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9. ABSTRACT

In the middle 1960's the Government of Guyana embarked on a development program. Selected for early attention was the rice industry -- farm to market. Feasibility studies confirmed the opportunity for successful development in the rice industry. As a result of those findings, the Government of Guyana and USAID negotiated AID Loan in an amount of US\$12,900,000 to be supplemented by the GOG in an amount of Guyana dollars equivalent to US\$4,600,000. A component of that loan agreement was US\$550,000 supplemented by Guyana dollars furnished by the GOG in an amount equal to US\$144,000 for technical and managerial assistance. The principle infrastructure to be added by implementation of the loan agreement is a Rice Research Center, six Dryer-Storage Centers, and transportation equipment for bulk paddy and milled rice. The rice research center construction has been started. It is currently scheduled to be completed in December 1974. The six Dryer-Storage Centers, having a capacity to handle and store about 25% of the projected annual crop, and 50% of the projected crop in their areas are under construction. Two are expected to be completed for beneficial occupancy in time for the fall crop 1973; two others may be completed by that time. All six should be beneficially occupied by the fall crop 1974, or before.

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TECHNICAL AND MANAGERIAL ASSISTANCE RECOMMENDATIONS
RICE MODERNIZATION PROJECT - GUYANA

Prepared by

Alden A. Ackels
April 14, 1973 - May 12, 1973

for the
AGENCY FOR INTERNATIONAL DEVELOPMENT

Contract AID/csd-1588
Technical Assistance in
Food Grain Drying, Storage, Handling and Transportation
at the
FOOD AND FEED GRAIN INSTITUTE
KANSAS STATE UNIVERSITY
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REPORT SUMMARY

TITLE: Technical and Managerial Assistance Recommendations, Rice Modernization Project - Guyana

AUTHOR: Alden A. Ackels

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PROJECT TITLE: Technical Assistance in Food Grain Drying, Storage, Handling and Transportation

CONTRACT NUMBER: AID/csd-1588

CONTRACTOR: Food and Feed Grain Institute, Kansas State University
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Summary

Section I - History

In the middle 1960's the Government of Guyana embarked on a development program. Selected for early attention was the rice industry -- farm to market. Feasibility studies confirmed the opportunity for successful development in the rice industry. As a result of those findings, the Government of Guyana and USAID negotiated AID Loan No. 504-L-008 in an amount of US\$12,900,000 to be supplemented by the GOG in an amount of Guyana dollars equivalent to US\$4,600,000. A component of that loan agreement was US\$550,000 supplemented by Guyana dollars furnished by the GOG in an amount equal to US\$144,000 for technical and managerial assistance.

The principle infrastructure to be added by implementation of the loan agreement is a Rice Research Center, six Dryer-Storage Centers, and transportation equipment for bulk paddy and milled rice.

Section II - Status of the Project

The rice research center construction has been started. It is currently scheduled to be completed in December 1974.

The six Dryer-Storage Centers, having a capacity to handle and store about 25% of the projected annual crop, and 50% of the projected crop in their areas are under construction. Two are expected to be completed for beneficial occupancy in time for the fall crop 1973; two others may be completed by that time. All six should be beneficially occupied by the fall crop 1974, or before.

The transportation equipment for bulk rice is not in hand. Revised designs are about finalized so that procurement can go forward.

One facet only of the "technical and management assistance" component of the project is well under way. The contractor for the six Dryer-Storage Centers is required to provide training in operation and maintenance of those facilities for a period of one year following completion of each unit. They have prepared suitable materials and are in the process of fulfilling their commitment.

Section III - Recommendations for Technical and Management Assistance
Recommendations are discussed. These proposals in preliminary draft form, were reviewed and approved by Mr. Gavin Kennard, Executive Chairman of both of the GOG owned rice agencies. He assigned the following priorities.

Priority 1

- Item 5 - Technical and Mill Management Consultant
- Item 6 - Rice Milling Short Course
- Item 7 - Sanitation Short Course

Priority 2

- Item 9 - Accounting Systems Analysis and Design
- Item 3 - Management Development
- Item 4 - Foreman Training

Priority 3

- Item 10 - Maintenance Training
- Item 14 - Maintenance Consultant

Priority 4

- Item 8 - World Marketing Short Course

Priority 5

- Item 12 - Job Evaluation

Item 1, having to do with training, technical assistance, and managerial assistance for the Rice Research Center is being started. Louisiana State University people are scheduled to start primary discussions with the Guyana Rice Corp. people for such services in June, 1973.

PREFACE

The author is indebted to many people for assistance in the study and preparation of this report. He wishes to particularly thank the following:

- Mr. Gavin Kennard, Executive Chairman, Guyana Rice Corp. and Marketing Board.
- Mr. E. E. Seaton, General Manager, Guyana Rice Corp.
- Mr. Alfred Ramrattan, Secretary, Guyana Rice Corp.
- Mr. J. L. Ching, Chief Accountant, Guyana Rice Corp.
- Mr. C. P. Kennard, Deputy Director, Research, Guyana Rice Corp.
- Mr. N. E. Sutherland, General Manager, Guyana Rice Marketing Board.
- Mr. C. F. Lashley, Secretary, Guyana Rice Marketing Board.
- Mr. N. Saywack, Chief Accountant, Guyana Rice Marketing Board.
- Mr. E. E. Brooks, Chief Grading Officer, Guyana Rice Marketing Board.
- Mr. Robert Hamer, Mission Director, USAID/Guyana.
- Mr. Marvin Brigham, Chief Engineer, USAID/Guyana.

CONVERSION TABLE AS USED HEREIN

1 Long Ton	=	2240 lb.
	=	16-140 lb. bags paddy
	=	22.4 cwt. (100 lb.)
	=	12.6-177-3/4 lb. bags milled rice
1 Bag Milled Rice	=	180 lb. gross
	=	177-3/4 lb. net
	=	1.7775 net cwt. (100 lb.)
	=	4 cu. ft.
1 Bag Paddy	=	140 lb. net
	=	1.4 cwt. (100 lb.)
	=	0.0625 long tons
	=	3-1/3 bushels
	=	4 cu. ft.
1 Cwt. (100 lb.)	=	0.0446 long tons
	=	0.714-140 lb. bags paddy
	=	0.563-177-3/4 lb. bags rice
1 Cu. Ft. Paddy	=	35 lb.
1 Bu. Paddy	=	42 lb.
1 Cu. Ft. Milled Rice	=	45 lb.
1 Bu. Milled Rice	=	54 lb.
1 Dollar U.S. (US\$1)	=	2 Dollars Guyana (G\$2)
1 Dollar Guyana (G\$1)	=	One-half Dollar U.S. (US\$0.50)

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TECHNICAL AND MANAGERIAL ASSISTANCE RECOMMENDATIONS

RICE MODERNIZATION PROJECT - GUYANA

INTRODUCTION

Aid Loan No. 504-L-008 contains an agreement to provide funds of up to US\$550,000 out of the loan commitment, and up to US\$144,000 (G\$288,000) by the Government of Guyana to supply technical and management assistance, to help insure successful attainment of the results expected from the rice industry modernization project.

The Guyana Rice Corporation has employed Kansas State University, under its global contract with AID/Washington, to provide consulting services for a review of the current status of the rice industry in Guyana and recommendations with respect to the provision of technical and managerial assistance. This report is the result of that study.

SECTION I - HISTORY

For the benefit of those who are not intimately familiar with the Guyana rice industry, and the project, a short history of the work follows.

In the middle 1960s, the Government of Guyana examined the nation's resources, seeking to determine the opportunities existing for successful development activity, and to order priorities for attainment. The result of that study was a determination that agriculture offered the greatest immediate opportunity for profitable development. In agriculture, the rice industry offered the best opportunity for large gains in foreign exchange and improved standards of living for the people. These are important bench-mark criteria for successful development. The rice assets available, amenable to improved management, were believed to be:

- (a) Large areas of land cultivated in rice, suited for rice, and amenable to materially improved productivity.
- (b) Large areas of under-utilized land, suited for rice, but not developed for rice culture.
- (c) A large infrastructure of irrigation, drainage, and transportation used for rice, performing poorly, but amenable to correction at reasonable cost, when the potential benefits are considered.
- (d) A large marketing infrastructure, consisting of mills, storage facilities, and transportation facilities, performing poorly, but amenable to significant improvement.

- (e) A large pool of working capital devoted to rice production and marketing in both the private and public sectors.
- (f) A large pool of people (variously estimated at 200,000 to 250,000) dependent on and experienced in rice production, processing, and marketing.
- (g) An available market for rice that could be produced.

In 1967 the GOG, assisted by USAID Loan 504-L-003, undertook the following:

- (a) Detailed feasibility studies and planning for the construction of a rice research station (Louisiana State University and Parsons).
- (b) A detailed feasibility study (Rhodes-Checchi) for improvements to the industry, primarily with respect to farm-gate to market infrastructure, marketing, management, and finance.
- (c) Detail engineering (Rhodes Corp.) for six Dryer-Storage Centers, as revised, after consideration of the Rhodes-Checchi report.

The Rhodes-Checchi feasibility study reported that the assets believed to be available for improved results by development did in fact exist and favorable cost benefit ratios would result from development investments needed in the farm-gate to market infrastructure, recommended in the report, provided skillful management properly utilized the assets made available. An over-riding finding, also expressed by earlier investigators was that improvement was necessary in all sectors of the industry -- varieties, cultural practices, storage, milling, marketing, and finance -- in order to attain significant profit gains for the industry, bearing a reasonable relationship to the potential. The report contained recommendations for construction of the Research Center and the farm extension effort that would be expected to follow. The main thrust of the report and its engineering effort was to recommend the construction of 13 paddy storage centers, adequate in capacity to handle the entire crop projected to 1975-76, provide modernization for the GOG owned mills, improved milled rice handling facilities in the GOG mills and warehouses, quality control mechanisms for the private sector, management control mechanisms for the GOG sector, and logical extension of export marketing activities into the quality conscious, white, long-grain markets that may be economically reached, i.e. the nations bordering on the Atlantic and Caribbean Coasts.

Following acceptance of the Louisiana State Research Station report, Parsons completed plans for the Research Station Construction for the GOG, with assistance under USAID loan 003.

Following acceptance of the Rhodes-Checchi feasibility study, detail engineering for a revised plan of paddy storage centers was undertaken by Rhodes Corp. for the GOG, with assistance under USAID loan 003.

A loan agreement, dated March 11, 1969, between the GOG and USAID, AID Loan No. 504-L-008, was signed providing assistance to construct six

paddy storage centers, without parboiling facilities, consisting of four units with capacity of 10,000 metric tons ea., one unit of 7,300 MT cap; and one unit of 4,500 MT; 50 bulk rice and paddy trailers; the rice research center; milled rice storage facilities at each storage center; several ancillary facilities at the Mahaicony Abary Rice Development Scheme complex (MARDS); and technical and managerial assistance for both the Research Center and the GOG milling, storage, and marketing operations. The amount of the loan is US\$12,900,000. The estimated additional GOG contribution to the project is US\$4,600,000 for Guyana dollar costs, total equivalent, US\$17,500,000 for the project. The Technical and Managerial Assistance component is US\$550,000 funded by the loan and US\$144,000 additional funded by the GOG to cover Guyana dollar costs.

A contract was signed on March 19, 1970, between the GOG and Pemar International, W.H., Inc. for the supply and construction of the six drying and storage centers, provision of the 50 mobile rice and paddy trailers, and supply and construction of milled rice storage and shipping facilities. The Pemar contract was for erection on site development and foundations provided by others. Site development and foundations were contracted to be supplied by some 46 miscellaneous contractors. The initial effective date for completion for the Pemar contract was March 26, 1973, after notice to proceed was given on October 8, 1970.

Contracts were not initially let for the construction of the research station.

A contract was let to the Weitz Company to provide engineering supervision for the storage center construction.

None of the major technical and management assistance components were contracted for with the major exception that the Pemar contract requires Pemar to provide "operations and maintenance training" at each storage center for a period of one year following completion.

The loan contract 008 and/or the feasibility study contemplated the following major actions, or conditions precedent, to be met in implementing the project:

- (1) Merger of the Rice Development Corp. (the owner and operator of the GOG owned rice mills and the MARDS 2,000 acre farm) and the Rice Marketing Board (the owner and operator of milled rice storage warehouses, milled rice beneficiation facilities, packaging facilities, and the merchandizer of all Guyana rice moving in commercial channels) into a new GOG owned entity.
- (2) Assumption by the GOG of all long-term, delinquent debt showing on the books of the RDC and the RMB.
- (3) Acquisition by the GOG of all paid in capital stock outstanding, issued by the RDC.
- (4) The RDC mills will be improved to increase yields of milled rice from paddy and to improve the quality of the milled rice.

- (5) Throughput in the GOG mills will not be increased, permitting private sector millers to benefit from the greater volume expected.
- (6) The GOG will permit private sector millers and producers to compete in the domestic market, at market-determined prices, with the GOG agency also a willing seller in that market.
- (7) Consideration would also be given to opening the traditional Caribbean export market to private sector entrepreneurs.
- (8) The GOG Rice Corp. would concentrate its activity and efforts to the procurement, processing, and marketing of high quality, improved variety, long grain, white rice. It will not purchase rice unsuitable for the quality markets.
- (9) Employ sound business practices.
- (10) Employ qualified, experienced management and train staff for the effective operation and maintenance of the project.
- (11) The GOG Rice Corp. shall operate as a commercial enterprise without subsidy, competing in the world markets.
- (12) "Private Investment Fund" loans will be made available to private sector millers to modernize their mills so that they may participate in the improved results expected, through improved milling of producer's paddy, and toll milling of Government paddy.
- (13) The feasibility study projected 1975-76 rice acreage (single crop equivalent) at 345,000, producing an average yield of 15.5, 140 lb. bags of paddy per acre, or 333,000 long tons of paddy per year of which 127,000 LT would be high quality, long-grain varieties.
- (14) Milling recoveries of rice from paddy were projected to increase to 65.5% from 61%.
- (15) Selling prices were projected to remain constant. Paddy purchase prices were projected to increase 8% for new, high quality varieties by 1975-76.

SECTION II - CURRENT STATUS OF THE PROJECT

The statements that follow with respect to the current status of the project compare the present, as determined by:

- (a) "Status Report" information supplied.
- (b) GRC and RMB financial reports.
- (c) Miscellaneous data supplied.
- (d) Conferences with all, or most, of the responsible executives.
- (e) Personal inspections of the major GOG facilities.

To the past, as determined by:

- (a) The Rhodes-Checchi Feasability Study (1967)
- (b) The Loan Documents (504-L-008 - 1969)
- (c) The Pemar Contract documents (1970 - as later amended)
- (d) Extensive personal investigations (1967)

It will be readily apparent that detailed verification of data supplied could not be attempted in the short time allotted to the mission, in country. Data supplied was accepted as valid, unless analysis for this report demonstrated error or inadequacy.

1. Rice Agriculture

The project concept documents projected increases in rice acreage and rice yields to 1975-76. Earnings due to new varieties and improved farm yields were expected to result in greater, and improved, rice land utilization. Comparisons and present projections follow:

	Acreage Equiv. to One Annual Crop Harvested	Farm Yield 140 lb Bags Paddy/Acre	Annual Prod. in Long Tons	Percent High Quality Varieties
1966-67	338,700	12.3	258,000	0
Rhodes-Checchi Projection 1975-76	344,700	15.5	334,000	38
Actual 1970-71	273,800	13.1	206,400	NA
GRC Projection 1972 Lands & Systems	260,000	17.8	289,000	86
GRC Projection 1980 New Lands & Infras- tructure Improvements	350,000	22.8	502,000	90

This writer deems the above data to be indicative rather than definitive. There has been a decline of about 18 to 19% in acres harvested in the four years between 1967 and 1971. There has been an improvement in productivity of 6.5%, partially offsetting the reduction in area harvested. The GRC estimates the current area harvested expectation, with presently available inputs and infrastructure, to result in a further reduction to about 22% below 1966-67. However, much greater use of new varieties and inputs are expected to result in farm yields about 45% and total production 12% above 1967. It is expected that 86% of the product will be the high quality, long-grain, new varieties. Completion of approved projects underway and approval of projects under serious study should result in rice areas harvested, farm yields, and total paddy well above the Rhodes-Checchi forecasts. However, that result will be delayed until the later years of the decade -- possibly 1980. It is believed that the rice volume components of the original assumptions made will be attained, but delayed beyond 1975-76.

Production inputs of high quality seed, fertilizer, pest control chemicals, extension efforts in how to best use such materials, and improved tillage practices have all been greatly increased. In 1970-71, the Guyana Rice Corporation distributed 40,765 bags of pure line seed paddy (of which 67% were the high quality varieties); 45,798 cwt. of fertilizer, and large quantities of pesticides. Credit was available, for reasonable risks, to take advantage of improved cultural practices. The seed distributed is about 480% over that distributed in 1966.

2. Grading of Paddy and Rice

Grading of paddy and rice continues to be an unsolved problem.

The major change in the paddy grading system since 1967 has been elimination of the parboiling test made at that time in order to detect black, fungus damaged kernels. At that time, the final grade on a sample usually required about three days. That practice made identity preservation of the lot essential at least throughout the testing period. At the present time samples are moisture tested, cleaned, shelled, and visually graded by GRC graders. The seller may appeal the grade; and if he receives a grade lower than the higher grades, he usually does so. He has nothing to lose. The appeal board is usually a three-man committee, one representing the farmers, one the Ministry of Agriculture, and one the GRC. The mill manager is also an official member, but is not usually in attendance. This committee makes a visual inspection of the sample and assigns the final official grade. All of the graders have been trained to detect insect-fungal damaged kernels without the parboil test. The entire testing procedure, including appeal, can be accomplished in about seven minutes according to one group of graders. The seller, with his paddy still on his truck when he receives the grade, is free to accept the grade and sell the paddy, or take it else where. With the exception of the moisture test, the visual examinations made for variety and grade are subjective tests. There is no counting, or separating and weighing of defective material, except at one plant; the initial inspectors separate and weigh discolored kernels. Standard samples are available to the graders for comparison, but are not regularly used. That the visual

tests function well at all, even with experienced graders, is partially due to the rather wide ranges of allowable defects in succeeding grades. For example, "B" grade paddy may have up to 18% red rice, and "C" grade up to 30%.

When milled rice is received at Georgetown every bag from each consignment is sampled as it is unloaded. If it is uniform in quality, as judged by graders at the unloading point the sample is composited. If it is not uniform, the sample is separated into various composites representing the qualities or standard grades found. These samples are then taken to the official grading office. The official grading consists of machine separation of brokens plus visual comparisons with standard samples for defects and color. The consignor may appeal the grade he receives to the Board with representatives of the farmers, and the Ministry of Agriculture included. Their decision is final. Some 1% to 3% of the samples appealed are upgraded, the balance confirmed.

There is a qualified committee working at present to improve the grading system. They appear to be well along in their work. As expressed they intend to propose for early adoption, a system that will:

- (a) Replace named grades with a rational numbering system.
- (b) Supplant visual inspection, only, for defects with either objective counting or separation and weighing. The only visual test remaining will probably be for color.
- (c) Establish the grade standards at levels having a close relationship to the standards of quality used in international trade in rice.

Such a grading system should serve to vastly improve the appraisal of paddy and rice values. It should also reduce the dissatisfaction generally expressed by farmers and millers with the results of the present system. It should also assist the GOC corporation to better assess the value of their supplies in world markets.

3. Payments

In 1967, payments to farmers for paddy were made on a deferred basis by the RDC at a time approximating the time of the milled rice sale to the RMB. It was recommended that prompt payment on delivery of the paddy be adopted, as policy. This change was adopted and is in full effect. A farmer may obtain payment immediately after delivery, during regular office hours.

4. Sanitation - Maintenance of Product Quality

The 1967 investigations by Rhodes-Checchi developed the following findings and recommendations, items also generally reported by prior investigators:

- (a) Throughout the industry wholly inadequate drying and storage was found to exist, resulting in severe losses due to heat damage and actual wetting. A system of dryer-storage centers was proposed that would virtually dry and store the entire crop in GOG facilities within 24 hours after harvest, to help insure maintenance of quality. A partial system is under construction which will be discussed more fully under GOG facilities. Within the present GOG facilities there is evidence of continuing deterioration of paddy quality.
- (b) There are some areas of the rice lands from which transportation to a dryer within 24 hours of harvest is impossible, particularly during rainy weather. To help solve that problem for farmers located in such areas, a farm-type bin dryer was designed and recommended. There is no evidence that it was adopted. There is evidence to indicate that farmers in some areas have been urged to construct sun drying yards, on the farm to help that problem IF there is sunshine. One can conclude that this problem remains unsolved in terms of conservation of paddy quality.
- (c) A common problem in a rainy harvest season reported to the early investigators was the inability to move paddy out of the fields and over otherwise usable farm roads to the costal highway where standard motor vehicles can function. The Rhodes-Checchi report recommended the use of "Rice Buggies", a special duty vehicle used in the Southern USA to solve this problem of wet fields and muddy farm roads. It was not intended to use these specialized vehicles for highway transport. It was intended that highway transport would be by conventional trucks, with ordinary bulk grain boxes on them. At sometime in the detail planning that concept was changed so that the loan would provide 50 bulk trailers for highway use to transport bulk paddy to the storage centers, to the private sector mills, and bulk milled rice from the mills to the RMB bonds. These vehicles, according to a sample supplied, would not serve their original concept purpose of moving grain off a muddy rice field and over very soft, muddy farm roads. The quality protection envisioned from the original recommendation would not be a result of that plan. Continued study has resulted in a plan to build portable bins that can be placed on conventional flat bed motor vehicles. These bins will be used for the transportation of both paddy and milled rice on roads suitable for standard motor trucks, much as the trailers were intended to be used. It is management's present thinking that the original interpretations of the problem, exaggerated the difficulty, and certainty of loss, under wet conditions. It is believed that, in general, whenever the combines can harvest paddy, farm tractors can haul the paddy to sound roads. This latter plan in the process of adoption, should have a lower capital cost, will utilize available standard trucks, should lower transport costs, and should result in lower bagging costs.

- (d) It was found in 1967 that parboiled rice quality was low as evidenced by bad odors and dark color. The causes were found to be the use of unsuited, dirty water; microbial contamination from several sources; and the use of unclean paddy. The solution recommended was to do all parboiling in the dryer-storage centers using potable water and with the process under strict sanitation control. Nothing has been done of consequence to correct this condition and it continues as a threat to customer satisfaction in the domestic and traditional Caribbean export markets -- both still large users of Guyana parboiled rice. Parboiling facilities have been eliminated from the Dryer-Storage Centers under construction. Even the important Anna Regina plant continues to use dirty, drainage ditch water for parboiling.

At least partial correction of the parboiled rice quality problems are in sight for the future through two actions in progress:

- (1) A rural, pure water supply project is underway. It is expected that this project will be completed within two and one half years. Upon completion it should never again be necessary, or acceptable, to use impure surface waters in the parboiling process, in either the public or the private milling plants.
- (2) A new "Rice Factory Law" is being drafted. Although that proposed ordinance was not examined, it is expected that it shall contain sanitation requirements, and enforcement provisions, that will insure improvements in parboiled rice quality.

Guyana parboiled rice has enjoyed a preferred market status in the CARIFTA States to protect that volume, rather than the attractiveness of a quality product. For the long-term, this reviewer would be quite reluctant to depend primarily on diplomatic accommodations, with such a large volume and income at risk -- in the magnitude of 60,000 LT and 90% of the present total exports.

The actual marketing strategy adopted at the time the decision was made to remove parboiling facilities from the Dryer-Storage Center construction was that for the long-term, parboiled rice would be largely supplanted by white rice in the traditional Caribbean export markets. It was expected that the GOG corporation would actively promote that change. It was believed that the sale of white rice would be more profitable to the industry than would parboiled rice sales, with its relatively high expense component for parboiling. That strategy remains as present policy. If that strategy is valid for the traditional Caribbean export market, it would be logical to expect it to be equally valid for the domestic market with one major exception.

That exception, the domestic market, being long conditioned to the quality of parboiled rice sold has not appeared to be critical of it and has not appeared to discriminate against it. In addition, of course, the domestic consumer would have a free choice between white and parboiled without the risk of loss of volume to the Guyana industry.

It is not known to this writer how much economic study preceded the above policy decisions. There are two facets of economic fact that cause this writer to raise the question, even at this late date.

- (1) Parboiled rice has a significantly higher nutritional value than does white rice. Those values should be of great benefit to most of the consumers in both the traditional export and domestic markets. They need those values. Supplementation of the values found in white rice to approximate those found in parboiled would incur either a significant cost in enrichment materials, for the industry, or a cost to the consumers for supplementation from other sources. This writer fears that the actual effect will be loss of the nutrients from the diets of people who can ill afford their loss.
- (2) It is true that there is a significant incremental expense factor for the manufacture of parboiled rice over white rice. It is also true that maintenance of parboiled rice quality tends to be more difficult than for white rice of like grades. Offsetting the incremental cost factors for parboiled rice versus white rice are the greatly improved recoveries from the raw material that should logically be attained in the manufacture of parboiled rice versus white rice. Using the "reasonable target yields", suggested elsewhere in this report, an approximation of the differences in recovery potentials follows. This is the result the miller would see.

Paddy Cost	<u>Parboiled</u>		<u>Long Grain White</u>	
	Weight lbs. 140	G\$ Value \$8.25 or \$9.05	Weight lbs. 140	G\$ Value \$9.05
Head Rice	89	10.50	73.4	8.44
Broken	9.5	0.65	19.0	1.29
Chips	0.9	0.04	6.1	0.24
Bran	<u>13.8</u>	<u>0.55</u>	<u>10.4</u>	<u>0.42</u>
Income		G\$11.74		G\$10.39
Margin		G\$3.49 or \$2.69		G\$ 1.34

Difference in favor parboiled -- G\$2.15 or G\$1.35, depending on whether medium or premium, long grain paddy is used.

To the extent that the RMB alters the grades through the blending and remilling plant or succeeds in selling white rice at substantially higher prices than it obtains for parboiled, the results for the entire industry would be further altered. A quick check for statistical data revealed no readily available historical information on the spread in prices between parboiled and white rice of the same grade. A check with a knowledgeable person responsible for sales for a U.S. Southern rice milling firm brought forth the following statement, paraphrased, "The parboiled rice prices for exports are not below the prices for white rice. Typically they vary from even to US\$3.50 per cwt. higher than for white rice. The usual goal is from US\$1.50 to \$2.00 per cwt. higher." US\$1.50 per cwt. would be approximately G\$5.33 per 180 lb. gross Guyana bag higher.

Assuming that these hurried approximations would stand careful verification, the production and marketing of good quality parboiled rice in Guyana could remain both profitable financially and nutritionally.

- (e) Country-wide inspections of private sector mills, RDC mills, and RMB bonds, in 1967, revealed untenable insect, rodent, and domestic animal contamination of paddy storage, rice storage, and processing properties. The study recommended the following actions:
- (1) Establish a sound, routine, sanitation and house-keeping inspection service. Adopt sound pest control procedures for the GOG properties under the supervision and control of trained sanitarians.
 - (2) Amend the Rice Factory Law to require private sector storage and processing facilities to be kept in sanitary condition. The suggested amendments provided for routine sanitation inspections.

There is no evidence that any changes of significance have been made to correct the severe sanitation problems and the concurrent losses sustained. The only approved and funded effort that will materially improve the potential for sanitation control in the GOG properties is completion of the new paddy storage centers and the bulk milled rice facility at the Georgetown Bond. Their real potential for improved protection will only be realized if proper inspection and control procedures are initiated to insure maintenance of quality.

Improvement is contemplated for the longer term. The "Rice Factory Law" is in the process of being redrawn. It is expected that the new ordinance will include sanitation requirements with enforcement provisions. To the extent that such changes do become law,

with adequate standards and enforcement mechanisms included, the sanitation problems could be greatly reduced.

5. Paddy Storage Center Construction

There have been marked changes made from the original concepts of the paddy storage centers. The following chart, in global form, describes those changes.

	Storage Capacity in Long Tons	Daily Cap. Recg. Drying Handling in LT	Parboiling Daily Capacity in LT
Complete Rhodes-Checchi Plan-13 Sites	227,875	10,851	1687
1st Tranche Rhodes-Checchi Plan-5 Sites	139,625	7,200	900
Loan and Contract Plan	51,800	4,050	0

The complete Rhodes-Checchi, 13 site plan provided essentially for the prompt receiving, drying, and sound storage for virtually all of the projected crop and provided all of the parboiling capacity needed to meet the 1975-76 projected demand.

A "1st Tranche" plan simply selected, in general, the five largest and most important sites to meet investment budget constraints. No changes were made in the capacities of those sites or the services to be performed by them. They would have handled the entire projected crop in their areas and provided their pro-rata share of parboiled paddy. They would have handled in the magnitude of 65% of the total national crop projected.

The plan on which the loan and construction contract is based will provide sound storage for about 25% of the total crop projected and about 50% in the site areas. It will provide about 27% of the handling and drying capacity needed in the peak season for the entire crop, and about 61% of the peak load in the site areas. These latter calculations are made on the basis of a planned 16-hour receiving day. All of these calculations are based upon the Rhodes-Checchi 1975-76 crop projections which appear to be reasonable, at present.

It can thus be seen:

- (a) About 75% of the total crop and about 50% of the crop in the site areas must be dried and stored by traditional means.
- (b) Handling capacities under construction bear a slightly higher ratio to peak-season demand than does storage capacity to

total storage needed on the planned operating schedule. The result should be reasonable ability to selectively receive, dry, and store the 51,800 LT of paddy for which storage is provided within the critical 24 hour period after it is harvested. Eighteen days of 16-hours each or 288 operating hours will be required to receive and store 51,800 LT at 2,700 tons per day (equiv. to 1500 Bu/Hr. at each of the six sites). It is the intention expressed to selectively store the highest quality paddy received, in the limited capacity of the new D-S Centers.

The contract for the construction of these centers was signed on March 19, 1970. Notice to proceed with construction was given to the contractor October 8, 1970. The initial completion date for all work under the contract was March 26, 1973, immediately extended to May 7, 1973. Beneficial occupancy of the centers at the major mill sites seems assured for the fall crop 1973. Two other sites possibly could be beneficially occupied in time for the fall crop 1973. It is reasonable to expect full completion and beneficial occupancy at all six sites in time to properly use them for the autumn crop 1974, and thereafter.

6. Milled Rice Storage

The Rhodes-Checchi report recommended the following bulk storage bins for milled rice intended to provide for better quality maintenance, better quality control through blending of the milled product, reduced bag expense, and reduced handling costs for bagging and warehousing.

	No. of Bins	Capacity in LT Milled Rice
MARDS MILL	18	452
Anna Regina Mill	18	452
Georgetown Bond	<u>30</u>	<u>4126</u>
Total	66	5030

This plan intended that the two major mills would store and blend their own manufactured rice to final grade standard quality so that it could be delivered directly to customers without further blending or handling at the Georgetown bond. It was expected that export shipments would be delivered to shipside from the two mills with only minimal storage in the bond that might be necessary to accumulate the cargo lots. The Georgetown Bond bins would be used to store and blend rice purchased from the private sector, at reduced handling costs and with better quality maintenance.

The Loan Agreement and contracted plan called for the following milled rice bins: (Capacities differ slightly in various documents.)

	No. of Bins	Cap. in Long Tons
At each of six D-S Sites	4	1552
Project Total	24	9312

The plan was to accumulate milled rice at the D-S Centers from the area mills, largely using the bulk trailers for transport to the D-S Centers, and for transport from the D-S Centers to the Georgetown Bond. At that bond much, if not all of it, would have been dumped and reprocessed before rebagging and shipment. This plan has been discarded.

The present plan is to install the 24 bins, contracted and on order, all at the Georgetown Bond. The foundations are in for this installation, but the major material has not been shipped under the contract, and neither has detailed engineering been completed. The GOG proposes to delete the construction phase of this installation from the Pemar contract and complete the construction with local contractors. This subject is under discussion and negotiation with Pemar at this time. Construction activity is dormant. The earliest likely completion time for these facilities is May 1974. Operational plans for these facilities make it possible and probable that milled rice would be shipped to Georgetown both in bags and in the bulk containers previously discussed. To the extent that the bulk containers are used to transport milled rice, savings in bags, packing and handling should accrue. No quantified estimates of the benefits of the present plan have been seen by this reviewer.

7. Research Center

It is the current intention to proceed with the construction and utilization of the Research Center as conceived by LSU and Parsons. At present, site preparation is under way at MARDS. It is the intention of the GRC to complete the construction using Guyanese contractors and a competent supervising engineer. These arrangements are not all finalized; however, the current timetable calls for completion in December 1974. The top staff for the research activity has been selected.

8. Mill and Georgetown Bond Improvements

- (a) MARDS - The Rhodes-Checchi report proposed significant modifications, additions, and replacements to the rice mill proper, including a new cleaning house. These modifications were intended to increase parboiled head rice yields by about 7% and total parboiled yields by a like amount. White rice head yields were projected to increase about 7% and total white rice yields about 6%.

One change only was made -- Satake Whiteners were added and made into the second milling stage in the mill, retaining all of the Engleberg Hullers replaced and converting them to first stage hullers.

- (b) MARDS Grantex Mill - Similar modernization of this milling unit was proposed, excluding paddy cleaning, by the Rhodes-Checchi team with similar results expected. The Grantex mill no longer exists. It was demolished.
- (c) Anna Regina Mill - Additions and changes were proposed at this mill similar to those at MARDS including a new cleaning system. Here too, only the Satake Whiteners were added as the second milling stage retaining Engleberg Hullers for the first stage.
- (d) Milling System Discussion - At about the time of publication of the Rhodes-Checchi report a decision was reached removing mill modernization proposals from the scope of the work to be considered under the loan agreement. It was expected that the GOG would proceed with these proposals without delay because the incremental cost benefit ratios for these portions of the project were quite high. It is not known to this reviewer exactly why these projects were abandoned, but it appears to have been dictated by available investment capital constraints. Milling yields have improved at Anna Regina and MARDS. Because records are not kept in a fully usable way, it is impossible to state by how much; however, the raw data indicates that perhaps 35 to 50% of the improvement projected may have been attained. Factors other than the one change in equipment have assuredly contributed to improved results. A total yield of 63.5% is considered to be a sort of acceptable, but unofficial, standard by some segments of management. It is stated as "two bags of paddy, for one bag of rice". There remains an excellent potential for improved profits to the GOG sector through improvements in milling equipment and milling technique. Reasonable sustained yield targets (Not maximum potential) should be in the magnitude of 70% for parboiled, 68.5% for medium grain white, and 66% for long grain white. In addition, practically all of the improvement should be expected to be in the valuable head rice. Present yields are significantly higher than they were in 1967. At that time parboiled yields were about 62% and white rice about 59%. Combined yields in 1972 for MARDS were 63% and Anna Regina, 65%. Most of the volume was parboiled.
- (e) Georgetown Bond Benefication Plant - The feasibility study proposed improvements to the remilling plant located in the Georgetown Bond, by replacing old cone and polishing machines with modern Pearlors and adding ten new Sortex Color Sorters to the system to increase the quantity of higher quality rice for small package sales. This segment

of the over-all project was also removed from the loan portion of the project and the RMB undertook the work, using its own resources. The work was done. In addition, a second remilling plant, even better equipped, has been installed. The total cost was G\$1,200,000. The justification projected for the remilling system modifications was a 2% to 3% increase in total yields and an increase of 4% to 5% in head rice. The records did not permit rapid verification of the yield results attained. The principle justification for the new sorters was elimination of 8 hand picking tables staffed by 60 women. They are no longer used.

Increases in packaged rice sales to 24,000 LT per annum were tentatively projected for 1975-76; however, sorting capacity was provided for only 12,000 LT per annum. Twelve thousand LT represented a 300% increase over the 4,000 LT annual sales expectancy in packages in 1967. Package sales have passed the 9,000 LT level, up 225%. Certainly the 12,000 LT provided for seems attainable by 1975-76, with significantly higher levels being attained, progressively, as conversion from bulk to packaged rice continues in traditional markets. Faster increases could be attained, as and if larger crops permit, and require, sales penetration beyond the traditional markets.

9. Plant Maintenance - Spare Parts Inventory

The investigations in 1967 disclosed inadequate maintenance in the GOG owned plants. It was recommended that a simple work order system be initiated in conjunction with a defect reporting system. It was also recommended that plant operators be indoctrinated into the idea that simple maintenance that can be accomplished with a screw driver, pliers, and an adjustable wrench is part of their operating duty.

There is no present evidence that anything has been done to improve maintenance performance in the mills. The Georgetown Bond is in better condition.

Various conferences brought out that expensive losses accrue due to inadequate maintenance on farm equipment -- a fleet of some ninety tractors and ninety combines with their accessories. Difficulties also frequently occur at the Georgetown Bond due to maintenance failures with lift trucks, warehouse tractors, cranes, motor trucks, and electronic equipment.

There is a special problem with inventory control of spare parts. There have been routine heavy write offs for obsolete farm equipment parts. There are frequent instances of long shut downs of milling units and farm equipment awaiting parts. A card index system for parts inventory control has been started at MARDS and Anna Regina but has not been developed to the point where it provides proper lead time considerations, and proper reductions in inventories for farm equipment scheduled to be replaced.

10. Accounting

Investigations in 1967 brought forth the belief that reasonably acceptable financial accounting was being performed in the two GOG agencies. Acceptable "operating statements" and "balance sheets" were being produced. There was practically no "management control accounting" being performed. It was recommended that internal management control accounting be added to the system. Specific systems recommended were sales forecasting; expense budgeting by responsible managers; "variable" budgeting for volume sensitive activities; manpower performance measurement; milled rice yield reporting; product costing; and sales netting.

None of these internal management control systems appear to have been adopted as recommended. A start has been made at budgeting of expense. Although intended to be a projection of department manager's expectations, that has not yet been attained. As of now, they are Accounting Department projections and insensitive to volume of production. They are used for comparisons to actual expense by the higher echelons of management, including GUYSTAC, but do not serve operating managers as a control tool.

A "Monthly Operating Cost Statement" being prepared is a start toward yield, costing, and expense reporting. It does not presently serve as an adequate control tool.

A start has been made in establishing an accounting system for a merged rice corporation. Charts of Accounts have been developed for cost centers. It is this investigator's opinion that significant benefits could accrue through a systems analysis of the entire paper work flow, coincidental to, or preferably a bit prior to, the actual time of the merger.

11. Sales Department

The Rhodes-Checchi report recommended the establishment of a modest sales department with representatives working in the four major markets available to the GOG corporation, a modest advertising program, and a modest market research program. Although there has been more activity in these areas than existed in 1967, such an integrated sales effort has not been organized. The pressure of supplies has not been of a magnitude requiring such effort; however, higher average price realization could possibly result from greater investments in selling effort. For example, the change from bulk rice to more profitable packaged rice could perhaps be further accelerated. It still appears that full values are not being attained from byproduct sales.

12. Finance · Business

The assumptions made in 1967 were that the GOG activities in the rice business would be integrated and would become profitable. Specific considerations expressed in the original documents follow.

- (a) It was expected that the RDC and the RMB would be merged. That has not been accomplished; however, that remains the plan and it is expected to be accomplished within the near future.
- (b) It was expected that the GOG would acquire all outstanding capital stock of the RDC, and would assume and relieve the two agencies of all long-term debt, all of which was delinquent. This was accomplished.
- (c) It was projected that the merged corporation would be profitable. The RMB has become profitable. The GRC, successor to the RDC, has not. A pro forma summarized statement of recent combined operating history follows.

Operating Profit or Loss

		In C\$000 Years Ending In	
	1969	1970	1971
GRC	(-) 178	(-) 502	(-) 669
RMB	<u>(+) 1,934</u>	<u>(+) 632</u>	<u>(+) 366</u>
Combined	(+) <u>1,756</u>	(+) <u>121</u>	(-) <u>303</u>

Cash Flow-Profits Plus Depreciation

GRC	(+) <u>87</u>	(-) <u>250</u>	(-) <u>277</u>
RMB	<u>(+)2,167</u>	<u>(+)1,163</u>	<u>(+) 757</u>
Combined	(+) <u>2,254</u>	(+) <u>913</u>	(+) <u>480</u>

Net Working Capital - Net of Current Assets and Current Liabilities

GRC	(-) <u>48</u>	(-) <u>426</u>	(-) <u>818</u>
RMB	<u>(+)3,780</u>	<u>(+) 158</u>	<u>(+) 275</u>
Combined	(+) <u>3,732</u>	(-) <u>268</u>	(-) <u>543</u>

As of the time of this study, 1972 data remained incomplete and unaudited. It is known that 1972 was a better year. Inclusion would surely have disclosed a much more favorable combined result.

The reduction in net working capital shown is accounted for primarily by large capital asset expenditures by the RMB in 1969-70 -- G\$4,326,929 -- paid for out of working capital. The reports for 1970 and 1971 also show non-current assets, not included above, of \$1,002,000 and \$1,431,000 respectively, representing capital and production loans to farmers, funded out of working capital. The chartered accountants have not verified the worth of these receivables.

Significantly increased grants in aid -- G\$716,000, 1969; G\$1,515,000, 1970; and G\$1,751,000, 1971 are the largest single reason observed for lowered RMB profits in 1970 and 1971. The deferred assets discussed in the preceding paragraph appear to be a cumulative, partially offsetting credit for the loan program portion of the grants-in-aid expenditures. The greatest source of the continuing losses at GRC are rice factory operations and particularly at MARDS. Anna Regina showed a small loss in 1969 and 1970 and a profit of G\$72,000 in 1971. MARDS mill showed losses of G\$151,500, 1969; G\$338,000, 1970; and G\$579,800, 1971.

A simplified record of one year's average product cost and loss follows for MARDS. The year 1972, the loss G\$468,700, the volume 238,968 bags milled rice, all as taken from the "Operating Cost Statement", rounded; therefore, numbers do not precisely match.

Average Per Bag of Rice - G\$

Income from Rice	\$16.67
Income From Byproducts	<u>1.48</u>
Total Income	\$18.15
Cost of Paddy (yield 63% Rice)	\$13.47
Mill Expense	3.29
Package Material Cost	0.93
Transportation	0.43
Depreciation	0.54
Allocation of Interest	0.71
Allocation of Indirect Expense-Georgetown	<u>0.76</u>
Total of Costs and Expense	\$20.13
Net Loss	\$ 1.98

Crude estimation of the data available without time consuming detailed investigation, indicates that the use of the assets under control of the MARDS mill manager (not incl. depreciation, other overhead allocations, package materials, and transportation) result in about a breakeven operation -- no margin added by manufacture. If there is no margin added by manufacture then the operation can hardly

absorb the overhead costs. There are only four avenues open for correction.

- (a) Reduce the price for paddy.
- (b) Increase the price for rice.
- (c) Improve the recoveries from raw material - yields and grades.
- (d) Reduce expense.

The differential between the fixed prices paid for paddy and the fixed prices paid for milled rice provides the margin which must cover the entire costs and expense from the mill receiving pit to the Georgetown bond, plus any profit the miller may earn because of his efficiency. He has no latitude, except within that differential. There has been no significant change in the fixed differential between the paddy and milled rice prices in many years. During those years inflation has constantly increased most of his costs for labor, materials and services. The only compensating action open to him has been to improve the efficiency of his operations. The miller has been unable to keep pace. At some point in time the differentials must be adjusted to recognize the effect of inflation on the miller's operation.

There appears to be sufficient room in the latter two categories in all the GRC within the present price spreads, to turn the operations of the GRC into profitable business. That will only be achieved with vigorous attention to processing detail by qualified people and vigorous correction of the major expense inefficiencies throughout the operations, particularly in the plants. There is not sufficient margin between the prices for paddy and milled rice products to permit the agency to serve as an employer of people it does not need to efficiently man the operations. Investments in improved facilities and in some critical key employee posts will unquestionably result in very high cost-benefit ratios, if well-managed. Without price relief, the profitability will be minimal at best.

The Rhodes-Checchi study projected prices to move up slightly through the years under study. Prices are markedly higher, at present, in the magnitude of 13 to 31% for traditional varieties and 24 to 44% for improved varieties depending upon the exact reference point used and the grades selected for comparison. There is some indication of upgrading of the crop. The major increases have been made in 1972 and 1973. The farmers should benefit a great deal from these higher prices. They should provide incentives to grow more and better rice.

Loan documents indicated that the merged corporation was expected to concentrate on high quality white rice-- not purchase rice unsuitable for the high quality markets. The GOG agencies, in general, buy all rice offered them.

It was expected that the private millers would be decontrolled in the domestic markets and possibly the traditional Caribbean export markets. The RMB continues to be the sole commercial marketing agency for Guyana rice.

Private sector mills were expected to participate in the benefits from "the project" by toll milling paddy from the storage centers. "Private Investment Fund" (PIF) loans were to be offered to entrepreneurs to improve their mills so that they could meet quality standards in milled rice. There has been no toll milling as yet because the Storage Centers are not yet in service. That is still the plan. As of January 1973, there were reported to have been six PIF loans to private rice millers for mill improvements. By 1968 there had been an increase in multistage mills from 66 to 70. No later census has been observed; however, the private sector is still expected to take the opportunity to share in the improved rice industry.

The loan documents indicate that the GOG Rice Corporation shall operate as a business enterprise without subsidy. There is no indication that either of the agencies has since enjoyed GOG subsidies in any form, except in tax relief. They are not taxed as entrepreneurs would be. Conversely, they continue to subsidize farmers and labor through the grants-in-aid and employment practices.

The loan documents provide agreement that the throughput in the GOG mills shall not be increased; in essence, reserving the increases in paddy production to the private sector for milling. No evidence of significant increases in throughput have been observed; however, the capacity to do so has been increased. Four small multistage mills have been acquired, bid in in bankruptcy proceedings. It is believed that their continuity of operation is essential to the rice growing communities in which they are located. Throughput capacities of the two major mills are greater than in 1967; however, the MARDS Grantex mill has been demolished.

13. Research

The Rhodes-Checchi report suggested that efforts in applied research seeking to upgrade the products and byproducts of rice could be profitable. Three pilot operations are under way in this area:

- (a) A formula feed operation using Ralston Purina concentrates and domestic bulk ingredients, including rice byproducts.
- (b) A rice flour manufacturing operation utilizing broken grain.
- (c) A rice wine manufacturing operation utilizing broken grain.

This reviewer applauds those efforts.

14. Technical and Management Assistance

The Rhodes-Checchi report recommended the following efforts in technical and management assistance.

- (a) Management Development Training for all management personnel.

- (b) Foremanship Training for all plant supervision.
- (c) Quality Control Training for all graders and laboratory personnel.
- (d) Sanitation Training for plant sanitarians and plant management.
- (e) Operations Training for the new Dryer-Storage Centers.
- (f) Milling Short Course for those actively engaged in rice milling.
- (g) Employment of a competent milling consultant to actively assist in improving milling results.
- (h) Employment of a training director for one year to procure, plan for, and implement the above programs.

The loan and/or the Pemar contract provided for the following:

- (a) A consultant to train rice research personnel for two years. Six Guyanese trained six months at a foreign station.
- (b) The D-S Center construction contractor is to provide operations and maintenance training to those centers' personnel for a 1-year period.
- (c) Consultants to assist the agency in all phases of its operations for at least two years.

As of this time only one portion of the technical and management assistance program has been activated. The contractor for the D-S Centers has prepared a good combined classroom and on-the-job training program. The classroom text material has been reviewed and appears to be well-done. If properly presented it should provide the necessary background knowledge. The planned approach to on-the-job follow up has been reviewed with the responsible Pemar training director. Those plans appear to be well thought out and adequate in every respect if followed properly. The classroom work has been presented to the Anna Regina people and a start made in the on-the-job phase at the Center. The results appear to be excellent as of this time.

The RMB has conducted one-day seminars (3) for key people at three different levels consisting of lectures and open discussions.

The Guyana State Corporation (GUYSTAC) organized since 1967 to own all of the GOG business enterprises, is committed to provide technical and management assistance to its subsidiary organizations. In consideration of a service fee charged to the subsidiary, GUYSTAC is committed to provide assistance in labor relations, management training, general accounting, and in auditing services.

With the exception of the Pemar effort, no concerted effort has gone into the projected needs and requirements for training, or technical and managerial assistance.

SECTION III - RECOMMENDATIONS

The investigations made, with results as described in the preceding section, were primarily made to guide recommendations for technical and managerial assistance to the merged Guyana Rice Corporation. Such recommendations follow. There is no order of importance or priority to be inferred from the order presented.

1. Rice Research Center

There is no doubt but that technical training, technical assistance, and perhaps some initial management assistance is essential to effective initiation of activity, and early benefits from the Rice Research Center. This writer is not qualified to specify or recommend details. He considers Drs. Norman Efferson and Rouse Caffey of Louisiana State University to be pre-eminent people available to specify such activity and direct the effort. They are interested in doing so. It is recommended, therefore, that the services of these experts be obtained at an early date -- first, to plan the training and technical assistance activity. After plans are agreed upon, this writer would expect to find them to be the most competent people to supervise the program.

2. Dryer-Storage Centers

It is believed that no additional program is needed in training people for operation and maintenance of the D-S Centers, elaborating on the one that is being provided under the Pemar Contract. It is suggested that constant appraisal of the effectiveness of that effort, at each site, will be in order.

3. Management Development

All management is a process. It is a four-step process. All four steps are accomplished by every manager in every facet of his management responsibility, with some degree of effectiveness, ranging from excellent to very poor. Even omission of actual consideration and effort on any one step in the process has the usual effect of having poorly done it. Management Development, as used herein, means training in and application of the better ways of conducting the management process. The four steps, and a few of the subjects often covered are:

(a) Planning

Goal Setting - What do we want to do, and why?

Planning - Who will do it? How will it be done?
When will it be done? What alternatives are there? Systems analysis. Budgeting the assets

needed to do it in men, material, machines and money. Orderly decision making. Engineering Economy - Cost Benefit Ratio Analysis, Methods Analysis - Operations Research, etc.

(b) Organizing

Marshalling or mobilizing men, machines, materials and money to fit the plan and budget.

Finance - Having the money needed available under the most advantageous terms, with safety.

Employee Recruitment - Having the right kind of people.

Employee Training - Having the right skills available.

Scheduling - Timing the availability of men, machines, materials and money. Critical Path Programming and similar systems.

Purchasing

Inventory Control, etc.

(c) Performance

The Action Phase.

Motivation - Obtaining performance from people

Labor and Personnel Relations - Work rules, building esprit-de-corps.

Maintenance - Preventive maintenance.

Supervision - Keeping the activity on the planned path.

Wage and Salary Administration

Communication- Keeping people all headed in the same direction.

Delegation

Leadership, etc.

(d) Evaluation

Measurement of Performance.

Financial

Accounting - The scoreboard of result. Operating Statements and Balance Sheets.

Internal Management Control Accounting - The tools of management provided to measure progress on the plan. Auditing of interim. Responsibility accounting.

Quality

Control - Measurement of the suitability of things produced to attain the results expected.

Auditing - Internal and independent public chartered.

} Paper Work Systems
Analysis, etc.

Programs of training, generally covering the process of management are available from several suppliers "off-the-shelf". Custom designed programs can also be made available to fit the specific needs of an organization. Such programs can, of course, be of any length or depth from a two-hour lecture to an eight-year doctoral program. There are often two methods of approach to presentation offered by the commercial sources:

- (a) Materials supplied, and a skilled conference leader supplied to conduct the course at the customer's place of business.
- (b) Materials supplied, and a competent employee of the customer is thoroughly trained by the supplier to conduct the course.

This writer believes that it would be quite useful to the merged corporation to present such a program to the upper and middle management levels. It would be particularly useful in order to get management people to all be looking at the job to be done in the same general way-- to help organize the goal setting and then the implementation procedures.

This writer does not believe that it would be desirable to contract for a program that goes into the sophisticated tools of accomplishment in great depth, i.e., E.D.P., Operations Research, etc. The goal should be the shortest, most unsophisticated program, that will provide these management levels with a common experience designed to help insure similar, sound responses to the problems of managing the rice business. Sophistication can come later, with more profit potential, after the basic needs are satisfied.

It is recommended that the initial presentations be made by a skilled conference leader supplied by the supplier of the text material.

For the long term, it would be highly desirable to have a competent member of the staff trained as a skilled conference leader for continuing effort. That could be done at any time.

It is recommended that an investigation be made immediately under USAID auspices, of U.S. sources, of such programs presently available. That investigation should determine:

- (a) The program content
- (b) The presentation methodology
- (c) The time required in conference and in study
- (d) The costs involved
- (e) The reputation and reliability of the source

From that investigation result, the merged corporation would select the program. Such an investigation could be completed in two weeks time, more or less.

4. Foreman Training

A foreman is, of course, "management"; therefore, the statements made with respect to the management process apply to him as well as to the higher echelons. His needs within that process differ only in degree and emphasis. Sophisticated systems and solutions are of less use to him than to higher echelons. While he must use the whole process, his actual time and effort is more heavily concentrated in the organizing, and performance, or action steps of the management process. Foremanship training typically takes his special needs for help in the things he personally does, into account, for special emphasis, and at a lower level of sophistication.

In general, the foremen in the GOC rice plants are not trained or experienced leaders. They tend to be the "straw boss" or "gang pusher" types who depend upon their superiors for decision making and all problem solutions. They are not presently ready for advanced foremanship training. They appear to need the most simple program, directed almost solely to their operating needs as can be found for them. For a condition such as this, the most effective program this writer has been exposed to is, the short and to the point, three-pronged program, used by the U.S. War Manpower Agency to create thousands of new, effective foremen in the mid-40's.

That program:

(a) Job Instructor Training

Teaches the foreman how to train his men:

- He learns how to tell them how.
- He learns how to show them how.

- He lets them do it.
- He supervises and corrects performance.

(b) Job Methods Training

Teaches the foreman how to organize work.

Teaches simple techniques for re-organizing work to increase efficiency.

(c) Job Relations Training

Teaches foremen how to get work done through people.

Stresses motivation - satisfying the needs of the people, in exchange for good performance.

It is recommended that such a program be presented to the foremen and plant management people. Such programs have been available in the U.S. from commercial sources, "off-the-shelf". It is recommended that precisely the same actions be taken under the USAID auspices to determine the details of the programs available as was recommended for "Management Development". That can and should be done concurrently with the investigations for a "Management Development" program.

5. Milling Technology and Mill Management Assistance

The greatest impact on the profitability of the Guyana Rice Corporation portion of the merged corporation, which can be accomplished within a reasonable time is correction of the serious losses incurred at the two major mills. These losses are being incurred in each of the two major areas of activity under plant control - product recovery from raw materials, and plant operating expense. It is unlikely that correction will be brought about from internal sources. The specialized knowledge and skills to do so do not appear to exist in Guyana.

It is recommended that a technical expert be employed who is thoroughly experienced in the process of rice milling and rice mill management. He should meet the following criteria:

- (a) He shall have been experienced as a commercial sized rice mill manager or plant superintendent, or be well-qualified to assume such a post by reason of his background and experience.
- (b) He shall have had extensive personal experience in actual rice milling, parboiled and white, with responsibility for the quality of the products, and the recoveries from raw material (yields).

It is expected that his efforts shall result in a significantly improved economic recovery from raw materials and an improvement in the average quality of the rice produced.

- (c) Preferably, he shall have an engineering degree from a recognized college. In lieu thereof, he shall have command of Algebra at the college freshman level; read engineering drawings; have full understanding of rice plant control accounting, including the arithmetic of economic conversion of paddy to rice; and sufficient understanding of the economics of engineering to prepare simple cost-benefit ratio analyses of capital investment proposals.
- (d) He shall be fully conversant with all of the rice milling equipment and processes available to rice millers and be capable of appraising their applicability to the GOG mills.
- (e) He shall be experienced in the efficient organization of the work in a rice mill, particularly with respect to manpower allocation. It is expected that his efforts shall result in a significant improvement in operating expense.

There are many people who will meet the requirements of those specifications, but they will be hard to recruit. Most of them are satisfactorily employed. This writer knows of only one possible prospect at this time who appears to fully meet the needs. A second prospect known, that meets the technical needs, does not display initiative to get the work done. Simply employing a rice miller from a foreign source will not solve the problems. He must be technically qualified and vigorous in his approach. He will command a substantial fee and will be well worth it, if he performs.

This technical consultant should be employed for not less than one year, with the possibility left open of extending the time.

Because of the troublesome losses sustained for years in this area of the business, this action should probably enjoy number one priority. The action should not be taken at all unless the top management is prepared to vigorously support his efforts. Without that support, the effort is not likely to succeed.

6. Milling Short Course

It is believed that much could be gained by training in rice milling techniques for the rice mill supervisors and their key personnel. It is proposed that a "short course" be prepared to cover at least the following subjects:

- (a) Paddy Drying
- (b) Paddy Storage
- (c) Parboiling and Drying

- (d) Multi-Stage Milling
- (e) Milled Rice Storage
- (f) Quality Control - Paddy and Milled Rice.

This writer knows of no prepared course in rice milling. Kansas State University's "Department of Grain Science and Industry" and "Food and Feed Grain Institute" have the qualified people and experience in such activities to properly prepare and present such a short course. They have expressed an interest in doing so. It is believed that such an activity might logically fall under their USAID Contract to provide assistance in the grain storage and processing fields. If so, there would be little lost time required to complete negotiations for the work. It is recommended that they be employed to do so.

The timing of such a program would, of course, have to be worked out with Kansas State University; however, preferably it should be presented in Guyana after the milling consultant, recommended in the preceding item, is in country.

The entire rice industry would benefit from improvements in the performance of the private sector rice mills. It is recommended that staff members of the Government Technical Institute participate in presentations made by KSU personnel to the Government sector people. After those presentations to the rice corporation people, the Institute could take over the course and offer it to the private sector. No one can accurately predict the response. The Institute has had favorable experience in doing so in other fields.

7. Sanitation Short Course

Sanitary conditions in the rice industry in Guyana continue at an intolerable level for an industry storing and processing foodstuffs. Economic losses through depredation by pests and domestic animals continues to be high. This is true in the GOG activities and in the private sector.

Kansas State University has well-qualified people in this field, who are experienced in the development and presentation of sanitation short courses. Because they have prepared such courses before, preparation may approach off-the-shelf procurement of the text materials. Here again, KSU may be able to prepare and present this material under its USAID global contract for such assistance, greatly reducing the time required for negotiations with another source.

It is recommended that KSU be commissioned to prepare and present such a short course in Sanitation. It is recommended that it cover at least the following subjects:

- (a) Plant inspection methods
- (b) Insect identification

- (c) Insect Control Methods
 - Residual Sprays
 - Gaseous Fumigants
- (d) Rodent Control Methods
- (e) Bird Control
- (f) Domestic animals and fowls

It is recommended that the time of presentation be after the arrival of the milling consultant provided for herein. It is also recommended that "Plant Sanitarians" be appointed at each of the major plants whose job it shall be thereafter, to conduct the inspections and perform the control measures taught. The result of this effort should not be just an exercise in education. It should be a prelude to effective action in routine sanitation procedures. In addition, to the "Sanitarians" recommended, plant management people responsible for storage, milling, and quality control, should be in attendance. It could be useful to have key representatives of the independent millers in attendance. Consideration should also be given to having the Technical Institute, or a similar organization more directly related to agriculture, participate with a view to continued effort in the private sector.

8. Short Course in World Marketing

The real future for profitable development in Guyana rice remains development of white rice business in the world markets, bordering on the Atlantic Ocean. The traditional markets will not absorb the volume Guyana is planning to produce. Penetration of those profitable markets remains a viable and necessary ingredient to success when farm production outstrips traditional market consumption. Weather permitting, surplus supplies could be nearby.

This writer, and other knowledgeable people, do not believe that sufficient information and experience is at hand in Guyana to intelligently develop those markets, particularly in Europe, including the United Kingdom. Dependence would have to be placed on the Connell contract.

There is nothing wrong with the Connell contract per se. It simply is not likely to result in the development of a profitable long-term consumer franchise for Guyana rice. That should be the goal.

It is recommended that a short course or seminar program in International Rice Marketing be developed and presented to the top management and sales personnel of the merged corporation, with particular reference to the Atlantic markets. Such a program should cover:

- (a) Which countries are importers of rice?
- (b) Who are the suppliers of those imports?

- (c) What volume is imported into each market?
- (d) What kind and qualities of rice are imported into each market? (Samples highly useful.)
- (e) What kind and qualities of rice are liked in each market? (Not always synonymous with kind and quality imported.)
- (f) Who are the buyers in each market -- the importers?
- (g) How are prices determined?
- (h) The role of the international grain merchants in rice trade. Who are they?
- (i) Transportation costs -- the effect on competition in various markets.
- (j) Protective barriers -- the effect on competition in various markets.
- (k) The relative attractiveness of the various markets for Guyana rice. Where can Guyana best concentrate its efforts to build a long-term franchise?

Louisiana State University, under the direction of Drs. Norman Efferson and Rouse Caffey, is probably as well-qualified as any source available to prepare and present such a program. They are interested in doing so. If they are also commissioned to provide the required assistance for the Research Center, some efficiencies could result from having them undertake this program. There are few other potential sources.

9. Accounting

This writer believes that GRC-RMB financial accounting has produced acceptable operating statements and balance sheets, although they have not been published on a timely basis. Distinct improvements have been noted in the Annual Reports, particularly those of the RMB. Internal control accounting has been improved since 1967, but remains inadequate and ineffective to accomplish its purpose -- it does not provide management people with current tools designed to directly assist them in the effective daily management of the business. This writer believes, though, he could not possibly have investigated in depth, that the paper work flow, starting with initial, primary documents, offers excellent opportunities for significant savings. Examples of repetitive and duplicate form preparation were observed. An example of hand drawing a fairly involved daily form was observed. Wasted effort in clerical expense is as costly as any other inefficiency. It can also result in retarding the smooth flow of other activities.

It is recommended that careful consideration be given to a paper flow systems analysis designed to result in elimination of needless forms and needless work. It would be expected to result in lower clerical costs. It would be expected to provide, an effective, timely, internal management control system. It would be expected to provide a product costing and sales netting system. Such guides, available on a timely basis, are pre-requisites to successful management of a grain processing and merchandising operation. Such a system should be designed so as to be adaptable to computerization without significant redesign.

The number of accounts and records processed manually in the two GOG agencies may run to the middle five figures. Computerization may be economically sound. This study could determine the cost-benefit ratio available from computerization. This writer would not attempt to pre-judge the value of computerization to the merged operation. Many well-run grain processing and marketing operations of equal or greater size and complexity have found it unprofitable to do so. Others of smaller size and complexity have done so, and report satisfaction with the result.

Most of the major accounting firms in the U.S. offer accounting systems analysis and design services. It is recommended that one of these firms be employed to make the analysis and to design needed new systems. They should also be employed to calculate the cost-benefit ratios available from computerization. A condition of such a contract should be that the group employed to do the work shall contain at leadership level, people who are well-experienced in grain storage and processing accounting, and preferably with experience in the rice industry. A condition of such a contract should be that either on the staff, or supplied by a qualified consultant, shall be one or more people with operating experience in the rice industry, of sufficient scope to review the recommendations for adequacy and efficacy as an operating system. A condition of the contract should be that the resulting data must meet the generally accepted accounting standards of the chartered public accountants of Cuyana.

10. Mechanical Maintenance Training

A constantly recurring request and suggestion for technical aid and management assistance was in the area of maintenance training and maintenance parts inventory control. The needs appear to be particularly severe in agricultural machinery at MARDS and Anna Regina but extend into the two major mills and the Georgetown Bond as well. In Georgetown the major problem is with motorized warehouse vehicles -- lift trucks, tractors, cranes, etc.

Spare parts inventory control at MARDS and Anna Regina is presently inadequate to reasonably insure that parts will be on hand when needed and that there will be a minimum loss from obsolete parts when equipment is replaced. Losses from idle time on the mills and with agricultural machinery have been excessive due to parts shortages. Losses due to write-offs of obsolete parts, largely agricultural machinery, have been heavy, for example, \$67,000 in one year, largely due to equipment replacement.

MARDS and Anna Regina have a card system for maintenance of parts inventory counts. They simply have not taken the additional steps of

- (a) Adding "order point" procedures, lead-time considered.
- (b) Maximum inventory position.
- (c) Reduction procedures to reduce loss from obsolescence when decisions are reached to replace equipment.

No sound system will result in complete freedom from out of stock positions. The cost of inventory would be too high. No sound system will completely eliminate parts obsolescence. The losses from idle time on operating equipment scheduled to be replaced would be too high. The goal must be minimal lost time and obsolescence, costs considered. In addition to recorded usage, good judgement must be applied to lead time, and risk for these control systems to work well. It is recommended that improvement of the parts inventory control system be a joint charge to the person employed for technical assistance as provided under Item No. 5 and the accounting group, provided under Item No. 9. Such collaboration should result in an improved system and reduced losses.

There exists in Guyana today a Government Technical Institute with two schools, one in Georgetown (enrollment about 1,800) and one new one in New Amsterdam (enrollment about 800). These schools are primarily concerned with practical training in the mechanical arts and sciences at the trade school level.

Descriptions of their curricula and inspection of their Georgetown facilities, indicate quite adequate capabilities to train or supply skilled craftsmen. The principal of the school indicated interest in tailoring special programs to the needs of the industry, including short courses, if needed. For example, with the help of Ford, Massey-Ferguson, or other technical personnel, tailor a crash program to improve maintenance performance on farm equipment. This writer sees no reason why the rice corporation cannot obtain all of the help it needs in training "skilled craft" personnel through close cooperation between the Rice Corporation and the Government Technical Institute, with assistance from the major equipment suppliers. It is recommended that the Rice Corporation initiate such cooperative action.

11. Grading

The standing committee working on new standards appears to have a clear cut understanding of the needs of Guyana for a new paddy and rice grading system. It is their current intent to base the new standards on the qualities that move in international trade -- world trade standards, and based on objective measurements.

In this writer's opinion, such standards will prove to be essential to success in Eastern hemisphere markets and most helpful in meeting

long-term competition in the traditional Caribbean export markets. It is this writer's opinion that there will be strong resistance to higher quality standards for the higher qualities of rice. The Committee will need and should receive full and vigorous support from the Corporation management and the GOG. At this time, they do not appear to need help in the further development of their proposals. If unforeseen problems should develop in the future, USAID might logically assist by providing the services of a thoroughly experienced U.S.D.A. rice grading expert on a short-term consulting basis.

12. Job Evaluation

In 1967, there was dissatisfaction with wage and salary rates in the GOG rice agencies. Investigation at the time disclosed that disparity did exist. That dissatisfaction appears to persist. Real or fancied, the beliefs have a deleterious effect on morale. No immediate action is suggested; however, after the merger, and after sincere longer-term effort is made at shaping up the manpower efficiency of the merged corporation; then serious consideration could logically be given to a formal program of job evaluation in an effort to improve morale and assist in the recruitment of new people -- a frustrating experience for present management, particularly for important jobs out of Georgetown.

Formal job evaluation programs, properly conducted are quite objective, and can result in thoroughly defensible, sound wage and salary schedules. There are, in the U.S., commercial sources for job evaluation programs. Such sources either provide a complete service, including materials and personnel to conduct the evaluation, or some will provide the materials and train the client's people to conduct the evaluation. Well-designed programs include updating mechanisms so that the complete detail never has to be done again. The system becomes a continuing management tool to insure that fair, defensible wage and salary schedules are in effect. At the time that such a program is wanted, it is recommended that a complete service be employed for the initial evaluation. It is recommended that a condition of the contract requires the contractor to provide training to Guyanese personnel to continue the system's operation into the future.

13. Dryer-Storage Center Consultant

Recent thinking with respect to managerial assistance has included the use of a consultant to assist in the effective integration of the Dryer-Storage Centers into the rice industry. He would provide assistance in the following areas:

- (a) Administration of the Centers.
- (b) Coordination of the Centers into the business flow of the rice industry.
- (c) Actual operation of the Centers.

Such a man may be needed. The option to employ him should be kept open. The following considerations appear to pertain to his employment:

- (a) It is possible that the consultant to be employed immediately (Item 5), could be both qualified and able to provide the assistance needed, depending on the qualifications of the man found and the demands that may be made on his time in the private sector.
- (b) If a fully qualified man is found to fill the Item 5 position, but the demands on his time are excessive, it may well be possible to effectively cover the entire need by providing him with an assistant. Such an assistant could be expected to be easier to find, to recruit, needed for less time, and less costly. The experience and skill levels may not need to be as critically high.
- (c) Because of the timing of completion of the Centers, the timing of employment of this specialist, if and when needed, may logically be deferred, possibly into 1974.

It is recommended that the employment of this consultant be held open and deferred until such time as the technical and management consultant (Item 5) is on the job, in country. Then with the skills available more clearly in view, and the time demands more clearly in view, from the development of other actions in progress, the need both in skills and time can be more clearly defined.

14. Maintenance Consultant

The use of a consultant to develop an effective maintenance program including, preventive maintenance, has been part of the on-going plan. It has been expected that such a man would assist in all of the areas of the GOG owned rice facilities -- farm machinery, mills, D-S Centers, and bonds. The farm machinery fleet is a particularly troublesome area needing attention. The following considerations appear to pertain to his employment.

- (a) The need for a program is evident and immediate.
- (b) Such a man could contribute materially to the development of a sound parts inventory program, as discussed before.
- (c) Such a man could contribute to the development of programs of training provided by the Technical Institute as discussed before.
- (d) The work of this man would need to be coordinated with the work of the technical consultant (Item 5).
- (e) It is this writer's belief that a suitable man to fill this position will not be difficult to find and recruit.

- (f) It is quite possible that the most effective way to organize this work would be as an assistant to the technical consultant (Item 5). That would depend largely upon the qualifications found in the people.

It is recommended that such a man be employed. It is recommended that the actual employment be deferred until the technical consultant (Item 5) is in country and has had an opportunity to examine the problem at MARDS, Anna Regina, and the Georgetown bond in depth. Then in view of the range and depth of competence available in the technical assistant (Item 5), and his findings with respect to the maintenance needs of the properties and equipment in hand, the better method of organizing the work can be determined and a suitable man recruited. The needed time can also be more logically determined. This writer would expect this effort to be implemented during the last quarter of 1973 if the chain of events precedent thereto are logically implemented.

15. Management Support - Liaison

It has been this writer's experience that "short courses" and "one shot" technical assistance can be very helpful and quite profitable -- but only under one general condition. Top management must want them, must support them vigorously, and must communicate the idea forcefully that information presented is intended to be used in operations. They should not be permitted to become solely exercises in academic education, however attractive that might be. It is recommended that the GOG save their money and reject any specific proposal made herein for which they are unwilling to provide vigorous support.

There will be a great many details to be worked out before the conduct of any of the programs recommended become reality. Once the programs to be pursued are selected, there will be a distinct need for close and prompt liaison between the Corporation, USAID/Guyana and AID/Washington to bring them into being in a prompt orderly manner. Specific people should be assigned that liaison responsibility.

It will be noted that this writer has in the foregoing proposals for technical assistance, by technical consultants, outlined a form of organization for the work in the industrial properties in which the technical consultant (Item 5) would be a team leader, as well as the rice milling consultant. All of these works are inter-related and should be coordinated. If a strong vigorous man of excellent technical and managerial background in the rice industry can be found and recruited for that position, this writer believes that such an organization of the effort would be most effective.

16. Executive Review

Mr. Gavin Kennard, Executive Chairman of both the GRC and the RMB has reviewed the recommendations made herein, in rough draft form. He has expressed full agreement with the recommendations as then presented to him. This document does not differ in form and sense from the

preliminary draft, except to make minor corrections and alterations resulting from a review meeting attended by Mr. Kennard; Mr. Robert Hamer, Mission Director, USAID/Guyana; and Mr. Marvin Brigham, Chief Engineer, USAID/Guyana.

It is realized by all directly concerned people that all of the proposals recommended herein cannot be implemented simultaneously. Mr. Kennard, in recognition thereof, has requested that every reasonable effort be made to order the work in the following priorities. He understands that the availability of people and services may dictate alterations.

Priority No. 1

- Item 5 - Technical and Mill Managerial Assistance
- Item 6 - Milling Short Course
- Item 7 - Sanitation Short Course

Priority No. 2

- Item 9 - Accounting
- Item 3 - Management Development
- Item 4 - Foreman Training

Priority No. 3

- Item 10 - Mechanical -- Maintenance Training
- Item 14 - Maintenance Consultant

Priority No. 4

- Item 4 - World Marketing Short Course

Priority No. 5

- Item 12 - Job Evaluation

Status of the Other Items

Item 1 - Rice Research Center -- Work with Louisiana State has been initiated.

Item 2 - Dryer-Storage Centers -- Work well under way by Pamar.

Item 11 - Grading -- Assistance deferred, if needed at all.

Item 13 - D-S Center Consultant -- A deferred item that should be considered open.

Item 15 - Management Support -- Liaison. Mr. Kennard fully supports the recommendations. Implementation is not yet organized.

As part of the liaison activity, the estimated costs of each item in the program requiring funding should be calculated and presented for approval as part of the program documents submitted for approval.