold in the inland provinces. As shown in Figure 2 there is an implied seasonal pattern to sales, with a peak in the latter part of the crop marketing year (which runs from September to August) and then declining in the months after domestic harvest.

When the sales pattern of rice is compared to the arrival pattern of ships (Figure 3), poor timing between ship arrivals and rice sales is revealed, even allowing for a 60-day turn time. This timing problem of ship arrivals is reflected in the rice sales (Figure 2) by the month-to-month extremes in the levels of rices sales. While 1984 appears to be a slight improvement, there is substantial evidence here that the DC is not meeting a 60-day turn time which should be the objective for maintaining quality stocks. In comparing Figures 2 and 3, it is implied that in certain instances the turn time may be as high as 120 days. This problem of turn time is further reflected by the inventory turnover ratio which has declined from 10.3 in 1981 to 3.6 in 1984.

Transport from the port to inland warehouses is accomplished by hiring private-sector trucking firms to move the product. A control system is used to track trucks carrying DC commodities, and all inventory being repositioned is accounted for under this control system. Transport prices are negotiated, with examples of these costs given in Table 9, Appendix B. Current transport costs range from FCFA 19 to 24 per MT/km, depending on destination. These rates are not considered excessive, given the cost of fuel and the expected cost of truck maintenance since repair parts command a higher-than-normal price. A comparison of these rates to rates charged for transporting groundnuts reveals that rates paid by the DC are substantially lower.

A far more important consideration in transport costs is that the costs of transporting commodities to inland warehouses are not recovered in the pricing process. Prices at all levels are fixed officially, as illustrated in Tables 10 and 11, Appendix B. The official fixed price to wholesalers, Table 10, allows for an increase in price based on the warehouse location. The difference between the Dakar price and the inland warehouse price to wholesalers ranges from FCFA 0.6 to 5.1 per kg, with the average difference being FCFA 2.6 per kg. Since these differences are barely sufficient to cover the operating costs of the inland warehouses, the costs expended for inland transport amount to a subsidy to the system since they are not recovered.

The total level of this subsidy is quite high and increasing rapidly. It is calculated that subsidization of transport costs amounted to at least FCFA 441 and 676 million for 1982 and 1983, respectively.¹ It is estimated that 1984 transport costs will exceed FCFA 1 billion.¹

Shipments to inland warehouses (outside of the Cap Vert region) account for not quite 40 percent of the rice imported, as illustrated in Tables 13 and 14. Warehouses are located in major population centers as described in Table 15. There are 33 warehouses (including the port warehouse) having a total storage capacity of approximately 50,000 MT.

Samples of rice (Thai, Chinese, and PL 480) taken at port, warehouse, and market locations reveal a good quality product with no foreign material or infestation (except for PL 480 rice). All the rice has adequate polish, although the Thai rice is more broken and contains far more points than the Chinese rice. The PL 480 rice is grade 5, containing 20 percent broken kernels and 80 percent head rice.

Storage practices in warehouses, such as stacking procedures and minimal sanitation levels, are adequate as long as the stock turnover stays within the 60-day period.² However, the presence of old stock such as sorghum, PL 480 rice, and rice sweepings which have been in some warehouses for up to 8 months creates a problem of another dimension. These stocks are infested, and this infestation will eventually reach a level which will spread to even fast-turnover (60-day) stocks. Fumigation procedures using Phostoxin are evident, but this alone is not sufficient to maintain quality preservation of stocks. Long-term stocks that have been fumigated are beginning to show signs of reinfestation because of the minimal sanitation practices used in the warehouses.

Grain accounting and inventory control procedures are evident at warehouses. For the most part, the warehouses seem to operate on a first-in, first-out basis, but some carryover stock from the past month is in evidence. Whether an effort will be made to move these stocks out first is unknown. Daily stock positions are available at the Supply Division offices in Dakar, however they are compiled in aggregate numbers without identifying age or source of stocks. It is stated that physical inventories are taken on a monthly basis by Dakar Supply Division personnel. However, it is unknown to what degree this procedure is practiced. While there seems to be concern in some quarters about physical inventory practices, it will take more than a short evaluation to determine the actual practices.

Grain and Financial Accounting

Diverse control systems and numbers run rampant within the DC. Grain accounting and inventory control procedures are conducted by the Port Operations Division as well as by the Supply Division, yet no effort is made to reconcile the resulting numbers. The Arthur Andersen audits criticize the DC for overlapping control processes. When requesting information from the CPSP, in most

¹Based on Tables 9, 12, and 13.

²Stacking practices include adequate aisleways, and the use of pallets and covering tarps (where available).

cases the data had to be arranged into a usable format before being supplied. In discussions, references were made to individual parts of the control system, but there seemed to be no attempt made to consolidate these elements into a summary analysis. What is essentially lacking is a coherent system of incorporating the current procedures into a structure which produces several types of continuous position reports for managerial use and for dissemination to appropriate authorities.

The Arthur Andersen audits provide a complete discussion of the CPSP financial accounting system. While it is obvious that an improved and better-managed accounting system is necessary, one other element is required to establish a more rigorous management control of operations: cost accounting procedures must be introduced into the financial accounting system. There is no evidence, either in Arthur Andersen audits or in discussions with the CPSP, that these measures exist. Without this process, management control is impossible, timely and continuous reports can not be provided to responsible authorities, and no determination of the efficiency of any given operation can be made.

Results of CPSP Rice Importation Activities

The results of CPSP cereal importation activities can be characterized as mixed. The operating ratios for the CPSP presented in Table 16, Appendix B, reveal that margins have narrowed over the past four years. The percentage of gross margin has shrunk from 22 percent to less than 17 percent, with net return on sales declining to less than 6 percent from nearly 15 percent. This narrowing of margins is further reflected in Table 17, Appendix B. The average annual increase in cost of sales has been 13.5 percent over the period 1980 to 1984, whereas the average sales price (to wholesalers) has increased at an average annual rate of only 11.3 percent. This is even more pronounced in terms of dollars, which is the currency used to procure rice. The cost of sales has actually decreased, but the increasing exchange rate (Table 20, Appendix B) has made it more expensive in FCFA terms. The average sales price in dollars has also decreased, but at a rate 50 percent greater than the cost of sales. This indicates that sales price adjustments have not fully accounted for the widening exchange rate between the FCFA and the \$US.

As a percentage of sales, operating expenses have not increased abnormally. However, data for 1982 and 1983 reveal that interest costs alone accounted for 39 percent of all expenses in 1982 and 16 percent in 1983. Unrecovered transport costs amounted to 18 and 16 percent of expenses for 1982 and 1983, respectively.

The decline in the return on sales has been the result of the shrinking gross margin, since average sales prices have not risen at the same rate as the cost of imported commodities as described in Table 17, Appendix B. An important factor for consideration is the past and continuing spread of the FCFA against the \$US. While the cost of importation in \$US has declined, the spread has caused an increase in importation costs in terms of FCFA.

The decline in return on sales has had the impact of lowering the total value of intervention for the CPSP, as shown in Table 18, Appendix B. While the total value of intervention has remained positive, deficiencies within the system have prevented an increased return on sales and a resulting decrease in

the total value of intervention. As shown in Table 19, Appendix B, eliminating these deficiencies would have raised net return by 53 percent in 1982 and 180 percent in 1983.

An accurate analysis of cash flow is not possible, but the cash flow over the 1980 through 1983 period is positive. However, this cash flow was utilized to fund increased accounts receivable and add to the cash on hand. The cash flow from commodity sales did no more than cover purchases, a large buildup in current accounts receivable, and most expenses. The buildup in cash on hand is generated by the large increase in accounts payable.¹

The level of accounts receivable has increased by 132 percent from 1980 to the end of 1983. An analysis of Arthur Andersen audits indicates that client accounts and bills receivable have increased tenfold since 1980. An analysis of the aging pattern of accounts receivable places the average age of receivables at slightly less than 270 days (nearly 9 months). Commodities sold on credit in 1981-83 appear to comprise approximately 18 percent of total sales. 1984 credit sales are 17 percent of total sales. The accounts receivable turnover ratio was 4.9 in 1981 and declined to 3.3 in 1984. Based on the percentage of credit sales, the accounts receivable turnover should have been 5.6 in 1981 and 5.9 in 1983. The decline along with the failure to achieve an acceptable turnover ratio indicates a serious problem with accounts receivable.

While credit sales do not make up a large percentage of total sales, the size and age of accounts receivable (due to failure to collect accounts receivable on a timely basis) indicate a large interest cost in maintaining these receivables. In any event, the size of these receivables constitutes a serious drain on the cash flow position of the CPSP. The cash flow position, even without any accounts receivable, is weak. Because of its tenuous position, the CPSP is not paying custom duties as it should.

¹The 1983 balance sheet states that the amount owed to commodity suppliers is greater than the value of inventory held in stock.

SECTION III

RECOMMENDATIONS

The deficiencies in the CPSP cereal import operations fall into two distinct categories: (1) technical operational deficiencies and (2) management/policy deficiencies. Deficiencies in the technical operations are not considered major faults. The CPSP is effective in its activities of importing and distributing rice for human consumption. The inefficiencies encountered could be easily resolved through (1) improvement in market information collection and market analysis, (2) better quality preservation programs in warehouses given the long-term stocks of sorghum and PL 480 rice, and (3) improved grain, financial, and cost accounting systems to generate better managerial control. It is possible for these improvements to increase the efficiency of CPSP operations and allow it to slightly increase its margins through improved control. However, eliminating the technical deficiencies without resolving the major deficiencies which lie within the management/policy area would not create much of an improvement in CPSP financial operations.

The principal effort should be directed towards correcting the deficiencies of the CPSP within the management/policy area. These are (1) the past intervention of intermediaries in the rice purchasing operation, (2) the subsidization of transporting rice to inland warehouses, and (3) the sale of rice on credit. These deficiencies have created a drain on margins and the financial position of the CPSP.

Operational Changes

Developing needed improvements in market data and intelligence collection as well as in their analysis will require (1) the introduction of a comprehensive information collection process and (2) the training of individuals to analyze this information. Such a process is designed for developing management reports which address current and future trends in the world rice market and which can be used as a tool to improve timing of purchases, set different levels of purchase quantities per tender, improve timing of awarding bids and contracts¹, achieve lowest CIF price, and aid in understanding and segregating the principal traders in the market. As pointed out in Appendix C, the world rice market is far different from the world market for other cereal grains (wheat) or coarse grains (sorghum, corn).

Improving the quality preservation programs in warehouses will require (1) the development of a program which fits the specific nature of this operation which involves fast turnover stocks and some long-term slow-moving stocks (sorghum and PL 480 rice) warehoused in the same facility, (2) the coordination of this program through warehouse management and the "Phytopsanitary Service" of the Ministry of Agriculture which seems to be responsible for the procedure of fumigation of stocks on hand, and (3) the implementation of a training program

¹This is also very important in purchasing sorghum in order to place it into the system when it is needed and not when domestically-produced grains will crowd imported sorghum out of the market.

to train both specific warehouse operation personnel and appropriate "Phytosanitary Service" personnel in the procedures of the specific quality preservation program.

To rectify shortcomings in the grain accounting procedures, it will be necessary to introduce a "system" which, when properly operated, will allow a continuous tracking of all inventories and the preparation of management reports for decision-making. As previously discussed, concerning the relationship between sales and inbound shipments to the port, an improved grain accounting system would permit analysis of patterns and allow management to gain greater control of operations.

As pointed out in the Arthur Andersen audits, the financial accounting process of the CPSP needs to be improved. However, a cost accounting system should be introduced at the same time, so that the efficiencies of particular operations can be measured and management can be made aware of the specific costs of certain procedures.

The author wishes to set forth two cautions. The first is in the area of improving grain and financial accounting practices. Both Arthur Andersen audits stress the use of computerization to achieve improved performance. This particular idea has also arisen in discussions with CPSP and GOS personnel. The author strongly suggests that this is an extremely unwise recommendation. Computerizing a grain or financial accounting process requires the existence of a strong workable manual system producing the needed management information. This is not the case within the CPSP. Computerizing the existing procedures would only create further confusion and most likely cause even greater auditing problems than those encountered in the Arthur Andersen audits. It must be continuously stressed that computerization is not the answer to any problem unless a sound, workable system exists which can be operated by manual procedures.

The second caution refers to the suggestions in the Arthur Andersen audits as to bulk versus bag rice purchases. A procedural change from purchasing rice in bags to purchasing in bulk and then bagging the rice at the Dakar port area requires an extremely careful, in-depth analysis. There are many elements to be considered in the trade-off between buying in bulk or in bag. On one hand, the CF price for rice may be lower due to shipping in bulk. This must be weighed against additional expenses for bagging the rice at the port, in terms of capital investment in equipment, maintenance cost of equipment, spare part supplies, bag supplies, demurrage costs or lost dispatch money if equipment breaks and delays unloading of the vessel, and changes in labor costs of employment. Foreign exchange savings, if any, should also be introduced into the analysis. Only through careful and detailed analysis can any assessment be made as to whether such a change would have positive or negative benefits.

Policy Changes

As pointed out in the subsection on the results of CPSP activities in Section II, the financial position of the CPSP has been largely affected by specific policy actions.

It appears that the policy of intermediaries acting as agents between the CPSP and import sources has been corrected in 1984 calendar year operations. If these intermediaries are not reintroduced into the purchasing procedures, then this policy issue can be considered to be resolved.

The issue of freight subsidization to inland warehouses is basically a price policy issue. The question of recovering freight costs through price adjustments or continuing to subsidize these costs must be decided at the level of policy decision within the GOS, not within the CPSP.

The issue of credit sales policy needs to be addressed given the large increase in accounts receivable. If credit sales are to continue¹, then there should be a decisive policy of how to control credit and collect debts. If they are not to be continued, then there should be a decisive policy on how to monitor CPSP actions in order to ensure adherence to the policy of cash sales only.

Finally, one other policy issue needs to be clarified. This is the issue of whether the CPSP import operations are to be a mechanism for providing cereal grains for human consumption at the lowest possible price, or a mechanism for generating net income to support other subsidization actions of the CPSP (Table 1). Neither in documentation nor in discussions is this issue clear. It may be that there is no specific policy. Given the need to change the policies discussed above, this latter issue has a direct bearing on how price and sales policy issues will be resolved.

Options

Since the major concern seems to be the financial position of the CPSP, there are five possible options to choose from concerning the import operations.

1. Retain the import operations within the CPSP as it now operates, introduce needed technical operational improvements and resolve the policy problems previously discussed.
2. Retain the import operations within the CPSP but reduce operations to purchasing and port operations with sales to wholesalers being cash terms FOB port (or local Dakar warehouses).
3. Shift import operations to a parastatal organization.
4. Shift import operations to the private sector.
5. Allow an international trader to establish operations in the port area. This trader would import cereals and store them within the port area, then sell the commodities to wholesalers cash basis FOB the Port of Dakar.

¹Credit sales in 1984 at the end of November were 17 percent of total sales for rice, and 27 percent of total sales for sorghum.

Only options 1, 2, and 5 are considered viable. Option 3 is not considered feasible since it does not address needed operational changes, nor does it address the need to make a decision on the policy issues previously discussed. With option 4, another policy issue becomes paramount: establishing a regulatory control to prevent pricing and collusive abuses in a system which is not now, nor will it be in the short term, self-sufficient in the production of cereal grains. Another drawback is the lack of traders who have the ability to procure letters of credit in the amount of \$US 4-5 million for importation of rice. The formation of a small group of traders with this financial ability could result in collusion and tight control of the market system by a limited number of people. This option opens up for consideration the fact that since the GOS will forego margins from operations, it will need to collect customs duties on imported commodities to offset the loss of revenue from operating margins.

Of the three options considered to be viable, all would require that the pricing policy issue be resolved. In addition, with option 5 the policy areas of regulatory supervision of the importation firm, and agreements as to operating procedures and necessary stock levels would need to be addressed. Since this option calls for transferring operations away from the GOS, more emphasis will be placed on collection of custom duties to provide operating funds for the CPSP.

Regardless of the option selected, the first step in this process remains the decision as to whether the import operations of the GOS will be directed towards providing an inexpensive source of food, or towards generating income.

Summary

On the whole, the major deficiencies of the CPSP are policy-oriented. The deficiencies in operations could easily be rectified if the DC were willing to accept assistance in its import activities.

SECTION IV

POTENTIALS FOR DIVERSIFICATION OF IMPORT SOURCES AND TYPES OF GRAINS

The importation of 100 percent broken rice into Senegal has been "a way of life" since the 1930s. This has afforded the least costly means of supplying a cereal grain, already processed and ready for distribution to supplement millet consumption. Because of this lengthy history of importation of broken rice, food consumption habits have led the population to adopt this type of rice as its "preferred" rice. However, because of the cost structure involved in importing a cereal grain, the question is raised of how to reduce these costs. Two solutions are available: diversifying the sources of supply, and finding an acceptable substitute grain.

Sources of Supply

CPSP import sources for 100 percent broken rice have been Thailand, Burma, China, and Pakistan. For the most part, given the class of product imported, sources seem to be well diversified. The above sources constitute slightly over 50 percent of the world trade in rice, and control a major portion of the low-quality market (the category into which 100 percent broken rice falls).

If diversification is viewed as a policy of attempting to purchase a given quality standard at the lowest price, then diversification should be addressed through an improved market information and market analysis system.

Available Substitutes

As discussed earlier, two-thirds of the imported rice is sold within the Cap Vert Region, which can be considered as urban. Based on the consumption locales of the balance of the imported rice (Tables 13-14) and crude population estimates of the regions involved, it is estimated that approximately 10-15 percent of imported rice is consumed by those considered as rural inhabitants.

Commercial imports of sorghum into Senegal in 1984 amounted to 64,000 MT. Of this quantity, some 36,000 MT remain. The possible rationale for this slow movement of sorghum stocks is the timing of the commercial imports¹ and the huge amount of food aid under PL 480 and from other donors, estimated at nearly 120,000 MT, that flowed into Senegal in response to the food crisis due to the poor harvest in the fall of 1983.

Finding a substitute grain for rice which could be obtained at a lower price seems to have captured the attention of the donor community. However, when dealing with this issue, several considerations need to be examined.

¹Imports were received too late in the marketing year. Therefore, inventory was still available when the 1984 millet/sorghum harvest occurred, and had to be carried over.

Comparing polished rice to possible alternatives such as sorghum or corn is like comparing a cereal grain to a coarse grain¹, as well as comparing a processed product (polished rice) which is ready for distribution to an unprocessed product (sorghum) which must be processed in the home before consumption. When comparing grains, one must deal in equivalent terms.

It must be understood that through the use of differentiated price policies, a great amount of raw sorghum could be substituted for polished rice. However, given the possible political and social ramifications of such actions², it would be ill-advised to undertake such policies.

Dealing with the question of acceptable substitutes for cereal grains requires a long-term approach. Food consumption habits are adopted slowly over a long period of time. This is generally encouraged by the development and introduction of new products. In this particular case, the best example for comparison would be sorghum or corn grits produced through a milling process.

Some of the product development work conducted by the Institut de Technologie Alimentaire (ITA) has been directed toward this end. However, most of their research in product development has been concerned with millet and, to a lesser degree, corn. Work with sorghum has been minimal. Apparently no work on grits has progressed beyond the laboratory stage.

A rudimentary economic comparison, shown in Table 21, reveals that the production of sorghum grits as a substitute for polished rice is no cheaper than the average of 1984 current rice import costs CF Dakar, which was 102 FCFA per kg.

If donor agencies wish to emphasize the potential for the substitution of cereals so as to enhance the economic position of Senegal, then this must be viewed in the long-term context of the problem. In the long term, donor agencies must be committed to seeing that specific changes take place, and this commitment must remain in force. They must assist with technical resources, leadership, and guidance. In the short run, any substitute grain programs may have some very unpalatable consequences.

¹Cereal grain (food grain) is grain most commonly used for human food, chiefly wheat and rice. Coarse grain (feed grain) is any of the several grains most commonly used for livestock or poultry feed, such as corn, grain, sorghum, oats, and barley. While all are fit for human consumption, the differentiation of these grains into food or feed grains has an important bearing on how standards and grades for each grain are established based on its expected end use.

²Social unrest and intense political pressure by special interest groups.

APPENDIX A

STATEMENT OF WORK

The GOS has requested that a short diagnostic study (two to four weeks) be undertaken by the World Bank, France and USAID to identify the major constraints to improved CPSP performance. The World Bank will be examining the sugar sector, the French will study the groundnut sector and USAID has been asked to study the imported cereals sector.

Objectives of the Study

The general objectives of the study are threefold: First, to identify bottlenecks to more efficient CPSP operations. These may be related to the workings of the institution itself, to agreements which have been entered into by the GOS, as an example in the cereals sector the government to government agreement between Senegal and Thailand, to exchange rate fluctuations and to conditions in international markets.

Second, to study possibilities for improving the operation of each sector and its cost effectiveness and third, to make recommendations for the introduction of an information system capable of generating up-to-date status reports (both monthly and quarterly) regarding the accounting position and financial situation of CPSP operations in each sector.

Specific Terms of Reference for a Grain Specialist

In the context of U.S. involvement in the CPSP study the mission is requesting assistance in locating a highly qualified grain specialist to come to Senegal for 10-15 days to evaluate grain importing and distribution practices. The individual should be available either in September or during the month of October at the latest. French language proficiency is not a requirement since mission intends to provide translation services but some basic knowledge of French is desirable. However, technical qualifications are preeminent. A minimum of ten years experience in grain trading and in particular with rice is essential. The specialist's professional experience should involve all aspects of the trading process: purchase, international maritime transport, insurance, port operations (e.g., loading, unloading, transit) and wholesale distribution.

While in Senegal the grain specialist would be asked to review the cereals sector and imported rice in particular and suggest possibilities for reducing costs and if feasible for substituting some rice imports with other cereals such as sorghum and corn. On the basis of figures for the last two years for: (1) FOB prices of purchases of 100 percent broken rice; (2) CIF prices of rice in Dakar; (3) costs of internal transport; (4) prices to wholesalers; (5) prices to retailers and (6) prices to the consumer, the grain specialist should be able to make a critical assessment of each stage of the operation. Specific recommendations should be made on: (A) Potential for diversifying sources of supply and types of grain imports, (B) Cost of maritime transport (C) Arrangements made for insurance, (D) Unloading and distribution operations in the port of Dakar, (E) Storage at the port, and (F) Inland distribution, transport and storage.

APPENDIX B

DATA TABLES

Note: Substantial differences exist between sources of available data. The most justifiable data sets were selected for inclusion in this report.

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TABLE 1

Caisse de Péréquation et de Stabilisation des Prix (CPSP), 1980/81 to 1983/84

(billion FCFA)

	1980/81	1981/82	1982/83	1983/84 Estimates
I. CPSP				
<u>Receipts</u>	0.5	0.9	6.8	8.3
1. Export crops			1.6	5.8
Cotton			1.6	2.3
Groundnuts				3.5
2. Consumption goods			4.9	2.2
Rice			1.6	2.2
Flour			0.7	
Groundnut or vegetable oil			2.6	
Sugar				
3. Taxes and levies	0.5	0.3	0.3	0.3
4. Stabex				
<u>Expenditures</u>	9.4	16.4	9.4	6.7
1. Operating and capital	0.3	0.8	1.0	1.5
2. Agricultural program				1.6
3. Export crops	2.1	5.9	6.2	0.3
Cotton	1.0	1.2	0.2	0.3
Groundnuts	1.1	4.7	6.0	
4. Consumption goods	7.0	9.7	1.5	3.3
Groundnut or vegetable oil	0.7	5.1		
Rice	1.5	0.5		
Sugar	3.7	2.0	1.5	
Flour	1.1	1.5		0.2
Tomatoes		0.6		
II. SONAR (Seeds)		3.2	3.5	6.0
III. AGRICULTURAL PROGRAM	4.5	1.2	4.0	1.3
Fertilizer	4.5	1.2	1.5	
SAED			2.5	1.3
Total (I - II - III)	-13.4	-19.9	-10.1	-5.7

Source: Abt Associates (cited as IMF)

TABLE 2
Production of Cereal Grains¹
(1000 MT)

Year	Millet/ Sorghum	Milled Rice ²	Maize	Total
1960/61	392.3	46.3	27.4	466.0
1961/62	406.6	54.3	28.4	489.3
1962/63	423.7	58.4	26.8	508.9
1963/64	478.4	68.4	26.7	573.5
1964/65	513.8	70.4	37.1	621.3
1965/66	560.1	79.2	40.8	680.1
1966/67	423.5	81.6	41.8	546.9
1967/68	655.0	87.0	56.8	798.8
1968/69	449.3	39.7	25.3	514.3
1969/70	634.7	91.1	48.9	774.7
1970/71	382.0	60.5	33.1	475.6
1971/72	583.2	69.9	37.6	690.7
1972/73	322.0	24.6	20.2	366.8
1973/74	510.2	42.4	33.8	586.4
1974/75	796.2	78.3	43.2	917.7
1975/76	616.4	84.6	44.4	745.7
1976/77	507.6	81.9	43.5	633.0
1977/78	360.2	41.0	33.2	434.4
1978/79	752.0	95.2	54.1	901.3
1979/80	520.6	62.8	46.2	629.6
1980/81	545.0	42.1	57.0	644.1
1981/82	736.4	78.0	68.0	882.4
1982/83	585.2	68.4	82.2	735.8
1983/84	351.8	70.5	60.6	482.9

¹Maize and sorghum are considered coarse grains, however for this particular work they have been included as cereal grains.

²Sixty-five percent of rough rice production.

Source: Abt Associates

TABLE 3
 Importation of Cereal Grains¹
 (1000 MT)

Year	Millet/ Sorghum	Milled Rice	Maize	Subtotal	Wheat	Total
1968	2.9	185.2	13.1	201.2	62.4	263.6
1969	38.6	145.9	41.3	225.8	85.4	311.2
1970	0.2	119.2	5.0	124.4	112.4	236.8
1971	30.3	187.5	32.8	250.6	112.0	362.6
1972	10.4	169.9	10.4	190.7	95.4	286.1
1973	41.4	192.0	51.5	284.9	105.4	390.3
1974	7.2	207.2	26.9	241.3	86.7	328.0
1975	2.5	102.1	9.6	114.2	101.9	216.1
1976	48.2	244.5	15.1	307.8	119.9	427.7
1977	36.0	248.0	13.8	297.8	96.0	393.8
1978	61.5	239.0	12.0	312.5	142.4	454.9
1979	19.9	351.9	9.4	381.2	122.9	504.1
1980	28.9	302.5	23.2	354.6	97.2	451.8
1981	21.7	339.8	4.5	366.0	121.8	487.8
1982	7.8	341.5	5.8	355.1	99.2	454.3
1983	56.7	379.9	N/A	436.6	106.0	542.6

¹Not including food aid imports.

Source: Abt Associates, Arthur Andersen, Sidi, Direction de la Statistique

TABLE 4
Cereal Availability

Year	Domestic	Import (1000 MT)	Total	Per Capita (kg)
1968	798.8	263.3	1,062.4	234.8
1969	514.3	311.2	825.5	181.1
1970	774.4	236.8	1,011.5	210.4
1971	475.6	362.6	838.2	175.0
1972	690.7	286.1	976.8	193.6
1973	366.8	390.3	757.1	151.2
1974	586.4	328.0	914.4	172.9
1975	917.7	216.1	1,133.8	202.4
1976	745.4	427.7	1,173.1	209.4
1977	633.0	393.8	1,026.8	178.6
1978	434.4	454.9	889.3	153.4
1979	901.3	504.1	1,405.4	229.6
1980	629.6	451.8	1,081.4	173.3
1981	644.1	487.8	1,131.9	176.5
1982	882.4	454.3	1,336.7	199.8
1983	735.8	542.6	1,278.4	188.8

¹Based on population data from Abt Associates with factor for seed use and loss. Estimated cereal requirements are 198.1 kg per capita per year.

Source: Tables 2, 3

TABLE 5

Estimated Food Grain Requirements and Net Domestic Food Grain Availability

(1000 MT, milled basis)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Estimated food grain requirement	1,338.3	1,372.6	1,409.4	1,446.1	1,484.2	1,522.2	1,562.7	1,604.3	1,646.0	1,688.8	1,731.8
Projected domestic production in net food grains											
Millet/Sorghum	469.5	471.8	474.1	477.6	478.5	479.4	480.3	481.1	481.8	482.4	483.0
Maize	54.1	60.0	66.2	72.7	82.1	86.6	93.9	101.6	109.5	117.7	126.2
Rice	65.0	73.5	82.5	91.8	101.5	111.7	122.3	133.3	144.7	155.6	168.9
Cowpeas	11.5	11.5	11.5	12.5	13.5	15.0	16.5	18.2	20.0	22.0	24.1
Total	600.1	616.8	634.3	654.6	675.6	692.7	713.0	734.2	756.0	778.6	802.2
Estimated deficit in food grains	738.2	755.8	775.1	791.5	808.6	829.5	849.7	870.1	890.0	910.2	929.6
Percent of domestic coverage of food grain requirement	44.8	44.9	45.0	45.3	45.5	45.5	45.6	45.8	45.9	46.0	46.3

Source: Abt Associates

TABLE 6
Commercial Imports by Source¹
Percentage of Total Imports

Year	Thailand	Pakistan	Burma	China	India
1980	86	11		3	
1981	69	19		7	5
1982	99	1			
1983	92	6	1		
1984 ²	*		*	*	

¹Excludes food aid and PL 480.

²Current sources identified, but unable to compute percentages.

Source: Sidi, CPSP

TABLE 7
PL 480 Title III Imports
(MT)

Year	Rice	Sorghum
1980	18,460	
1981	12,962	
1982	23,909	
1983	11,059	24,608

Source: USAID

TABLE 8
Purchases of Domestic Rice by the CPSP

Year	MT
1980	8,202
1981	N/A
1982	4,556
1983	6,026

Source: Arthur Andersen

TABLE 9
Inland Transport Rates
Trucks

Route	FCFA/MT		km	FCFA/MT/km	
	1982 ¹	1984 ²		1982 ¹	1984 ²
Dakar-Ziguinchor	8,000	10,120	450	17.78	22.49
Dakar-Diourbel	2,600	3,289	135	19.26	24.36
Dakar-St Louis	3,600	4,554	240	15.00	18.98
Dakar-Tambacounda	7,000	8,855	450	15.56	19.68
Dakar-Kaolack	3,050	3,857	180	16.94	21.43
Dakar-Louga	3,300	4,170	180	18.33	23.17

¹Estimated rate for 1982.

²Rate as of May 1984.

Source: CPSP

TABLE 10
Official Fixed Price to Wholesalers
Established August 1983

Warehouse Location	Price per kg (FCFA)
Dakar	120.122
Thies	120.721
Ziguinchor	124.326
Kolda	124.326
Diourbel	121.399
St. Louis	122.413
Tambacounda	125.187
Kaolack	121.900
Fatick	121.900
Louga	121.900

Source: CPSP

TABLE 11
 Official Fixed Prices¹
 Rice
 (FCFA/kg)

Year	Price to Wholesalers	Retail Price
1973	57.0	60
1974	57.0	60
1975	94.5	100
1976	74.5	80
1977	74.5	80
1978	74.5	80
1979	74.5	80
1980	74.6	80
1981	74.6	80
1982	74.6	105
1983	120.1	130
1984	120.1	130

¹Base point Dakar.

Source: Arthur Andersen, Sidi

TABLE 12
 Transport Costs
 1984

Period	FCFA
First quarter	183,697,402
Second quarter	330,443,426
Third quarter	251,614,076
Fourth quarter ¹	

¹Not yet completed.

Source: CPSP

TABLE 13
 Projected Distribution
 of Imported Rice

(MT)

Region	1982	1984
Dakar	204,000	216,000
Casamance	25,200	31,200
Diourbel	20,400	32,400
Fleuve	13,200	12,000
Senegal Oriental	7,200	12,000
Sine Saloum	34,800	44,400
Louga	7,200	12,000
Total	312,000	360,000

Source: CPSP

TABLE 14

CPSP Rice Sales

(MT)

Region	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1982													
Cap Vert	18,552	19,023	18,518	18,687	12,874	19,336	9,559	25,014	22,123	10,912	15,704	19,102	209,404
Casamance	1,077	1,691	2,144	2,164	1,870	1,535	1,179	2,161	2,076	1,647	716	1,499	19,759
Diourbel	1,605	1,898	1,838	1,967	1,505	1,756	1,458	2,141	1,532	1,504	1,430	2,738	21,372
Fleuve	814	1,460	1,236	1,236	930	1,171	765	1,247	1,231	933	950	1,644	13,617
S. Oriental	462	735	941	795	818	801	512	1,014	484	492	356	721	8,131
S. Saloum	2,414	2,766	2,837	2,801	2,614	2,527	1,694	3,461	2,963	1,696	1,804	4,506	32,083
Louga	496	602	603	685	487	487	438	541	724	655	694	765	7,177
Total	25,420	28,175	28,117	28,335	21,098	27,613	15,605	35,579	31,133	17,839	21,654	30,975	311,543
30 1983													
Cap Vert	14,459	16,275	22,043	16,178	15,392	16,678	18,119	23,279	8,030	14,486	13,330	24,002	202,271
Casamance	1,522	2,227	3,348	3,143	2,613	3,074	4,277	2,373	2,010	1,629	1,497	2,264	29,977
Diourbel	1,399	2,705	2,883	2,510	2,436	2,899	2,610	2,961	1,811	1,998	1,623	2,830	28,665
Fleuve	567	1,452	1,610	1,082	1,002	1,399	989	1,010	717	745	1,008	1,352	12,933
S. Oriental	722	923	983	1,332	966	1,707	1,302	966	796	429	525	1,685	12,336
S. Saloum	4,240	4,734	3,007	2,748	3,063	4,212	3,511	3,100	2,374	2,375	1,272	3,901	38,537
Louga	624	848	997	806	945	941	1,242	864	801	764	920	124	9,876
Total	23,533	29,164	34,871	27,799	26,417	30,910	32,050	34,553	16,539	22,426	20,175	36,158	334,595
1984													
Cap Vert	15,030	17,376	21,963	18,228	23,487	20,352	21,291	19,793	20,957	13,471	15,793		207,741 ¹
Casamance	3,133	3,748	2,637	3,541	2,963	2,641	2,400	3,535	2,140	861	1,597		29,196
Diourbel	2,610	1,898	2,411	3,251	2,858	3,087	2,973	2,205	2,085	1,588	2,829		27,795
Fleuve	1,007	352	1,102	806	1,042	1,613	1,233	1,001	1,099	929	919		11,103
S. Oriental	794	742	804	1,103	970	1,111	761	415	421	305	229		7,655
S. Saloum	3,714	3,023	4,045	3,804	3,700	4,862	3,537	3,279	2,131	1,316	1,554		34,965
Louga	971	893	1,233	1,119	1,083	833	1,333	958	999	761	1,029		11,212
Total	27,259	28,032	34,195	31,852	36,103	34,499	33,528	31,186	29,832	19,231	23,950		329,667

¹Without December sales.

TABLE 15
CPSP Warehouses

Location	Length	Width (meters)	Height
<u>Rufisque</u>			
I	30.0	12.5	5.5
II	36.0	30.0	5.5
III	36.3	12.9	6.0
IV	32.0	19.0	6.0
V	49.2	19.3	7.0
<u>Port</u>			
II	136.0	37.0	6.6
Potou	60.0	20.6	5.0
<u>Diourbel</u>			
SONAR I	25.0	12.0	8.0
SONAR II	23.0	20.0	10.0
SONAR ACI	24.0	6.1	3.3
SONAR ACII	20.0	10.0	5.0
Thiaka Sene	18.3	15.0	3.5
I Bambey	20.0	20.0	5.0
II Bambey	12.0	10.0	4.0
I Mbacke	21.0	10.5	3.5
II Mbacke	20.0	20.0	5.0
<u>Casamance</u>			
I	70.0	20.2	8.4
II	49.9	20.0	5.6
III	50.5	20.6	5.5
<u>Fleuve</u>			
Central	37.4	10.7	4.8
Sastrouf	30.0	10.0	4.3
<u>Louga</u>			
SONAR	25.0	8.8	5.8
Gilvan	30.0	15.0	4.0
SOHODIA	15.0	11.5	3.8
SOHODIA II	14.5	9.6	3.2
<u>Senegal Oriental</u>			
I	14.7	11.4	4.7
II	19.2	8.1	3.3
III	30.0	15.0	5.1
IV			
V	39.4	15.7	3.9
Partie A	12.5	11.8	3.4
Partie B	10.0	6.8	3.4
<u>Sine Saloum</u>			
Port I	125.0	35.0	5.8
Port II	125.0	35.0	5.8

Source: CPSP

TABLE 16

Summary of Arthur Andersen Audit Data
CPSP Rice Commercialization
(percentage of sales)

	1980	1982 ¹	1983 ²	1983 ³
Expenses	7.5	7.3	11.2	10.7
Cost of sales	77.7	80.1	83.3	85.8
Gross margin	22.3	19.9	16.7	14.2
Return on sales	14.8	12.6	5.5	3.5

¹Unaudited data.

²Rice only.

³Rice and sorghum.

Source: Arthur Andersen, CPSP

TABLE 17

Summary of Arthur Andersen Audit Data
CPSP Rice Commercialization

		1980	1982 ¹	1983 ²
Tonnage sold		310,832.5	328,768.5	350,177.3
Cost of sales	FCFA/MT	59,098	81,244	87,481
	\$US/MT	261.73	247.24	229.01
	FCFA/kg	59.1	81.3	87.5
Average sales	FCFA/MT	76,079	101,466	105,030
	\$US/MT	336.93	308.78	274.95
	FCFA/kg	76.1	101.5	105.0
Gross margin	FCFA/MT	16,981	20,222	17,549
	\$US/MT	75.20	61.54	45.94
	FCFA/kg	17.0	20.2	17.5
Net margin	FCFA/MT	11,311	12,800	5,791
	\$US/MT	50.09	38.95	45.94
	FCFA/kg	11.3	12.8	5.8
Average cost of purchases	FCFA/MT	63,451	81,288	97,571
	\$US/MT	281.01	247.38	255.42
	FCFA/kg	63.5	81.3	97.6

¹Unaudited data.

²Rice only.

Source: Arthur Andersen, CPSP

TABLE 18

CPSP Consumer Price Stabilization Operations
Imported Rice Account

Period	Quantity (MT)	Unit Value of Price Support (FCFA/kg)	Total Value of Intervention (million FCFA)	Gains to
1973	206,978	-11.34	-2,374.131	ONCAD
1974	216,000	-24.54	-5,300.640	ONCAD
1975	115,000	- 4.22	- 485.300	ONCAD
1976	199,000	34.75	6,915.250	CPSP
1977	254,896	26.06	6,642,600	CPSP
1978	213,516	15.68	3,347.931	CPSP
1979	230,000	18.26	4,199.800	CPSP
1980	310,832	11.30	3,516.400	CPSP
1981	N/A	N/A	N/A	N/A
1982	328,769	12.0	4,208.350	CPSP
1983	350,177	5.8	1,397.000	CPSP

Source: Arthur Andersen, CPSP, Sidi

TABLE 19

Comparison of Costs of Operations Due to Policy Actions
(million FCFA)

	Costs of Policy Actions			Actual Net Return	Potential Net Return	Difference
	Freight Subsidization	Purchase Intermediaries	Excess Expenses ¹			
1982	0.441	2,233.1	0.476	4,208.4	6,442.4	2,234.0
1983	0.676	2,514.5	0.156	1,397.0	3,912.3	2,515.3

¹Cost of interest.

Source: Table 18, Arthur Andersen, CPSP

TABLE 20
Average Exchange Rates
(FCFA to \$US)

Year	Rate
1976	235.0 to 1
1978	208.0 to 1
1979	201.0 to 1
1980	225.8 to 1
1981	272.0 to 1
1982	328.6 to 1
1983	382.0 to 1

Source: Abt Associates, Arthur Andersen

TABLE 21
Estimated Costs of Producing Sorghum Grits¹
(\$US/MT)

	PL 480	Tradex	Current
FOB	148.00		127.00
Freight and insurance	20.00		20.00
Total CIF	168.00	178.00	147.00
Port handling and transport	17.00	17.00	17.00
Subtotal	185.00	195.00	164.00
Clean-out (5 percent)	194.74	205.26	172.63
Milling yield (75 percent)	259.65	273.68	230.17
Milling expense	62.55	62.55	62.55
Less feed value of cleanings and millfeeds ²	-55.99	-59.01	-49.63
Total cost	266.21	277.22	243.09
Total cost in FCFA/MT ³	115,801	120,591	105,744
Cost in FCFA/kg	115.8	120.6	105.7

¹These costs reflect the differences between 1984 PL 480 shipments, commercial imports from Tradex, and current sorghum price US Gulf Port.

²Valued at 75 percent of imported cost of grain.

³Exchange rate of FCFA 435 to \$US 1.

Source: Borsdorf

FIGURE 1. Ocean Freight Rate Comparisons

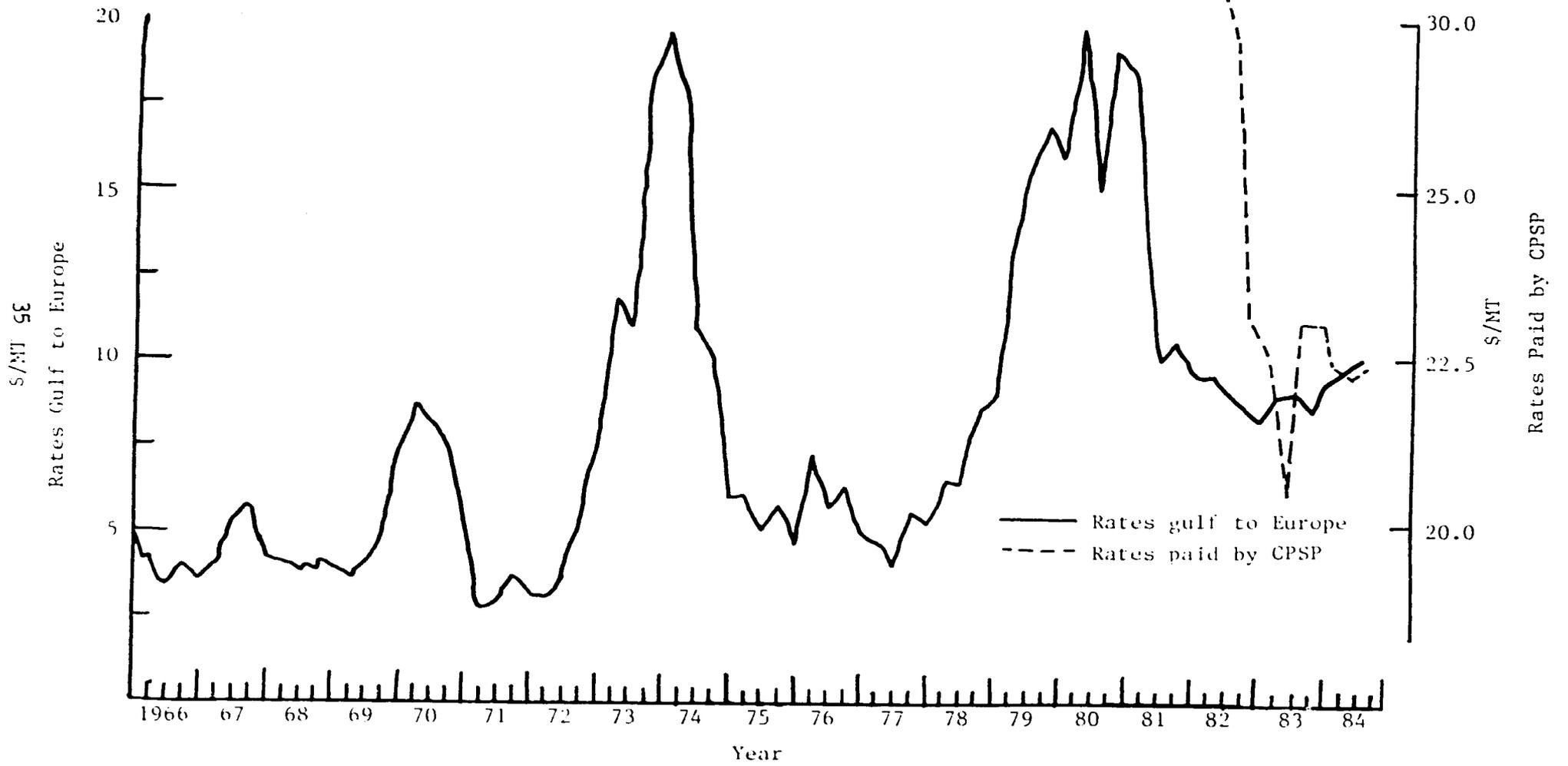
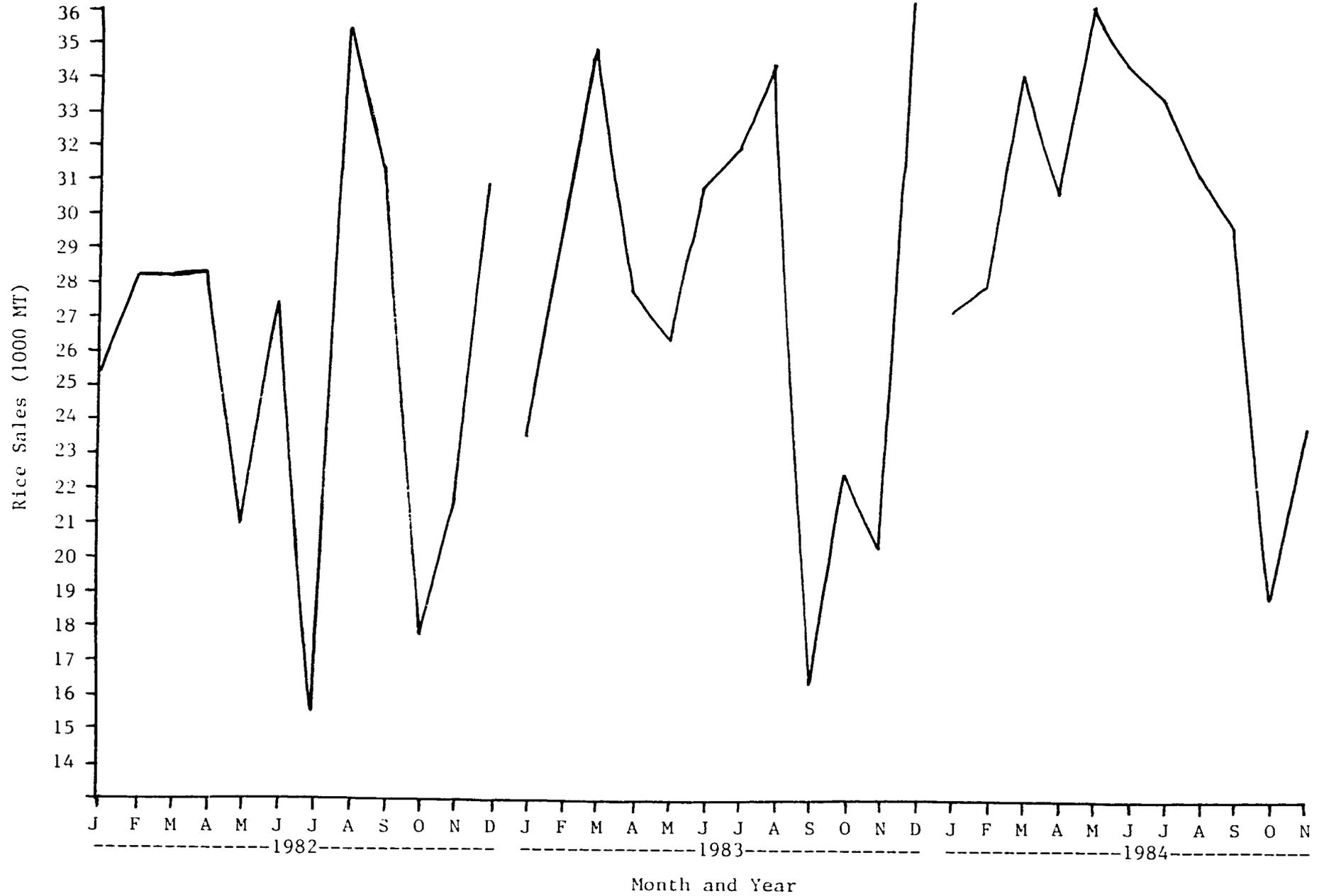


FIGURE 2. Seasonal Rice Sales Patterns



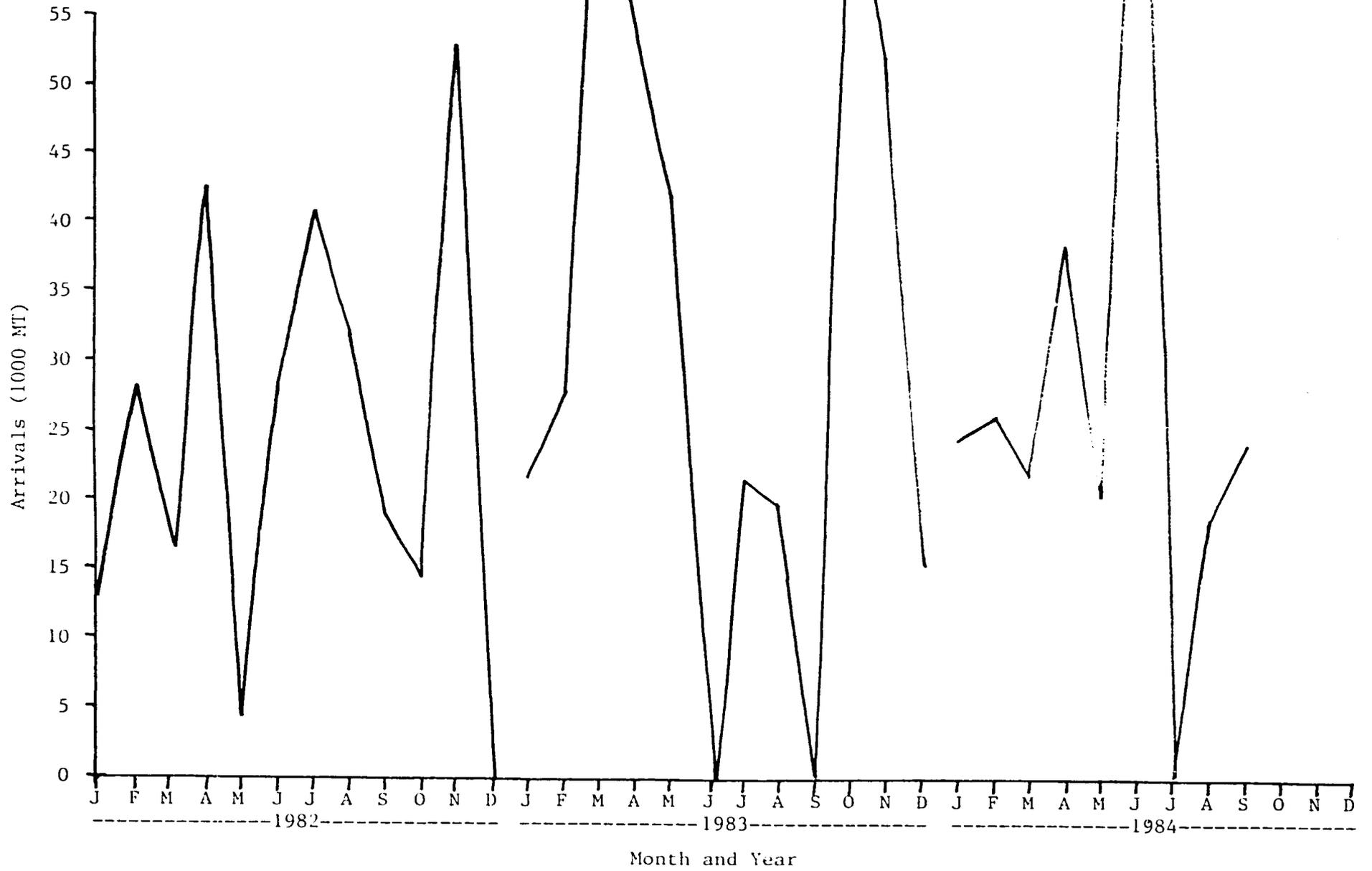


FIGURE 3. Ship Arrival Tonnages

Source: Arthur Andersen

APPENDIX C

Some Pieces of the World Rice Puzzle

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Rice is more important as a staple food for most of the world than it is in world commerce. In the World Bank's Commodity Trade and Price Trends, rice ranks 14th in importance among agricultural commodities traded, and yet 40 percent of the world depends on rice for more than 80 percent of their diet. In 1983, the Food and Agriculture Organization (FAO) estimated the value of world rice trade at \$3.5 billion. But among developing countries, rice is a leading traded commodity. Of the \$3.5 billion of 1983 rice trade, \$2.2 billion came from trade of developing countries.

The world market for rice is characterized as "thin" - as evidenced by the small volume of trade compared with production, limited buyers and sellers, and the relatively unpredictable level as well as source of demand. The consequences of this thinness are uncertainty and instability that can produce significant short-term price variations.

All Rice is Not Created Equal

Despite nearly 2 billion people depending on rice for over 80 percent of their diet, the world rice market often appears to be a complicated puzzle - with each new piece of information triggering a chain reaction. With a limited number of traders in the world market, one unexpected or new buyer can have dramatic consequences on trade, and hence, prices. The same is true for a sharp downturn in demand of a key importer or with an unexpected seller, caught suddenly with large exportable supplies on hand and inadequate storage.

This vital market's volatility is exaggerated as the trade is stratified according to rice types. When it comes to trade, tastes and preferences can nearly rival price as key buyer considerations. Some countries would cut consumption of rice rather than consume a kind of rice to which they are unaccustomed. Because of the market's overall "thinness", it is important to understand how the rice market is segmented. This article defines key terms that play significant roles in determining rice import demand. These market boundaries - by type, class, and quality of rice - mean that particular import demand is often satisfied only by certain origins.

Rough Versus Milled

The terms "rough", "brown", and "milled" rice refer to stages in the milling process. Rough rice, or paddy, is the farm product right after harvest, and still contains the hull and bran layers. Very little rough rice is traded internationally because the relatively low value of the hulls make shipments uneconomical over long distances.

When rough rice is milled and the hull is removed, brown rice is produced. If the bran is removed, milled or white rice is produced. Precise data are not available, but about only 1 to 1.5 million tons of brown rice are traded annually. The principal markets for brown rice, usually traded in bulk, are South Korea, Portugal, the European Community (EC), Canada, and South Africa. Many of these importers purchase brown rice not as final product, but for further processing and exports.

The latter three of these markets import parboiled brown rice. Parboiling may also be part of the milling process. When rough rice is brought to the mill, it is steamed before the hull or bran is removed. This forces the nutrients in the hull or bran to converge on the inner kernel of rice. Brown and rough rice probably account for about 15 percent of the total annual volume of work rice trade; the majority of rice traded is milled.

World Rice Types

There are basically four types of rice: Glutinous, aromatic, japonica, and indica. They are distinguished by their starch content and their qualities once cooked - such as tenderness and stickiness of the grains.

Glutinous rice is also known as waxy or sweet rice and contains very low amylose (starch composition). When cooked, it forms a gelatine-like mass without distinct grain separation. Most rice-consuming areas in Asia produce small amounts of glutinous rice for use in desserts, ceremonial foods, and sweet dishes. In northeast Thailand and Laos, however, it is the staple food. Thailand is the principal trader of glutinous rice, and less than 100,000 tons of glutinous rice are usually traded world-wide. It is generally sold at a discount to nonglutinous rice with the same amount of broken grains. Indonesia, Laos, Japan, and China are the principal importers.

Aromatic, or scented, rice is grown mostly in the Punjab area of central Pakistan and northern India and is often referred to as basmati rice. When cooked, basmati grains double in length, remain completely separate, and have a distinctive odor. Traded volume is light - about 300,000-400,000 tons annually - and is usually sold at prices roughly twice that of high-quality long grain rice. Higher income Middle Eastern countries are the major buyers of basmati rice. Small quantities are also grown in Thailand and sold to Hong Kong and Singapore.

Japonica rice has a fairly low amylose content, is semi-sticky and moist when cooked. A round-shaped grain, japonica rice grows in Japan, the Koreas, Taiwan, a part of China, Australia, the Mediterranean area, Brazil, and California - where it is called short or medium grain rice. Demand for this rice is limited, mostly because of its cooking characteristics. The average volume annually traded totals about 1.5 million tons. Since a significant quantity of japonica must often be exported into indica rice markets, japonica-type rice normally sells at a discount to indica. The principal importers are Indonesia and South Korea.

Indica rice is a long grain rice grown principally in China, south and southeast Asia, and the southern United States. Indica has a medium-to-high amylose content, and cooks up fluffy, with good volume expansion and grain separation. The bulk of world rice trade is indica. But again the world market

fragmented. The world indica market is composed of a demand for regular milled and parboiled rice, and defined by quality based on percentage of brokens, translucency of the grain, chalkiness, and uniformity. Just as there is little substitution between japonica and indica, there is little also between regular milled and parboiled rice.

Milled Versus Parboiled Rice

Parboiled rice is traded in two distinct markets depending on its quality. Some rice kernals are invariably broken in milling, and the amount of broken kernels is a criterion in judging rice quality. The higher the percentage, the lower the quality and price. More importantly, low-quality parboiled rice has a dark color and a strong odor. Burma and Thailand are the principal exporters, with most imports of this low-quality parboiled rice going to Sri Lanka, Bangladesh, and Liberia. The price for low-quality rice is about the same as that for broken rice.

High-quality parboiled rice, on the other hand, has a yellowish tinge, no odor, and little foreign matter. The United States and Thailand are the major producers of high-quality, non-odorous parboiled rice. Saudi Arabia and Nigeria are the largest importers. The EC, Canada, and South Africa also import significant quantities, but generally of brown parboiled rather than milled. In the United States, high-quality parboiled rice generally sells at a premium price to high-quality regular milled rice. However, the reverse is true in Thailand: High-quality parboiled sells at a discount.

High-quality, regular milled long grain rice has less than 10 percent brokens and is exported principally by the United State and Thailand. In world trade, the most frequently cited benchmarks of high-quality, regular milled rice are the U.S. number 2, 4-percent long grain, and the Thai 100-percent, Grade B. Demand is concentrated in the United States, Western Europe, Uruguay, Argentina, Iran, and Iraq. Although most consumers in south and southeast Asia prefer high-quality, long grain rice, only Malaysia, Singapore, and Hong Kong are significant buyers.

The United States, Thailand, and Pakistan are principal exporters of medium-quality, regular milled long grain rice (10-20 percent brokens). Import demand is concentrated in Brazil, Hong Kong, Malaysia, Indonesia, and the Soviet Union.

Low-quality, milled long grain (more than 20 percent brokens) is primarily exported by Thailand, Pakistan, China, and Burma. The largest single importer of this rice is Indonesia, but most of West Africa also imports it.

Of all milled rice, brokens are generally considered the lowest quality. They are purchased by countries that mill rice by hand-pounding, or by those with severely constrained foreign exchange. However, some countries such as the United States also use brokens for beer-brewing. Thailand and Burma are the primary suppliers of brokens, and the largest buyers in recent years have been Senegal (where brokens are actually the preferred grain), Madagascar, Mauri-Mauritania, Gambia, and South Vietnam.

Prices and Policies

Besides the diversity in the types of rice traded, the world rice market is complicated by the lack of commonly used grades and standards, despite the understood definitions of high-, medium-, and low-quality rice. Along with the uncertainties over sources of demand and supply, and the small volume of rice traded, there is no single "world market" price for rice. The price of rice depends on the specific quality characteristics of the rice. And because consumer preferences can exert a powerful influence over demand, prices for different types or qualities move somewhat independently of each other based on the supply-demand factors for that market.

There is no globally recognized central spot or futures market for rice comparable to the Chicago Board of Trade, although a futures market has recently opened on the Mid-America Exchange after the New Orleans Commodity Exchange closed in 1983. Prices posted weekly by the Thai Board of Trade are commonly cited as the "world price", but these prices are often as much as 10 percent above the actual trading price. Furthermore, comparable quality rice from a different origin may be sold at a discount or premium to Thai rice, depending upon local supply and demand and relative proximity to the ultimate destination. Without an effective futures market for rice, trade is conducted without hedging and international traders are likely to incur large profits or losses. Hard data on trading margins for rice are lacking, but evidence suggests they are sharply above those enjoyed in the much larger wheat and coarse grain markets. A handful of trading houses in New York, Geneva, and Paris conduct most of the rice trade.

Policy also defines the world rice market, with governments playing an important and increasing role. In many developing countries, it is politically paramount that the government assure sufficient rice supplies, particularly in urban areas. This often conflicts with another objective: providing for the welfare of the rice farmers, who account for a significant percent of the population. The result is that both domestic trade and rice importing are usually either tightly controlled or directly conducted by the government. Typically, a government attempts to purchase all locally-produced rice (in milled or rough form) that meets its standards at a specified support price. Government stocks of domestically produced or imported rice are then used to assure stable retail prices, and especially to prevent retail prices from rising above a predetermined level.

Government involvement is becoming more pervasive. Of the estimated 12.1 million tons of rice traded in 1983, governments imported over 7.2 million tons - 60 percent. Both rice imports and exports are often subject to licensing, quotas, or other forms of government control. Of all rice exported in 1982, governments exported an estimated 4.8 million tons. In 1983, government exports totaled 5.6 million tons - 46 percent of all rice exported. In fact, it is getting easier to count those producing countries where exports are left to the private trade: The United States, Australia, Italy, Argentina, Uruguay, and Spain. Even in Thailand, the government sold nearly 1.4 million tons of rice in 1983. That amounted to 37 percent of Thailand's 1983 rice exports.

Government-to-government contracts are also of growing importance as a trade instrument. Over 2.5 million tons of the 5.8 million exported by Thailand,

Pakistan, and Burma in 1983 were made using government-to-government arrangements. This is up nearly a fifth from 1982 because of increased imports by Indonesia and the Ivory Coast, which is buying more through government-to-government contracts. It is not clear if rice traded using government-to-government contracts in 1984 will reach 1983 levels. Although the Ivory Coast and Senegal recently purchased some 360,000 tons of rice from private exporters, Nigeria (which imported 700,000 tons of rice in 1983) has indicated that all new rice purchases will be made using government-to-government arrangements. According to the Food and Agriculture Organization (FAO), the use of long term agreements (LTA's) is also increasing. FAO estimates that such contracts rose from 300,000 tons in 1981 (6 percent of world trade) to 950,000 tons in 1982 (8 percent of world trade). In 1983, the amount of rice traded under LTA'S is estimated to have fallen to 700,000 tons due to a drop in shipments from India to the USSR. It may be several years before overall volumes return to the levels of 1981 and 1982.

Strong government presence in international rice commerce often heightens the price instability of the world rice market. Because the world rice market is perceived as unstable, where rice is the staple, most governments try to pursue policies of self-sufficiency. They do this by limiting rice imports, and by encouraging the use of high-yielding varieties and fertilizer through subsidized prices, or by extending short-term credit. Governments may also hold large stocks of rice to ensure adequate supplies during the marketing year, and to compensate for years with disappointing harvests. Rather than improve the supply-demand situation, however, this action often worsens the market instability by reducing the volume traded. In addition, to assure adequate supplies and achieve self-sufficiency every year, many governments overcompensate in trying to achieve appropriate stock levels. Difficulties arise if storage is insufficient; surplus rice can be exported only with a hefty subsidy. The subsidy is needed because the rice must often be sold at a discount because buyers are unsure of its quality. Furthermore, most countries who find themselves in this position also have an infrastructure more suited to importing rice than exporting it. Buyers question whether rice will be available at the port when the ship arrives, and are thus reluctant to incur the extra costs of delayed vessel loadings.

Equally important, most governments treat the international rice market as a residual market. As a result, the quantity of rice imported by a given country may vary sharply from year to year. Similarly, trade patterns - sources of supplies - can also vary radically from year to year.

Finally, government buying agencies are often slow to anticipate needs, and equally slow to act on those needs. Therefore, when decisions are made to purchase rice, it is usually for rice that was needed yesterday.

All of these factors - diversity of acceptable product, rigid infrastructure, lack of a central world market, uncertainty about the sources of demand and supply, and the inexact adjustments governments make to meet desired levels of supply, demand, stocks, and prices - result in high search costs for information regarding current prices and short-term import needs and the availability of a particular quality of rice. Such information is tightly held, and hence, particularly important for rice because there is no effective price discovery mechanism, and because the information in developing countries (the primary importers) is generally inadequate.

APPENDIX D

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