UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

GUYANA

PROJECT PAPER

WEANING FOOD DEVELOPMENT

(AMENDMENT)

LAC/DR:78-25/1

Project Number:504-0073

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: 1

DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Guyana

3. PROJECT NUMBER: 504-0073

4. BUREAU/OFFICE: USAID/Guyana — LAC

5. PROJECT TITLE (maximum 40 characters): Weaning Food Development

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 12 DD 31 YY 85

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)
A. Initial FY 78 B. Quarter 4 C. Final FY 85

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 78 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	293.6	31.4	325	1038.6	136.4	1175
(Grant)	(293.6)	(31.4)	(325)	(1038.6)	(136.4)	(1175)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1. PL 480 Title II	-	-	-	779	-	779
Other U.S. 2.						
Host Country	--	280	280	188.	2198	2386
Other Donor(s)						
TOTALS	293.6	311.4	605	2005.6	2334.4	4340

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) FN	300	300	-	515	-	660	-	1,175	-
(2)									
(3)									
(4)									
TOTALS				515		660	-	1,175	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	NUTR	TECH				
B. Amount						

13. PROJECT PURPOSE (maximum 480 characters)

To establish the capacity and test the feasibility of the production and the distribution in Guyana of a nutritious weaning food made from indigenous commodities.

14. SCHEDULED EVALUATIONS
Interim MM 10 YY 83 MM 10 YY 84 Final MM 01 YY 86

15. SOURCE/ORIGIN OF GOODS AND SERVICES
[X] 000 [ ] 941 [X] Local [ ] Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment.)

The PP amendment, which will be authorized in August 1982, will provide an additional $660.000 in grant funds over a period of three years in support of Guyana's efforts to continue production of a nutritious weaning food as a diet supplement for malnourished children under two years of age.

17. APPROVED BY
Signature
Title: Acting Mission Director USAID/Guyana
Date Signed: MM 08 DD 27 YY 82

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY

AID 1330-4 (8-79)

PROJECT PAPER AMENDMENT

WEANING FOOD DEVELOPMENT

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AMENDMENTS/NATURE OF CHANGE PROPOSED

A.I.D.'s grant and PL 480 Title II resources will be used to maintain weaning food production at the existing plant, while efforts are being made to stimulate and expand domestic production of corn, soybeans and other commodities for the processing facility. A.I.D. inputs will include equipment and materials, PL 480 Title II food assistance, technical assistance for equipment installation and soybean production, and marketing studies. The Government of Guyana (GOG) is expected to contribute the equivalent of US$1.9 million to the implementation of this activity. The increase being requested in this PP amendment will bring the LOP funding to US$1,175.000.

*
PL 480 Title II costs at block 8 excludes transportation, shipping and insurance costs.

August 27, 1982

PROJECT AUTHORIZATION

Country: Guyana

Project Title: Weaning Food Development

Project Number: 504-0073

Pursuant to Part I, Chapter I, Section 103 of the Foreign Assistance Act of 1961, I hereby authorize an increase in the grant to the Ministry of Economic Planning and Finance, Government of Guyana, not to exceed SIX HUNDRED AND SIXTY THOUSAND UNITED STATES DOLLARS (US$660,000) to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described below, as well as the provision, subject to the availability of funds and commodities, of 1,220 MT corn, soy flour, non-fat dried milk and vegetable oil for the manufacture of the CEREX.

The Project seeks to establish the capacity and test the feasibility of producing and distributing within Guyana a nutritious weaning food (CEREX) by providing the resources needed to: 1) equip the plant with the capacity to clean, dehull and process food commodities and ingredients into CEREX; 2) improve packaging and marketing and focus attention on pricing policy, improved targeting and consumer acceptance; 3) test the feasibility of producing indigenous commodities for the plant; 4) carry out feasibility and acceptability trials of other types of blended foods to be manufactured in the plant; and, 5) continue surveys and special studies.

The entire amount of the A.I.D. financing herein authorized for the Project will be obligated when the Project Agreement is executed.

I approve an increase in A.I.D. funding for this Project, not to exceed SIX HUNDRED AND SIXTY THOUSAND UNITED STATES DOLLARS (US$660,000) to be provided from FY 1982 funds, bringing the total A.I.D. contribution to this Project to ONE MILLION, ONE HUNDRED AND SEVENTY FIVE THOUSAND DOLLARS (US$1,175,000).

I hereby authorize the initiation of negotiation of the Project Grant Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and delegations of authority subject to the following major conditions, together with such other terms and conditions as A.I.D. may deam appropriate.

Conditions Precedent

The following conditions will be included in the Grant Agreement:

1. Conditions Precedent to Initial Disbursement

Prior to any disbursement under the Project Agreement, the Grantee shall furnish A.I.D., except as A.I.D. may agree in writing, a plan and schedule jointly agreed to by the Ministry of Health, in form and substance satisfactory to A.I.D., for providing regular deliveries of CEREX to the remaining MCH clinics.

2. Conditions Precedent to Release of PL 480 Title II Commodities

A. Prior to the shipment in 1983 of the initial tranche of PL 480 Title II Commodities, the GPC, except as A.I.D. may otherwise agree in writing, shall furnish evidence, in form and substance satis-

factory to A.I.D., that it has signed contracts for the procurement through local or international purchases 290 MT of corn and 30 MT of vegetable oil.

B. Prior to the release of each first tranche in FY 1984 and FY 1985 the GOG shall, except as A.I.D. may otherwise agree in writing furnish evidence, in form and substance satisfactory to A.I.D., that it has purchased or contracted to purchase from local suppliers or international vendors the following inputs for the plant:

	Corn	Soybeans	Vegetable Oil
FY 1984	580 MT	100 MT	45 MT
FY 1985	580 MT	200 MT	60 MT

C. Prior to the release of each first tranche in U.S. FY 1984 and U.S. FY 1985, the Grantee will, except as A.I.D. may otherwise agree in writing, provide evidence, in form and substance satisfactory to A.I.D., that it has arranged for the purchase of mineral premixes in FY 1984, vitamin and mineral premixes in FY 1985 and local purchases of plastic pouches in both FY 1984 and FY 1985.

Source and Origin of Goods and Services

Goods and Services financed by A.I.D. under the Project shall have their source and origin in A.I.D. Geographic Code 000 countries and Guyana.

Harry R. Johnson
Acting Mission Director
USAID/Guyana

CLEARED BY: RDO:CRJenkins _____

CONT:RADeBruce _____

EXO:PVColes _____

PRM:JASawh _____

PRM:GLDaniels _____

HLTH:SDowding _____

I. PROJECT SUMMARY AND RECOMMENDATIONS

A. Recommendations

It is recommended that:

1. Phase II of the Weaning Food Development Project (hereafter referred to as the Project) described herein for a grant funding increase of $660,000, bringing the total AID contribution to the project to $1,175,000 to be approved; and

2. An additional complementary request for PL 480 Title II - Section 206 project support in the amount of US$389,000 (exclusive of transport), (1220 MT of food commodities), for the production of infant weaning food be approved.

B. Description of the Project

1. Grantee

The Grantee will be the Government of Guyana (GOG) acting through the Ministry of Economic Planning. The project will be implemented by the Office of the Technical Director, Guyana Pharmaceutical Corporation (GPC), in close coordination with the Ministry of Health (MOH).

2. Summary Project Description

The project purpose under this extension will remain unchanged from the original PP, focusing on establishing the capacity and testing the feasibility of producing and dis-

tributing within Guyana a nutritious weaning food (CEREX) made from indigenous agricultural commodities. Similarly, the goal of the project will continue to emphasize improving the nutritional status of Guyana's infants and pre-school children aged four months to two years.

During the next three years a more intensive effort will be made to strenghten GPC's capabilities to support CEREX production and distribution by providing it with the financial resources needed to: 1) equip the plant with the capacity to clean, dehull, and process whole corn, soybeans and other ingredients into CEREX; 2) improve marketing and packaging; 3) carry out feasibility studies of indigenous agricultural commodities which can be manufactured into blended weaning food at the plant and sold at non-subsidized prices; and, 4) continue surveys and special studies which a) periodically assess the retail price of CEREX relative to production costs; b) evaluate the effectiveness of promotional and educational activities; c) determine current forms of CEREX preparation/feeding and develop alternative preparation techniques; and d) periodically assess the nutritional and other benefits of the project.

3. Project Issues

The original project paper assumed that the CARICOM corn and soybean project and GOG investment and policies would combine to stimulate the domestic production of increasing quantities of corn and soybeans, some of which would be used in

the plant. It was recognized in the PP, however, that the continued importation of PL 480 Title II commodities would very likely be necessary through Phase II (FY 1985), after which time local production of corn and soybeans was expected to be sufficient to supply the plant and meet other domestic requirements.

This assumption has not been supported by recent events in Guyana. Domestic corn production has dropped from a high of 5,000 MT in 1975 to 1,700 MT in 1980 and an estimated 900 MT in 1982. Similarly, average yields of soybeans, a crop which has been cultivated intermittently in Guyana over the past 20 years, have also dropped steadily, with countrywide production in 1981 estimated to have been less than 20 MT.

Given this situation, a major issue concerning this project is whether domestic food commodities can be produced in sufficient quantities to supply the plant during and following the phase-out of U.S. grant support and food assistance. Assuring an adequate supply of indigenous sugar and rice for Phase II is not considered a problem. Guyana produces large quantities of these items for export and domestic consumption. Guyana's farmers have a demonstrated capacity to produce corn and are likely to do so if given technical assistance and adequate price incentives. However, obtaining an adequate supply of soybeans from domestic sources is much more likely to be problematic unless a more organized intensive production effort is explored and, if found to be economically and financially feasible,

undertaken or supported by the GOG.

Under the extension the GOG will assume increasing responsibility for supplying inputs to the plant. In addition to sugar and rice, the GOG will be required to provide increasing amounts of corn, soybeans, vitamin and mineral premixes, etc. According to the report submitted by Mr. Paul Crowley, USDA, locally grown corn and soybeans can be used to replace imported corn and soybeans used in the manufacture of CEREX. The economic and financial feasibility of growing soybeans in Guyana requires additional study, however.

Following the approval of the extension, an Economist familiar with soybean production and an Agronomist with a similar background will be identified to carry out a study on the feasibility issue. Should this study indicate that it is technically and financially advantageous to grow soybeans in Guyana GPC will then contact local farmers and producers for the delivery of corn and soybeans to the plant. Under the grant technical assistance, as required, would be provided to these producers through an arrangement with the University of Florida or the Caribbean Agricultural and Research Development Institute (CARDI) or CARE, Inc., all of which have extensive experience with the cultivation of soybeans in the region. In the event cultivation of soybeans proves to be unfeasible, the assistance will be used to support experimentation and testing of different formulas for the production of weaning foods based on other indigenous com-

modities (blackeye peas, rice and coconut oil) to reduce the plants dependence on PL 480 Title II.

No other major issues are foreseen.

C. Summary Findings

This project represents the second phase of an activity which was initiated in 1978 with A.I.D. assistance. The first phase involved setting up a plant to process and distribute an acceptable weaning food with a high nutrition content. A processing plant has been established, and while analysis of the results of surveys on CEREX distribution through MCH clinics is still incomplete, Phase I of the project, on balance, can be considered successful. The next phase will involve continued support for the plant while a concerted effort is made to improve marketing and test the feasibility of producing local foodstuffs for use in that facility. The successful establishment and operation of the plant and worsening economic conditions have provided the impetus for testing different approaches in this area. The GOG now agrees that movement toward self-sufficiency in supplying inputs for the plant and expanded distribution to the target population, especially in outlying areas, must be the focal area for Phase II.

This project meets all applicable statutory criteria.

II. PHASE I OF THE PROJECT

1. Background to the Present Project

Until the establishment, in March 1980, of the plant for the manufacture of a low-cost, nutritious weaning food, processed dietary supplements for Guyanese children, particularly in the four months to two year bracket, were only available at high cost and on a limited basis. According to the 1971 National Food and Nutrition Survey and the 1978 Health/Nutrition Sector Assessment, limited quantities of imported weaning foods were available on a commercial basis, but these items were far beyond the economic reach of most low-income families. Locally produced weaning foods consisting primarily of watery gruels or porridge made from plantain flour mixed with rice, wheat, milk, corn meal or some combination thereof, were also used extensively, particularly by the low-income population. However, these products had major disadvantages, that is, low protein content, limited caloric density and few of the essential vitamins and minerals needed during the critical formative years when children are most vulnerable to diseases and crippling deformities. Some assistance was available from international donors. Under the auspices of the World Food Program (WFP), corn/soy meal, milk, cheese and other food commodities were provided to mothers through a take-home food program administered by the Guyana Ministry of Health. Unfortunately, this program had a limited outreach capacity due to high cost and logistical problems. Also, the food which was

available under the program could be and frequently was consumed by the families as a whole, diluting as a result its effect and impact on the nutritional status of pre-school children.

The National Food and Nutrition Survey, published in 1976, recommended production of a weaning food based on locally grown commodities. In 1977 following the designation of the Guyana Pharmaceutical Corporation (GPC), a public sector corporation, as the entity responsible for producing and marketing a weaning food, the Government of Guyana requested A.I.D. assistance in a three-year pilot cooperative effort to: 1) construct, equip and operate a facility which would manufacture a pre-cooked, cereal-based weaning food using PL 480 Title II commodities, which would eventually be replaced by locally grown substitutes, and imported vitamins and minerals; 2) develop a two-prong distribution system operating on the basis of subsidized sales from commercial retail outlets and free distribution through the Maternal/Child Health Clinics; and, 3) encourage continued weaning food production and distribution based on an evaluative finding that it was reaching substantial numbers of pre-school children.

The weaning food to be manufactured in the plant was to be a pre-cooked cereal similar in texture and taste to corn-soy milk (CSM) and wheat-soy-blend (WSB) using a low-cost highly efficient extrusion process. Infants in the four months to two year bracket throughout the country were specified as the primary target group for assistance, without regard to family income level, status or other related factors. Breast and other feeding were to be

encouraged as an integral element of an informational campaign which would stress utilization of the cereal product mainly by the target group and, to a lesser extent, by children 2 - 5 years of age. While the actual coverage attainable during the three year implementation period would depend on consumer acceptance of the product and expanded distribution to MCH clinics, it was expected that 40 - 50% of the country's estimated 150,000 pre-school children (i.e. between 60,000 and 75,000) would be reached under the program, including 9,000 children through MCH clinics. Expanded distribution would be accomplished using USAID-financed vans through wholesalers to about 1,500 retail outlets, combined with direct distribution to some 150 MCH clinics.

On September 28, 1978, USAID/Guyana approved the project paper (PP) providing $500,000 over three years to finance plant equipment, market research, technical assistance in setting up the plant, commodities (mostely vitamin and mineral premixes, and packaging materials). Subsequently, on September 30, 1978, the Mission signed the first Project Agreement for this activity. In addition to grant assistance, the U.S. contribution included the transfer of 1,102 MT of food commodities (cornmeal, soy-flour vegetable oil and milk powder) for use in the processing plant. The GOG agreed to contribute the equivalent of US$502,000, mainly consisting of land for the building site, physical facilities, operating expenses and personnel salaries, and indigenous commodities (rice and sugar).

An additional $15,000 was provided in FY 1981, bringing the AID total contribution to $515,000. An agreement increasing the PL 480 Title II donation from 1102 MT to 1224 MT was signed by USAID/G and the GOG in FY 1982.

2. Progress to Date

a. Plant Installation and Operation

An evaluation carried out in October 1981 of the production, distribution, processing and delivery system currently in use under the project shows that the plant was set up precisely as envisioned in the PP. It is equipped with a Brady System to pre-cook a cereal/grain mixture; a pulverizer to mill the produce with powdered milk, soy flour, vitamins and minerals; and a labor intensive system to package the consumable product into 1/2 pound net weight polyethylene bags.

While there were initial start-up, processing, and training difficulties, the plant has been operating on a single shift basis since March 1980, with the Brady Cooker being used on a five-hour basis during this entire period.

The current production potential is 16,600 one-half pound bags daily, and as shown in Table 1 below, the volume of production closely approximates the PP projections.

TABLE 1

GPC CEREX Production (1/2 lb. pkts.

March 1980 - June 1980	Not available
July 1980 - September 1980	Not available
September 1980 - December 1980	453,805
January 1981 - March 1981	445,810
April 1981 - June 1981	414,216
July 1981 - September 1981	690,736
September 1981 - December 1981	557,405
January 1982 - March 1982	309,000
April 1982 - June 1982	392,000 (est)
July 1982 - September 1982	450,000 (est)

The most serious problem affecting the plant has been recurring "out of stock" situations due to failure to determine far in advance the proper inventory level required to meet variations in demand and adjust the production schedule accordingly. Remedial actions to correct this problem are necessary to undermine the growing illicit sales of CEREX, avoid losses due to lack of supply, and ensure minimal disruptions in the diets of pre-school children. There is every indication that this situation can be resolved through increased collaboration between the production and marketing departments of GPC, and under the extension GPC will be urged to give priority attention to this problem.

b. CEREX Distribution and Marketing

With the exception of the MCH clinic distribution component, the unsteady production schedule cited earlier, and limited distribution to remote areas, production and distribution of CEREX have proceeded according to the original project design. Production has been reasonably steady since 1981, and sales have been equally vigorous, experiencing strong increases in recent months because of the elimination of or sharp reduction in food imports.

Regular deliveries are made to twelve packaged food wholesalers in Georgetown, including the GPC's own wholesale outlet which accounts for a major share (60%) of the sales to retailers, and to about 700 retail outlets in the capital as well as outlying areas. Deliveries to the MCH clinics are usually made in three one-ton vehicles which, for reasons of efficiency, are assigned to specific geographic areas. While there is evidence to suggest that CEREX is being made available to a substantial number of legal retailers, recent information on quantity and resupply indicates that greater efforts need to be made to reach that portion of the target population in East Berbice, Essequibo, Linden, Rupununi and similar remote areas.[2/]

C. Maternal and Child Health Clinic Distribution

Premature introduction of the product, recurring production problems, insufficient coordination, slow delivery of the A.I.D.-

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[2/] Sandra Callier Evaluation of Weaning Food Development, October 1981.

financed vehicles, and a lingering dispute between GPC and the Ministry of Health combined to delay the initiation of the clinic-based free distribution program until March 1982. As of June 1982, the number of clinics receiving deliveries of CEREX had increased to 49, or roughly 33% of the total projected in the original design.

The quantity of CEREX required to meet the needs of the 49 clinics currently being served is 30,000 packets, representing about 10% of monthly production potential and about an average monthly cost of G$11,500 to the Ministry of Health (at a price of G$0.38 per packet). Assuming expansion of distribution by the end of Phase I to include all clinics (approximately 150)MCH distribution would represent 20% of the annualized production of 1200 MT, requiring 1.1 million packages (240 MT) at an annual cost to the MOH of G$825,000 per year (at the recently approved price of G$0.75 per bag).

3. Consumption

In June 1981, ten months after the stabilization of CEREX production, GPC carried out a stratified sample survey of over 700 Guyanese households to determine the proportion of and frequency with which children under 5 years of age consumed CEREX and the socio-economic and cultural factors which influenced its purchase and use. While remote areas of Guyana (that is the interior) were excluded from the sample, the procedure used was considered statistically valid and capable of producing an unbiased and random sample of households within the

selected strata.

As previously noted, the results of the survey are still being analyzed. Preliminary survey data show that 79% of the children under two, and 61% of the children between two and five have used Cerex at some time. At the time of the survey 58% of those under two and 41% of those between 2 and 5 were still using CEREX.

Although the survey did not attempt to measure the quantity of CEREX consumption by older children and adults, the results show that significant percentages of these age groups in the sample also consume CEREX on a regular basis(11% of adults and 31% of children over five years of age).

Since the completion of that survey in 1981 general food availability in Guyana has reduced significantly, particularly during the middle months of 1982. It is widely accepted that the percentage of children in the target group who consume Cerex on a sustained basis has decreased, while correspondingly, consumption of Cerex by the non-target groups has increased in recent months because of restrictions on traditional items in the typical Guyanese diet.

The product compares favorably with similar items available in Guyana both in terms of price and nutrient content. As shown in Table 2 CEREX at its low price(now G$2.00 per pound) is an economically attractive product to purchase given the present conditions in Guyana, that is, rising prices and chronic shortages of traditional food items.

TABLE 2

Cost/Nutrient Comparison of CEREX and Substitute Products

Item	Price/lb. G$	Price/100g.	Cal/100g.	Protein/100g.
CEREX	2.00	0.44	387	17.0
Plantain Flour	2.40	0.53	305	2.8
Plantain/Wheat Flour	2.15	0.47	335	7.8
Cornmeal	2.00	0.44	364	7.9
Rice	0.80	0.18	368	6.7
Nestum/Cerelac	22.00	4.85	387/584	12.5/13/3
Dry Skim Milk	1.66	0.35	360	36.0

4. Promotion

Intensive promotion of CEREX as a weaning food for pre-school children occurred at the time that the product was initially introduced. These promotion efforts consisted primarily of posters and radio messages on the nutritional value of CEREX; methods of preparation; and feeding requirements. Supply interruptions, general acceptance of the product, and cut-backs in GOG expenditure led to suspension of the campaign after a brief period. It has not been reinitiated since that time. This ommission may partially account for substantial consumption of CEREX by adults and other persons outside the main target group.

5. Rationale for Extension

In spite of these mixed results, the overall conclusion of the various studies and evaluations which have been carried out to date is that the project has been largely successful, although

additional work is needed. It follows, therefore, that continuation of the project during the next three years (through the end of Phase II) is necessary, not only to protect and optimize utilization of a substantial AID/GOG investment and to help assure the continued availability of CEREX, especially to the target group during a period of growing economic hardship, adjustment and deprivation, but also for the following reasons:

a) While the CEREX plant is operating satisfactorily, producing a high quality nutritious product, the project is still not in full compliance with the requirements of the original design.

With the exception of rice and sugar, production of local commodities for the plant is not taking place. Also, the MCH program is far behind schedule. Actually, achievement of the MCH distribution target within the timeframe specified in the PP is problematic and unlikely. In terms of testing the effectiveness of CEREX as a nutrition intervention achievement of this objective is highly desirable. However, the recent doubling of the price of CEREX will work against achievement of this objective in the short-term in that a substantial increase in MOH budgetary outlays will be required to obtain the same quantity of the product. Achievement of the target by December 31, 1982, would involve a sizeable increase in MOH expenditures over the next several months, a figure which is unlikely to be forthcoming given the GOG's current financial constraints.

There are other problems as well which do not lend themselves to early resolution. Recent spot checks and informal

assessments indicate that GPC distribution to the clinics has been slow, inadequate and irregular. The required managerial and logistical improvements are unlikely to be made in sufficient time to permit a near threefold increase in the number of clinics receiving CEREX prior to the expiration of Phase I. Also clinic personnel require orientation, supervision and training in record keeping, inventory control and supplemental feeding mehtods before the start of CEREX distribution in their area.

The foregoing is not intended to imply that the MCH distribution effort is static, but rather to recognize that changes in the program will require time and additional resources, and that complete achievement of the objective is more likely in Phase II than in Phase I. There are side benefits to the carryover as well as in that it allows the MOH to couple the distribution of CEREX with the development and promotion of take-home weaning supplements and the adoption of improved child care practices and diarrhea treatment.

b) A plan for the orderly phase-out of PL 480 Title II commodities, with the possible exception of powdered milk, needs to be developed and tested to ensure that an adequate level of indigenous inputs are available to support the plant once AID assistance phases down. Stimulation of local production for the plant will require a continuation and changing mix of AID assistance, broadened to include support for a more intensive effort to increase the supply of local commodities for the plant.

c) Additional information and analyses are needed on the cost, operation and effectiveness of the program in order to assure consumption of CEREX by the target group. These studies cannot be completed in the next five months as they are dependent upon a substantial expansion of the MCH component of the program which is unlikely to occur during this period.

III. DESCRIPTION OF THE EXTENSION (PHASE II)

A. Goal and Purpose

The goal of the Weaning Food Development Project is to improve the general health of Guyana's pre-school children by providing nutritious weaning foods.

This goal will be considered achieved when malnutrition in pre-school Guyanese children is significantly reduced from the 1981 level as determined by the National Food and Nutrition Survey of Guyana done in that year.* The 1981 survey will provide a very useful comparison for other surveys to be done later, since it was completed less than six months after the full introduction of Cerex on the market. CEREX by itself cannot be credited with changes in nutritional status in Guyana. Rather, other factors such as general food availability, particularly the availability of other weaning foods, and their prices must also be considered.

The purpose of this project is to increase the capacity and test the feasibility of the production and distribution within Guyana of a nutritious weaning foods made from indigenous commodities.

The project extension therefore aims to strengthen the marketing and distribution of Cerex and improve the quality and delivery of nutrition education program. It is expected that with

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*Unfortunately, the results of that survey are not yet available and cannot therefore be cited in this paper.

the transfer of the appropriate technology and techniques in production, marketing and distribution, the experimentation with other products, particularly weaning foods, utilizing the new technology and techniques will be stimulated.

III. B. Project Activities During the Extension Phase

During the extension phase of this project (FY 83 - FY 85) the following objectives are expected to be achieved:

a) Provision of machinery to clean and dehull whole soybeans and to clean corn; and modification of the factory to integrate these operations.

b) Assuming a positive outcome of the feasibility study, stimulation of local production of corn and soybeans through short-term technical assistance provided by USAID and the introduction of attractive pricing mechanisms by the GOG.

c) Phase-out of corn, soybeans and vegetable oil donation from PL 480 Title II, as the GOG assumes more responsibility for supplying the inputs for the plant.

d) A sustained advertising and promotion campaign aimed at increasing consumption of Cerex by the target population and decreasing consumption by non-target groups.

e) Continued free distribution of Cerex through Maternal and Child Health Clinics to malnourished children within the target population.

f) Exploration of other delivery channels to reach the target population in all areas of the country.

g) Testing the formulation and acceptability of various blends of commodities for weaning foods to be sold at non-subsidized prices.

h) Gradual increase in price of Cerex to reflect cost of raw materials.

i) Continuation of periodic survey audits and evaluations to 1) assess the price of Cerex relative to production costs and price of other foods; 2) test the effectiveness of the promotional and educational activities; 3) determine current forms of preparation of Cerex and the feeding patterns; 4) monitor the geographic spread and population being reached with Cerex; and 5) assess the nutritional and other benefits of the project.

A. Equipping the Cerex Factory to Clean and Dehull Soybeans, Clean Corn, and Integrating these Operations

With local production or external purchases of corn and soybeans in substitution for PL 480 Title II corn and soy flour, the factory will need equipment to clean both commodities and to dehull the soybeans prior to combining them with the other ingredients in the formulation. Imported commercial grains usually contain between two to five percent of foreign matter and locally produced grains can be expceted to contain even higher percentages. Alden Ackles in his October 1981 report indicated the following foreign materials are usually found in commercial grade corn: weeds, seed

pieces of cotton, stems, leaves, pods; animal and bird excreta sand, rocks, mudballs, wood, metal, grass, and string.

A detailed recommendation for equipment to clean and dehull soybeans and clean corn was provided by Ron Tribelhorn of Colorado State University. This is included at Appendix 1. The list includes a milling separator with aspiration components, a scalper, a destoner, and a dehuller. Procurement, shipping and installation of the equipment is estimated to cost US$125,000.

Approximately one person month of technical assistance for equipment installation is included under the USAID contribution.

B. Stimulation of Production of Economically Feasible Local Commodities

It was anticipated in the original PP that by the end of Phase I of the project, Guyana would have developed the capability to produce enough soybeans and corn to satisfy national processing demand, including Cerex. So far these expectations have not been realized.

Guyana, however, does have a demonstrated ability to produce an amount of corn approximate to the national demand (see Appendix II). Several reasons have been advanced for this failure to produce, important among these was the lack of economic incentives for the farmers. With better prices being paid in 1982 by both the Guyana Pharmaceutical Corporation through the Guyana Marketing Corporation and itinerant hucksters, there has been a considerably increased amount of corn available. GPC has agreed

to contract with individual or groups of farmers at incentive prices for the Cerex corn requirement.

Soybeans, on the other hand, has not been a traditional crop in Guyana. Several experimental plots by various entities, (including the Caribbean Agricultural Research and Development Institute and the University of Florida) during the 1960's and 1970's have not been followed up by the adoption of the crop by small farmers. A cooperative effort by the Governmentsof Trinidad and Tobago, St. Kitts - Nevis, and Guyana in the form of the Caricom Corn and Soya Bean Company was also unsuccessful in popularizing the crop. A recently established agricultural company, the MANIOC Development Company, will soon commence production of soybeans, and to this end have secured a loan from the Guyana Agricultural Industrial Development Bank. It is established by several reports[1/] that it is technically feasible to produce soybeans in Guyana. More work is required, however, to determine the economic feasibility of producing soybeans in Guyana. Early in the extension phase, a detailed technical and financial assessment will be made of the constraints and prospects, including cost of producing soybeans for the plant. In the event the study shows that Guyana can produce soybeans at a reasonable cost, the GPC will contract with both the MANIOC Development Company and CARICOM Corn and Soya Bean Company for the supply,at a premium price, of the CEREX soybean requirement. In the event soybeans prove unfeasible, experimentation will be carried out on other food commodities.

1/ Rod Crowley et al, Indigenous Commodities for Guyana Weaning Food Development Project.

USAID intends to provide up to 10 person months of technical assistance in indigenous crop production and management under the project extension.

C. Phase-out of PL 480 Title II Donation of Corn, Soy Flour and Vegetable Oil, and Phase-in of Local Production

The original project paper projected that the corn, soya and vegetable oil requirements for Cerex would be entirely provided from local sources by the end of the fifth year of the project. While this schedule must now be modified the intent to phase-out the PL 480 Title II donations of these commodities remains firm.

During the next three year phase of this project supplies of these commodities will be provided by the United States Government and the Government of Guyana in the following manner.

	Percentages					
	FY 83		FY 84		FY 85	
	USG	GOG	USG	GOG	USG	GOG
Corn	50	50	-	100	-	100
Whole Soybeans Soya Flour or some alternative item	100	-	66	34	34	66
Vegetable Oil	66	34	34	66	-	100

The GOG anticipates that local production of corn and vegetable oil will be sufficient to satisfy Cerex commitments as shown above and will be made available for that purpose. With USG technical assistance, and an attractive pricing policy

by the GOG, local supplies of soybeans or viable alternative local commodities should be available in FY 84 to meet the GOG commitment

D. Procurement of Non-Fat Dried Milk for Life of Project from PL 480 Title II

Non-fat dried milk (NFDM) comprises 9.5 percent of the Cerex formulation and adds a high quality protein to the product. Guyana does not produce enough liquid milk to satisfy the local demand and also does not produce powdered milk. Guyana is likely to remain a net importer of its milk requirements for the foreseeable future.

For this reason, supplies of NFDM under the PL 480 Title II need to be maintained as the sole source throughout the life of the extension. This was also the projection in the original project paper. The requirement for the next phase is 360 MT in three annual tranches of 120 MT each.

During Phase II, USAID will work closely with the GOG to identify other external sources for the donation of NFDM for incorporation in Cerex. Also during this phase, vegetable substitutes for milk, intended to provide similar high quality protein, will be researched and tested in alternative formulations. Acceptability tests will be conducted to ascertain the impact of milk substitution in baby weaning foods. Limited technical assistance (one month) will be provided in this area.

E. Phase-out of USAID Responsibility for Supply of Vitamin and Mineral Premixes

Guyana will have to continue to import vitamin and mineral premixes for the foreseeable future. However, the GOG will assume the responsibility for procuring these premixes within the next three year phase in the following manner.

	Percentages					
	FY 83		FY 84		FY 85	
	USG	GOG	USG	GOG	USG	GOG
Vitamin Premix	100	-	-	100	-	100
Mineral Premix	100	-	100	-	-	100

The cost for vitamin and mineral premixes when met by GOG will be recovered from the sale of Cerex, and the pricing structure will be adjusted in FY 84 and FY 85 to reflect these changes.

F. Advertising and Promotion Campaign

Given the assumed increasing amount of Cerex being consumed by non-target groups, an advertising campaign to promote the image of Cerex as a baby weaning food is essential. This campaign will, in addition, stress the recommended and preferred methods of CEREX preparation and feeding so as to correct the currently prevalent practice of using a bottle to feed Cerex to the target audience. Unlike the previous advertising campaign which was launched before the product was marketed on a regular basis and which ceased by the time Cerex was largely available, it is expected that the renewed campaign will be a

more sustained effort. It will benefit from the results of the Consumer Evaluation Survey conducted in 1981. USAID will provide three person months of technical assistance to the GOG to improve marketing, pricing policy and packaging. The advertising and promotional campaign will be financed by the GOG, but consideration will be given to reimbursing these costs from the Agricultural Commodities Development Account.

G. Continued Free Distribution Through MCH Clinics

Although this aspect of the original project is yet to be made fully operational, both USAID and the GOG are confident that it represents one of the more reliable methods of distributing Cerex directly to the target population. Since anthropometric evaluations of the recipient children will be performed on a monthly basis, this aspect of the project is also expected to provide early insights into the impact that Cerex is probably having on the nutritional status of the target consumers.

Approximately 15 percent to 20 percent of annual production of Cerex will be distributed free of cost to malnourished children through the MCH clinics. This cost will be borne by the GOG. It is anticipated that at the end of the extended phase enough funds to cover this cost will be generated from commercial sales of Cerex.

H. Exploration of Other Delivery Channels

So far, the project has utilized only the commercial distribution and MCH clinic (to malnourished children attending

clinics) channels. In the light of the expected increase in the amount of Cerex which will be consumed by non-target groups, other channels which distribute directly to the target group and which can be reinforced by nutrition education and product advertisement, will have to be explored. GPC has suggested that sales of Cerex to mothers of children in the target population whose nutritional status is adequate be instituted at MCH centers. This suggestion has some merit, but several details need to be ironed out before it can be fully implemented.

USAID will provide technical assistance to develop new distribution networks as part of the marketing technical assistance component.

I. Testing of New Formulations and Their Market Acceptability

It is not expected that the technology being transferred by this project and the techniques imparted by the technical assistance provided will be restricted to the development and promotion of Cerex only. Given the relatively simple nature of the technology and the facility with which GPC has adopted it, additional blended food products, particularly baby weaning foods,are anticipated by the end of the extended phase. Any new foods developed will be sold at non-subsidized prices and will not form part of this project.

J. Gradual Increase in Price of Cerex to Reflect Cost of Raw Materials

Since the GOG will, at the end of the extended project, have to bear the entire cost of production, marketing and distribution of the product, periodic but gradual increases in the price of Cerex will be made over the three year extension period. It is essential that the increase be gradual so that the impact of each price increase on sales can be evaluated.

III. C. Project Inputs

Project inputs will be provided by the U.S. Government through the donation of 1220 MT of PL 480 Title II commodities and USAID grant funds.

1. A. U.S.A.I.D. Grant

The USAID grant during the extension of this project will finance:

i) The procurement and installation of the equipment to clean and dehull whole grains;

ii) the purchase of mineral premix in the first two years of the extension and vitamin premix for the first year only;

iii) the procurement of plastic laminated pouches for packaging the first year's production of Cerex.

iv) services of technical consultants in agronomy, food marketing and distribution, installation of factory equipment and nutrition education.

B. PL 480 Title II

The PL 480 Title II donation will consist of corn, soy flour, non-fat dried milk, and vegetable oil, which will be delivered in annual tranches as follows:

	FY 83	FY 84	FY 85	TOTAL
Corn	290 MT	----	----	290 MT
Soy Flour	240 MT	160 MT	80 MT	480 MT
Non-Fat Dried Milk	120 MT	120 MT	120 MT	360 MT
Vegetable Oil	60 MT	30 MT	----	90 MT
				1220 MT

2. Government of Guyana Contribution

The Government of Guyana (GOG) contribution will finance:

i) The local procurement of all the rice and sugar required for the three year extension period, all the corn requirements in the latter two years and half of the first year's requirement, all of the final year's vegetable oil requirement and 33 percent and 67 percent of the first and second years' respectively, and 33 percent and 67 percent of the second and final years' requirements respectively for the soybeans or other similar agricultural product as decided after examining the economic feasibility of growing soybeans in Guyana.

ii) the overseas purchase of all the vitamin and mineral premix requirement in FY 85 and the vitamin premix requirement only in FY 84.

iii) the local purchase of printed plastic pouches for use in packaging Cerex in the second and third years of the extension; and

iv) market surveys and advertising campaigns.

III. D. Financial Plan

The total cost of this phase of the project is US$2,933,000. The U.S. Government contribution will be US$660,000 in USAID grant funds and US$389,000 in PL 480 Title II food donations. The Guyana Government contribution will be US$1,884,000.

	US$			
	FY 83	FY 84	FY 85	TOTAL
USAID Grant	444	186	30	660
PL 480 Title II	230	109	50	389
GOG subsidy	268	689	927	1,884

The GOG contribution is considerably higher than the US contribution since local prices (some incentive prices) were used for computing the cost to the GOG for purchasing locally produced corn, soybeans and vegetable oil. In addition, the GOG will assume responsibility for providing larger quantities of these commodities than the U.S. targeted amounts.

The costs of production of CEREX, that is, wages and salaries, and indirect recurrent cost (e.g. telephone, rental, stationery, etc.) as well as overhead for administration of the GPC group of companies are deducted from the sales proceeds in order to determine the deposits to the Agricultural Commodities Development (ACD) account. These costs do not therefore form part of the GOG contribution.

Funds for the support of national Nutrition Education campaigns will be obtained from the ACD account.

A detailed budget estimate is shown on the next page.

The cost of commodities to be supplied in FY 84, and FY 85 includes built in inflation factors. A contingency sum has not been provided because of the limited funds available and the need to earmark all for specific project purposes. The built in inflation is expected to cover unforeseen financial requirements.

BUDGET SUMMARY ESTIMATES OF EXPENDITURES
(US$000)

U.S. Government	FY 83 FX	FY 83 LC	FY 84 FX	FY 84 LC	FY 85 FX	FY 85 LC	TOTAL FX	TOTAL LC
A. USAID								
1. Technical Assistance								
Equipment Installation (1 pm)	10	--	--	--	--	--	10	--
Soybean Production (10 pm)	40	--	40	--	20	--	100	--
Marketing and Distribution (3pm)	20	--	10	--	--	--	30	--
Nutrition Education/ Product Development (2 pm)	6	--	16	--	--	--	22	--
2. Commodities								
Minerals	100	--	110	--	--	--	210	--
Vitamins	28	--	--	--	--	--	28	--
Plastic Pouches	110	--	--	--	--	--	110	--
3. Equipment								
Cleaning and dehulling equipment (CIF)	105	--	--	--	--	--	105	--
Installation costs and conversion of mix mill to ground floor level	--	25	--	--	--	--	--	25
4. Project Evaluation and Studies (2pm)	--	--	10	--	10	--	20	--
TOTAL	419	25	186	--	30	--	635	25
B. PL 480 Title II Commodity Donations								
Corn	47	--	--	--	--	--	47	--
Soy Flour	123	--	73	--	36	--	232	--
Non-Fat Dried Milk	13	--	13	--	14	--	40	--
Vegetable Oil	47	--	23	--	--	--	70	--
TOTAL	230	--	109	--	50	--	389	--

SUMMARY COST ESTIMATED OF INPUTS

(US$000)

	FY 83		FY 84		FY 85		TOTAL	
	FX	LC	FX	LC	FX	LC	FX	LC
G.O.G.								
1. Commodities								
Rice	--	73	--	81	--	89	--	243
Sugar	--	27	--	30	--	33	--	90
Corn	--	107	--	213	--	213	--	533
Soybeans	--	--	--	81	--	162	--	243
Vegetable Oil	--	43	--	64	--	84	--	191
Minerals	--	--	--	--	120	--	120	--
Vitamins	--	--	31	--	37	--	68	--
Plastic Pouches	--	--	--	175	--	175	--	350
2. Marketing								
Market Survey	--	9	--	9	--	9	--	27
Advertising	--	9	--	5	--	5	--	19
TOTAL	--	268	31	658	157	770	188	1696

Appendix III shows the prices for local supply of commodities.

III. E. Beneficiaries

The principal direct beneficiaries of this project will be the estimated 150,000 infants and pre-school children in Guyana who will enjoy enhanced nutritional status, improved health and greater prospects for learning as a result of the continued production and distribution of Cerex. Within this group, benefits are expected to accrue primarily to the children from low-income families who will be able to maintain their intake of Cerex as a result of the free distribution program. As the MCH component expands to include more isolated areas, the number of rural beneficiaries as a proportion of the overall total is expected to increase slightly. Unintended beneficiaries include older children and adults from low-income families who use the weaning food as a means of maintaining their protein and energy intake in the face of diminishing purchasing power, import restrictions and worsening economic circumstances.

As is often the case, other benefits, more intangible and difficult to quantify, will result from the extension of this project. These include foreign exchange savings, profits from secondary and tertiary sales, technology transfer and the stimulation of local self-sufficiency, productivity and employment which accompany and form part of this activity.

III. F. The Project's Social-Economic Context

The unfavorable economic trends which have characterized Guyana's economy since the mid-1970's continued unabated and even

worsened in 1981-82, with recovery under the most optimistic scenarios being 3 - 4 years in the future. By 1981, after successive years of substantial public sector investment and large-scale external assistance, Guyana's economy was encountering major problems. Real per capita income was less than the level achieved in 1970 and 30% below the level reached in 1975. GDP declined by 1% in 1981 and suffered a steeper drop in 1982, largely as a result of declining production, management problems and weak external demand for key export items (bauxite, rice and sugar).

Recurring current account deficits in the balance of payments area have led to a depletion of foreign exchange reserves and a worsening of the external debt situation. At the end of 1981, for example, arrears on commercial payments were in excess of $50 million; public sector debt stood at 115% of GNP; and gross reserves stood at only $7.0 million (less than five days imports at the 1981 level).*

This unfavorable situation has continued in spite of GOG efforts to reverse it through a mid-1981 devaluation, subsequent controls on imports and foreign exchange and sharp reductions in Government outlays. In fact, Guyana's economy is now in the grips of a steady downward spiral in which the chronic shortage of foreign exchange adversely affects production by creating a shortage of raw materials and replacement parts; lack of basic consumer goods is leading to an increase in the rate of

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* All figures are current U.S. dollars.

inflation (currently estimated at 22%); difficult living conditions are accelerating the emigration of skilled manpower; the country's inability to pay its external debts is severely curtailing its access to external credit; and its inability to provide counterpart and other inputs is hampering implementation of projects sponsored by external donors.

In the view of the World Bank and other development assistance agencies such as the IMF, a substantial worsening of Guyana's economic situation during the remainder of 1982 and beyond can only be partially averted if debt relief and significant capital inflows are forthcoming in sufficient time to prevent a precipitious decline in real import levels. Such assistance to be effective has to be coupled with a long-term structural adjustment and reform program.

This project is not designed to make any significant contribution to the resolution of Guyana's longstanding socio-economic problems. It will, however, help to maintain the nutritional levels of a significant number of Guyanese children while the country's macro-economic problems are being addressed through other means. It also maintains an intermediate form of technology which Guyana has acquired and learned to operate with a high degree of efficiency. In addition, the project will support the strengthening of institutional arrangements between GPC and the Ministry of Health and GPC and private wholesalers and retailers. Finally, the project can serve as a stimulant and marketing outlet for producers of corn and soybeans, while making

Cerex available to consumers in a difficult and diminishing supply situation.

III. G. Relationship to Mission Strategy

A.I.D.'s strategy is to motivate and improve Guyana's developmental performance through support for activities which revitalize its economy, particularly the agricultural and private sectors, and improve efficiency in the public sector.

The major constraints which A.I.D. grant, loan and PL 480 assistance are attempting to address are insufficient incentives to farmers, a low level of support for the private productive sector, and the need to expand the delivery of improved services and benefits to the poor population to enable them to better cope with a rapidly deteriorating macro-economic situation.

By supporting increases in local production for a locally run facility, by expanding the equitable distribution of weaning food to pre-school children and promoting improved marketing and targeting practices in the GPC, this project is supportive of these objectives. In addition, being multisectoral in its design, including nutrition improvement, health financial management and institutional development, this project can serve as a continuing focal point to bring high level GOG attention to bear on the role of nutrition in national development at the same time that it increases food processing and availability in Guyana.

III. H. Related and Supportive Activities of Other Donors

Only two projects supported by the World Food Program (WFP), and the Seventh day Adventist World Service (SAWS) can be considered directly related to and supportive of the aims and objectives of the Weaning Food Development Project.

WFP is currently in the process of initiating a nursery schools feeding program nationally in Guyana. The program intends to expand on the effort of the GOG to provide a nutritious snack to the estimated 30,000 nursery school population. The daily snack to be provided will consist of biscuits made of wheat soy blend (WSB) and wheaten flour, and a glass of skim milk. WFP expects to expand the program from its present beneficiary level of approximately 9,000 children to the entire 30,000 estimated population within three years. The GOG currently supplies one glass of milk daily to the 9,000 beneficiaries.

The WFP snack will represent about 33 percent of the recommended daily allowance for energy and protein to the beneficiary children.

The SAWS, through its local affiliate, Seventh Day Adventist Guyana Conference and the Davis Memorial (Seventh Day) Hospital has already initiated a program to train community nutrition aides throughout all the areas in which the Sevent Day Adventist church operates. The program has trained more than ninety four persons through a six lecture seminar approach in basic nutrition. A booklet on the subjects taught is kept by each trainee at the end

of the program as a reference manual. The trained aides are expected to function as nutrition outreach workers, assisting the Ministry of Health and the out-clinics of the physicans at Davis Memorial whenever necessary.

IV. PROJECT IMPLEMENTATION

A. Role of Implementing Institutions

1. Guyana Pharmaceutical Corporation (GPC)

The GPC will be the principal executing agency for the extension of this project. The Cerex factory will continue to be part of the GPC operations at the Cereal Unit and will thus be staffed and managed by GPC.

The installation of cleaning and dehulling equipment which will be provided by USAID, will be coordinated by GPC. The GPC's responsibility will be to assure that installation is completed in a timely and effective manner.

GPC will also arrange for the clearing through customs, and the adequate storage of all PL 480 Title II commodity donations on arrival in Guyana.

GPC will be responsible for the procurement of the rice, sugar, corn, soybeans, vegetable oil and vitamins and minerals which the Government of Guyana will contribute to the project. In order to avoid the accounting problems and payment delays which occurred during the first phase of this project, GPC will assume direct financial responsibility for payment for the commodities on behalf of the GOG.

GPC will also procure locally made plastic pouches for packaging Cerex production in the second and subsequent years.

GPC will also budget for and conduct the annual

market surveys and the advertising campaign planned in the next phase.

For the distribution of Cerex, GPC will collaborate with the Ministry of Health in ensuring that the MCH clinic target group (i.e. malnourished children under two years old) is supplied with Cerex, and will explore, with USAID provided technical assistance, innovative methods of assuring that the target population is supplied Cerex at the commercial price.

Adapting the technology transferred by this project, GPC will seek to develop new blended food formulations, including weaning foods, and foods with high protein content.

GPC will also identify the farmers who will benefit from the technical assistance in soybeans production and crop management.

2. Guyana Ministry of Health (MOH)

The MOH will collaborate with GPC in ensuring that the MCH clinic distribution component is effectively implemented. In this connection, the MOH will budget annually an amount adequate to purchase Cerex at the ex-factory price to supply the planned numbers of beneficiaries during that year. The GOG will, as a condition of this project, submit annual plans for the clinic distribution aspect of the project to USAID.

The MOH, with technical assistance provided by USAID, and in collaboration with the National Food and Nutrition Council, will develop, execute and evaluate a national nutrition

education program aimed at pregnant and lactating women and mothers of pre-school children. This program will serve to reinforce the messages on weaning foods and methods of preparation being disseminated as part of this project.

3. Guyana National Food and Nutrition Council (NFNC)

The NFNC, as the coordinating body for, and the supreme institution in food and nutrition matters in Guyana, will work with the MOH to develop, execute and evaluate a national nutrition education program. Funds to assist in the execution and evaluation of the program will be generated from the sales of Cerex and obtained from the Agricultural Commodities Development Account.

The NFNC is also expected to have a role in the development of new blended food products by GPC, using the technology at the Cerex plant.

4. A.I.D.

In addition to providing the financial resources as noted in Section III. C. of this paper, AID will ensure the timely procurement of the equipment and the vitamins, minerals, and pouches as detailed in Section III. C. AID will coordinate with GPC to ensure the timely ordering of PL 480 Title II commodities which will be donated to this project.

AID will also schedule with GPC and NFNC assistance, the technical assistance to be provided under this project so that maximum benefit can be obtained.

IV. B

IMPLEMENTATION SCHEDULE

FUNCTION	Oct. 1, 1982	Jan.	Apr.	Jul.	Oct. 1, 1983	Jan.	Apr.	Jul.	Oct. 1, 1984	Jan.	Apr.	Jul.
Equipment/Factory												
Procurement												
Installation												
Full Operational												
Title II, Vitamin/Mineral Procurement												
Local Commodities												
Corn — Contracting												
Corn — Supply												
Soybeans — Contracting												
Soybeans — Supply												
Vegetable Oil — Supply												
MCH Distribution Plan												
Incremental Addition of MCH Centers												
Nutrition Education Program												
Evaluations												

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IV. C. Evaluation Plan

In-depth evaluation of the project will be carried out in October 1983 and October 1984 to assess the following:

1) Changes in the availability of locally grown food commodities, particularly corn and soy beans required to maintain production at the plant;

2) distribution and consumption of the weaning food by both the target and non-target groups;

3) analysis of the price of CEREX relative to changing production costs and the substitution of other foods;

4) the capacity of the Government to maintain and produce CEREX after 1985 given the prevailing subsidy levels;

5) progress and effectiveness of the MCH program and the extent to which it is providing CEREX to malnourished children;

6) the extent to which CEREX has resulted in a significant increase in the nutritional status of pre-school children;

7) the impact of various promotional schemes on consumption of CEREX by the target group;

8) changes in methods of using weaning food (supplement vs substitution; spoon feeding vs bottle feeding).

An Ex post facto evaluation, using PD&S funds, will be carried out in 1986 to assess the continuing impact of the project as well as the extent to which the local production and input supply objectives is being met. In addition to representatives from GPC, the MOH and A.I.D., the Office of Nutrition, AID/W, will be requested to participate in this final evaluation.

IV. D. Conditions Precedent

The following conditions will be included in the Grant Agreement:

1) Condition Precedent to Initial Disbursement

Prior to any disbursement under the Project Agreement, the Grantee shall furnish A.I.D., except as A.I.D. may agree in writing, a plan and schedule jointly agreed to by the Ministry of Health, for providing regular deliveries of CEREX to the remaining MCH clinics;

2. Conditions Precedent to Release of PL 480 Title II Commodities

A) Prior to the shipment in 1983 of the initial tranche of PL 480 Title II Commodities, the GPC except as A.I.D. may otherwise agree in writing, shall furnish evidence that it has signed contracts for the procurement through local or international suppliers of 290 MT of corn and 30 MT of vegetable oil.

B) Prior to the release of each subsequent first tranche (1984 and 1985 the GOG shall, except as A.I.D. may otherwise agree in writing furnish evidence that it has pruchase or

contracted to purchase from local suppliers or internaional vendors the following for the plant:

	Corn	Soybeans	Vegetable Oil
FY 1984	580	100	45
FY 1985	580	200	60

Department of Agricultural and Chemical Engineering
(303) 491-5252

Colorado State University
Fort Collins, Colorado
80523

February 22, 1982

Mr. P. R. Crowley
Nutrition & Agribusiness Group
International Cooperation and Development Staff
USDA
Room 3919, South Building
Independence Avenue & 14th Street, S.W.
Washington, D.C. 20250

Dear Rod:

Per your request I have enclosed with this letter the following information on Guyana.

1. A sketch of the changes to the plant to clean, dehull and store raw grains.

2. A specification sheet for the cleaning/dehulling module.

3. A schematic of the cleaning/dehulling module.

4. A material balance for the module.

5. An itemized budget for the module.

I feel that the cleaning/dehulling module would be a good design for Guyana. The building could dimensionally accommodate the size of the module and still minimize the amount of floor space used for this part of the process.

If after reviewing the design and specification sheets you have some question or would like to discuss the design further, please call me.

Sincerely,

Ron Tribelhorn

Ronald E. Tribelhorn
Research Associate

RET:sw
Encl.

cc: J. M. Harper

MAR 2 1982

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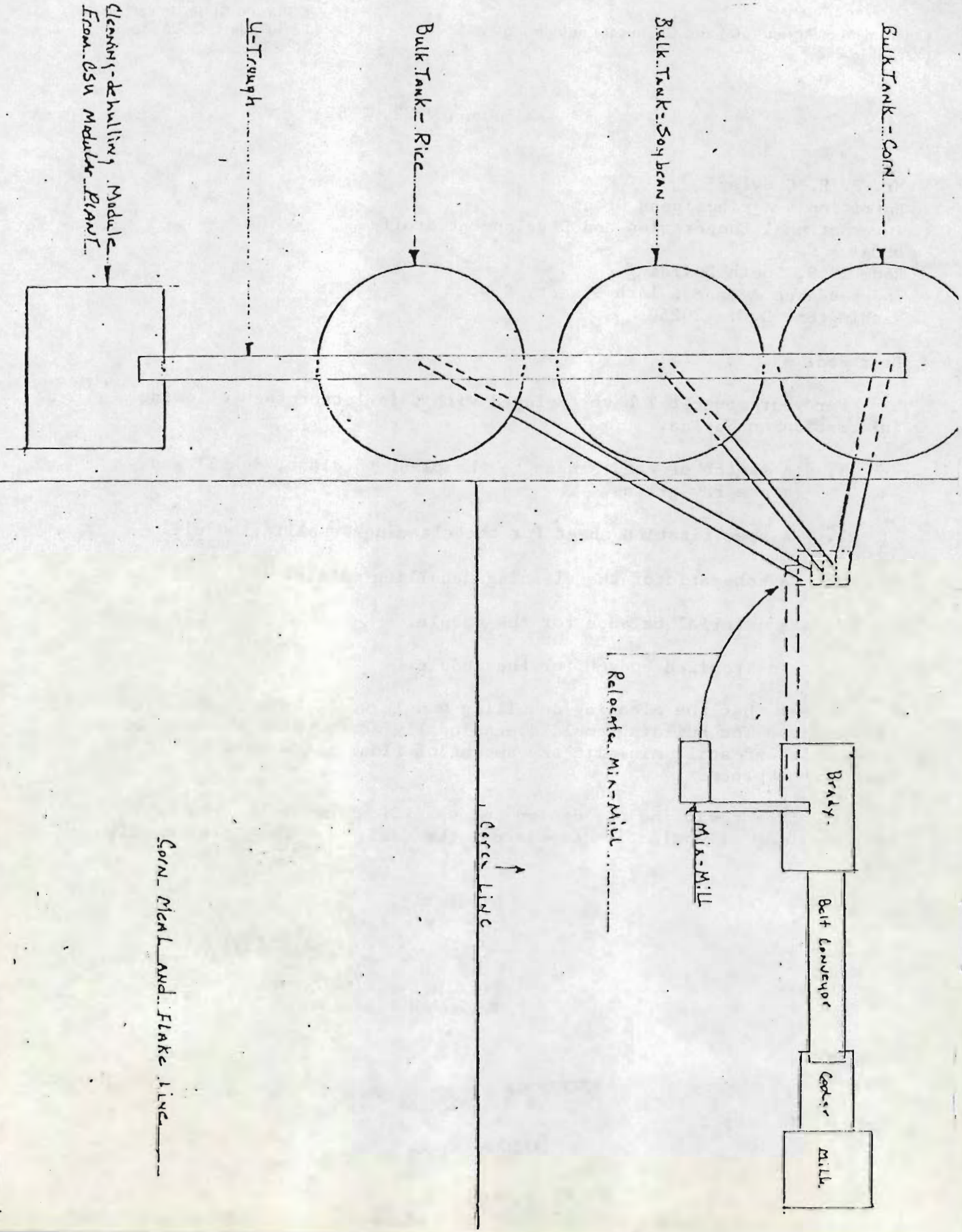

Bulk Tank - Corn
Bulk Tank - Soybean
Bulk Tank - Rice
U-Trough
Cleaning-dehulling Module From CSU Modular Plant
Brady
Belt Conveyor
Cooler
Mill
Mix-Mill
Relocate Mix-Mill
Cereal Line
Corn Meal and Flake Line

CLEANING/DEBUILING MODULE SPECIFICATIONS

Specifications

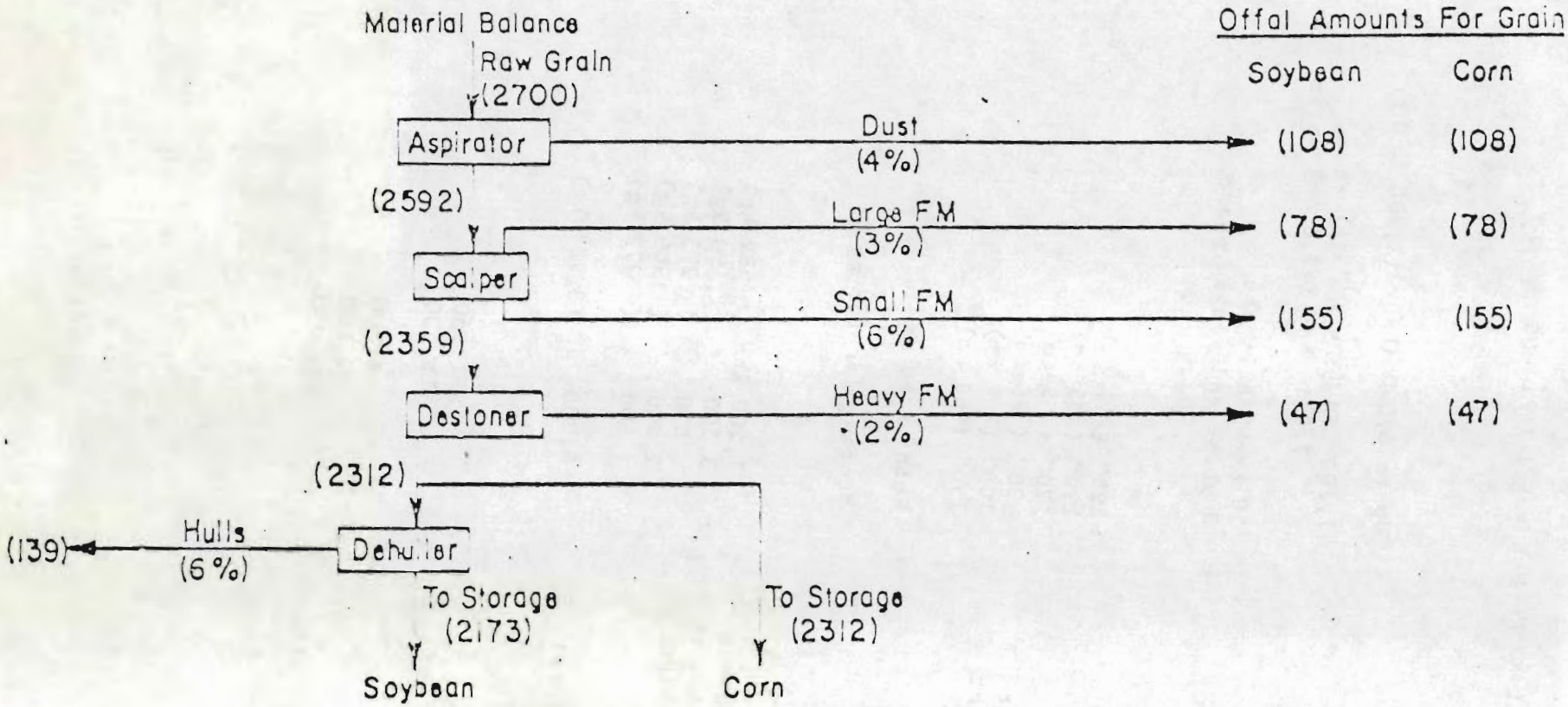
Capacity	Up to 6,000 lb/hr (2,700 kg/hr)
Air Flow Required	7,200 CFM (204 m^3/min) at 7.0 inches (17.8 cm) water
Power Requirements	50 kW with lights 3 phase and single phase
Dimensions	
Overall height	295" (749 cm)
Overall width	120" (305 cm)
Overall length	120" (305 cm)
First level height	30" (76 cm)
Second level height	106" (269 cm)
Third level height	190" (483 cm)
Floors	Reinforced expanded metal
Support Structure	Rectangular tubing

Module Weight (Approx.)

First level equipment	1,500 lbs	(682 kg)
Second level equipment	3,500	(1,590 kg)
Third level equipment	600	(273 kg)
Elevators	2,000	(909 kg)
Frame	600	(273 kg)
Total	8,200	(3,727 kg)

Approximate Costs

Equipment	$61,950
Crate, Insurance, and Freight	15,500
Spare Parts	6,200
Contingency	12,400
Total	$96,050



Note:

- Other Losses Assumed Negligible
- FM = Foreign Material

Figure 2. Material balance for cleaning/dehulling module.

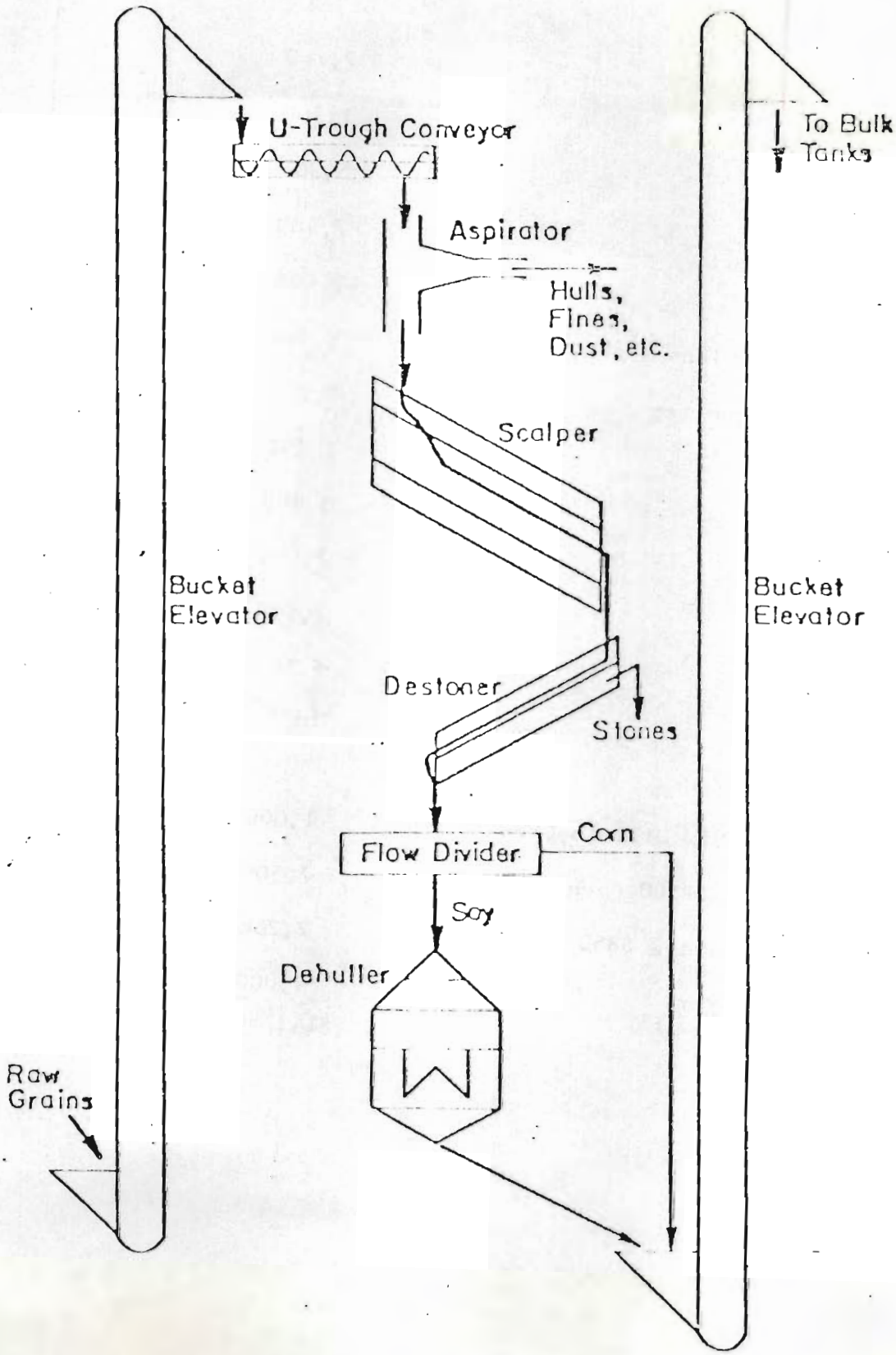


Figure 1. Schematic of equipment functions for cleaning/dehulling module.

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1.	Bucket elevator	$ 2,700
2.	U-trough conveyor	1,500
3.	Aspirator/scalper	5,300
4.	Destoner	7,400
5.	Scourer/aspirator	8,600
6.	Bucket elevator (options extra)	3,500
7.	Miscellaneous air ducting	2,700
8.	Transitions	1,400
9.	Framework & walkways	3,000
10.	Blower	2,500
11.	Cyclone	2,500
12.	Electrical	6,100
		$47,200

Additional Equipment --

1.	Conversion of Mix Mill to Ground level	1,000
2.	3 bulk tanks @ $2500 each	7,500
3.	3 screw conveyors @ $850 each	2,250
4.	U-trough conveyor	4,000
		$14,750

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APPENDIX II

PRICES FOR SUPPLY OF LOCALLY PRODUCED COMMODITIES

Rice	-	G$1,050 or (US$350) per Metric Ton (MT)
Sugar	-	G$ 820 or (US$273) per Metric Ton (MT)
Whole Corn	-	G$1,103 or (US$368) per MT or G$0.50 (US$0.17) per lb.
Soybeans	-	G$2,426 or (US$809) per MT or G$1.10 (US$0.37) per lb.
Vegetable Oil	-	G$4,310 or (US$1,437) per MT

SOURCE: Rod Crowley et al - Indigenous Commodities for Guyana Weaning Food Development Project (504-0073)

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APPENDIX III

JUSTIFICATION FOR INCREASE IN U.S. GOVERNMENT CONTRIBUTION FROM $387,000 TO $660,000

State 178048 dated June 26, 1982 approved $387,000 for a three year extension of this project. Subsequently, the Mission requested (Georgetown 3394) that this amount be increased to $660,000 which was approved in State 228740 dated August 14, 1982. The increase was requested for the following reason:

a) $387,000 would have been inadequate to cover all the requirements for U.S. Government funding for the extension of the project. A comparison of project activities and costs using the $387,000 and $660,000 is shown below:

TOTAL PROJECT COST	$387,000	$660,000
Activities:		
Equipment and Installation	130,000	130,000
Minerals and Vitamins	238,000	238,000
Packaging materials	-	110,000
Technical Assistance	19,000	162,000
Evaluations	-	20,000

It is considered essential that substantial technical assistance for marketing, nutrition education and agronomy be included in order to improve the targeting and distribution of CEREX to the target group and assist the GOG in experimenting with a variety of indigenous crops

-X-

for the plant. With $387,000 the Mission would have been able to provide only two person months of technical assistance in these areas. On the other hand, $660,000 will enable the Mission to provide up to 10 person months of technical assistance in crop experimentation/ production, plus additional assistance in other areas. This level of effort is essential if the GOG is to seriously explore and test indigenous commodities for the plant. Similarly, the Mission feels that Guyana Government would not be able to mobilize local packaging manufacturers to produce adequate quality plastic pouches within the short term, thus provision is made to supply part of the first year's packaging requirement.

APPENDIX IV

"YEAR OF DEFENCE"

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MINISTRY OF ECONOMIC PLANNING & FINANCE,
HOMESTRETCH AVENUE,
P.O. BOX 10748,
GEORGETOWN,
GUYANA.

SEP 7 8 08 AM '82

EcD: 12/2/11

1982-08-24 19...

Dear Mr. Johnson,

Weaning Food Development

You will recall your recent discussion with Cde L.A. Mann, Head, Department of International Economic Co-operation, of this Ministry on the abovementioned subject.

2. As you are aware, the Weaning Food Development Project (504-0073), which is financed jointly by the Government of Guyana and the United States Agency for International Development is expected to end on December 31, 1982. An examination and evaluation of the achievements under this Project have indicated that it should continue beyond the terminal date.

3. A factory for the manufacture of blended foods, essentially weaning foods, has been established, using the low cost extrusion cooking methods, and this has proven very adaptable to the processing of locally grown grains. The Guyana Pharmaceutical Corporation, as Executing Agency on behalf of the Government of Guyana has been able, despite initial problems, to absorb and adapt the technology which was introduced under the project. The Government wishes to continue the work started under the project and to improve the technology now in place at the weaning food factory.

4. While it is true that the free distribution of the weaning food, Cerex, through Maternal and Child Health Clinics was not initiated earlier, there is every likelihood that the momentum will increase by the end of this year.

5. Accordingly, I would like to formally request, on behalf of the Government of Guyana, the assistance of USAID in the form of PL 480 Title 11 commodities, and a Grant, in order to extend the Weaning Food Development Project for a further three years, after the terminal date of 31st December, 1982.

6. The Grant will be utilised to finance the following:

(a) the procurement and installation of cleaning and dehulling equipment for the weaning food factory;

(b) fifty (50) percent of the vitamin and mineral input requirements;

(c) technical assistance, and

(d) the provision of packaging materials.

Amendment to Grant Agreement signed Aug 27/82

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9/7

HCH 0075

9/14

7. The Government will ensure that, as far as is possible, during the proposed extended phase of the project, the full input requirements of rice and sugar, and the requirements for corn, soybeans and vegetable oil in part will be provided. The Government will also continue the expansion of the clinic distribution programme in order to expand the accessibility of Cerex to the target infant population of Guyana.

With best wishes.

Co-operatively yours,

L.E.B. Johnson
Permanent Secretary

Mr. Harry R. Johnson,
Acting Mission Director,
United States Agency for International Development,
65 Main Street,
Georgetown

APPENDIX V

Life of Project: 3 years
From FY 83 to FY 85
Total U.S. Funding: 1,049.000

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Project Title: WEANING FOOD DEVELOPMENT PHASE II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program of Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement:		Assumptions - Goal
To improve the general health of Guyana's pre-school children by providing nutritious weaning foods.	Improved nutrition among pre-school children	Sample nutritional survey among Weaning Food useres.	GOG will continue to allocate resources towards elimination of Child malnutrition as a national health problem. Appropriate targeting of weaning food will be achieved.
Project Purpose: To establish the capacity, and test the feasibility of the production and distribution within Guyana of nutritious weaning food made from indigenous commodities	Conditions that will indicate purpose has been achieved: End of project status. Weaning food factory achieves efficiency in utilizing indigenous Cerex components. Phase-out of imported commodities is achieved. Weaning food reached target population	Evaluation by team of outside experts. National consumer evaluation survey.	Purpose CEREX sales price will be adjusted to cover production cost and achieve better targeting. Local production of corn, soybeans and vegetable oil will be sufficient to achieve phase-in at planned times. Free distribution to malnourished children through all MCH centers will be achieved.

Life of Project: 3 years
From FY 83 - FY 85
Total US Funding: 1,049,000
Date Prepared:

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Project Title: WEANING FOOD DEVELOPMENT - PHASE II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:		Assumptions for providing outputs:
Increase efficiency of weaning food production plant to clean whole grain and dehull soybeans.	Installation of cleaning and dehulling equipment.	Visual inspection production records, sales records.	GPC is capable of absorbing the technology transfer.
Substitution of indigenous commodities for imported ones			PL 480 and subsidized local commodities will be available on a timely basis.
GPC assumes financial responsibility for vitamin and minerals			GPC will contract for guaranteed purchase of local commodities.
Promotion campaign to reinforce usage by target population	800 posters, 24 newspapers ads, daily radio spots, weekly cinema ads.		Guyana has the capacity to produce corn, soybeans and vegetable oil in sufficient quantities.
			Farmers will be willing to sell to GPC.
			GPC has the capacity to collect and store large quantities of corn, and soybeans produced locally.
			Other (family pot) foods good nutritional value will be available in adequate quantities to those outside the Cerex target population.

		FY 83	FY 84	FY 85
Corn	AID	50	0	0
	GOG	50	100	100
Soybean	GOG	100	66	33
	AID	0	34	67
Vegetable	GOG	66	33	0
	AID	34	67	100
Mineral	AID	100	100	0
	GOG	0	0	100
Vitamins	AID	100	100	0
	GOG	0	0	100

Life of Project: 3 years
From FY 83 to FY 85
Total U.S. Funding: 1,049,000
Date Prepared:

PROJECT DESIGN SUMMARY

LOGICAL FRAMEWORK

Project Title: WEANING FOOD DEVELOPMENT - PHASE II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS				MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs:	Implementation Target: Type and Quantity)					Assumptions for providing inputs:
A.I.D.	FY 83	FY 84	FY 85	TOTAL	USAID Controller's records.	
Equipment and Materials	130	-	-	130		
Commodities	238	110	-	348		
Technical Assistance	76	66	20	162		
Project Evaluation/Studies	-	10	10	20		
	444	186	30	660		
PL 480 Title II						
Commodities	230	109	50	389		
GOG						
Commodities	250.2	675.9	912.4	1838.5	Guyana Pharmaceutical Corporation (GPC) records	GPC personnel continues to be available.
Marketing	18	13.5	13.5	45		facilities available
				1883.5		