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SUBJECT - Rwanda Food Storage and Marketing, Project 696-0108

REFERENCE - HB 3, Ch. 5, App. 5H

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Attachments: to be run as part of airgram
1. PES Facesheet
2. Subject Evaluation

PAGE 1 OF PAGES 1

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PROJECT EVALUATION SUMMARY (PES) — PART I

Report Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
Rwanda Food Storage and Marketing	696-0100	REDSO/EA

4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) Rwanda 79-1

☒ REGULAR EVALUATION ☐ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING		7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 75	B. Final Obligation Expected FY 79	C. Final Input Delivery FY 80	A. Total $ 2,736,000		From (month/yr.) November 1976
			B. U.S. $ 2,375,000		To (month/yr.) October 1978
					Date of Evaluation Review

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
1) Government of Rwanda bean pricing policy needs to be re-evaluated and adjusted. Pricing policy issue must be addressed prior to any additional T.A., revised construction plans or new office building as per recommendation 3 in the evaluation.	AID/Rwanda and GOR	June 1979
2) A decision must be made to revise the Project Design and Financial Plan, and to amend the Project Agreement, in order to implement recommendations with regard to altering plans for construction of warehouses (Recom. 2); building office space for GRENARWA (not mentioned in summary, but see page 14); expanding GRENARWA's working capital for purchasing inventory (Recom. 7); and providing technical assistance in finance and marketing (Recom. 1).	AID/Rwanda, AID/W and REDSO/EA	April 1979
3) A number of recommendations relating to technical assistance (Recom. 1); standardization of sack weights (Recom. 4); the statistical section of GRENARWA (Recom. 5); future training of warehouse staff and the project co-director (Recom. 6 and 10) and GRENARWA trade in sorghum (Recom. 9) should be implemented.	Project Manager and AID/Rwanda	June 1979
4) The GOR should request additional donor assistance for working capital, if a change in the Project Financial Plan does not cover this need.	AID/Rwanda and GOR	June 1979

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☒ Implementation Plan e.g., CPI Network
- ☐ Other (Specify)
- ☒ Financial Plan
- ☒ PIO/T
- ☒ Logical Framework
- ☒ PIO/C
- ☐ Other (Specify)
- ☒ Project Agreement
- ☐ PIO/P

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☒ Change Project Design and/or ☐ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

John A. Patterson, AAO/Rwanda
Ian Pattinson, Contract Evaluator
Stephen T. Norton, Design Officer/REDSO

12. Mission/AID/W Office Director Approval

Signature

Typed Name: Alexander R. Love, Director

Date: 20 February 1979

EVALUATION REPORT

RWANDA FOOD STORAGE AND MARKETING PROJECT

PROJECT NUMBER 696-11-234-100

DATE: NOVEMBER 1978

REDSO/EA NAIROBI
NOVEMBER 1978

EVALUATION REPORT

RWANDA FOOD STORAGE AND MARKETING PROJECT

PROJECT NUMBER 696-11-234-100

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EVALUATION REPORT

RWANDA FOOD STORAGE AND MARKETING PROJECT

I. INTRODUCTION

A. Purpose

The Rwanda Food Storage and Marketing Project (FSM) is currently experiencing difficulties, particularly in bean marketing, pricing policy, financial self-sufficiency and in relating project purpose to the GOR organization (OPROVIA) that will integrate the project into its operations.

AID requested an evaluation with respect to:

1) logistical management;

2) financial management; and

3) price policy for beans followed by GOR with particular regard to the objectives of price policy, income stabilization, production incentives, and maintenance of reserve stocks.

The purpose of the evaluation has been served and will assist project management and AID in continuing with the attainment of project objectives and in their closer definition.

B. Team

The evaluation was carried out by Ian Pattinson, Grain Marketing and Storage Consultant who arrived in Rwanda on October 7, 1978, and who spent 5 weeks gathering and analysing material for this report.

C. Methodology

Three basic areas of project activity were examined:

1) institutional development and future linkage with OPROVIA, the GOR organization that will assume future control of the project;

2) financial viability and operating procedures of the project related to marketing activities and the effect of present GOR price policy; and

3) analysis of project progress in relation to the logical framework matrix.

Extensive use was made of data gathered by the project in the past three years, as well as GOR and AID reports. On site inspections were made to warehouses to observe project activity, and personal interviews were conducted with GOR officials and Rwandan project personnel. Continuing discussions were held with the project manager and the AID Affairs Officer. REDSO/EA staff assisted with briefing and orientation.

II. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. Relevancy

The project has assumed increased relevance to Rwanda's development program. GOR's five year development plan 1977-81 has stressed the need to improve marketing and storage of staple foods and the organization of interregional transfers to satisfy deficit rural and urban areas.

OPROVIA has been identified as the GOR organization charged with the responsibility of implementing this program. Their role has been defined as that of price stabilization and the protection of producers and consumers from speculation.

2. Effectiveness

The project has demonstrated its effectiveness in influencing consumer prices and is building a sound contact base with consumer and co-operative organizations.

Producer price stabilization is not readily demonstrable, as grain for consumer price stabilization has been drawn mainly from commercial sources. However, project management is actively pursuing closer links with consumers and co-operatives and it is anticipated that in 1979 greater use will be made of these sources of supply. Within the time frame allocated to the project, it will be more difficult to achieve producer price stabilization than consumer price stabilization because of the dispersed nature of production and practical difficulties in assembling produce.

3. Significance

The project goal is to increase bean production at a rate over 3% per annum by 1978. If the MINAG (1977) annual report on production is correct, bean production has increased substantially in excess of this since 1975. The project goal is questionable as it is difficult to correlate project effect in a limited area with production over the whole country. The verifiable indicator (GOR statistical data) is also questionable and subject to skepticism.

B. Recommendations

1. The project requires the immediate services of

technicians in finance and marketing.

Justification

Finance expertise is required for the following reasons:

- the financial records are not clear and doubtfully reflect the current situation. They are subject to frequent correction and make management decisions difficult.

- to analyze the contribution of the product mix (beans/ sorghum) to the overall marketing strategy.

- to prepare accurate statements of operating margins for submission to GOR price policy authorities (NPC).

- to project future financial analyses of project viability, cash flows etc. on which investment decisions can be based.

- to prepare the administrative and operational accounting structure necessary to control future buying funds of the order of 200 million RwF ($2 million) necessary to market 10,000 tons (T) of grain.

- to establish an on-going "in post" training program for Rwandan accountants and basic training in accounting procedures for warehouse managers.

- to coordinate budgetary control between the project and OPROVIA.

A marketing technician is required for the following reasons:

- to develop a proper inventory system of physical stocks without which the project cannot function efficiently and is financially unsound.

- to develop strategy based on knowledge of the traditional marketing systems of Rwanda, consumer preferences for beans, the project goal of influencing prices, and the useful application of data analysis from the statistical service.

- to prepare the organisation necessary to purchase and

sell 10,000 tons of grain. This involves considerable forward planning in purchasing, handling, warehousing and selling, as well as important decision making at the peak sales period. If sales are insufficient in the last quarter of the year, the project becomes financially vulnerable.

- the project has no identifiable marketing section and a technician is required to establish this and provide "in post" training for suitable personnel.

- to co-ordinate marketing policy between the project and OPROVIA.

The project director is capable of performing the marketing function and, depending on the outcome of project integration with OPROVIA, would be a very suitable candidate.

2. With the exception of the Butare prefecture, no more warehouse construction should be undertaken following the completion of the second phase proposals for FY 1978.

Justification

At the end of FY 1978, project storage capacity will be 9,850 tons compared with newly calculated requirements for a stabilization stock of 12,500 tons of beans and 11,000 tons of sorghum.

Relatively small quantities of grain are presently being handled by the project, and the logistical support structure necessary to manipulate larger quantities needs to be developed, experience gained, and staff trained before further expansion takes place.

The Butare prefecture is deficit, consumer prices are reported to be the highest in Rwanda, and an obvious need exists for a project presence. Project management should put forward proposals after an on the spot survey of existing installations has been made. OPROVIA reputedly has a 700T warehouse at Butare and this may provide sufficient capacity.

3. The project should persuade GOR to abandon its policy of fixed producer and consumer prices for beans before the next buying season.

Justification

The present GOR price policy is unworkable from GRENARWA's point of view since the margin of 5 RwF/Kg is insufficient to cover its operating costs. GRENARWA is presently losing money as a result of adhering to this policy and could become insolvant. On the other hand, the private sector is unencumbered by the government policy, as it ignores the official price and is guided rather by private market conditions.

Parastatal organizations such as TRAFIPRO and OPROVIA no longer market beans, as the official price structure does not permit them to cover operating costs. In a good harvest year, GRENARWA could be financially vulnerable having to buy at higher than market prices, and would have difficulty in selling on a well supplied market. For example, the purchase of 10,000T of beans represents a purchase fund of 200 million RwF. If GRENARWA cannot turn its inventory over, it could be permanently crippled.

An alternative policy, which is more rational, is to base prices on the free market price delivered to GRENARWA warehouses. Selling prices would include the operating expenses of GRENARWA and would be in line with the market.

4. The project should immediately introduce the standardization of sack weights.

Justification

Inventory control is impossible without a standard weight for sacks. The lack of inventory control has precluded accurate financial statements and estimation of losses, and theft is encouraged if no inventory control is exercised.

5. The statistical section of the project needs to intensify its market data analysis, and project management must use this section to more advantage. The data collection on yields should be abandoned, but information gathering on production prospects by missions and communes should be intensified.

Justification

The project has not fully utilized market data information to develop price policy recommendations for GOR.

If GOR abandons fixed price policy and adopts one based on

GRENARWA warehouse prices, then GRENARWA (OPROVIA) will become a major influence in formulating future GOR price policy.

The existing data collection on yields is agronomically unsound and the results so far give no valid assessment of harvests.

6. Future training of Rwandan warehouse staff should be based on "in post" practice and not on overseas institutions.

Justification

Although the six KSU trainees performed well after their return to Rwanda, only two are left.

The expenditure does not justify the results, and future training should be carried out by the T.A. technicians.

"In post" training permits more throughput of trainees, thus allowing for attrition and replacement.

Specialized training in aspects not covered by T.A. technicians e.g., storage technology and sanitation, can be covered by TDY consultants.

7. Increased donor participation should be sought in '79 to cover anticipated buying funds (fonds de roulement) necessary to increase inventory in 1980.

Justification

Buying funds in 1980 require some 200 million RwF compared with '79 provisions of 64 million RwF.

GRENARWA requires to establish a permanent buying fund capable of accommodating its requirements independent of loans from the banks.

Additional donations of food from external agencies would help in establishing this fund.

8. The 1978 ProAg will require an amendment, and/or the 1979 ProAg will require an amendment to indicate a change in project direction.

Justification

The expansion of three warehouses and the construction of one new warehouse provided in FY '78 will not take place if the

recommendations in this evaluation are adopted.

This report recommends the expansion of two existing warehouses (Kicukiro, Byumba) and the construction of two new warehouses (Gicongoro and Gatumba). Depending on the decision of project management, one additional warehouse may be built in the Butare prefecture and extension or modification of the PAK warehouse at Kibuye may be required.

By the end of the FY '78 construction program as outlined above, GRENARWA will have almost 10,000T of storage capacity. This organization now requires to develop the managerial and administrative capacity to handle this quantity of grain.

The '79 ProAg should take into consideration the fact that this evaluation recommends no further warehouse construction. Funds are required for:

- construction of an office complex for GRENARWA;
- technical assistance in finance and marketing until Dec. 1980;
- local training costs; and

supply of additional vehicles (trucks).

9. GRENARWA should increase the quantity of sorghum it markets.

Justification

The present cash flow is very vulnerable, net income only arising in the last quarter of the year. Difficulty in selling could prevent GRENARWA from buying the following year. Sorghum is presently not price controlled by GOR and it can be used to advantage to balance operations with beans, and even-out expenditure and revenue.

A 50/50 balance of sorghum and beans would help to alleviate the problem of insufficient working capital and ensure that a viable marketing organization continues to stabilize bean prices.

10. The co-director of the project should receive overseas training in financial management.

Justification

As future manager of GRENARWA, one of the most important skills required will be financial expertise, and ability to develop a financially viable organization. A manager who does not have this background will be unable to provide sufficient practical direction and financial interpretation to GRENARWA's operations.

The present co-director has insufficient knowledge of finance, analysis and projection to enable him to interpret marketing policy in terms of present and future development.

He has an agricultural degree from Grembloux (Belgium) with a knowledge of elementary accounting and recognizes his weakness in financial matters. Training through OCAM or CEE courses might be suitable.

Overall View of Conclusions and Recommendations

Providing that the recommendations as set out above are implemented, the project is viable and project purpose will be increasingly satisfied.

Failure to change pricing policy in such a way that GRENARWA is not permitted to operate on a break-even level will require GOR subsidy to cover losses on bean operations, or will require equivalent subsidies from sorghum operations. The project faces insolvency if GOR subsidies or insufficient profit from sorghum operations are not realized.

A period of consolidation and development of a functional infrastructure with delegation to competent Rwandan staff should be the short-term objective.

This evaluator is of the opinion that present project management is fully competent and capable of achieving project purpose providing that full support from GOR and AID is maintained.

III. INSTITUTIONAL DEVELOPMENT

A. Background

GRENARWA (Grenier National du Rwanda) as it is known today, was originally launched in 1974 as an AID project and became operational in 1975 as the Food Storage and Marketing Project (FSM) or in French the "Project d'Entreposage et Commercialisation des Denrées Alimentaires" (P.E.C.D.A). The operational responsibility for the FSM project was to have been the National Food Crop Marketing Office under the aegis of the Rwandan Development Bank (RDB).

In July 1975, the GOR formed OPROVIA and the marketing function previously attributed to RDB was then assumed by OPROVIA. However, the FSM project was not absorbed into OPROVIA and during the period '75-'77, both OPROVIA and the project marketed beans.

In March '78, the ProAg between AID and GOR was signed setting out the procedure for integration of a "Fond de Stabilisation" (1) with OPROVIA. The "Fonds de Stabilisation" was to be created by GOR through OPROVIA and following the inheritance of the material and human assets by the "Fonds" the latter would then be known as GRENARWA.

The creation of the "Fonds de Stabilisation" was authorized allegedly by Article 33 of the law 24/75 of July 2, 1975 creating OPROVIA. However, Article 33 makes no mention of this term and its invention and interpretation are misleading.

Whatever the legal implications are, GOR still has to create a "Fonds de Stabilisation" under presidential decree, and discussions concerning incorporation of GRENARWA in OPROVIA have not been completed. The Project Agreement anticipated that agreement on the integration of OPROVIA and GRENARWA would take place within six months from the date of the Project Agreement.

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(1) A "Fond de Stabilisation" implies the existence of funds to stabilize prices and is used in the context of export crops. In practice, funds are handed back to or received from exporters, the objective being the stabilization of producer prices when export crops are being sold by the "Fonds" on world markets which are sometimes very volatile.

The logic of creating a "Fonds de Stabilisation" under presidential decree, followed by its dissolution when GRENARWA is born and subsequently integrating GRENARWA with OPROVIA, is hard to follow.

The American Ambassador to Rwanda has indicated his concern at the delay in GRENARWA integration with OPROVIA and has requested project management to pursue the integration plan as rapidly as possible.

Following an informal meeting with OPROVIA management to discuss matters relevant to the project and the integration, project management has forwarded a memorandum to OPROVIA setting out the basic points to be taken into consideration including finance, personnel, activities etc. (see Annex B). OPROVIA management is referring this to its Conseil d'Administration for decision and orientation.

B. GRENARWA

GRENARWA still has to develop the infrastructure necessary to delegate authority to section activities, particularly in respect of central office accounting and marketing. There is, for example, no identifiable marketing section with a marketing director, and policy decision as well as execution are controlled by project management (T.A. plus counterpart).

The delegation of authority to functional accounting and marketing services is an indicator of project success in developing managerial competence, and is a basic factor to be considered in the expansion of activity.

Lack of basic management infrastructure is the principal reason why further construction of warehouse capacity after FY '78 should not be undertaken, as it is felt that a period of consolidation, training and delegation is necessary to establish a proven, workable and viable organization. It is also the principal reason behind the need for T.A. in the above mentioned fields.

Sound warehousing practices and administration are evident and are the result of training and project inputs, however, functional accounting and marketing systems require to be established which free central office management from daily

executive duties and allow them to delegate and develop overall planning policy and strategy.

The internal institutional development is incomplete and represents one of the principal tasks facing T.A., and is one of the verifiable indicators that project purpose has been achieved.

Externally, GRENARWA has developed institutional links with communes, cooperatives and public institutions such as prisons and schools through its marketing activities, and expects to become involved with CLUSA and Local Crop Storage programs once those have been established. CRS has indicated that transport is a major problem and it is possible that a marketing link will be established once the project has sufficient trucking capacity available. GRENARWA (or OPROVIA) could also play an important role in the co-ordination of food storage projects through its participation in a proposed "Bean and Sorghum Co-ordinating Committee" (B.S.C.C.) The proposal to form such a committee evolved following discussion by representatives of AID - assisted projects involved in storage and marketing. Such a committee could provide a vehicle for co-ordination in training research and marketing for project activities. Although initially the composition might be predominantly that of project representatives and counterparts, progress and interest would determine the extent to which recognition and formal institutionalization by GOR could be achieved.

C. OPROVIA

In 1977, OPROVIA had a staff of 79, a vehicle fleet, a turnover of some 192 million RwF ($2 million) and was engaged primarily in the marketing and distribution of food and the operation of an abattoir. It has two retail outlets in Kigali and Butare.

The organigram of OPROVIA (see Annex A) includes a "Service de Production Vivriers" charged with improving the production and marketing of local food crops. It is the intention that GRENARWA replaces this service through the signature of a presidential decree necessary to change the statute of OPROVIA. An addendum to Annex B of the '78 ProAg will establish by common accord between GOR and AID the terms of the integration.

The integration will represent a significant acquisition by OPROVIA, an organization with a wide mandate and a previously doubtful reputation, but nevertheless recognized officially

as the GOR agency charged with storage and marketing of food crops.

The chief concern of AID should be that the integration does not dilute project purpose or resources. The organigram shows that the hierarchy link to the Tutelle (Minister of Agriculture and Livestock) passes through the Director who is assisted in policy matters by the Conseil d'Administration (C.A.) and the Commissaires aux Comptes. The '78 ProAg states that the chef de projet of GRENARWA will participate in a consultative role at meetings of the C.A. dealing with GRENARWA. Whether this means the chef de projet or the chef de service is unclear, but executive authority is not implied. There is concern that sufficient autonomy, particularly in respect of finance and marketing, may in practice be achieved and dilution of project purpose and resources is potentially possible. Given that buying fund requirements to purchase 10,000T of grain amounts to 200 million RwF ($2 million), a combination of OPROVIA good will and close executive control will be required to maintain project purpose.

Therefore, it is strongly recommended that the future institutional development of GRENARWA, which incorporates project resources, be fortified with technical assistance in the key marketing and finance sectors so that leverage can be employed in executive execution of policy.

OPROVIA has requested Canadian T.A. in the fields of accountancy and marketing, but no definite indication is presently available of progress with recruitment.

The executive control of GRENARWA operation is of major significance to OPROVIA development, but the present organigram of authority is insufficient to guarantee continuation of project purpose. Overall T.A. at OPROVIA director level would be one step removed from GRENARWA.

D. Office Construction

GRENARWA occupies the ground floor of a privately owned building. One large room houses the secretarial, statistical and accounting sections, and two small offices house the controller, storage and management personnel.

Rent is increasing annually and there is no security of tenure in the event that the proprietor wishes to terminate the lease.

Office accommodation is presently insufficient and working conditions are not optimal. Project management realize the unsuitability of the situation and is considering the construction of an office complex at Kicukiro or any suitable location in Kigali.

If an office complex is constructed at Kicukiro, this will raise serious transport difficulties for staff and, in fact, the most suitable location would be in or around Kigali. Furthermore, communication difficulties from Kicukiro would hamper the efficiency of head office operations.

Bearing in mind the expansion of marketing activities to 10,000T of grain, the following head office complex is suggested:

1 office, head of GRENARWA plus 1 office, secretary

3 offices, marketing section

3 offices, accounts section

1 office, administration

1 office, technical section

2 offices, secretarial (typing)

1 office, statistics

1 office, reception

1 storeroom, (office supplies)

1 conference room (meetings, training etc.)

1 spare office (communication)

The head office complex would therefore have a total of 17 units complete with toilet facilities, parking for vehicles, etc. GOR has contributed substantially to storage installations, and AID has constructed substantially less than foreseen by the project. Lack of office accommodation will become a serious logistical impediment in the near future and it is strongly recommended that part of FY '79 funds be utilized for construction of an office complex.

Provision of office accommodation of a functional nature is regarded by this evaluation as part of the institutional development of GRENARWA.

Should AID undertake the financing of office construction for GRENARWA, it could be that GOR may also consider contributing in order to provide combined office space for OPROVIA/GRENARWA.

OPROVIA presently does not have central office accommodation and a combined AID/GOR investment in a central facility should appeal to GOR in lieu of further warehouse construction in FY '79 The FY '79 ProAg should take this proposal into consideration, either for GRENARWA alone or for a combined GRENARWA/OPROVIA facility.

IV. FINANCIAL ANALYSIS

1. Inventory

The marketing history of GRENARWA to date shows that it has two problems to overcome in order to establish a sound financial base:

- inventory control
- inventory turnover

A. Inventory Control

GRENARWA has had difficulty in calculating its true operating margin due to the fact that inventory cannot be assessed physically as there is no standardization of sack weights. Until this has been accomplished, little faith can be placed in financial statements and those published so far must be accepted with reserve in respect of the declared value of the inventory.

The 5% loss estimate used in project and loss statements cannot be accepted with any accuracy. Lack of inventory control has a direct bearing on the project purpose, as the verifiable indicator that wastage in storage centers in less than 5% (as verified by GRENARWA records) is non-assessable.

As an example of the financial difficulties created by lack of inventory control, reference is made to the situation Dec. 31, 1977 - Jan. 1, 1978. For the first time, an inventory was taken of three of the five warehouses in operation and revealed an over-declaration of stock of 1,532,610 RwF. However, as the three warehouses represented only 14% of the total presumed inventory, the total loss maybe much greater. Project management has indicated that the inventory was over-valued as sales in '77 were not recorded until later in '78 and whilst this maybe the case, efforts are required immediately to strengthen inventory control. Although cash sales may balance with the sold inventory, the true inventory in the warehouse will not be known until stock has been taken.

B. Inventory Turnover

In 1972, only 2.4% of the stock purchased was sold, and in 1977 this rose to 51.6%. In 1978, over 100% of stock purchased will be sold, the carry forward from '76 and '77 making up the difference.

An annual inventory turnover of beans is necessary to the survival of GRENARWA, as if stock is carried over the year end, it is difficult to sell and the price received may be substantially less. Insufficient stock turnover has a major escalatory effect on GRENARWA's operating margins.

Efforts are being made to sell '76 beans on the local market at 10 RwF/kg and some 22 tons have been disposed. Other avenues being explored include the possibility of sales to interests in Kinshasa (Zaire).

The verifiable indicator of project purpose that 90% of optimum storage capacity was to be utilized annually was based on the assumption that stock would be turned over and not just stored. This indicator should really refer to inventory turnover based on a percentage of total storage capacity.

2. GRENARWA Operating Costs

Table 1 gives a summary of project operating costs for the three years '76-'78, divided into fixed costs, variable costs and depreciation.

Table 2 analyzes those results on the basis of the actual stock sold (i.e., marketed) and the operating cost if all the stock were sold (100% turnover). Furthermore, operating costs are calculated less depreciation for warehouses and less depreciation for warehouses and losses. Losses have been excluded in order to find the minimum operating cost in the hypothetical case that no loss took place.

Under optimum conditions with 100% stock turnover and no losses and excluding warehouse depreciation, the operating cost ranged from 3.8 - 5.1 RwF/kg in '76 and '77, and the estimate for '78 is 5.9 RwF/kg.

With 100% stock turnover but including losses, the operating costs would rise to 4.8 RwF/kg ('77), 5.9 RwF/kg ('76) and 8.6 RwF/kg estimated for '78.

In practice, 100% stock turnover has not been achieved, and on the basis of actual stock turnover and excluding losses, the lowest operating margin would have been 7.3 RwF/kg in '77. In 1978 it is estimated the operating cost excluding losses would be 5.9 RwF/kg.

The importance of stock turnover and losses is therefore of major concern in GRENARWA's operations and will determine the lowest operating margin. From the first three years trading results, it

would not have been possible for GRENARWA to operate on a 5 RwF/kg margin and a 9.3 RwF/kg margin in '77 has been the best result so far obtained in practice. The '78 results may be lower with 8.6 RwF/kg estimated.

TABLE 1 **SUMMARY OF PROJECT OPERATING COSTS**
(RwF)

	1976 - 78		
	1976	1977	1978 (A)
Purchases - tons (T)	1,163	2,876	1,372
Sales (T)	28	1,486	1,500
Fixed Costs			
1) salaries	2,174,188	3,222,018	3,749,919
2) operating expenditures	154,158	1,282,639	1,312,949
3) vehicles	385,713	497,810	808,779
4) maintenance	2,830	159,357	71,077
5) office supplies	76,495	120,240	137,817
6) market studies	-	30,847	13,123
7) miscellaneous	643,327	396,457	47,313
S/Total	3,436,711	5,709,368	6,140,977
Variable Costs			
8) labour	357,850	1,463,332	986,193
9) per diem	15,055	346,501	280,323
10) interest	200,387	300,144	-
11) transport	-	38,443	176,733
12) transport	1,355,262	1,429,528	244,627
13) storage materials	210,217	807,811	367,854
14) losses	1,046,810	3,044,107	3,981,214
S/Total	3,185,581	7,429,866	6,036,944
Total fixed and variable costs	6,622,292	13,139,234	12,177,921
Depreciation			
15) warehouses	684,915	1,622,782	1,815,610
16) storage equipment	20,950	277,514	448,186
17) office equipment	19,303	17,070	18,069
18) furniture	44,150	51,661	58,524
19) vehicles	262,092	373,154	195,169
S/Total	1,031,410	2,342,181	2,535,558
Total Costs	7,653,702	15,481,415	14,713,479

NOTES

1) Salaries include head office and warehouses.

NOTES (cont.)

2) Operating expenditure - rent, utilities, medical, caisse social etc.

3) Vehicles - maintenance, insurance, fuel for head office transport.

8) Labour - temporary staff at warehouses.

11) Transport - to and from warehouse.

12) Transport - between warehouses. The transfer of '76 purchases took place in '77. To reflect truer costs for '77 purchases, 50% of transport cost is allocated to '76.

13) Storage materials - insecticides, fumigants.

14) Losses - estimated at 5% of inventory.

16) Depreciation storage equipment - includes sacks.

(A) 1978 costs projected to December 31, based on results to September 30, 1978.
Purchases: 1372T of which 719T beans and 653T sorghum.
Sales estimated at 1500T for which 1100T already sold or contracted, and 400T to be sold in last quarter.

Source: GRENARWA financial statements.

TABLE 2

ANALYSIS OF OPERATING COSTS
1976 - 78

	COST/KG (RWF)		
	1976	1977	1978 (A)
Actual Stock Sold	273	10.4	9.8
Less depreciation warehouses	248	9.3	8.6
Less depreciation warehouses & losses	211	7.3	5.9
Assuming all stock sold (1)	6.6	5.4	9.8
Less depreciation warehouses	5.9	4.8	8.6
Less depreciation warehouses & losses	5.1	3.8	5.9

(1) Exit costs of approximately 150 RwF/T excluded

(A) Based on estimated on estimated sales of 1500 T.

3. Working capital

The present financial situation of GRENARWA gives rise to concern regarding its future solvency both in respect of purchase funds (fonds de roulement) and operating funds (fonds d'exploitation). In principle, purchase funds are reconstituted following sales, and the margin between the purchase and selling price goes to operating capital.

In the past, insufficient inventory turnover has been generated to reconstitute the purchase fund and the GOR margin of 5 RwF/kg is insufficient to cover operating expenses. Net result is that GRENARWA is consuming its own resources and some of the capital AID inputs.

A. Purchase Fund

The project will depend heavily on sales and timely payment of accounts due in order to finance '79 bean purchase. The '79 purchase fund will be made up of the following amounts:

		million (RWF)
- cash in hand		6.7
- accounts receivable		
PAM (sorghum)	4.5	
(beans)	7.2	
REDSO (reimbursement Toyota)	0.9	
Prisons	5.6	
Miscellaneous	2.0	
		20.2
- sales 78 (beans) est.	5.0	
78 (sorghum)	2.8	
76/77(beans)est.	1.2	
TOTAL		35.9

This evaluation conservatively estimates that 30 million RwF should become available on December 31, '78 for '79 purchases; this amount will buy 1,500 tons of beans. In addition in the first quarter of '79, sorghum sales (600T) will realize 8.4 million RwF and the remainder of PAM I, 8 million RwF, will be enough to purchase a further 800 tons of beans.

B. Operating Funds

Operating funds are anticipated to run out in March 1979 according to the following projection:

		million RwF		
November '78	cash on hand at 11/8/78	0.40	accounts payable	
	accounts receivable		OPROVIA	
	PAM (storage fee)	0.10	(transport)	0.70
	PAM (transport)	0.25	prisons	
			(transport)	0.15
	Sales 77 beans	0.50	salaries	0.40
	Sales 78 beans	1.75	misc.	0.40
		3.00		1.65
December	c.f. November	1.35	salaries	0.50
	sales 77 beans	0.50	misc.	0.40
	sales 78 beans	1.75		
	sales sorghum	1.00		
		4.60		0.90
January '79	c.f. December	3.70	operating	
			costs	3.00
	sales sorghum	2.00		
		5.70		3.00
February	c.f. January	2.70	operating	
			costs	1.20
	sales sorghum	1.00		
		3.70		1.20
March	c.f. February	2.50	operating	
			costs	1.00
April	c.f. March	1.50	operating	
			costs	2.00
	deficit	0.50		
		2.00		2.00

No more revenue will accrue until September '79 when bean sales start, so that for seven months operating expenditure will have to be found from other sources. Two alternatives would suggest themselves:

1. AID contribute operating capital from budgeted items that it is intended will not be purchased (e.g. grain cleaners)
2. funds are taken from the purchase fund and used for operating expenses until such time as sales release the funds and they are recredited to purchase funds. The amount required to bridge the gap would be 7 million RwF ($76,161) according to 1979 cash flow projections.

The decision will depend upon project management, REDSO approval and a closer examination of the situation in the early part of '79.

Bearing in mind the forthcoming integration with OPROVIA, when assets as well as debts will be taken over and the expected shortfall in operating funds, project management has informed the Secretary General MINAG of the '79 situation forecasting a deficit of 11 million RwF.

Fixed costs	13,670,000
Variable costs	7,150,000
Capital expenditure (warehouse NYANZA)	1,555,000
Losses	3,578,750
	25,953,750
Margin	14,550,000
Loss	11,403,750

This evaluation's '79 projection is more optimistic putting the deficit at 2.4 million RwF (see Annex C) including losses (2%) but based on 100% stock turnover of beans. Again,much depends on the loss projection element and the most recent real indicator of actual losses has been established at Nyabisindu where the '78 bean inventory (238T) showed an actual weight loss of 1.44% after all stock had been sold.

Project management are submitting budget proposals ('79) to OPROVIA so GOR may be in a position to cover shortfalls in operating funds.

4. Project Operating Costs 1979/80

A projection of operating costs has been prepared for 1979/80 based on the increased storage capacity available in those years and anticipated turnover of inventory.

Those projections are based on four major assumptions:

- the bean inventory is turned over once a year;
- 50% of purchases and 40% sales will be made at the warehouse;

- the existing truck fleet of GRENARWA will be fully employed in the purchasing, selling and inter-warehouse transfer of grain; and
- that GRENARWA has developed the staffing and experience necessary to handle up to 8,000 tons of grain.

The projection indicate that:

- fixed costs have stabilized around 13 million RwF;
- transport costs account for half of the variable costs; and
- increased volume of operations has led to a reduction in operating costs.

	1977	1978	1979	1980
Operating cost (RwF/kg)	9.3	8.6	6.2	4.8
Turnover (tons)	1,486	1,500	3,600	7,200

A calculation of transport costs has been made for the Fiat and Toyota trucks to serve as a basis for charges that GRENARWA may levy for purchases or sales from suppliers or clients who require delivery services.

Those calculations indicate that the eight-ton Fiat trucks can transport grain at 9 RwF per ton kilometer, and the Toyota at 13 RwF/ton kilometer.

As the cost of insurance and chauffeur are apportioned to fixed costs and depreciation is not included in operating costs, the variable cost of transport to GRENARWA is 3.5 RwF/tk for the Fiat and 4.5 RwF/tk for the Toyota. Those costs compare with commercial hire rates of 12 RwF/tk, and demonstrate the economies available to GRENARWA of using their own vehicles to transport grain. Transport costs account for half of the variable costs, and the following example shows the reduction that can be achieved if GRENARWA uses 2, 4 or 6 of its own trucks for moving 4,000 tons of grain.

	Quantity Transported (tons)		Cost ('000 RWF)		
	GRENARWA	TRANSPORTER	GRENARWA	TRANSPORTER	TOTAL COST ('000RWF
2 trucks	640	3,360	560	10,080	10,640
4 trucks	1,280	2,720	1,120	8,160	9,280
6 trucks	1,920	2,080	1,680	6,240	7,920

GRENARWA is awaiting delivery of two trucks and will be ordering two more. There is justification for ordering a further two in FY '79.

ESTIMATE OF OPERATING COSTS 1979/80

		1979	1980
Storage capacity - tons (T)		5,000	9,850
Purchases (T)	beans	2,500	5,000
	sorghum	1,000	3,000
	total	3,500	8,000
Sales (T)	beans	2,500	5,000
	sorghum	1,000	2,200
	total	3,500	7,200
Fixed Costs			
1. Salaries		7,780,000	8,324,000
2. Operating exp.		1,210,000	564,000
3. Vehicles (H.Q.)		2,405,000	2,518,000
4. Maintenance		156,000	171,000
5. Office supplies		288,000	316,000
6. Market Studies		50,000	55,000
7. Miscellaneous		1,188,900	1,195,000
S/Total		13,077,900	13,143,000
Variable Costs			
8. Labor		1,400,000	3,520,000
9. Per Diem		450,000	1,024,000
10. Interest		528,000	1,028,000
11. Transport		808,000	1,748,000
12. Transport		3,890,000	10,640,000
13. Storage Materials		280,000	640,000
14. Losses		1,280,000	3,004,000
		8,636,000	21,604,000
Total Fixed + Variable Costs		21,713,900	34,747,000
Operating Cost/kg on Turnover		-6.2 RwF/kg	4.8 RwF/kg

Notes (1979)

Sales - 600T sorghum c.f. from '78
- 600T sorghum c.f. to '80

1. Salaries for H.O. and warehouse plus 6%. Includes staff for Cyangugu and staff for two new warehouses in September.

2. Operating expenses include medical, utilities, rent etc.

3. Vehicles - insurance for all vehicles plus maintenance, fuel, spares for H.O. vehicles.

4. Maintenance - offices, warehouses, equipment etc.

5. Market data expenses.

7. Miscellaneous - 10% of total for items 1-6.

8. Labor - temporary labor at 400 RwF/T entry and exit.

9. Deplacement - estimated at 128.57 RwF/T.

10. Interest - buying fund requirements 1979 — 64,000,000 RwF
buying funds available (est.)1/1/79 — 30,000,000
1979 loan requirement — 34,000,000

Beans	- 12 million at 3%, for 10 months	300,000
	4 million at 3%, for 3 months	30,000
	4 million at 3%, for 3 months	30,000
Sorghum	- 2.8 million at 3% for 9 months	63,000
	5.6 million at 3% for 8 months	112,000
	5.6 million at 3% for 7 months	98,000

Total interest charges — 633,000 RwF

Repayments '79 ('000 RwF)

M	A	M	JU	JY	A	S	O	N	D	TOTAL
30	30	30	30	30	30	30	30	30	30	300
				—		10	10	10		30
							10	10	10	30
				7	7	7	7	7	7	42
					14	14	14	14	14	70
						14	14	14	14	56
										528

Repayment '79 - 528,000 RwF

Repayment '80 - 105,000

TOTAL 633,000 RwF.

11. Transport: (to/from warehouse)
GRENARWA trucking capacity (60 km round trip)
- 1 Fiat truck with 8T load can make 2 round trips/day of 60 km each
- 5 day week = 80T/week or 320T/month
- 2 Fiat trucks can transport 640T/month (reduced to 600T for lay time)
- 1 Toyota with 2T load can make 2 round trips/day of 60 km.
- 5 day week = 20/Tweek or 80T/month
- 2 Toyota trucks can transport 160T/month (reduced to 150T for lay time)

- total optimum trucking capacity = 800T/month
  reduced to 750T/month for lay time (repairs etc.)

Purchases - 50% delivered free to warehouse		1,750T
50% transported by GRENARWA		1,750T
total		3,500T
Cost 1,750T at 3.50 RwF/TK for round trips of 60 km		367,500 Rwf.
Sales - 40% direct sales at warehouse		1,400 T.
- 60% transported by GRENARWA		2,100 T.
total		3,500 T
Cost - 2,100T at 3.50 RwF/TK for round trip of 60 km	=	441,000 RwF
Total cost to/from warehouse	=	808,500 RwF

12. Transport: (between warehouses) (250 km round trip)
    4 month trucking period (April-July)
    Round trip 250 km every 2 days, 20 working days/month or 10x16T/month for 2 Fiats = 160T/month for 4 months=640T
    Transfers: 50% of purchases to be transferred i.e.,1,750T
    Cost: 640T transported by GRENARWA at 3.50 RwF/TK for 250 km = 560,000 RwF
    1,110T transported by contractor at 12.0 RwF/TK for 250 km. = 3,330,000 RwF
    Total cost transfer = 3,890,000 RwF

13. Storage materials at 80 RwF/T

14. Losses - calculated at 2% of the inventory.

Assumptions

1. An inventory turnover of beans once a year. If beans are carried forward to the following year, operating costs will increase.
2. Fifty percent of beans and sorghum will be transported between warehouses. If less 50% are transported, operating costs will fall, but if more than 50% then costs will rise.
3. Funds can be borrowed at 3% on purchase funds calculated on present GOR producer prices. If GOR adopts a price policy based on the free market, interest charges will be reduced.
4. Fifty percent of purchases will be delivered free to warehouses, and forty percent sold from warehouses.
5. GRENARWA vehicles will be fully used for transport. If not, hiring charges for private transport will increase operating costs.
6. Depreciation is not part of operating costs.

NOTES (1980)

1. Salary includes rise of 6% plus staff for warehouse extensions.
2. Operating expenses - anticipated that OPROVIA provides rent free office, or office will be built. Increase of 15% over net '79 cost.
3. Vehicles - insurance for all vehicles plus operating costs for H.O. vehicles maintenance, fuel and spares.
4. Maintenance - increased by 10% over '79.
5. Office supplies - idem.
6. Market studies - idem.
7. Miscellaneous - 10% of total for items 1-6.
8. Labor at 440 RwF/T entry and exit.
9. Per diem at 128 RwF/t.
10. Interest: buying fund requirements 1980 — 152,000,000 RwF
    estimated funds available 1/1/80 — 111,000,000
    1980 fund requirements — 41,000,000 RwF
    Interest estimated at 3% for 9 months — 922,500 RwF
    Plus carry forward interest 1979 — 105,000
    Total interest — 1,027,500 RwF
11. Transport: (to/from warehouse) (60 km round trip)
    Trucking capacity 750T/month for 8 months = 6,000T
    Purchases - 50% delivered free warehouse — 4,000T
    50% transported by GRENARWA — 4,000T
    8,000T
    Cost - 4,000 at 3.50 RwF/T for 60 km — 840,000 Rwf
    Sales- 40% direct sales at warehouse — 2,880 T
    50% transported by GRENARWA — 4,320 T
    7,200 T
    Cost - 4,320T at 3.50 RwF/TK for round trip of 60 km. = 907,200 RwF
    Total cost to/from warehouse — 1,747,200 RwF
12. Transport: (between warehouses) (250 km round trip)
    Trucking capacity 2 Fiats for 4 months (April-July)
    Round trip 250 km every 2 days: 20 working days/month or
    10x16 tons/month for 2 Fiats — 160T/month
    for 4 months — 640T
    Transfers - 50% of purchases to be transferred — 4,000T
    cost - 640T by GRENARWA at 3.50 RwF/T for 250 km. = 560,000 RwF
    3,360T by contractor at 12 RwF/T for 250 km. = 10,080,000 RwF
    Total cost transfer = 10,640,000 RwF
14. Losses calculated at 2% of inventory.

Assumptions

1. GRENARWA has the storage and the staffing capacity required to handle 8,000T of produce.
2. Other assumptions as for 1979.

CALCULATION OF GRENARWA TRANSPORT COSTS (1979)
(RWF)

Head Office Vehicles

DEPRECIATION

Make	Purchased	Cost	Years Depreciated	Annual Depreciation
TOYOTA	78	750,000	4	187,500
TOYOTA	78	930,000	4	232,500
Peugeot 504	79	1,000,000 (HT)	5	200,000
VW	?	———	-	17,206
		2,680,000		637,206
		Warehouse Trucks		
FIAT	79	2,915,000	6	485,833
FIAT	79	2,915,000	6	485,833
		5,830,000		971,666
TOTAL ANNUAL DEPRECIATION				1,608,872

INSURANCE — Head office plus Warehouse Trucks

	Cost
TOYOTA - 32,000 for 2 (Third Party)	64,000
PEUGEOT-Comprehensive on TTC value (1,740,000)	348,000
VW - 15,000 (Third Party)	15,000
FIAT -525,000 (comprehensive) for 2	1,050,000
TOTAL ANNUAL INSURANCE	1,477,000

FUEL		Head Office Vehicles		
Make	Annual Kilometrage	Consumption (km/litre)	Cost Fuel (RwF/litre)	Cost
TOYOTA	30,000	6	40	200,000
TOYOTA	30,000	6	40	200,000
PEUGEOT	20,000	6	40	133,333
VW	20,000	10	40	80,000
				613,333
		Warehouse Trucks		
FIAT	30,000	0.5	35	525,000
FIAT	30,000	0.5	35	525,000
				1,050,000
TOTAL ANNUAL FUEL CONSUMPTION				1,663,333

MAINTENANCE		Head Office Vehicles		
Make	Annual Kilometrage	Maintenance	Cost	Cost
TOYOTA	30,000	2,000 km	2,000	30,000
TOYOTA	30,000	2,000	2,000	30,000
PEUGEOT	20,000	2,000	5,000	50,000
VW	20,000	2,000	5,000	50,000
				160,000
		Warehouse Trucks		
FIAT	30,000	2,000	10,000	150,000
FIAT	30,000	2,000	10,000	150,000
				300,000
TOTAL ANNUAL MAINTENANCE				460,000

SPARE PARTS	Head Office Vehicles
5% of cost in first year	
TOYOTA	42,000
TOYOTA	42,000
PEUGEOT	50,000
VW (nominal)	20,000
	154,000
	Warehouse Trucks
TOTAL ANNUAL SPARE PARTS	445,500

RESUME OF PROJECTED GRENARWA TRANSPORT COSTS (1979)

	Head Office	Warehouse	Total
Depreciation	637,206	971,666	1,608,872
Insurance	1,477,000	-	1,477,000
Fuel	613,333	1,050,000	1,663,333
Maintenance	160,000	300,000	460,000
Spares	154,000	291,500	445,500
TOTAL	3,041,539	2,613,166	5,654,705

In 1980, spares costs increased to 10% of cost of truck, other costs remain the same.

Spares	268,000	583,000	
TOTAL Costs 1980	3,155,539	2,904,666	6,060,205

CALCULATION OF GRENARWA TRUCK OPERATING COSTS (1979)

Model - FIAT, Diesel, Capacity - 8 tons
Cost of Truck - 2,915,000 RwF (1978)
Estimated Annual Kilometrage - 30,000 km
Depreciation - 6 years
Annual depreciation - 485,833 RwF
Depreciation/km - 16.19 RwF

TOTAL OPERATING COST PER KM	RwF/km
1. Depreciation	16.19
2. Insurance 525,000 RwF/year	17.50
3. Fuel (Diesel) at 35 RwF/litre; 0.5 litres/km	17.50
4. Maintenance every 2,000 km at 10,000 RwF	5.00
5. Spare parts 5% of cost of vehicle (145,750 RwF)	4.86
6. Chauffeur (salary plus benefits) 250,000 RwF/year	8.33
Total	69.38
	(rounded off to 70)

Cost of running truck empty - 70 RwF/km
Cost of transport for 1 ton for 1 km - 8.75 RwF (rounded off to 9 RwF)
Variable cost of operating transport to GRENARWA*
(above cost less depreciation, insurance, chauffeur) = 27.36 RwF/km
= 3.42 RwF/TK
(rounded off to 3.50)

CALCULATION OF GRENARWA TRUCK OPERATING COSTS (1979)

Model - TOYOTA; petrol; capacity 2 tons
Cost of Truck - 840,000 RwF
Estimated Annual kilometrage - 30,000
Depreciation - 4 years
Annual Depreciation - 210,000 RwF
Depreciation/km - 7 RwF

TOTAL OPERATING COST/KM	RwF/km
1. Depreciation	7.0
2. Insurance 160,000 RwF/year	5.3
3. Fuel (gas) at 40 RwF/litre; 6 km/litre	6.6
4. Maintenance every 2,000 km at 2,000 RwF	1.0
5. Spare parts at 5% of cost of vehicle (42,000 RwF)	1.4
6. Chauffeur - (Salary+benefits) 135,000 RwF/year	4.5
	25.8
	(rounded off to 26)

Cost of running truck empty - 26 RwF/km
Cost of transport for 1 ton for 1 km = 13 RwF
Variable cost of operating transport to GRENARWA**
(above cost less depreciation, insurance, chauffeur) = 9.0 RwF/km
= 4.5 RwF/TK

*Fixed Cost - 42.02 RwF
Variable cost - 27.36
Total cost - 69.38

**Fixed cost - 16.8
Variable costs = 9.0
Total cost =25.8

5. Cash Flow '79

A cash flow projection has been prepared for 1979 based on the purchase of 2,500T beans, 1,000T sorghum and sales of 2,500T beans and 1,000T sorghum (see Annex C). Carry forward sorghum stocks from '78 are 600T and 600T to '80.

Fixed and variable costs are projected at 18,717,000 RwF and gross sales revenue at 17,500,000 RwF showing a loss of 1,217,000 RwF at present controlled bean prices (20-25) RwF/kg and uncontrolled sorghum prices (14-19 RwF/kg).

The cash flow projection is financially unsound and vulnerable, as the net inflow of funds to reconstitute the purchase fund and cover recurrent expenditure takes place only in the last quarter of the year. GRENARWA could collapse financially if for some reason or other bean sales were not made in the last quarter. The marketing of sorghum should be actively pursued in order to even out the cash flow and generate income in the first quarter of the year. Sorghum could be marketed (sold) six months in the year (October-March) and should be regarded as a necessary subsidiary activity to protect GRENARWA's vulnerability in marketing beans.

V. PRICING POLICY

The original design of the FSM project was based on a pricing policy that used the free market as a guide. The project was to establish a national warehouse with prices sufficiently high that commercial traders would be persuaded to increase producer prices whilst at the same time they could sell at attractive prices to the national warehouses (GRENARWA).

In other words, the project would use the traditional market to secure supplies. This policy was never put into operation, as in 1974 the GOR created the National Price Commission (NPC) who changed the intended price policy of the project by announcing minimum producer prices and maximum consumer prices. Producer prices were calculated on the basis of estimated production costs of beans and retail prices by adding arbitrarily a percentage margin to producer prices.

Experience has shown that the policy of minimum and maximum prices is ignored by the market, and, significantly, organizations that previously traded in beans such as TRAFIPRO and OPROVIA have since ceased their operations.

In other African countries, it has been realized that national producer price policies for domestically consumed crops are almost impossible to guarantee and are frequently out of line with the physical market. For example, distance from collection or assembly points is one factor which makes it uneconomical to offer producers the same price throughout the country. Political motivation to adopt national producer prices is very difficult to balance with practical implementation and economic feasibility.

The original concept of the project is still valid, i.e., to base the pricing policy for producers on a price paid at the warehouse. The modification which may be made is to adjust this price to reflect regional differences in the free market. Since GRENARWA has been established, data on free market prices has been collected, and the section on analysis of market prices clearly shows this regional variation.

Because GOR's pricing policy has not worked, and the indications are that it is a disincentive to parastatal organizations who are compelled to observe official price structures, the original concept of pricing policy developed by the project needs to be reasserted and analyzed in the light of trading experience gained by GRENARWA.

The analysis of market data has shown that bean markets are relatively stable in the first 3-6 months of the year and that thereafter prices rise until the end of the year, particularly in the last 3 months. The stable price period reflects that supply and demand are at optimum levels for that particular year and this is the maximum price at which GRENARWA could secure supplies of beans from the free market.

However, the free market price is arrived at by market sellers after taking into account purchase, transport, labor and a profit margin. The size of the profit margin is the traders' secret but is probably substantial. Also the free market is selling in small quantities in kgs. and not in tons, and GRENARWA would be buying in sizeable quantities, so that a delivered price to the warehouse under the free market price should provide sufficient incentive, either for commercial traders to turn over capital quickly, or for communes and co-ops to find a guaranteed market at a price very near the consumer price level at that particular time of the year.

GRENARWA would not simply be acting as another trader in the business. Its objective would be to acquire stock so that it could place this on the market once prices rose sufficiently to cover all its costs and the effect on influencing consumer prices would be in proportion to the quantity of stock it had available to put on the market. Without stock, no influence on consumer prices is possible, and official price decrees have already demonstrated their inability to prevent price rises.

a. GRENARWA price policy.

The following is an 'a posteriori' example of how GRENARWA warehouse prices might be calculated and may serve as a model in '79. The data below shows the lower range of the free market price in the 1st quarter of '78, the 3 month average, and a suggested warehouse purchase price based on this price less a 20% deduction. The deduction is an arbitrary figure taken to represent the profit margin of the market seller, whose prices go to make up the 3 months average. His profit margin may be greater but it is doubtful if it would be less.

LOCATION	Lowest Market Price	3-month Average	Warehouse Purchase Price
KICUKIRO	20 RwF/kg	23 RwF/kg	19 RwF/kg
NYANZA	18	21	17
KIBUNGO	16	24	19
BYUMBA	11	18	15
KORA	17	23	19

Following the end of buying, GRENARWA would establish the weighted average of the purchase cost of all beans in store.

To this would be added the operating margin of 6 RwF/kg to arrive at the selling price.

The intervention price at which GRENARWA would place stock on the market would be slightly above its selling price by say 2 RwF/kg, so that the free market is brought back in line with the GRENARWA price.

In the particular market of '78, beans would have been placed on the consumer market in the 3rd quarter and sales continued until stocks were exhausted. If GRENARWA operated in this way then its financial viability is assured as its trading margin is covered.

b. Announcement of prices.

The announcement of GRENARWA's warehouse purchase price would be made around the 2nd week of January when new prices have settled down and some knowledge of the size of the crop has become available, i.e. normal, heavy or light harvest. Assessment of production in November/December would help in determining prospects. Taking as a base the January '78 market data and the knowledge of the '79 crop, the following prices may be applied in '79.

LOCATION	'78 Warehouse price (RwF/kg)	'79 Warehouse Price (RwF/kg		
		Heavy	Normal	Light
KICUKIRO	19	17	19	21
NYANZA	17	15	17	19
KIBUNGO	19	17	19	21
BYUMBA	15	13	15	17
KORA	19	17	19	21

A margin of 2 RwF/kg is applied arbitrarily to either side of the normal crop for heavy or light harvest.

The selling price would be announced in July after buying (including the second crop) had been completed, and the operating margin for the year estimated. The selling price would be a national price and enable consumers to purchase at any of the GRENARWA locations at the same price.

If the concept of regional warehouse buying prices is thought to be too difficult to apply in practice, then national prices may be applied, calculated on the '78 1st quarter market-price average less 20% which would give 18 RwF/kg for an average year, 20 RwF/kg for a light crop and 16 RwF/kg for a heavy crop.

This approach to pricing policy using the market as a guide, is more realistic than setting fixed prices which are out of line with the market.

In a heavy crop year, e.g., when production is 10% up on average, the market supply would be substantially higher than this percentage, maybe 20% higher, and if GRENARWA has to observe fixed prices then it becomes locked in to purchasing at high prices and will have difficulty in selling in a market during a period of reasonable supply. As it cannot carry beans over to the following year, a sizeable loss would result from which it would be very difficult to recover.

C. Stabilisation of consumer and producer prices.

In establishing price policy, the project objective is to provide a remunerative price for producers and a reasonable price for consumers. In practice, it is not possible to distribute these advantages equally, and consumers will presently have more of an advantage until such time as producers are in a position to sell collectively to GRENARWA through co-ops, communes, etc.

This is a development process and will take time, however, indications of producer price influence should be obtained in '79 by GRENARWA's increasing involvement with the communes and co-ops and is verifiable through their purchase documents.

In the meantime, stocks purchased by GRENARWA will be derived mainly from commercial sources, but collective producer associations will assume an increasing role, and depending on progress should become amongst the major suppliers.

A concrete example of such development exists in the Gambia, where in 1961, 100% of peanut purchases by the marketing board were

obtained through commercial buying agents. By 1966, the development of co-operative societies and a co-operative bank had taken over almost entirely the purchasing function. The 1977/78 analysis of GRENARWA purchases clearly indicates that producers are not being influenced to any large extent by GRENARWA purchasing activities, and that direct producer contact is less than 2% of total purchases.

GRENARWA's influence on consumer prices can be shown to be positive, as in 1977, 15% of sales were made to individuals purchasing on average 26 kg, and, in point of fact, 94.5% of all sales transactions were to small consumers.

Considerably large sales were made to institutional organizations and the GRENARWA February '78 tender to the GOR bid council (Conseil d'Adjudication) was reported to have influenced and lowered the price of the successful bidder. Market influence is also suggested by the fact that the KICUKIRO market, in close proximity to the GRENARWA warehouse, is selling at substantially lower prices than the other two Kigali markets.

A great deal is being done by GRENARWA to publicize its presence in the market and overcome inhibitions of consumers who were previously reticent to approach GRENARWA warehouses as they associated these with the bad reputation earned earlier by OPROVIA (see Analysis of GRENARWA Purchases and Sales section p.51).

D. Future development of price policy.

Three possibilities exist for future development of price policy:

1. continue with the present system of fixed prices;
2. continue with the present system of fixed prices and enlarge the margin to accommodate GRENARWA's costs; or
3. abandon the present system and adopt the original policy concept of the project, i.e., to quote prices on the basis of delivery to or from the GRENARWA warehouse.

Delivery from the warehouse supposes that GRENARWA will have an extension of selling activity to the market.

The first possibility has been proved to be unworkable, the second possibility is workable, but would collapse in a good harvest year when GRENARWA would be locked in and have to unload stock at under cost.

The third possibility is feasible and economically sound and is the price policy that GRENARWA should pursue in discussions with GOR. The development of a "new" concept of prices to be proposed to

GOR also lets them off the hook in the embarrassing and unworkable situation that they have placed themselves in. Politically, it should be acceptable.

Discussions with the Directeur General of OPROVIA on price policy elucidated the following points:

- no qualified GOR personnel exist to offer suggestions on price policy. This point of view is assumed to exclude the previous efforts of project management to offer proposals. Those proposals are on record in the GRENARWA files;

- OPROVIA, who are presently out of the bean business, will be happy to entertain proposals on price policy from GRENARWA if they are backed up by factual data on operating margins. They (OPROVIA) would use this and convene a meeting of the NPC to discuss changes in price policy; and

- if the evidence is such that GOR's present price policy is unworkable, then GOR must come up with another formula, either to increase the present margin or abandon the principle of fixed prices.

Although the temporary D.G. of OPROVIA may not be in office for very much longer and may be replaced by a permanent D.G., the impression gained was that OPROVIA is very much aware of the problem and that it is in their interest to persuade GOR to adopt a workable price policy.

At a meeting with the President of the National Price Commission, it was explained that GRENARWA was in severe financial trouble because of having to observe official prices - purchasing at above market prices and having to observe a restricted official margin that was insufficient to cover operating costs. Furthermore, commercial traders were the principal benefactors from present GOR policy and not the producers or consumers. If this continued, then GRENARWA would either become insolvent or would require GOR subsidies to continue.

In reply, the President made the following comments:

- the NPC and the Ministry of Finance are aware that GOR's price policy is not working and that no means exist to police the four hundred odd markets in the country to enforce prices;

- another solution will have to be found, and it could be that price control should be abandoned, or that 'seasonal' (his term) prices reflecting market prices should be established;

- that AID or GRENARWA should undertake studies on market prices so that information was available on which price policy could be based; and

- GRENARWA should make proposals to the NPC and the Ministry of Finance as soon as possible in order that the problem could be re-examined.

VI. ANALYSIS OF MARKET PRICES

1. The data collection system

The 1976 evaluation recommended that a data gathering system be established to collect frequent and timely market data in Rwanda and bordering countries in order to (1) aid in price policy recommendations, (2) measure project effectiveness in influencing free market prices, and (3) assist project management in making operational decisions (arranging transport from projected surplus to deficit regions, etc.).

The justification for this recommendation was that GOR data was untimely, unavailable in some areas, and that official collection and reporting of statistics is subject to skepticism.

Data was further defined as relative to (1) on farm production costs for beans and other crops, and (2) market prices received by farmers and paid by consumers.

In practice, data collection for market prices started in September '76 at Kibungo, Byumba and Nyanza; November '76 at Kicukiro; March '77 at Kora; May '77 at Kabarondo, Rugogwe, Nyamirambo, Nyarugenge, Ruhango, and June '77 at Remera. In all, eleven market collection points. Out of a total of some 350 markets, there are reputed to be some 75 major markets in Rwanda, some operating once, twice or all week. It is important to note that GRENARWA does not cover the Butare market which is probably the most expensive market in the country. Market samples are taken by GRENARWA staff who purchase a given volume of beans, peas or sorghum estimated to be 1 kg. The sample is then weighed at the warehouse and the price paid corrected to a kg. weight basis. The purchased samples are inspected for insect damage and moisture content, and a report is then forwarded to H.Q. in Kigali for analysis by the project statistician. Collected samples are then resold.

Difficulties in gathering bean data includes irregularity of monthly observations (variations between one and ten samples per month) or gaps between months, untimely arrival of data at H.Q., etc. The statistician has also expressed doubts about the validity of some of the higher prices quoted. Data information also includes visual estimates of the quantity of grain on the market and the number of sellers.

2. Analysis of bean data

GRENARWA data for 1977/78 for beans is given in Table 1 and for sorghum in Table 2. MINIPLAN data for 1975/76 for beans and sorghum for three Kigali markets is presented in Table 3.

Bean data has been analyzed in the following manner:

a) each market has been analyzed by quarterly price movements in order to determine the range of prices and market average per quarter. The lowest price quarter or quarters will give an indication of the period when supply and demand are most satisfied;

b) as Kigali is the principal agglomeration in the country, a time series (1975/78) of prices has been prepared which reflect changes over a 4-year period in the same manner as a); and

c) interprefectural differences are assessed on a yearly and interannual basis. Table 4 presents an analysis of average quarterly market prices and price ranges for the eleven markets sampled by GRENARWA in 1977/78. The data is incomplete, but the following observations are made:

- the first two quarters of 1978 represent the lowest trading range of the market. This coincides with harvesting and selling of the crop. (first quarter '77 data is unavailable);

- the intermarket range for the second quarter of '78 is higher than in '77 suggesting that the '78 market started on a higher trading platform than '77. This is confirmed in the third quarter where the upper trading range in '78 is 21% higher than '77. A continuation of this trend would mean that prices in the last quarter of '78 would be higher than the '77 fourth quarter, possibly in the 30-50 RwF/kg range;

- in '77, Byumba and Kora were the cheapest markets and Byumba again in '78;

- in '77, Kibungo and Kabarondo were the dearest markets and in '78, Nyarugenge;

- the interprefectural price difference is greatest in '77 in the fourth quarter between Kibungo and Byumba (24 RwF/kg);

- in '78, the interprefectural difference is greatest in the third quarter between Nyarugenge and Byumba (14 RwF/kg; and

- there is a very substantial drop in bean prices during the December/January quarters (31%) which coincides with new crop coming to the market. The price rise of the previous 6 months is wiped out in a matter of a few weeks, a very important indicator for not carrying bean stocks over the year end.

The above analysis of GRENARWA data does not take into account the factor of consumer preference for beans of a certain type and quality. Although price differences suggest the transfer of beans between prefectures, it is essential that they be acceptable to consumers. GRENARWA has experienced this difficulty, so price data differences must be reconciled with identifiable quality and consumer acceptability.

Table 5 presents a time series ('75-'78) of quarterly average market prices for Kigali analyzed from GRENARWA and MINIPLAN date:

- the lowest trading range over the 4 year period is the first two quarters (20-33 RwF/kg) with average prices of 26 and 25 RwF/kg for respective quarters. In the third quarter the trading range moves up to 25-34 RwF/kg with a price average of 28 RwF/kg. Fourth quarter '78 data is not yet available, but the trading range for the last quarter of the previous 3 years is 27-38 RwF/kg with an average price of 31 RwF/kg. Fourth quarter '78 figures are expected to be substantially higher which will push up the 4 year average to a higher level than the previous 3 year average;

- there is a substantial rise in average market price between '77 and '78 over the lowest trading range period, i.e. the first 6 months. The '78 average price (27.6 RwF/kg) is 15% higher than the '77 average (24 RwF/kg). As this is the period when supply and demand should be most favorably in balance during the year, the rise is either attributable to inflation or to lack of supply. The '77 first quarter figures are missing from the data, but the trend is confirmed by third quarter average prices which show the '78 quarter average of 31.6 RwF/kg to be 18.8% higher than the '77 quarter average of 26.6 RwF/kg; and

- for the first 9 months of '78, the price range and average of the Kicukiro market is lower than that of of the the other two markets. This market is 6 RwF/kg lower on average than the other two markets over the 9-month period. October '78 data in the process of

collection (Table 1) indicates that Kicukiro prices are 4 RwF/kg lower than Nyamirambo and 10 RwF/kg lower than Nyarugenge. Sales from the adjacent GRENARWA warehouse are thought to be influencing this market.

3. Discussion of Analysis

From the data available, the analysis clearly shows that all markets have their lowest base level in the first six months of the year after which they rise up until the end of the year and then collapse in the new year to form a fresh base level.

From the analysis of raw data analyzed to present the monthly average of prices (Table 1) it was noticeable that the break in price at the beginning of the year in January very often took place in the second or third week. This accounts for the fact that January average prices are higher than February as shown in Table 1. The practical implication is that if future price policies are developed based on the free market then buying would start after the market had broken.

The base level differs between prefectures, e.g., in '78 the base level for Kora was 23 RwF/kg and for Nyarugenge 29 RwF/kg.

The base level is the price ruling when supply and demand are at their optimum balance in the year and, if stabilization of consumer prices is the objective, then market intervention is necessary if prices rise above the base level. To do this, a regional price stabilization policy would be necessary and a regional price structure would have to be developed that would set intervention levels according to prefectures.

The base level in 1978 is substantially higher than '77 and, should GOR pursue the price policy recommended in this report, then regular and accurate reporting of market prices is necessary and ongoing analysis of trends is vital if GRENARWA buying prices are to be set accurately.

GRENARWA needs to standardize the number of observations per month. Although the majority of observations are 8 per month, some months contain only 1 or 2. Particular attention needs to be focused on the 1st and 4th quarters of the year when prices are more volatile. Communication of observations to HQ could be speeded up as the latter sometimes receives data a month after observation. Data collection should attempt to include information on prices paid to farmers and analysis on the projects' effectiveness in influencing market prices.

AVERAGE MONTHLY MARKET PRICES FOR BEANS 1977/78
(TO NEAREST FRANC PER KG)

TABLE 1

PREFECTURE	MARKET	1977				1978																		Average '77/78
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
KIGALI	NYARUGENGE	-	-	-	-	25	25	25	25	25	31	36	36	28	31	27	25	30	32	32	36	34	41			30
	NYAMIRAMBO	-	-	-	-	24	26	27	27	28	32	41	40	38	33	27	28	30	30	29	30	38	35			30
	KICUKIRO	-	-	-	24	21	21	25	30	30	32	34	40	28	23	22	22	21	22	23	34	29	31			27
	REMERA	-	-	-	-	-	23	25	25	31	30	40	38	30	21	21	20	20	22	24	25	37	35			28
KIBUNGO	KIBUNGO	20	14	19	25	23	17	18	27	30	33	50	43	21	23	28	30	20	18	18	21	22				28
	KABARONDO	-	-	-	-	25	16	21	26	29	39	40	47	24	23	28	30	21	25	19	21	26				27
GITARAMA	NYANZA	20	24	24	24	20	19	27	24	27	32	36	30	21	21	21	21	20	23	21	27					24
	RUGOGWE	-	-	-	-	19	19	24	25	26	30	35	31	24	24	25	20	21	25	25	27					25
BYUMBA	RUHANGO	-	-	-	-	15	21	21	19	27	37	38	29	22	20	19	22	20	29	24	26					24
	BYUMBA	14	-	-	27	23	28	24	22	24	28	+	27	11	14	20	18	21	23	19	19	21				21
GISENYI	KORA	-	-	20	21	21	26	29	25	22	25	+	31	26	20	21	22	23	27	25	26	28				24

+ = no information

Source: GRENARWA

TABLE 2:

AVERAGE MONTHLY MARKET PRICES FOR SORGHUM 1977/78

(TO NEAREST FRANC PER KG)

PREFECTURE	MARKET	1977											1978									Average '77/7
	NYARUGENGE					25	25	16	15	19	20	20	29	33	32	37	38	43	44			28
	NYAMIRAMBO					50	67	17	20	-	28	30	35	37	37	47	49	49	60			40
KIGALI	KICUKIRO						21	14	19	16	15	13	16	19	18	21	22	24	28	13		19
	REMERA						21	-	-	11	10	13	16	18	19	20	25	23	23	17		18
KIBUNGO	KIBUNGO						17	17	15	13	23	13	19	22	25	29	32	26	25			21
	KABARONDO							11	12	10	19	-	24	26	22	27	35	26	21			21
	NYANZA	19	18	19	19	19	20	16	14	13	13	16	17	16	18	20	21	22	22			18
GITARAMA	RUGOGWE					21	20	16	14	14	16	18	18	20	20	22	24	24	24			19
	RUHANGO					22	23	15	12	13	15	17	15	17	19	23	23	19	26			16
BYUMBA	BYUMBA					32	33	21	18	15	18	+	29	27	18	23	26	28	26			24
GISENYI	KORA			18	22	20	26	26	27	17	23	+	39									24
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

+ = no information

Source: GRENARWA

TABLE 3:

1975

BEANS

RwF/kg

MARKET	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
NYAMIRAMBO	28	30	–	40	40	26	28	26	30	29	36	24
NYARUGENGE	27	26	25	27	26	26	25	25	27	27	38	25
KICUKIRO	26	21	–	21	22	21	24	24	32	29	37	21
SORGHUM												
NYAMIRAMBO	15	14	-	33	40	-	29	23	-	-	-	-
NYARUGENGE	18	18	14	14	20	19	19	14	15	11	14	22
KICUKIRO	12	13	-	11	19	14	16	11	10	10	13	11

1976

BEANS

NYAMIRAMBO	–	19	20	22	–	20	–	25	28	25	30	25
NYARUGENGE	–	26	27	–	–	25	–	25	25	25	31	25
KICUKIRO	–	25	21	20	–	20	–	28	29	28	31	27
SORGHUM												
NYAMIRAMBO	–	–	–	–	–	20	–	–	18	–	–	22
NYARUGENGE	–	19	23	–	–	25	–	18	17	15	17	20
KICUKIRO	–	20	20	28	–	30	–	10	12	11	9	15

Source: Miniplan

TABLE 4:

ANALYSIS OF THREE MONTH MARKET AVERAGE PRICES (BEANS)

(1977/78)

RwF/kg

MARKET	QUARTER 1977 1	2	3	4	QUARTERLY RANGE	QUARTER 1978 1	2	3	4	QUARTERLY RANGE
NYARUGENGE	-	25	25	34	25-34	29	29	34	-	29-34
NYAMIRAMBO	-	25	27	38	25-38	33	29	32	-	29-33
KICUKIRO	-	22	28	35	22-35	24	22	29	-	22-29
REMERA	-	23	27	36	23-36	24	21	29	-	21-29
KIBUNGO	18	22	25	42	18-42	24	23	20	-	20-24
KABARONDO	-	21	25	42	21-42	25	25	22	-	22-25
NYANZA	23	21	26	33	21-33	21	21	24	-	21-24
RUGOGWE	-	19	25	32	19-32	24	22	26	-	22-26
RUHANGO	-	18	22	35	18-35	20	24	25	-	20-25
BYUMBA	14	26	23	28	14-28	15	21	20	-	15-20
KORA	20	23	25	28	20-28	22	24	26	-	22-26
INTER MARKET RANGE	14-23	18-26	22-28	28-42	14-42	15-33	21-29	20-34		15-34
QUARTERLY AVERAGE	19	22	25	35		24	24	26	-	

TABLE 5:

ANALYSIS OF THREE MONTH AVERAGE KIGALI MARKET PRICES (BEANS)

(1975/78)

RWF/KG

MARKET	YEAR	1	2	3	4	YEARLY RANGE	YEARLY AVERAGE	4 YEAR RANGE
NYAMIRAMBO	1975	29	35	28	30	29-35	31	
	1976	20	21	27	27	20-27	24	
	1977	-	25	27	38	25-38	30	
	1978	33	29	32	-	29-32+	31	
QUARTERLY AVERAGE		27	28	29	32		29	20-38
QUARTERLY RANGE		20-33	21-35	27-32	27-38			
NYARUGENGE	1975	26	26	26	30	26-30	27	
	1976	27	25	25	27	25-27	26	
	1977	=	25	25	34	25-34	26	
	1978	29	29	34	-	29-34+	31	
QUARTERLY AVERAGE		27	26	28	30		28	25-34
QUARTERLY RANGE		26-29	25-29	25-34	27-34			
KICUKIRO	1975	24	21	27	29	21-29	25	
	1976	23	20	29	29	20-29	25	
	1977	-	22	28	35	22-35	28	
	1978	24	22	29	-	22-29+	25	
QUARTERLY AVERAGE		24	21	28	31		26	20-29
QUARTERLY RANGE		23-24	20-22	27-29	29-35			
OVERALL AVERAGE		26	25	28	31			
OVERALL RANGE		20-33	20-35	25-34	27-38			20-38

- = not available

+ for 9 months to September 30, 1978

ANALYSIS OF GRENARWA PURCHASES AND SALES

The statistical service of GRENARWA has provided data on purchases and sales for beans in 1977 and purchases of beans in 1978.

Purchases

Purchases in 1977/78 are analyzed by quantity ranges in kgs. and by sites (Table 6). In 1977, almost 98% of purchases were in the range 1-10 tons which indicates that commercial traders were the principal suppliers of beans.

In 1978, a different scale of quantities purchased is presented with greater definition in the lower quantity range. This indicates that 0.5% of purchases were of a size less than 25 kg. and a total of 3.5% less than 100 kg. If it is assumed that a farmer cannot carry more than 25 kg. from farm to market, the traders supplied 99.5% of purchases.

In both years, the range representing the highest percentage of purchases is in the 500-3,000 kg range which corresponds roughly to the capacity of the popular 2.5 T Toyota pick-up widely used in Rwanda.

Unless farmers are combining to hire transport, which is very doubtful, then GRENARWA supplies are either being furnished by assemblers who own or hire transport, or by transporters who purchase from assemblers and sell to GRENARWA.

According to the data, direct farmer contact with GRENARWA is thus minimal and producer prices cannot be influenced directly according to the above purchase pattern.

GRENARWA is now developing wide liaison with communes and cooperatives in an effort to approach producers. This should alter the buying pattern and have greater influence on producer prices.

Sales

Sales of haricots in 1977 are analyzed by large sales, small sales and the number of buyers supplied. The data is relevant to Jan 21, 1978 (Table 7). Small buyers purchased an average 26 kg. while large buyers 3,182 kg. Small buyers accounted for 15% of total sales and large buyers 85% of sales.

Of a total of 6,947 sales transactions, 6,565 (94%) represented small buyers and 383 (5.5%) large buyers. The large buyers include commercial traders and institutions such as schools, prisons, cooperatives, communes, Red Cross, OPROVIA, etc. From GRENARWA records, the institutions bought overall 22% of the large sales category. Variations in the prefectures ranged from 4% (Byumba) to 77% (Kora). Large sales are, therefore, reaching a significant percentage of the target population (the consumer) in the prefectures, very often through the institutional networks.

Sales data for 1978 is in the process of collection and analysis and significant purchases have been made by institutional buyers including communes and cooperatives.

As of September 30, 714T of beans had been sold of which 10% to traders, 11% to consumers and 79% to institutional buyers. At Byumba, 43% of sales were to consumers and at Kicukiro 37%. At Kibungo, 99% of sales were to institutions (see Table 8).

GRENARWA intends to develop direct selling to consumers through the installation of sales kiosks in the markets.

TABLE 6:

ANALYSIS OF PURCHASES OF HARICOTS, 1977

(RANGE IN KGS)

SITE	250	251-999	1000-2499	2500-4999	5000-9999	1000	%
KIBUNGO	0.6	4.2	61.0	6.6	13.3	14.4	100
KICIRIRO	0.1	0.8	43.0	23.0	25.0	8.3	100
NYABISINDU	0	0.8	36.0	19.8	32.0	11.6	100
BYUMBA	0.7	3.4	51.4	11.4	22.8	10.3	100
KORA	0	0.3	29.8	17.1	29.7	23.1	100
%	0.3	2.0	44.2	15.6	24.6	13.5	100

ANALYSIS OF PURCHASES OF HARICOTS, 1978

(RANGE IN KGS)

SITE	25	26-100	101-500	501-3000	3000-5000	5000	%
KIBUNGO	0.3	0.7	4.5	94.5	0	0	100
KICIRIRO	0.2	2.4	3.3	74.6	16.9	2.6	100
NYABISINDU	2.1	9.9	1.4	31.6	9.4	45.6	100
BYUMBA	0.1	0.4	2.5	78.4	14.6	4.1	100
KORA	0	0.4	0	40.0	59.6	0	100
%	0.5	3.0	2.3	64.0	20.0	10.5	100

TABLE 7:

ANALYSIS OF SALES OF HARICOTS, 1977
(IN TONS)

	LARGE SALES		SMALL SALES		TOTAL	
	QUANTITY	%	QUANTITY	%	QUANTITY	%
KIBUNGO	40.9	71.8	16.0	28.1	56.9	100
KICIKIRO	186.1	70.6	77.4	29.4	263.5	100
NYABISINDU	632.8	94.6	35.9	5.4	668.7	100
BYUMBA	294.6	88.0	40.3	12.0	334.9	100
KORA	161.1	99.3	1.1	0.7	162.3	100
TOTAL	1,315.5	84.9	170.7	15.1	1,486.3	100

ANALYSIS OF SALES OF HARICOTS, 1977+
NUMBER OF BUYERS

Site	LARGE SALES	%	SMALL SALES	%	TOTAL	%
KIBUNGO	12	7.3	152	92.7	164	100
KICIKIRO	38	1.3	2967	98.7	3005	100
NYABISINDU	210	13.7	1325	86.3	1535	100
BYUMBA	98	4.6	2020	95.4	2118	100
KORA	24	19.2	101	80.8	125	100
TOTAL	382		6565		6947	100

% of buyers for large sales = 5.5%

% of buyers for small sales = 94.5%

average sale for large buyer = 3,182 kgs.

average sale for small buyer = 26 kgs.

+ sales to January 21, 1978

TABLE 8: SITUATION DES VENTES AU 30 SEPTEMBRE 1978

KIBUNGO

	Poids kg	% Poids	Nbre % de ventes
Detail	5	0.5	50
Commercants	-	-	-
Institutions	1052	99.5	50
TOTAL	1057	100.0	100.0

KICUKIRO

	Poids kg	% Poids	% Nbre de ventes
Detail	49,984	36.6	98.8
Commercants	16,956	12.4	0.4
Institutions	69,624	51.0	0.8
TOTAL	136,564	100.0	100.0

	Poids kg	% Poids	% Nbre de vente
Detail	21,715	4.0	85.3
Commercants	46,046	8.4	3.0
Institutions	481,749	87.6	11.7
TOTAL	549,510	100.0	100.0

BYUMBA

	Poids kg.	% Poids	% Nbre de vente
Detail	6,904	43.4	94.6
Commercants	7,136	44.8	4.5
Institutions	1,874	11.8	0.9
TOTAL	15,914	100.0	100.0

KORA

	Poids kg	% Poids	% Nbre de ventes
Detail	1,093	9.6	93.7
Commercants	-	-	-
Institutions	10,320	90.4	6.3
TOTAL	11,413	100.0	100.0

	Poids kg	% Poids	% Nbre de vente
Detail	79,701	11.2	94.7
Commercant	70,138	9.8	1.3
Institutions	564,619	79.0	4.0
TOTAL	714,458	100.0	100.0

Production Studies

Under the direction of the T.A. accountant/statistician, studies in regional production yields were undertaken in '76-'78. The objective was to assess bean production during the growing period so that some indication of the marketed crop might be obtained.

Small areas of ground close to the warehouse were planted out to beans. Sampling of plots was carried out to determine the intensity of flowering, the number of immature and mature pods, etc. Data was forwarded to the H.Q. statistician for analysis.

The result was inconclusive and no appreciable difference in yields was obtained from the different regions. Results were also influenced by predation from goats, chickens etc., as the plots were not fenced in.

The manner in which the trial was set up was unsound and little justification exists for continuing this work.

A second production study was started in January '77 and took the form of a questionnaire requesting information on local production levels. A total of 117 questionnaires were sent out to missions, of which 55 were returned completed with information or assessment of local production levels for tubercles, manioc, beans, sorghum, groundnuts, etc. The replies all confirmed that the '76/'77 season was below normal throughout the country. Whilst this information is interesting, it confirms what had already been known for that year and so is of little value to GRENARWA which requires to know in January what the crop harvest looks like.

The Statistics Section should envisage a similar type of questionnaire directed at the missions but sent out in October for completion by December. This will give GRENARWA advance information of the likely harvest.

A third study was started in May '78 on production, marketing and storage. Questionnaires were sent out to the 143 communes in the country requesting information on harvest results, available storage facilities, estimates of quantities of beans on the market and an indication of the period of the year when food supplies are short. Fifty have been returned and are in the process of analysis. The Statistics Section propose to carry out this study every two years but evaluation feels that this should be carried out at least annually, as the information gathered will prove very useful to GRENARWA, particularly in establishing deficit zones each year.

VII. EVALUATION OF WAREHOUSE MANAGEMENT

In general, warehouse managers are performing well and adequately, and although instances of undesirable conduct have been brought to light and dealt with by project management, the overall impression is satisfactory. Warehouses are clean and swept, pest control treatments are regularly carried out by the technical service, stacking is good and administration and documentation procedures are understood.

However, the major problem to be addressed is that of stock control.

a) The standardization of sacks.

It is impossible to take a physical inventory of stock in the GRENARWA warehouses unless all the sacks are weighed. Sack weights vary, and in some cases differences of 18 kgs. have been obtained in test weighings of sacks of beans. Until stock has been turned over, it is impossible to establish a figure for losses due to drying out, insect damage or theft and there is potentially great scope for theft by warehouse managers as they know there is no way of balancing sales with the physical inventory until the inventory has been sold out.

GRENARWA should waste no time in establishing a standard bag weight for all produce stored in their warehouses. This is an additional operation and may require extra time, but the time, trouble, and additional labor involved (if any) are essential to the proper control of stock, without which GRENARWA is unable to control the efficiency of its marketing operations work on a finite margin, project operating margins, and prepare accounts that reflect the reality of the situation.

The adoption, for example, of an 80 kg. standard sack weight for beans and 70 kg. weight for sorghum would enable inventory to be checked in a very short time without weighing of stock. The number of sacks only need to be counted and multiplied by the weight.

Very accurate assessment of losses can be obtained as a sample lot of say 20 bags can be weighed from the stacks after a few months storage and the loss in weight obtained by the difference with the original standard weight. At present, losses are globally estimated at 5% but there is no distinction of losses due to water loss, theft etc. Once this distinction has been made and the loss due to drying out or insect attack has been estimated, the warehouse keeper would then have to work within an acceptable weight loss tolerance which would discourage theft.

To standardize sack weights is not difficult, as beans and sorghum are rebagged into GRENARWA sacks on entering the warehouse and the seller takes back his/her sacks. The installation of a small hopper and bagging off spout placed above a platform scale would be sufficient to introduce standardization.

Sack sizes vary in Rwanda, and ex-brewery and wheat sacks together with jute twill bags from imported donor supplies appear to be the most common.

GRENARWA might consider the idea of having its own sacks made and printed as this is a very important factor in bringing the name of the organization to the public.

b) Security of funds.

The second problem to be addressed is the system of banking cash sales. Considerable amounts of cash may be generated in the space of a week by large sales and it is apparently not uncommon to have 1 million Francs or more in the safe. It is asking too much of a warehouse manager who earns 21,000 RwF/month ($231) to guard intact a sum of 1 million Francs ($10,989) on perhaps several occasions during the marketing season, and project management should devise a system that reduces temptation. The cash may balance with the stock that has been sold but the inventory is unknown as noted above.

These are the two basic problems that require to be addressed and they both affect the viability of GRENARWA.

c) Sanitation

The sanitation measures and pest control methods currently in use and employing malathion and phostoxin are satisfactory but could perhaps be refined.

Dr. Tyler of the Tropical Stored Products Institute, London has suggested that malathion admixture with beans might be discontinued and that an exterior surface treatment of the outside of the sack would be sufficient when used in conjunction with phostoxin fumigation.

Rats appear to present problems and, as the warehouses are not rat proof, efforts should be made to seal the space between the metal sliding doors and the wall with steel plate to prevent rodents gaining entry. The Ruhengeri and Nyabisindu warehouses will be difficult to rat-proof as they are old but rat poison should be employed to keep a certain level of control (e.g. warfarin bait).

d) Communication.

To run a marketing organization efficiently, it is indispensable that H.Q. be in daily contact with warehouses to give directions or to ascertain stock levels, sales, purchases, finance requirements, cash sales, etc. Although Rwanda is a small country with good communications by African standards, these are insufficient and too time consuming to be of real value to GRENARWA(e.g., the warehouse manager needs to close the warehouse and go to the nearest PTT to make a telephone call to Kigali, but H.Q. cannot call the warehouse). The installation of a communication network is necessary for proper control and direction to be exercised from H.Q. and keep the organization working smoothly. Warehouse managers would be able to obtain immediate decisions and instructions as to daily operations instead of irregular visits from H.Q. personnel. Timing is important in market operations and delays can be very expensive. The feeling of isolation from H.Q. may also lead to practices not in GRENARWA's best interest.

e) Equipment

- grain cleaners: grain cleaners are not essential to the technical efficiency of GRENARWA warehouse storage in bags although they are essential for bulk storage. Standards in Rwanda are different from those of developed countries and consumers purchase beans and sorghum without particular regard to foreign material which in any case is low in content. By cleaning grain, losses occur in the elimination of foreign material and GRENARWA has to support this loss. Although the amount of foreign material in a sack is very small, over large tonnages, this can represent a considerable amount of loss plus the cost of cleaning.

In practice, the grain cleaners have not functioned well, have repeatedly broken down, particularly the fan belts, and warehousekeepers and project management are of the opinion that they are more trouble than they are worth.

Grain sanitation specialists will abhor the idea of dispensing with them but, under the practical conditions in Rwanda, there is no justification for purchasing additional cleaning equipment.

- sewing machines: the Rwandan warehouse laborer is used to sewing bags with a needle and twine and the introduction of the modern sack sewing machine has proved inefficient.

Machines frequently break down and are more or less ignored by the bag sewers. Further expenditure for additional items is unwarranted.

- pallets: these have performed efficiently and are being extensively used. Although it does no harm, the covering of the pallet with a plastic sheet is unnecessary. It would be a sound idea to increase the height of the pallet as the ground clearance should be greater, on the order of 6".

Additional pallets will be necessary for warehouse extensions and new constructions.

- scales: these are indespensible for the standardization of sack weights, a practice GRENARWA should put into immediate operation

Additional scales will be required for extension a i new construction. The purchase of 500 kg. scales would speed up delivery by truck.

VIII. EVALUATION OF PROJECT ACTIVITY

The previous evaluation of the project in 1976 prepared a revised logical framework intended to more closely define indicators and means of verification contributing to the project goal and purpose.

The following examination of project activity indicates the extent to which progress has been achieved, according to the verifiable indicators and means of verification.

A. Sector Goal: Increase food availability to meet the needs of Rwanda's growing population.

The verifiable indicator from GOR statistics is that bean production increases at a rate of over 3% per annum by 1978.

The following table indicates that the goal has been achieved, as according to GOR statistics, bean production increased by 8, 12 and 15% over the period 1975-1977 (base 1973).

PROJECTION OF 3% ANNUAL INCREASE IN PRODUCTION COMPARED WITH ACTUAL PRODUCTION

TONS

	1973	1974	1975	1976	1977
Beans: projected prod.(P)	-	137,050	141,161	145,395	149,756
actual prod.(A)	133,059	114,816	152,744	163,401	171,598
$\frac{A}{P}$%	-	- 19	+ 8	+ 12	+ 15
Sorghum: projected prod. (P)	-	145,832	150,206	154,712	159,353
actual prod. (A)	141,585	121,128	144,321	154,887	163,776
$\frac{A}{P}$%	-	- 17	- 4	+ 0.1	+ 3

Base: 1973 production figures

Source: MINAG annual reports 1974/1977

As data from the market price surveys indicate, there is still a shortage of beans in the last quarters of 1977 and 1978, leading to price rises so that supply and demand are still out of balance, therefore there is a discrepancy between GOR statistics and the physical market.

Furthermore, the limited effect that the project could have on national supply, viewing the small quantity of beans purchased in 1976-78, would not have been responsible for the increased production.

The verifiable indicator is therefore inappropriate to assess achievement of project goal as is also the means of verification (GOR statistics).

The verifiable indicator that the project goal has been achieved is surely directly related to the price the consumer pays in the market and should be market data records from GOR and others.

B. Purpose:

1 - Create an efficient food storage and marketing system for beans. The first verifiable indicator is that 80% of optimum storage capacity has been utilized annually as verified from marketing institution records. The following occupancy rates have been obtained from GRENARWA records for 1976 (36%), 1977 (84%), and 1978 (82%) and have been calculated on the maximum quantity in store at any one time and the existing warehouse capacity at that time. Progress has been made towards the verifiable indicator.

However, the indicator makes no mention of turnover of stock, and the high occupancy rates have been achieved because the inventory was not turned over (sold).

The verifiable indicator of an efficient food storage and marketing system aimed at price stabilization is usually, but not always, that based on efficient stock turnover.

The second verifiable indicator is that qualified Rwandan staff are operating warehouses at break-even levels and that wastage in stores is less than 5%.

Neither of those indicators are verifiable as there is no way of accurately assessing either the inventory in stock or the percentage loss.

2 - Stabilize seasonal and regional prices of beans. The verifiable indicator being that temporal and spatial price fluctuation of beans has been reduced from 100% to 50% by September '77.

GRENARWA is having a positive influence on consumer prices through its direct sales to consumers, institutions, communes etc., and it is significant that market prices close to GRENARWA warehouses are influenced by their presence.

The Kicukiro market has been operating on average of 20% lower during 1978 than the two main Kigali markets, and the Nyanza market shows relative stability in the first 7 months of '78.

There is little indication that GRENARWA has an appreciable effect on farm gate prices as the major source of supply has been from commercial traders delivering by truck. A longer time frame is required for influence on farm gate prices in order that project management can continue the present policy of linking communes and co-operatives to GRENARWA.

The means of verification i.e., MINIPLAN and MINAG statistics are not timely in publication and a more pertinent and up-to-date means of monitoring seasonal and regional prices is required e.g., GRENARWA records.

C. Outputs

1 - Storage capacity: verifiable indicator that nine warehouses (total optimum capacity 9,500 MT) at 9 sites constructed. Present storage capacity is 5,000 T, of which 1,500 T constructed by AID and 3,500 T donated by GOR; and

- second phase construction not yet started due to delay in recruitment of project manager and signature of '78 ProAg. New proposals have been tabled for construction during FY '79;

2 - Trained Rwandan marketing institution: verifiable indicator that Director, 12 warehouse managers, Accountant, Controller and Statistician trained and assigned to positions by September 19, 1977.

Now in position: Director, 5 warehouse managers, Accountant, Controller and Statistician. Project manager not entirely satisfied with previous training; additional recruitment for warehouse managers in progress.

3 - Operating and Financial procedures: verifiable indicator that management competence proved by means of evaluation/audit.

The present evaluation confirms competence in overall management taking into account the following circumstances:

1) a delay or 6 months (Jan.-June) in '78 in finding a replacement for the previous project director who left Dec. '77;

2) the exercise of disciplinary action necessary for conduct prejudicial to the project. Two warehouse managers who had received KSU training were sacked for thieving;

3) the impossibility of preparing correct financial statements due to lack of inventory control;

4) insufficient accountancy training for H.Q. staff; and

5) satisfactory operating procedure for selling beans has not yet been fully developed. This aspect is regarded as of major importance by present project management.

4 - Control Stock of Beans: verifiable indicator at least 9,500T - not achieved as storage capacity presently only 5,000T.

D. Inputs (AID)

1. Technical Assistance

The new project director was planned to arrive in Dec. '77 but took up post in July '78. The lack of continuity and overlap with previous project management has led to a serious delay in project progress and in establishing project inputs and outputs.

This T.A. input is a major factor in achieving project purpose and, because of the delay, extension of T.A. is recommended to FY '80.

The accountant/statistician on post since September '76 has combined two functions that should have been separated in the PIPA. He had no professional accountancy training which has given rise to difficulties in developing the capability of the Accounts Section. However, he has developed a functional, though underutilized, statistical service.

2. Training

The storage specialist (assistant director) was to have undergone U.S. training in January '78 but, because of the delay in the signing of the ProAg and in appointing the project director, this was never fulfilled. This evaluation questions the relevancy of

the training envisaged for the storage specialist - local development, area administration and project analysis - and as the post of assistant director does not exist in GRENARWA. the need for training in these fields requires to be re-examined by project management.

Six warehouse managers were scheduled to depart June '78 for U.S. training. They must still be selected as the FY '78 warehouses are still to be constructed.

No overseas training is recommended because of the six managers who attended the '76 KSU training program only two are left. Also, because of the high wastage, it is recommended that future training needs be met by T.A. and TDY consultants.

The Tropical Products Center in London provides specialized courses 'in situ' in warehouse management, and provisional arrangements is being made for a course in April '78 in Kigali with local AID financial support.

The combination of T.A. plus TDY consultants is felt to be more appropriate to training requirements and local conditions.

The storage technician who attended the '76 KSU course and who was previously a warehouse manager is effectively contributing to the project purpose. Regular inspections and fumigation treatments are being carried out and correct storage practices were observed at all the warehouses visited.

Houses:

3. Commodities

Vehicles

Arrival of 1 pick-up, 1 passenger vehicle and 4 eight-ton trucks occurred in July of this year. Two Toyota pick-ups arrived in September/October 1978 and two Fiat trucks were ordered and are expected in November/December. The vehicle arrivals are due to the delayed signing of the ProAg (March '78) and the fact that the project manager was not at post until July of this year. The delay in ordering remaining passenger vehicle and two trucks is due to the possibility that GOR might have contributed a 20-ton truck (not discounted) and the balance of funds available, taking into account inflation since '77 estimates were prepared.

$85,000 has already been expended against the provision of $150,000. The remaining two trucks plus the passenger vehicle (Peugeot 504 station wagon) will cost approximately $75,000, making a total of $160,000. An increase in the authorization will be necessary to cover increased costs plus spares.

Equipment

Pallets: 875 m^2; not ordered, sufficient supply on hand for present storage capacity.

Sacks: 175,000 plastic weave; not ordered, replaced by 30,000 jute (60 kg) sacks purchased from OPROVIA. Further jute sacks will be ordered to help standardize sack weights.

Grain Cleaners: 3; not ordered as satisfaction not given by previous models and cleaning thought to be unnecessary.

Moisture Meters: 3; six ordered.

Bag Closers: 5; not ordered as local conditions unsuitable, workers preferring to close bags by hand.

Gas Generators: 5; not ordered but may be required if approval given to installation of radio communication system.

Thread: 36 ctns; for bag closers, not ordered.

Bag Trucks: 58; not ordered, quantity to be redetermined.

Tarps: 4; ordered.

Sprayers: 3; not ordered on advice T.A. storage technician.

Calculators: 9; ordered.

Scales: 4 direct reading; 500 kg scales; 2 ordered to test suitability. Remaining 2 not yet ordered.

4. Construction

Four AID-financed warehouses are in operation, the fifth (Cyangugu) will be in service before the end of the year. This warehouse has been the subject of discussion regarding technical specifications and the REDSO engineer should be asked for his opinion.

No FY '78 construction has been undertaken due to (a) late signing of ProAg (March '78), construction contracts were to have been signed the same month, (b) no project manager 'in situ' until July '78 and (c) project manager's decision to revise proposed construction plans.

Plans for the extension of the KICUKIRO and BYUMBA warehouses are being prepared by GENIE RURAL (MINAG) and should be ready in November. REDSO engineering should advise on the KICUKIRO extension as overhead high voltage cables may interfere with construction. The GIKONGORO specifications will incorporate modifications to original design (no drying area, corrugated steel or aluminium roof instead of asbestos). The project manager will make a site inspection at GATUMBA.

Working Capital

The comparison of working capital previsions with what has been received is given below.

SUMMARY OF WORKING CAPITAL 10/30/78
(RWF)

YEAR	DONOR	BUDGETED AMOUNT	TOTAL	RECEIVED AMOUNT	TOTAL	GRENARWA UTILIZATION BUYING FUND	OPERATING CAPITAL
1975	USG	3,860,220	4,135,950	-		-	-
	GOR	275,730		5,000,000	5,000,000	325,000	4,675,000
1976	USG	23,647,983		13,441,680		13,441,680	-
			33,298,533		37,791,680		
	GOR	9,650,550		24,350,000		9,601,200	14,748,800
1977	USG	-		27,980,640		23,408,640	4,572,000
	SWISS I	10,051,369		24,000,000		24,000,000	-
	SWISS II	8,041,022					
			70,122,196				
	SWISS III	6,030,766		-	60,764,890		
	PAM I	13,876,112		8,784,250		8,784,250	-
	PAM II	32,123,647		-		8,784,250	-
1978	PAM III	32,123,647	32,123,647	-	-	79,560,770	23,995,800
	TOTAL		139,680,326	103,556,570			

An amount of over 139 million RwF was budgeted of which over 103 million was received by October 30, 1978.

The USG contributed 18 million more than initially budgeted, the Swiss contribution conforms with previsions, and the PAM contribution presently falls short by 69 million due to delays implementation.

PAM I contribution was one year late in arriving (August '78) and came too late for bean purchases in that year. Sorghum purchases amounting to 8.4 million have been made and the balance of funds, approximately 7 million, will be used for bean purchases in '79.

PAM local representation in Kigali has expressed reserve about PAM II and III contributions amounting to 64 million, on the basis that the GRENARWA/OPROVIA integration raises problems of principle. PAM indicates that their mandate permits assistance to projects but not to commercial organizations, and locally OPROVIA is regarded by PAM as commercial. Before a PAM evaluation mission arrives in Kigali in early '79, it would appear prudent for the AID representative in Rome to discuss this point with PAM H.Q.

Capital fund requirements (purchase and operating) for '79 are not secure, (as of October 30, '78) and this situation requires close attention by project management and REDSO.

Staff (GOR)

Head Office: counterparts of acceptable standard are working with project director and accountant/statistician. However, further in-post training is required for accountant and controller. Storage specialist is trained and functional.

Warehouses: five warehouse managers and four storekeepers are trained and in place. Three new managers and five storekeepers are to be recruited.

Warehouse Design: asbestos roof sheeting has been found faulty in warehouses, water entering at the purlin/roof joint and at overlap of sheeting where cracked.

Warehouses are not rat proof, particularly at sliding doors.

Drying areas have been found not to be necessary and are unused.

The roof extension above the loading platform is not prolonged sufficiently to permit working in wet weather.

Specifications for '79 construction should include design modification to resolve above problems.

Operating Capital: outstanding amount of 1.2 million from '77 ProAg is due, but GOR has contributed 19 million more than budgeted in '77 project paper.

In the course of the evaluation, discussions were held with the following officials and representatives:

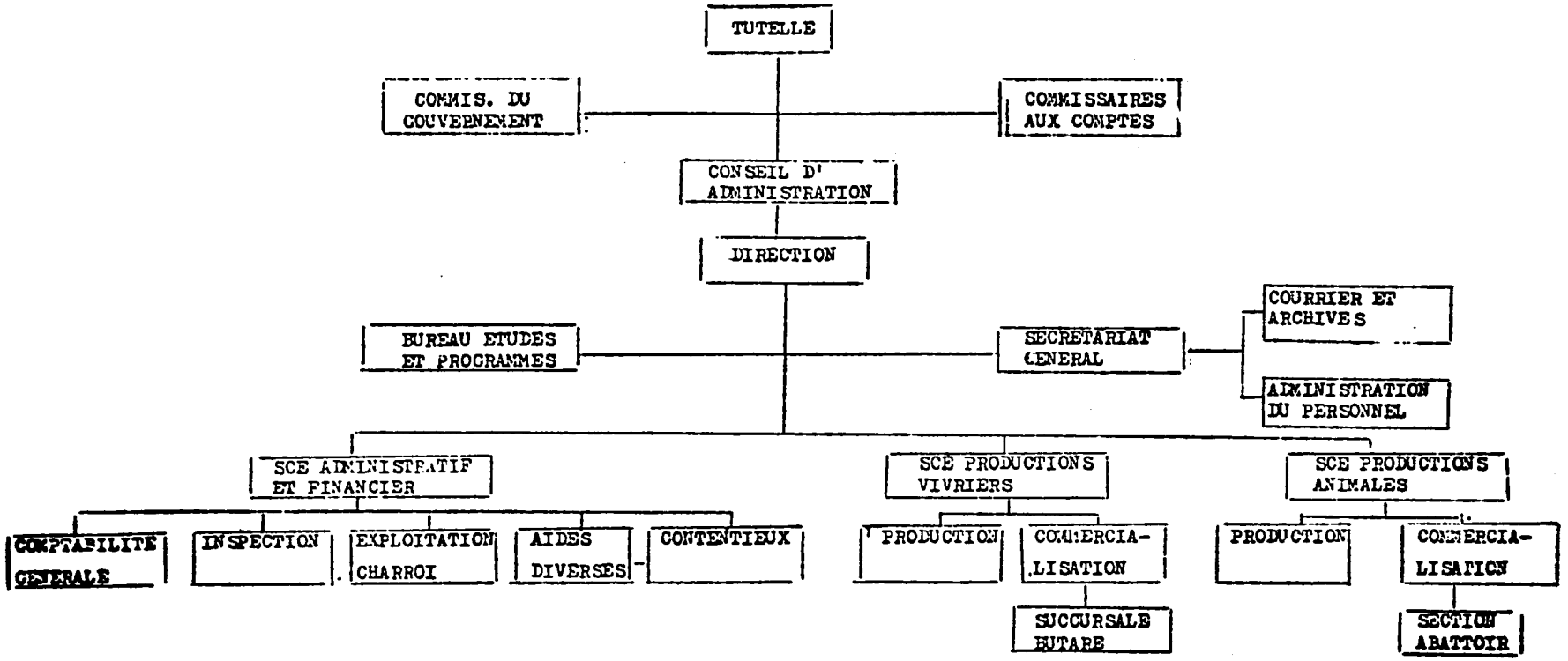
Mr. Crigler	American Ambassador, Rwanda
Mr. Charrier	PAM
Mr. Sakr	PAM
Mr. Dolf	Manager, Banque Populaire
Sister Justine	Catholic Relief Services
Mr. Maniraho	Co-director FSM
Mr. Morris	Consultant AID
Mr. Ngirira	President, National Price Commission
Col.Ntibitura	Director, OPROVIA
Mr. Patterson	AID Affairs Officer
Mr. Tyler	Tropical Stored Products Center, London
Mr. Reintsma	Director, FSM Project
Mr. Schweitzer	Advisor, TRAFIPRO
Warehouse Personnel	Kibungo, Kicukiro, Kora, Nyanza.

ANNEXES

ANNEX A

ORGANIGRAM OPROVIA

ORGANIGRAMME DE L'OFFICE NATIONAL POUR LE DEVELOPPEMENT ET LA COMMERCIALISATION DES PRODUITS VIVRIERS ET DES PRODUCTIONS ANIMALES "OPROVIA"(AP N° 277/11 DU 08/08/78.



ANNEX B

MEMORANDUM GRENARWA/OPROVIA

19 OCT 1978

M E M O R A N D U M

DE : Curt Reintsma, Chef de Projet et Co-directeur du GRENARWA
Sylvère Manirabo, Co-directeur du GRENARWA

A : Militant Lt. Col. NTIBITURA Bonaventure, Directeur de l'OPROVIA

SUJET : Intégration du GRENARWA au sein d'OPROVIA

C.P.I. : Son Excellence Monsieur le Président de la République Rwandaise
Monsieur le Ministre de l'Agriculture et de l'Elevage
Monsieur le Ministre des Affaires Etrangères et Coopération
Monsieur Patterson, AAO,USAID
Monsieur le Représentant, PAM Kigali
Monsieur le Ministre des Finances et de l'Economie

QU'EST GRENARWA?

GRENARWA (Grenier National du Rwanda) est l'agence d'exécution du Projet d'Entreposage et de Commercialisation des Denrées Alimentaires. Ce projet, patronné par la collaboration mutuelle des gouvernements américain et rwandais, a commencé en 1975. Le gouvernement suisse et le World Food Program ont également apporté de grandes contributions à ce projet. (Voir annexe A, Liste des Contributions).

QUELS SONT LES BUTS DE GRENARWA?

Le but principal de GRENARWA est d'encourager la production en stabilisant les prix des récoltes vivrières de base, commercialisées au Rwanda, et particulièrement les haricots et le sorgho. Cette stabilisation des prix se fait de deux façons. Premièrement, en achetant une partie de la récolte pendant la saison productive à des prix garantis GRENARWA essaie d'éviter la pléthore des produits sur le marché et d'empêcher les prix des producteurs de tomber à des niveaux extrêmement bas. Deuxièmement, GRENARWA vend les produits à des prix raisonnables pendant la saison de pénurie, en vue de freiner la hausse des prix à des niveaux excessivement élevés. De plus, le projet se charge de transporter les produits des régions de surplus de production à d'autres régions de déficit, en vue de réduire les fluctuations régionales des prix.

Le but secondaire de GRENARWA est de réduire, par sa méthode d'entreposage, les pertes subies par les méthodes traditionnelles de stockage.

Un autre but secondaire de GRENARWA pourrait être de fournir un entreposage stratégique pour faire face aux possibilités de famine. Cependant, ce but ne peut être atteint que:

(1) S'il est garanti à GRENARWA des contrats officiels avec le Gouvernement Rwandais (les prisons, l'armée, etc..),ce qui lui permettra d'assurer une rotation de ses stocks; et

(2) Si le gouvernement rwandais fournit (ou trouve un donateur qui fournira) des subsides pour couvrir le coût d'une distribution en cas d'urgence ainsi que tous les autres frais qui en découlent.

QU'A ACCOMPLI GRENARWA A CE JOUR?

Actuellement, GRENARWA a cinq entrepôts en fonctionnement et un sixième qui entrera en fonctionnement très prochainement. Ces entrepôts ont une capacité totale bien au-delà de 5000 tonnes, et la nouvelle construction prévue ainsi que l'extension des anciens entrepôts augmenteront la capacité de stockage à plus de 8000 tonnes. A ce jour, le projet a acheté 4,750 tonnes de haricots et 800 tonnes de sorgho, et a vendu 2,600 tonnes de haricots (voir annexe B, achats et ventes des récoltes). De plus le projet a formé 25 cadres rwandais d'un niveau professionnel (dont 7 ont suivi un stage de formation aux Etats-Unis). En plus du personnel de cadre des entrepôts, GRENARWA dirige une section de comptabilité, une section de statistiques et une section de technologie de l'entreposage. En somme, GRENARWA a déployé toutes les capacités matérielles et administratives pour le fonctionnement efficace d'un système national d'entreposage et de commercialisation des cultures vivrières.

Quand on considère les buts spécifiques du projet, on constate qu'il y a des indices qui montrent que GRENARWA a réussi à obtenir une stabilisation des prix sur les marchés institutionnels et sur les marchés locaux, situés près de ses entrepôts. Un nouveau programme visant à livrer les haricots directement aux communes et aux coopératives aidera à stabiliser les prix locaux dans les régions déficitaires(telles que les préfectures de Butare, Gikongoro, Gitarama et Byumba).

Le but secondaire a été également atteint en partie, puisque les pertes subies par GRENARWA dans ses entrepôts sont de loin inférieures aux 25% à 30% attribués généralement aux méthodes traditionnelles d'entreposage.

Cependant, quelques problèmes graves ont empêché la réalisation complète des buts de GRENARWA. Tels que, par exemple:

1)- Politique des Prix. Le prix officiel fixé par le Gouvernement n'a pas permis une marge suffisante pour couvrir les frais de fonctionnement. Ceci provient principalement du fait que le prix d'achat officiel est trop élevé par rapport aux prix pratiqués sur le marché libre. Etant donné que les commerçants privés peuvent acheter à des prix beaucoup plus bas que ceux de GRENARWA (10-15 fr/kg au lieu de 20 Fr/kg pour les haricots ils peuvent donc revendre meilleur marché que GRENARWA. Ainsi, quand la récolte est suffisante les haricots de GRENARWA restent dans les entrepots d'une saison à l'autre et deviennent trop secs et durs au goût des consommateurs. Ce problème est aggravé par la non-attribution à GRENARWA de contrats officiels et à grande échelle par le Conseil des Adjudications du Gouvernement.

2) - Problèmes financiers. En partie à cause du point(1)ci-dessus, GRENARWA fait face à des problèmes financiers. Les revenus du capital d'exploitation ne pourront pas couvrir les dépenses prévues et qui seront en dépassement d'au moins 10 millions de Francs Rwandais pour 1978-1979. Egalement, la valeur des inventaires de GRENARWA devra être réduite à cause des haricots trop vieux qui sont en stock et qui sont invendables. Cette situation est actuellement en train d'être revue par l'USAID et le Gouvernement Rwandais.

COMMENT GRENARWA PEUT S'INTEGRER AU SEIN D'OPROVIA?

L'intégration devra se faire sur plusieurs plans, notamment: activités générales, politique et administration, ressources(financières et autres) c. comptabilité, personnel, et divers. Ci-après nous soumettons les vues de la direction de GRENARWA sur façon dont l'intégration devra être accomplie:

1) Activités générales

Les objectifs essentielles du GRENARWA tels qu'ils sont stipulés à ce jour, à savoir, encourager la production des denrées alimentaires de base grâce à la stabilisation des prix, devraient rester les mêmes après l'intégration dans l'OPROVIA.

Pour accomplir la mission lui assignée dans ces objectifs, le GRENARWA fonctionnerait comme "SERVICE DES PRODUITS VIVRIERS" dans la charte organisationnelle de l'OPROVIA.

La "SECTION PRODUITS VIVRIERS" sera dénommée GRENARWA(il est spécifié dans l'accord de Projet de 1978 que le nom de GRENARWA continuera a être utilisé) et héritera des ressources du projet tels qu'ils se présentent actuellement.

Ceci exigera une modification de l'organigramme de l'OPROVIA, et cette modification ainsi que les statuts de support y relatifs devront être formulés dans un "Arrêté Présidentiel" et un "addendum" à l'accord de Projet de 1978.

En somme, le GRENARWA continuera à travailler dans la ligne des objectifs lui assignés en ce qui concerne le stockage et la commercialisation des denrées alimentaires en fonctionnant comme une section de l'OPROVIA mais avec un certain degré d'autonomie comme mentionné ci-dessous:

2) Politique et administration

Les décisions importantes concernant la politique d'action devraient être revues par le directeur et le conseil d'administration d'OPROVIA, Cependant, la gestion au jour le jour et la prise des décisions quotidiennes resteraient entre les mains des actuels co-directeurs do GRENARWA (le chef de projet américain et son homologue rwandais, qui deviendra chef de section au sein de la structure d'OPROVIA) et seraient coordonnées avec la gestion d'OPROVIA.

3) Ressources et Comptabilité

Le "section produits vivriers"(GRENARWA), deviendra le bénéficiaire des ressources du projet actuel, comprenant, mais ne se limitant pas à, son fonds de roulement, ses entrepôts, ses véhicules, son équipement des entrepôts, aussi bien que le personnel du bureau central et des entrepôts.

Le directeur d'OPROVIA devra participer à la formulation du budget et sera constamment informé de la situation financière do GRENARWA (par des rapports hebdomadaires et mensuels sur les dépenses et des bilans trimestriels). De plus, le budget do GRENARWA devra être approuvé par le conseil d'administration d'OPROVIA.

Cependant, si GRENARWA doit remplir les fonctions de "section produit vivriers" au sein d'OPROVIA, elle doit maintenir son autonomie financière et comptable.

Un précédent dans le domaine de l'autonomie en matière de finance et de comptabilité dans des organismes parastataux nous est donné par l'OCIR, où ont été mis en place les départements autonomes d'OCIR-Thé, OCIR-Café, etc...

GRENARWA a une responsabilité envers ses donateurs étrangers qui ont apporté de grandes contributions financières au projet dans un but explicite d'aider à atteindre l'objectif du projet qui est d'encourager la production des cultures vivrières à travers une stabilisation des prix En aucun cas ces fonds ne peuvent être détournés vers d'autres champs d'action ou utilisés pour atteindre d'autres objectifs d'OPROVIA.

De plus, les futures contributions qui seront apportées au projet par des donateurs internationaux ne le seront que sur base de la ferme assurance que ces fonds ne seront utilisés que pour les objectifs spécifiés. Par exemple, le Programme Alimentaire Mondial -PAM- et l'Agence pour le Développement International -AID- ont exprimé leurs réserves en ce qui concerne la poursuite de leur engagement pour supporter GRENARWA, à moins qu'une autonomie financière ne soit assurée à celui-ci, pour garantir que leurs fonds continueront à être utilisés pour les buts spécifiques convenus pour lesquels ils ont été ou doivent être débloqués.

D'autre part, les procédures spéciales de comptabilité et de remises de rapports pratiquées par les donateurs internationaux, suggèrent qu'il sera nécessaire de maintenir un système de comptabilité séparée.

En plus des finances, les autres ressources physiques de GRENARWA actuellement en place doivent être utilisées uniquement pour les objectifs de GRENARWA, le "section produit vivriers" d'OPROVIA, et non pour d'autres buts d'OPROVIA ou de n'importe quelle autre organisation ou autre particulier. Ces ressources comprennent les véhicules, les immeubles et l'equipement, mais elles ne se limitent pas à cela. Cependant, tandis que ces ressources doivent demeurer sous l'autorité de la direction de GRENARWA, une collaboration maximum avec les autres sections d'OPROVIA devra être encouragée en vue d'assurer la pleine utilisation de ces ressources.

4) Le personnel

Le personnel actuel de GRENARWA a travaillé en équipe depuis un certain temps déjà et a acquis une habileté considérable dans les opérations d'entreposage et les procédures comptables de GRENARWA. Muter ce personnel dans d'autres sections pourrait hautement desservir les objectifs du projet. La direction actuelle de GRENARWA devrait continuer à avoir le pouvoir d'engager ou de licencier son personnel sans interférences extérieures.

Cependant, les règlementations concernant le personnel(frais médicaux, avances, taux d'indemnités journalières, congés, actions disciplinaires, etc..) devraient être rendues aussi conformes que possible à celles d'OPROVIA, quoique quelques exceptions pourraient être faites pour garder une certaine continuité avec les anciennes réglementations de GRENARWA. De plus, il ne serait pas souhaitable que le personnel de GRENARWA subisse des diminutions de salaire même si ceux-ci sont jugés supérieurs à ceux des grades correspondants au sein d'OPROVIA.

5) Divers

Magasins de vente au détail d'OPROVIA - Si GRENARWA devient la section d'entreposage et de commercialisation d'OPROVIA, il serait souhaitable de prendre en charge les opérations des deux magasins de détail d'OPROVIA (Kigali et Butare). Cela dépend de l'avis d'OPROVIA.

Transports - Le problème des transports est particulièrement compliqué. GRENARWA a besoin de maintenir son propre transport pour pouvoir effectuer ses visites d'inspection aux entrepôts, ses contrôles comptables, ses fumigations, les programmes de livraisons aux coopératives, etc.. Pour les gros transports de stocks, la meilleure solution serait peut être que GRENARWA utilise ses propres camions quand elle en a besoin, qu'elle loue à OPROVIA des camions quand il faudra effectuer des transports supplémentaires et qu'elle loue éventuellement les camions d'OPROVIA s'ils ne sont pas utilisés.

Bureaux - Comme GRENARWA deviendra une section d'OPROVIA, OPROVIA devra lui fournir des bureaux. Cependant, s'il n'y en a pas de disponibles, GRENARWA peut continuer à occuper les locaux actuels jusqu'à ce qu'une autre solution soit trouvée.

Umuganda - Le personnel de GRENARWA devrait accomplir les travaux de l'umuganda du samedi, en travaillant sur les mêmes tâches que le personnel d'OPROVIA.

ANNEXE

CONTRIBUTIONS RECUES ET PREVUES

CONTRIBUTIONS RECUES

FONDS D' EXPLOITATION

	1975	1976	1977	1978	TOTAUX
USA	-	-	4.572.000	-	4.572.000
RWANDA	4.675.000	14.748.800	-	-	19.423.800
TOTAUX	4.675.000	14.748.800	4.572.000	-	23.995.800

FONDS DE ROULEMENT

	1975	1976	1977	1978	TOTAUX
USA	-	13.441.680	23.408.640	-	36.850.320
RWANDA	325.000	9.601.200	-	-	9.926.200
SWISS	-	-	24.000.000	-	24.000.000
PAM	-	-	-	8.784.250	8.784.250
TOTAUX	325.000	23.042.880	47.408.640	8.784.250	79.560.770

IMMOBILIER ET MATERIEL

	1975	1976	1977	1978	TOTAUX
USA	8.460.487	14.999.405	14.933.000	3.107.747	41.500.639
RWANDA	5.029.200	9.555.000	-	-	14.584.200
TOTAUX	13.489.687	24.554.405	14.933.000	3.107.747	56.084.839

CONTRIBUTIONS PREVUES

FONDS D' EXPLOITATION

	1978	1979	TOTAL
RWANDA	?	?	?
AUTRE	?	?	?
TOTAL	?	?	?

FONDS DE ROULEMENT

	1979	1980	TOTAUX
PAM	38.000.000	30.000.000	68.000.000
AUTRE	?	?	?
TOTAL	?	?	?

IMMOBILIER ET MATERIEL

	1978	1979	TOTAUX
USA	91.480.000	60.285.320	151.765.320
RWANDA	7.021.090	4.436.780	11.457.870
TOTAUX	98.501.090	64.722.100	163.223.190

ANNEXE B

GRENARVA ACHATS ET VENTES

Année		Achats	Ventes
1976	Haricots Sorgho	1.163.334	28.150
1977	Haricots Sorgho	2.875.594	1.486.364
1978	Haricots Sorgho	718.939 ± 800.000	± 900.000 *
TOTAL	Haricots	4.757.867	2.414.514
	SORGHO	± 800.000	

* Y compris les contrats signés mais dont la livraison n'est pas encore effectuée.

ANNEX C

FSM CASH FLOW PROJECTION 1979

Prepared by
Approved by

F S M. CASH FLOW PROJECTION (1979)

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Beans Buy	600	900	600	—	—	200	—	—	300	500	700	1000	3500
Beans Sell	—	—	—	—	—	—	200	400	400	—	—	—	1000
Sorghum Buy	—	—	—	—	—	—	—	—	—	—	—	—	1000
Sorghum Sell	400	200	—	—	—	—	—	—	—	—	200	200	1000
Fixed Costs													
a) Salaries	611624	611624	611624	611624	611624	611624	611624	611624	721824	721824	721824	721824	7965288
b) Operating Expenses	30000	30000	30000	30000	30000	30000	30000	30000	106000	30000	10000	10000	380000
c) Vehicles (H.O)	186831	57831	57831	43755	83755	83755	83755	83755	83755	83755	83755	83755	1040833
d) Office Supplies & Equipment	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	288000
e) Machines, Office, workshop, equip	13000	13000	13000	13000	13000	13000	13000	13000	13000	13000	13000	13000	156000
f) Workers Stipends	4166	4166	4166	4166	4166	4166	4166	4166	4166	4166	4166	4166	50000
Sub-Total Fixed Costs	2644621	740621	740621	1114545	766545	766545	766545	766545	951745	826745	826745	826745	11883621
Variable Costs													
a) Labour	200000	220000	120000	—	—	40000	80000	80000	140000	100000	180000	240000	1400000
b) Per Diem (Expatriates)	64285	70713	38571	—	—	12857	25714	25714	45000	32142	57556	77142	450594
c) Transport (To/from warehouse)	113400	119700	63000	—	—	21000	42000	42000	73500	63000	163800	151200	808500
d) Transport (Inter warehouse)	—	—	—	922500	922500	922500	922500	—	—	—	—	—	3345000
e) Storage materials	48000	72000	48000	—	—	16000	32000	32000	32000	—	—	—	280000
Sub-Total Variable Costs	425685	482413	269571	922500	922500	1062357	1152214	179714	296500	195142	335656	468342	6523594
Operating Costs	3070306	1223034	1010192	2037045	1689045	1828902	1918759	946259	1248245	1021887	1215401	1345160	18377875
Buying Flow													
a) Purchases	12000000	18000000	12000000	—	—	4000000	5600000	5600000	5600000	—	—	—	62800000
b) Sales	7600000	3800000	—	—	—	—	—	—	500000	1250000	2130000	3885000	19165000
Outflow (Inflow)	4400000	14200000	12000000	—	—	4000000	5600000	5600000	(4900000)	(1250000)	(2130000)	(3885000)	(43635000)
Net Cash Outflow (Inflow)	7470306	15423034	13010192	2037045	1689045	5828902	7518759	6546259	(3651755)	(1228113)	(914599)	(2539840)	62078875
Interest	—	—	30000	30000	30000	30000	37000	51000	55000	55000	55000	63000	539000
Loans (Increase in Liability)	340000	360000	260000	—	—	80000	136000	112000	112000	—	—	—	1250000

ANNEX D

ANALYSIS OF STORAGE REQUIREMENTS

ANALYSIS OF STORAGE REQUIREMENTS

1. Size of stock required to influence market prices.

Real storage capacity required by GRENARWA to influence bean prices can only be arrived at by trial and practical experience, as insufficient data of a reliable nature exists to quantify buffer stock requirements.

Factors which will influence storage requirements include variations at regional and national production levels and therefore the market supply, the incidence of GRENARWA's secondary market activities, particularly sorghum, and the percentage of the market supply needed to stabilize prices.

In practice, GRENARWA may find that in the course of time it may operate on the concept of minimum and maximum buffer stocks. This would mean that total storage capacity may not always be required in good production years, but may be essential in poor years. A slight increase in storage capacity over calculated requirements would be an insurance against unexpected events and may provide the basis for developing a strategic stock policy.

Present market operations of GRENARWA would indicate an annual stock rotation of beans (Jan-Dec) and an interannual turn-over of sorghum (July-March) and that peak requirements for storage capacity will be around the months of June/July when sorghum and second crop bean buying starts but bean sales have not yet started.

Storage requirements have previously been calculated on the basis of production data provided by MINAGRI and Nutritional studies by INRS. These show wide variations (36%) in estimated production levels.

More recently, estimates of 1976 production (beans) by MINAGRI (163,000T) and MINIPLAN (240,000T) show a 47% difference of opinion. According to MINIPLAN, total availability for consumption after taking into account provision for seed and losses is 180,000T, which largely exceeds the MINAGRI production figure for that year. Part of the explanation may lie in the fact that RWANDA's consumption needs for beans are not met entirely from local reserves and significant but unquantified imports of beans take place from Zaire and Uganda. There is also apparently little or no outflow so that RWANDA is a net importer of beans and

consumption requirements are met by local production plus imports.

Calculation of storage requirements based on consumption and demographic data rather than local production statistics provide an alternative method of assessing requirements.

The Bureau de Recensement released up-to-date figures for the population in October '78 and together with consumption data supplied by MINIPLAN these have been used to calculate present consumption and project future consumption of beans and sorghum on a 10 year view. MINIPLAN's consumption data appears essentially to be derived from a nutritional and demographic data base from which they establish total consumption and production.

Table 1 indicates present and future consumption of beans and sorghum by prefecture as a function of demographic distribution and per capita consumption. Per capita consumption reflects the available food supply after losses and seed have been allowed for.

Table 2 estimates the market supply of total available food supply as well as the stabilization stock necessary to influence prices. The relationship between total availability and market supply has been arrived at in the following way.

MINAGRI's 1977 annual report states that 30% of bean production is marketed.

MINAGRI's development plan (1977-1981) gives figures for production with losses (6.25%), seed requirements (5%) and available food that indicate that 88.75% of bean production is available for consumption.

Correlating these two criteria, it is assumed that 88.75% of bean production is available for consumption, and that 30% of bean production is marketed. The relationship between market supply and consumption therefore assumes that 34% of total bean consumption is marketed.

For sorghum, similar assumptions presume that 39% of available supply is marketed.

The stabilization stock is calculated on the basis of 15% of the market supply, a rule of thumb used in project design. As stated previously, only practical experience will indicate the real quantity of grain needed to stabilize the market.

Whilst the raw data and the method of calculating stabilization stocks are certainly approximate, the rationale of using available supply (i.e. local production less seed and losses plus imports) rather than production data alone are thought to give a truer view of stocks on the market, and therefore the size of the stabilization stock required.

This analysis, using the recently available demographic data, indicate that in 1978, to stabilize bean prices, 12,500T will need to be purchased by GRENARWA and, if this is projected to 1988, then 16,000T will be required. These figures compare with project calculations of 2,000T in 1974, 5,000T in 1976, and 9,500T in 1977 (P.P.).

If sorghum is also taken into account then total storage capacity in 1978 needs to be of the order of 24,000T and in 1988, some 30,000T.

2. Comparison of GRENARWA storage capacity with estimated stabilization stock requirements.

The data from the fresh analysis of stabilization stock requirements (Table 2) would indicate that present GRENARWA storage capacity is insufficient to influence prices throughout Rwanda.

The project currently has 4,750T of storage capacity (October '78) and falls short by some 7,750T of the new 1978 estimate of requirements (12,500T).

The 1977 project paper proposed the construction of three additional warehouses at GIKONGORO, KIBUYE and GISENYI, and the extension of five existing warehouses at KIBUNGO, KICUKIRO, BYUMBA, CYANGUGU and KORA for a total capacity of 4,500T, and would represent 11.5% of the new estimate for marketed stocks in 1978.

The 1977 proposals also ignore two of the most highly populated prefectures of Rwanda, namely GITARAMA and BUTARE.

It is difficult to believe therefore that the 1977 project paper proposals can achieve the stated purpose of stabilizing seasonal and regional prices of beans if no stable presence is maintained in the above noted prefectures, which together account for 33% of Rwanda's population.

3. Revised warehouse construction proposals 1978.

Since the 1977 project paper was prepared, new developments and information based on the projects marketing experience have indicated that changes in the original construction plan are needed.

The independent evaluation of stock requirements in Table 2 together with project managements proposals have been carefully examined and a concensus opinion arrived at which reflects both experience and requirements within the framework of the existing budget. The following is a breakdown of those proposals. It is followed by a review of existing and proposed locations.

SITE	1974 ORIGINAL PROPOSAL (T)	1978 ACTUAL (T)	1977 PP PROPOSAL (T)	1978 REVISED PROPOSAL (T)
KIBUNGO	250	250	+250	0
KICUKIRO	250	250	+2,000	+2,000 (E)
BYUMBA	250	250	+250	+250 (E)
CYANGUGU	250	250 (1)	+250	0
NYABISINDU	500	3,500 (2)	0	0
KORA	500	500	+500	0
GIKONGORO			500	+250 (N)
KIBUYE			500	100 (C)
GISENYI			250	0
GATUMBA			0	+250 (N)
RUHENGERI			0	2,000 (3)(C)
TOTAL (T)	2,000	5,000	4,500	4,850

(1) Still under construction Oct. 78

(2) Contributed by GOR

(3) To be contributed by GOR

E = Extension of existing warehouse

N = Construction of new warehouse

C = Contribution PAK, KIBUYE, OPROVIA, RUHENGERI

KIBUNGO

Two years experience with marketing and storage of beans has produced unacceptable results. Due to the hot climate in the area, beans dry out rapidly and bean storage in this area is difficult and has led to problems in marketing the 1976 crop which is still in store. Although the area is a surplus bean producer, the staple diet is bananas and peanuts. Considerable demand exists for sorghum. No additional storage capacity is presently required and the existing facility of 250 tons will be used as a receiving and transit point for beans to be sold in more suitable storage areas, and also to store sorghum purchases and influence local markets.

KICUKIRO (KIGALI)

The project proposal for an increase of 2,000T capacity has been retained as the present facility of 250T is insufficient to meet market requirements. Independent evaluation of Kigali stock requirements is 1,800T for beans. Project management will use this warehouse to provision the proposed sales kiosks at the Kigali markets of NYARUGENGE and NYAMIRAMBO.

BYUMBA

Project proposal of an increase of capacity of 250T is retained. Area is a surplus bean producer and should price control be relaxed then purchase could be substantial and the cheapest in the country.

CYANGUGU

The warehouse of 250T is still under construction and as no experience is available of marketing in this area no further investment presently envisaged.

NYABISINDU

Present storage capacity of 3,500T is sufficient. No increase proposed either by project paper or project management. Repairs to present warehouse necessary to prevent rain from entering.

KORA

The existing capacity of 500T is presently regarded as sufficient especially in view of the proximity (30 km) of the Ruhengeri warehouse (2,000T).

GIKONGORO

Project paper recommends new warehouse of 500T. However, P.A.M. are planning to build 3 x 500 T units in the prefecture and terminate their program in 1982, following which P.A.M. assumes the warehouse will be handed over to OPROVIA. GRENARWA require a presence, however, they see the deficit nature of the prefecture and a 250 T warehouse is now proposed in lieu of 500 T.

KIBUYE

Project paper recommends 500 T, however PAK, a Swiss financed cooperative, have indicated to GRENARWA they have a warehouse available and would prefer the latter to take it over. Discussions are in progress between PAK and GRENARWA. Repairs and/or expansion may be necessary, but no new construction is foreseen if hand-over goes through. Capacity estimated to be ± 100 T.

GISENYI

Project paper plans for new construction of 250 T capacity with the main objective being the transit of beans to KIBUYE. Two existing transit warehouses owned by TRAFIPRO exist on the shore of lake Kivu, (capacity ± 100 T) and no new construction is envisaged as it is fully anticipated after discussion with TRAFIPRO that transit facilities are available.

GATUMBA

This town is located in the GITARAMA prefecture in the center of a deficit area. Project paper does not propose construction but GRENARWA requires a presence to provide supplies to consumers. Purchases in the KIBUNGO and Bugesera regions can be transmitted to GATUMBA. Capacity required 250 T.

RUHENGERI

MINAGRI has given a 3,500 T butler warehouse to OPROVIA and it is expected that GRENARWA will have access to this, if not all of it. It is anticipated that at least 2,000T capacity will be made available to GRENARWA. Repairs to the roof and cladding will be necessary.

The revised '78 expansion and new construction proposals, together with GOR contribution and that of PAK, will increase storage capacity by 4,850 T v.i.z.

New Construction and Extension by AID	-	2,750 T
GOR contribution	-	2,000 T
PAK contribution	-	100 T
TOTAL		4,850 T

In addition, transit facilities will be available at GISENYI. The total contribution of GOR, AID and others at the end of the second phase of construction will be:

GOR	-	5,500 T	(56%)
AID	-	4,250 T	(43%)
PAK	-	100 T	(1%)
			100%

Total storage capacity of 9,850 T represents 11.5% of the estimated bean market stock in 1978 (82,800 T). As the BUTARE prefecture is however not included in the program, 9,850 T represents 14% of the estimated market supply in ten of Rwanda's eleven prefectures. Sorghum has not been taken into account in the above proposals. If it were, 11,000 T of storage capacity would additionally be required in 1978. The '77 project paper proposed an increase of capacity of 4,500 T to be financed by AID. The effects of inflation, currently estimated at 30% per year for construction, would require additional funding for the project if this additional capacity was built.

The revised '78 proposals for 2,750 T are within the framework of the budget planned for FY '78.

Project management will propose a small additional construction program in '79, particularly for the BUTARE prefecture.

4. Cost Estimates for Construction in 1978.

Construction costs for warehouses were estimated to be 18,750 RwF per square meter in February '78 (see project paper '77). Inflation is stated to be of the order of 2.5% per month, or 30% per annum for construction work. Assuming the 1978 construction program starts in January '79, costs are likely to be of the order of 24,375 RwF per square meter. Cost of the proposed warehouse extension and construction will therefore be as follows:-

SITE	AREA (M^2)	COST RWF	COST US$
KICUKIRO (EXTENSION)	1,080	26,325,000	289,286
BYUMBA (EXTENSION)	240	5,850,000	64,286
GIKONGORO (CONSTRUCTION)	240	5,850,000	64,286
GATUMBA (CONSTRUCTION)	240	5,850,000	64,286
		43,875,000	482,144

The March '78 Project Agreement budgeted $494,200 in FY 1978 for the expansion of three warehouses and the construction of one new warehouse. The present construction and extension proposals embrace the expansion of two warehouses and the construction of two new warehouses.

A new ProAg or amendment will be necessary to make use of funds ($659,000) for FY 79 construction (Head Office for GRENARWA).

TABLE 1: ESTIMATE OF TOTAL CONSUMPTION OF HARICOTS, SORGHUM 1978/1988 BY PREFECTURE

('000 Metric Tons)

PREFECTURE	1978 Population	%	CONSUMPTION Haricots	CONSUMPTION Sorghum	1988 Population	CONSUMPTION Haricots	CONSUMPTION Sorghum
KIGALI	698,000	14	34,9	27,2	902,250	45,1	35,2
BUTARE	601,000	12	30,1	23,4	776,869	38,8	30,3
BYUMBA	520,000	11	26,0	20,3	672,164	33,6	26,2
CYANGUGU.	331,000	7	16,5	12,9	427,857	21,4	16,7
GIKORONGO	370,000	.7	18,5	14,4	478,271	23,9	18,7
GISENYI	468,000	10	23,4	18,2	604,949	30,2	23,6
GITARAMA	662,000	14	33,1	25,8	855,718	42,8	33,4
KIBUNGO	361,000	7	18,1	14,1	466,637	23,3	18,2
KIBUYE	337,000	7	16,9	13,1	435,615	21,8	17,0
RUHENGERI	528,000	11	26,4	20,6	682,504	34,1	26,6
TOTAL	4,876,000	100	243,9	190,0	6,302,834	315,0	245,9

POPULATION

1978 population - figures supplied by Bureau National de Recencement Oct. 1978.

1979 population- calculated on annual growth rate of 2.6%

CONSUMPTION

Consumption = production-(seed+ losses ÷ population

Consumption haricots 50kg/ person/year

Consumption sorghum 39/kg/person/year

Source - Deuxieme Plan Quinquennal de Developpement 1977-81.

TABLE 2:

ESTIMATE OF MARKET SUPPLY AND STABILIZATION STOCK BY PREFECTURE FOR HARICOTS, SORGHUM : 1978/1988
(000 M.T.)

	Market Supply 1978		Stabilization Stock		Market Supply 1988		Stabilization Stock	
Prefecture	Har.	Sorghum	Har.	Sorghum	Har.	Sorghum	Har	Sorghum
KIGALI	11,8	10,6	1,8	1,6	15,3	13,7	2,3	2,1
BUTARE	10,2	9,1	1,5	1,4	13,2	11,8	2,0	1,8
BYUMBA	8,8	7,9	1,3	1,2	11,4	10,2	1,7	1,5
CYANGUGU	5,6	5,0	0,8	0,8	7,3	6,5	1,1	0,9
GIKONGORO	6,3	5,6	1,0	0,8	8,1	7,3	1,2	1,1
GISENYI	8,0	7,1	1,2	1,1	10,3	9,2	1,5	1,4
GITARAMA	11,2	10,1	1,7	1,5	14,6	13,0	2,2	1,9
KIBUNGO	6,1	5,5	0,9	0,8	8,0	7,1	1,2	1,1
KIBUYE	5,8	5,1	0,9	0,8	7,4	6,6	1,1	1,0
RUHENGERI	9,0	8,0	1,4	1,2	11,6	10,4	1,7	1,6
TOTAL	82.8	74.0	12.5	11.2	107.2	95.8	16.0	14.4

Market Supply

-Haricots-34% of consumption

- Sorghum- 39% of consumption

Stabilization Stock

15% of Market Supply

STRATEGIC STORAGE

Within its proposals for overall storage requirements at farm, village and central level, the GOR has indicated the need for strategic stocks.

Strategic stocks are reserves carried forward from one year to the next and are designed to alleviate difficult production conditions arising from drought, floods, etc.

There are two reasons why the constitution of a strategic stock of beans is presently impractical and impossible in Rwanda:

1) the organoleptic and cooking quality of the bean changes during storage, and GRENARWA experience has shown that beans over 12 months old are unacceptable to the consumer; and

2) a strategic stock must be rotated partially each year with a marketed stock. This presupposes the existance of an organization sufficiently developed to program and administer the rotation of stocks and market them. GRENARWA still has to develop the infrastructure necessary to market a buffer stock for price stabilization purposes.

Apart from the technical and logistic practicalities, the establishment of strategic stocks requires considerable investment in centralized silo facilities and heavy recurrent costs in financing the inventory.

There is also a considerable reserve of food in Rwanda in the form of tubercles and manioc and this, in itself, constitutes the strategic reserve upon which the population falls back in time of need.

Many developing countries in Africa regard the erection of silos as indicators of development but, in many cases, they become empty monuments and a source of embarassment to governments.

Sorghum storage as a strategic stock is possible but would await the development of organized infrastructure necessary to ensure its rotation with a buffer stock.