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**Prepared For:**

**INTERNATIONAL SCIENCE AND TECHNOLOGY  
INSTITUTE, INC.**

**March, 1991**

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**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENTS**

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**Prepared By:**

**Sparks Commodities, Inc.  
Memphis, Tennessee**

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**COLD CHAIN**  
**FILE NAME: PIFCOLDC.AS**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**COLD CHAIN**

**FEBRUARY 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES & CONCEPT:**

The objective is to establish a small commercial "cold chain" project that will demonstrate the commercial practices required to successfully ship perishable fresh fruits from Sri Lanka into international markets, particularly Europe. This project will build on activities being carried out by Aitken Spence (AS) This project will be an integrated project involving several components including:

- \* the cultivation of specialty bananas, and melons on a nucleus estate as well as on outgrower lands;
- \* the harvest of the bananas and melons;
- \* the post harvest cooling, packing, shipping and marketing of bananas and melons to domestic and export customers; and,
- \* provide on-the-job training for AS staff in the projects several aspects;
- \* evaluate the financial success of the project.

The intent of the project is to help a local investor AS undertake a risky project by providing the support necessary over a sufficient period of time to bring the risks to acceptable levels. This PIP is for the first full season and continuing assistance to be provided will be specified as we gain experience and can confirm the on going needs. Several start-up risks exist for the "cold chain" project that MED can help share. The principal risks are; securing a market; guidance in how to set up production, harvesting, cooling, packing, shipping, and marketing operations; and having a long term supply of the necessary raw materials required to supply the packing plant.

This PIP will assist AS, a firm that is already operating in Uda Walawe as a major gherkin producer. This project will help AS put in place the capacity to produce, harvest, cool, pack, ship and market fresh fruits to export markets. This is important, because if successful, it will provide a demonstrated path to firms in Sri Lanka that want to expand exports of fresh fruits and vegetables. This is a principal bottleneck to expansion of the industry, and necessary to solve if quality product is to be marketed.

As does have a nucleus agricultural operation and is working with outgrowers in Uda Walawe. This project will provide AS knowledge about a new high value horticulture business that will help them to diversify their activities and reduce risks. Also, this knowledge will be shared with the outgrowers. Finally, the PIP will assist them in making an expanded investment and greater commitment to Uda Walawe and the

**Mahaweli.** The completed project will be used to show others how to become involved in high value export of perishable commodities as well as provide a basis on which AS can expand operations further.

This PIP project will require resources for capital expenditures, and operating costs. Capital expenditures required will be for such items as the hydra-cooler building and the equipment items necessary to fully equip the building. Operating costs are for production, harvesting, cooling, packing, shipping and marketing. The help MED proposes to provide includes provision of appropriate technical assistance to orient production, harvesting, cooling, packing, shipping and marketing. Also, it will require the assistance of technical people that can ensure the cooling plant is constructed properly. This will involve such things as guidance in purchase of equipment, most efficient layout of the plant, setting up the equipment and training labor in how to pack and handle the perishable product. If required MED will work with AS to investigate ways to fund the buildings and equipment, but it would be best if AS can obtain these items as there share in the project. The details of the assistance and expenditures required are set out on Schedule A and in Appendix F.

## **2. RATIONALE:**

The principal rationale supporting this project include:

- \* The market for specialty bananas and melons is a deep and rapidly growing market in the EEC, Japan and other temperate zone countries. Also, the market has an attractive open window for fruit from Sri Lanka during the period from January to end April if Sri Lanka can organize to supply it.
- \* Sri Lanka is producing a good specialty banana (ambule or koli-kuto), and melons should grow well (being tested now). These two products allow immediate entrance to the market while other crops such as mango, guava, pineapple, passion fruit, papaya have their production organized to supply a packing facility in the next seasons.
- \* The climatic conditions (sunshine, rainfall, soils, temperature, etc.) in Sri Lanka support effective production of most tropical fruits of interest in export markets.
- \* Successful development of this project will provide an integral link in building a sound integrated fresh fruit producer/export business. It will help ensure a high value market for the fruit products of the producer/exporters and outgrowers associated with the project in Uda Walawe.

- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems and non-irrigated. Tropical fruit tree crops can be grown on these lands using drip irrigation systems that obtain water from wells or by pumping from the canals; therefore, success of a supported producer/ exporter fruit business will help increase utilization of these Mahaweli land resources.
- \* The expected arrangement for management of this project is as an integrated operation where AS will manage a nucleus estate where they cultivate not more than 20% - 40% of their fruit requirements while the balance of the fruit supply of some 60% - 80% will be provided by outgrowers on a contract or participatory basis. Development of this project will provide additional alternative cropping options for outgrowers and opportunity for Mahaweli to transfer non-irrigated areas to outgrowers. The details of the arrangements with outgrowers will be determined as a part of this project.
- \* This project, when implemented, will introduce improved fruit production, harvesting, cooling, packing, shipping, and marketing technology to Sri Lanka. It will be available to share with others.
- \* AS, has the capacity, with appropriate technical guidance, to implement this project successfully. AS is one of the largest Sri Lankan firms with successful operations in many activity areas including agribusiness i.e; gherkins.
- \* It will provide a fruit growing, cooling, packing operation of commercial scale that will demonstrate the success of the venture and serve as the basis for attracting new investment to the region in addition to providing AS with a new business.

### 3. **INCOMES AND EMPLOYMENT:**

Fruit production, harvesting, packing are labor intensive activities on a seasonal basis and will provide full employment for surplus farm labor. During the harvest season when labor requirements are highest non-family labor may be required.

The fruits to be studied are high value crops and will help to increase farmer incomes. They provide alternative cropping options to outgrowers in the Uda Walawe region. A properly produced banana crop can result in net returns of over Rs.60,000/acre/annum. This is about 12 to 13 times the return from paddy which is Rs. 4,000/4,500/acre/annum. The details of the employment and income impacts will be developed as a part of this project.

**4. BUMPERS AND LAUTENBERG AMENDMENTS:**

It meets USAID requirements as regards the Bumpers and Lautenberg amendments.

**5. PRE-INVESTMENT PROGRAM IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

MED will work together with AS to carry out this project. The tasks to be conducted are set out on schedule "A". A brief discussion of how activities are to be implemented and what cost sharing items the respective parties will provide is set out below.

- \* Submit PIP document to EIED, USAID and AS for approval.
- \* The terms of reference and description of the persons sought is attached to this PIP description document. A brief description for each persons role is summarized.
  - The Project Implementation Coordinator is felt necessary by AS because they have little knowledge of how to implement the project. They would like a person involved that can carry the program coordination responsibility with one of their people to ensure that all activities are kept on track and that each specialist on the team is used most effectively.
  - The banana and melon production/post harvest experts are required to ensure that the crop is grown most successfully. The coordinator will be able to pick up activities that these experts suggest and see to it that they are implemented at the appropriate time.
  - The equipment and facilities engineer will ensure that the hydra-cooling plant and equipment is properly constructed and set up. He will need to perform his duties early in the project to have the plant on stream to run tests that AS would like to conduct in the fall of 1991.
  - The market development person will work to ensure that a buyer(s) are ready to take the product in Europe when it is ready to ship. He will work with a marketing person assigned to the project by AS so as to gain on-the-job experience.
  - The market training activity will be carried out to ensure that everyone involved in the project from AS is aware of the market issues that must be managed for.

- \* The MED team will conduct the search for the advisors, submit names to AS and USAID for approval and confirm arrangements with the advisors once nominated.
- \* During the development stages and execution of the study MED's MLE advisor and EIED staff will keep in contact with AS.

MED will provide technical assistance, market development and supervision, training materials and market testing assistance as follows:

- \* consulting fees for advisors.
- \* international travel for advisors and AS staff that travel for market development experience and training.
- \* accommodation for the advisors in Colombo and in the field while they are conducting their work as well as food and other personal needs for the advisors while in Sri Lanka.
- \* local transport and office logistics to the advisors during their stay in Sri Lanka.
- \* both domestic and international transport to test products, materials and equipment.

AS will provide the following:

- \* construction of hydra-cooler building and associated structures necessary.
- \* connection of electricity.
- \* equipment for hydra-cooler, packing and related operations.
- \* controlled environment transport equipment from plant to export point and arrangement of controlled environment facilities at the export point.
- \* drip or sprinkler irrigation equipment required.
- \* miscellaneous items and contingencies.
- \* staff to work with the advisors;ie, a project coordinator to work with the project coordination advisor, production people to work with the banana and melon specialists, marketing people to gain market training, and other technicians as appropriate to gain on-the-job experience.

AS will allow other interested banana and melon producers to visit their packing plant for a half day on a weekly basis to participate in hands on training. In this way the lessons learned will be shared.

The details of the cost sharing are set out below as a part of the estimated budget for the project.

**6. BUDGET:**

An estimated budget for this PIP is set out in Appendix G.

**7. SHARED LEARNING:**

AS will allow other interested exporters of high value fruits to export markets visit their hydra-cooling facilities for a half day on a weekly basis during the 1991/92 season to participate in hands on training. In this way the lessons learned will be shared.

**8. INVESTOR GROUP:**

Name: Aitken Spence & Co., Ltd.

Address: 13, Sir Baron  
Jayatilake Mawatha  
Colombo 1, Sri Lanka

Contact: Mr. Michael L. Mack (Director)  
Mr. Philip Jayawardena (GM)  
Mr. Mohan Ratwatte (PM)

Title: SCHEDULE A - PROJECT IMPLEMENTATION SCHEDULE - "COLD CHAIN"  
 File: COLDCHIN.WK1  
 Potential Investor: AITKEN SPENCE

	1991												1992							
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1. Define the Pre-Investment Program	---	---X																		
2. Obtain PIP Approval		--	---X																	
3. Prepare Final Work Plan			--	---X																
4. Prepare TORS for Advisors		X																		
5. Advisors in the Field																				
- Project Implementation Coordinator																				---
- Banana Production/Post Harvest Expert																				---
- Melon Production/Post Harvest Expert																				---
- Equipment/Facilities Engineer																				---
- Market Development, Super., Handling																				---
- Market Training Assistance																				---
6. Identify Advisors (MED)																				---
7. Ongoing Interaction with Pioneer Investor																				---
8. Factory, Equipment & Facilities																				---
- Obtain Bids																				---
- Site Prepared																				---
- Electricity & Other Utilities Connected																				---
- Building Construction																				---
- Equipment Arranged & Installed																				---
- Refrigerated Transport & Equip. Obtained																				---
- Drip Irrigation/Sprinkler Installed																				---
9. Field Operations:																				---
- Bag Bananas/Monitor																				---
- Plant Melons/Monitor																				---
- Harvest Bananas																				---
- Harvest Melons																				---
10. Conduct Marketing Test Shipments																				---
11. Commence Commercial Packing & Shipping																				---
12. Confirm Advisors Accomodation, Transport & Office Logistics																				---
13. Conduct Workshop to Share Lessons																				---

Key:  
 --- Execution                      === Intermittent                      X Completion

8.

## APPENDIX A

### TERMS OF REFERENCE

<b>FOR:</b>	Project Implementation Coordinator
<b>DURATION OF SERVICES:</b>	Eight months
<b>COUNTERPARTS:</b>	Aitken Spence Agricultural projects Division
<b>RESPONSIBILITIES:</b>	This advisor will work with the AS project manager to be sure the overall project is effectively implemented.

Specific responsibilities will include:

- \* Overall coordination and management of day-to-day activities of the project in concert with the AS assigned project manager.
- \* Provide guidance on production, harvesting, packing and all other aspects of the project to ensure it is implemented as successfully as is possible given the inherent risks.
- \* Ensure that the expatriate experts are obtained when needed and that their work is carefully planned and executed to accomplish the objectives held for each expert. Since the equipment and facilities engineer is to complete most of his work before this advisor arrives he would not be responsible for the engineers work, but would coordinate with him after he arrives to be sure everything is completed before the engineer leaves the field.
- \* conduct a workshop/seminar on issues associated with managing a "cold chain" facility effectively to serve the international market;
- \* prepare a field based manual that will serve as a guide to the local management on how to manage the "cold chain" operation from production to market; and,
- \* participate in other activities as mutually agreed.

## **QUALIFICATIONS:**

The Project Implementation Coordinator will ideally have a degree in Agronomy or Horticulture and an advanced degree in management. He (she) will have had between five and ten years of broad and direct experience with: (i) day-to-day operating experience in running a "cold chain" facility to sell perishable fresh product into the international markets; (ii) a demonstrated ability to plan and execute a project according to an agreed plan; (iii) a demonstrated ability to work with people of different backgrounds; (iv) experience in production of high value crops; (v) familiar with irrigation techniques required for successful agricultural production; (vi) a general knowledge of tropical plant diseases including knowledge of spraying for disease and pests; (vii) a good knowledge of harvesting and post harvest product handling practices.

## APPENDIX B

### TERMS OF REFERENCE

<b>FOR:</b>	Banana Production and Post Harvesting Advisor
<b>DURATION OF SERVICES:</b>	Three and a half months in two trips
<b>COUNTERPARTS:</b>	Aitken Spence Agricultural projects Division
<b>RESPONSIBILITIES:</b>	This advisor will help orient the production and harvesting of the bananas as well as the packing operations for market.

Specific responsibilities will include:

- o Reviewing existing banana production operations in Uda Walawe and help determine activities that must be carried out to ensure that the highest quality bananas are produced for export market;
- o instruction and assistance in the:
  - management of banana plantations to ensure highest production and least disease problems;
  - bagging of bananas to ensure that uniformity of product is best and that diseases are kept under control;
  - harvesting of bananas including the proper practices for the removal from the trees and handling during shipment to the packing shed; and,
  - post harvest handling and proper packing techniques in the hydra-cooling facility to ensure market acceptance and longest possible shelf life during shipment to European markets.
- o conduct a workshop/seminar on banana production and post harvest technology and practices necessary to serve the international market;
- o prepare a field based manual on banana production and post harvest practices necessary to serve the international market; and,
- o the participation in any other activities as mutually agreed.

## **QUALIFICATIONS:**

The banana advisor will ideally have a Bachelor of Science degree in Agronomy or Horticulture. He (she) will have had between five and ten years of broad and direct experience with: (i) hands on experience in producing bananas; (ii) experience in proper planting practices and population densities; (iii) irrigation techniques required for successful production of bananas; (iv) knowledge of banana diseases including knowledge of spraying for disease and pests; (v) a good knowledge of harvesting and post harvest product handling.

## APPENDIX C

### TERMS OF REFERENCE

<b>FOR:</b>	Melon Production and Post Harvesting Advisor
<b>DURATION OF SERVICES:</b>	Four months in two trips
<b>COUNTERPARTS:</b>	Aitken Spence Agricultural projects Division
<b>RESPONSIBILITIES:</b>	This advisor will help orient the production and harvesting of melons as well as packing operations for market.

Specific responsibilities will include:

- o Reviewing existing melon production operations in Uda Walawe and help determine activities that must be carried out to ensure that the highest quality melons of the correct keeping varieties are produced for export market;
- o instruction and assistance in the:
  - management of melon planting and cultivation practices to ensure highest yields of proper sized melons and disease control;
  - mulching of melons to ensure that uniformity of product is best;
  - harvesting of melons including the proper practices for the removal from the vines and handling during shipment to the packing shed; and,
  - post harvest handling and proper packing techniques in the hydra-cooling facility to ensure market acceptance and longest possible shelf life during shipment to European markets.
- o conduct a workshop/seminar on melon production and post harvest technology and practices necessary to serve the international market;
- o prepare a field based manual on melon production and post harvest practices necessary to serve the international market; and,
- o the participation in any other activities as mutually agreed.

## **QUALIFICATIONS:**

The melon advisor will ideally have at least a Bachelor of Science degree in Agronomy or Horticulture. He (she) will have had between five and ten years of broad and direct experience with: (i) hands on experience producing sweet and honeydew melons under sub-tropical and or tropical conditions; (ii) plant bed design and seeding; (iii) experience in seeding for proper plant population; (iv) irrigation techniques required for successful production of melons; (v) knowledge of suitable melon varieties and pre-knowledge of varietal behavior; (vi) access to commercial seed sources; (vii) a good knowledge of harvesting and post harvest product handling; and (viii) hands on experience in utilizing farm equipment and the mechanical aspects of plant bed shaping and culture including knowledge of spraying for disease and pests.

## **APPENDIX: D**

### **TERMS OF REFERENCE**

**FOR:** Equipment and Facilities Engineer

**DURATION OF SERVICES:** Four and a half months

**COUNTERPARTS:** Aitken Spence Agricultural projects Division

**RESPONSIBILITIES:** Specific responsibilities will include:

- \* detailing the building construction and supervising the work to ensure proper practices are used to obtain the insulation barriers required;
- \* developing the complete equipment requirements and their subsequent servicing procedures;
- \* directing equipment procurement;
- \* laying out of the equipment in the plant;
- \* initiating test runs and providing on the job training for the plant operators and maintenance staff;
- \* supervising and assisting the local manager with plant startup;
- \* Other duties as mutually agreed.

#### **QUALIFICATIONS:**

The equipment and facilities engineer should have an engineering degree and shall have overall knowledge of packing perishable high value fruits using hydra-cooling procedures including: facilities design and construction, equipment layout and flows, the proper temperature and environmental control procedures; and, understand the characteristics sought in packing for the longest shipping time.

The engineer will also have had between five and ten years of direct experience with: (i) practical experience on perishable food production lines; (ii) working familiarity with equipment and facility layout and servicing; (iii) managing packing plant staff; (iv) knowledge of equipment requirements and costs.

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## APPENDIX E

### TERMS OF REFERENCE

<b>FOR:</b>	Market Development and Supervisory Advisor
<b>DURATION OF SERVICES:</b>	Five months intermittent over eight months
<b>COUNTERPARTS:</b>	Aitken Spence Agricultural projects Division
<b>RESPONSIBILITIES:</b>	This advisor will help ensure marketing of the bananas and melons goes smoothly in Europe.

Specific responsibilities will include:

- o Developing market information and contacts in coordination with that developed by SRD as a part of their MED marketing contract. Helping to identify companies in Europe that would buy the product to be shipped;
- o Orient shipment from Sri Lanka, assist with custom clearances and other paper work necessary to get the product into Europe, coordinate receipt of product in Europe and supervise delivery to buyers in Europe.
- o Help ensure receipt of payment for the fruits shipped and assemble any observations made by the buyers.
- o Assist the trainer in marketing with the training of the AS marketing staff.
- o Other duties as mutually agreed.

#### QUALIFICATIONS:

The Market Development and Supervisory Advisor shall have overall knowledge of the perishable fruit marketing business in Europe. He (she) will ideally have a college degree in food marketing.

The advisor will have had between five and ten years of direct experience with: (i) hands on experience working a fruit marketing; (ii) experience in knowledge of the key buyers to work with in Europe, particularly England; (iii) experience in the paper work that must be in order to ship product into Europe; (iv) experience in working with transport companies that can get the perishable products from port of entry to the buyers; (v) experience in helping to train people in marketing of fresh fruits.

## **APPENDIX F**

### **TERMS OF REFERENCE**

<b>FOR:</b>	Marketing Trainer
<b>DURATION OF SERVICES:</b>	Three and a half months
<b>COUNTERPARTS:</b>	Aitken Spence Agricultural projects Division
<b>RESPONSIBILITIES:</b>	This advisor will help ensure that AS marketing staff are properly trained in the marketing of perishable fruits, particularly in Europe.

Specific responsibilities will include:

- o Utilizing market and marketing materials developed by SRD as well as other materials, set up a training experience for the AS staff and other Sri Lankan marketers interested in the marketing of fresh fruits.
- o instruction and assistance should at minimum involve:
  - principals of marketing;
  - special characteristics of the perishable fruit market and the companies involved in it;
  - market timing and pricing for Sri Lankan producers and special strategy considerations for meeting these markets;
  - visitation to markets to see how they operate;
  - market barriers, regulation, and documentation for market entry;
  - other topics as determined to be important.
- o the participation in other activities as mutually agreed.

## **QUALIFICATIONS:**

The Marketing Trainer shall have overall knowledge of the perishable fruit marketing business in Europe. He (she) will ideally have an advanced degree in food marketing.

The trainer will have had between five and ten years of direct experience with: (i) practical hands on training experience; (ii) experience in and knowledge of the key markets where fruits are handled in Europe, particularly England; (iii) experience in the market timing and pricing issues of importance to perishable product marketers; (iv) experience in regulation and documentation that must be in order to ship product into Europe; (v) experience in marketing practice and strategy issues.

APPENDIX G- BUDGET ESTIMATE

AITKEN SPENCE-COLD CHAIN PROJECT UDA WALAWE

ITEM	#	US\$/#	TOTAL
<u>Plant Facilities &amp; Equipment</u>			
Plant Building and Inv.Storage	1.0	130,000	130,000
Electrical Hook-up/Water	1.0	11,200	11,200
Cooling and Packing Equipment	1.0	45,000	45,000
Field Equipment/Irrigation	1.0	10,000	10,000
Refrigerated Transport	2.0	45,000	90,000
Contingency/Miscellaneous	10%		<u>28,600</u>
Total Facilities/Equip.			314,800
<u>First Year TA, Training, Mkt Test PM or #</u>			
Project Implementation Coordinator	8.0	13,800	110,400
Banana Prod.& Post Harvest Expert	3.5	11,800	41,300
Melon Prod.& Post Harvest Expert	4.0	11,800	47,200
Equipment/Facilities Engineer	4.5	10,500	47,250
Market Dev. Supervision & handling	5.0	9,000	45,000
Market Training Assistance (HVH)	3.5	8,000	28,000
International Travel (expat.team)	9.0	4,200	37,800
International Travel (AS Mkt.staff)	6.0	2,500	15,000
Per diem inter. AS staff (months)	6.0	1,500	9,000
Per diem Colombo Expat. team (months)	12.0	3,200	38,400
Per diem Embilipitya (months)	10.5	840	8,820
Local travel for TA (\$/Expat/Month)	22.5	1,000	22,500
Training Materials (other than SRD)	1.0		15,000
Administration/Support Services	1.0		12,000
Project Senior Management	3.0	15,000	<u>45,000</u>
Total TA, Training, Mkt. Test			522,670

### First Year Operating Expense Estimate

	PM	US\$/PM	
Management Local Team:			
Project Manager (2 persons)	24.0	200	4,800
Production Supervisors (5 ext/agro.)	60.0	100	6,000
Plant Manager	12.0	250	3,000
Packing Supervisors	24.0	100	2,400
Marketing Manager	12.0	375	4,500
Marketing staff	36.0	150	5,400
Senior AS Management Coordination	6.0	3,000	18,000
Local Admin./Support (for year)			<u>12,000</u>
<b>Total Local Management Costs</b>			<b>56,100</b>
 <u>Production, Packing, Transport &amp; Mkt Costs</u>			
Melons:			
Production (\$850/acre X 35 acres)			29,750
Packaging (\$100/metric ton X 240 MT)			24,000
Harvesting, packing and cooling (\$70/MT X 240 MT)			16,800
Mkting (frt, hdl, fees, etc.) (\$440/MT X 240MT)			<u>105,600</u>
<b>Total Melon Operating Costs</b>			<b>176,150</b>
Bananas (procured from outgrowers)			
Outgrower Procurement (15Rp/kg X 400,000kg/40Rp/\$)			150,000
Packaging (\$100/metric ton X 400 MT)			40,000
Gathering, packing and cooling (\$70/MT X 400 MT)			28,000
Mkting (frt, hdl, fees, etc.) (\$480/MT X 400 MT)			<u>192,000</u>
<b>Total Banana Operating Costs</b>			<b>410,000</b>
<b>Total 1st Yr local Management &amp; Operating Costs</b>			<b><u>642,250</u></b>
<b>Total Project Cost (Capital, Management &amp; Operating)</b>			<b>1,479,720</b>
 Project Cost Sharing:			
MED Project:			
TA, Training, Mkt. Test			522,670
Advance Purchase Contract (60% of mel. & bananas)			<u>385,350</u>
<b>Total MED share</b>			<b>908,020</b>
Aitken Spence:			
Facilities/Equipment capital expenditures			314,800
Local Management Costs			56,100
40% of operating costs for melons & bananas			<u>256,900</u>
<b>Total Aitken Spence Share</b>			<b>627,800</b>

### Income Statement

Melon revenue (\$1.40/kg x 240MT-15%loss = 204,000kg)	285,600
Banana revenue (\$1.85/kg x 400MT-15%loss = 340,000kg)	<u>629,000</u>
Total Revenue	914,600
Melon operating costs	176,150
Banana operating costs	<u>410,000</u>
Total Operating Costs	586,150
Contribution to Capital and Overhead	328,450

### Comments On Budget

The budget has been prepared in cooperation with AS. The capital and equipment estimates are based on estimates that have been obtained by AS from contractors and equipment suppliers. Quotes are available if required.

The TA, training and market testing have been estimated based on the costs per man month and related logistical support costs as obtained from suppliers of transport and other services. It is also based on USAID approved per diem rates for Sri Lanka.

The operating cost estimates are based on actual experience by AS in working with the Uda Walawe outgrowers during the 1990 season. The packing, transport, and freight forwarding costs are based on information collected by AS and SRD for the program they planned for the 1990 season. AS management has reviewed the numbers and feels they are reasonable.

The revenues are based on relatively conservative yields for melons (about 1/2 what they might be), and on the known banana plantations that have already been bagged. The production levels are felt to be quite achievable. Prices for melons are based on historical prices in the UK and German markets. Prices for bananas are based on estimates provided by EIED marketing group and SRD.

We feel the estimates are reasonable and reflect what should be possible.

**INTEGRATED FRUIT**  
**FILE NAME: PIPFRUIT.KEL**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**INTEGRATED FRUIT**

**JANUARY 1991**

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## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES & CONCEPT:**

The objective is to complete a full pre feasibility study for an integrated fruit drying and pulping project in the Mahaweli. This would involve examining the cultivation of banana, pineapple, mango and other similar fruits that can be dried, juiced or pulped in barrels to ensure a raw material supply. Canning or packaging the product in a form other than bulk will be considered as a second phase after the viability of the operation is established. Market information will be developed, including details on bulk packed products to be produced and market contacts, that might become equity participants, identified. Different types of process technology and related costs for the drying and pulping operations will be analyzed and the most suitable alternatives recommended. As a part of the study the role of outgrowers will be examined. Finally the financial viability of the venture will be analysed.

This PIP will assist John Keells Holdings Limited (JKHL), Business Development Division, who can utilize what is learned as a basis for making an investment decision in the Mahaweli. At present JKHL has no activity in the Mahaweli, however, they have operations in the agribusiness sector and have decided that the investigation of an integrated fruit drying and pulping venture would be of interest. The completed pre-feasibility document will be used to ensure the JKHL Board of Directors, of project viability. This study, circulated together with JKHL corporate profiles will aid identification and selection of suitable equity partners from the target markets before JKHL proceed to complete the financial projection of the final feasibility study.

This PIP will provide the services of two agri-business specialists in production and processing of tropical fruits. One of the advisors will be a fruit processing technologist with project design and analysis experience and the other should be a fruit production agronomist with project analysis experience. The advisors will work with JKHL staff to ensure they are fully informed on the project and its concept.

### **2. RATIONALE:**

The principal rationale supporting this project include:

- \* The market for tropical fruit pulp is a deep and rapidly growing market in the USA, EEC, Japan and other temperate zone countries. Also, the market for dried fruit has been steadily increasing for the past 8 to 10 years, serving a 305 thousand tons market per annum in the U.S. alone. This is based on consumption of 1.27 kgs per person per annum x 240 million people. (Source: Canning, Freezing and Drying Almanac, USA).

- \* Mahaweli areas can produce mango, guava, pineapple, passion fruit, papaya and other tropical fruits due to the ideal conditions of sunshine, day length, adequate rainfall and irrigation. Also, soils are conducive to good production.
- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems. Tropical fruit tree crops can be grown on these lands using drip irrigation systems and success of this kind of project will help increase utilization of Mahaweli land resources.
- \* The expected arrangement for management of this project is as an integrated operation where JKHL will manage a nucleus estate where they cultivate not more than 20% - 40% of their requirements while the balance of raw material input of some 60% - 80% will be provided by outgrowers on a contract or participatory basis. Development of this project will provide additional alternative cropping options for outgrowers and opportunity for Mahaweli to transfer non-irrigated areas to outgrowers. The details of the arrangements with outgrowers will be determined as a part of this study. Also, the study will provide MED with information that can be useful to other investors and outgrowers that may want to enter this business in the Mahaweli.
- \* This project, when implemented, will introduce improved fruit production, marketing, harvesting and processing technology to Sri Lanka.
- \* JKHL has the capacity to implement the project successfully. John Keells Holdings is one of the largest Sri Lankan firms with successful operations in many activity areas including agribusiness.
- \* It will provide an analysis of an integrated fruit production, drying and pulping project that will detail the profitability of the venture and serve as the basis for attracting new investment to the region in addition to providing JKHL with a study.

### 3. **INCOMES AND EMPLOYMENT:**

Fruit production, harvesting, drying and pulping are a labor intensive crop on a seasonal basis and will provide full employment for surplus farm labor. During the harvest season when labor requirements are highest non family labour may be used. The fruits to be studied are high value crops and will help to increase farmer incomes. A properly produced banana crop can result in net returns of over Rs.60,000/- per acre, per annum. This is about 7 to 7.5 times the return from paddy which is Rs. 8/9,000 per acre per annum. The details of the employment and income impacts will be developed as a part of this project.

**4. BUMPERS AND LAUTENBERG AMENDMENTS:**

It meets USAID requirements as regards the Bumpers and Lautenberg amendments.

**5. PRE-INVESTMENT PROGRAM IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

**a) Implementation:**

MED will work together with JKHL to carry out this project. The tasks to be conducted and suggested time frame are set out on schedule "A". A brief discussion of how each is to be accomplished is set out below.

- \* The MED team will conduct the search for the advisor, submit names to JKHL, EIED and USAID for approval and confirm arrangements with the advisors once nominated.
- \* During the development stages and execution of the study MED will monitor and report on progress
- \* JKHL will provide transport and office logistics to the advisors during their stay in Sri Lanka.
- \* The joint team of advisors and JKHL counterparts will prepare a pre-feasibility document that will detail the viability of the project under study.
- \* To share information learned JKHL will assign a counterpart to work with each advisor. JKHL and the MED advisors will also arrange for a seminar at which the advisors will share insights on the fruit industry world wide and in Sri Lanka. In this way the lessons learned will be shared.

MED, through the S. R. Daines (SRD) marketing consultants, will be conducting work on the markets for dried fruits and fruit pulp. The findings of this work will be valuable to preparation of the pre-feasibility study; therefore, the JKHL advisors should coordinate the market work and contacting they do with that of the MED S. R. Daines marketing consultants.

**b) Shared Cost Component:**

The project has a shared cost component. MED will assist by identifying the two advisors in fruit industry production and processing and paying both their salaries and costs to bring them to Sri Lanka. It is proposed MED will share the accommodation costs with the pioneer investor. JKHL will provide logistical

support for the persons while in the country. Also, they will make counterparts available to work with the expatriate advisors on the pre-feasibility study team. This is important as the local staff will gain on-the-job training from the advisors, will be fully involved in the project and understand its' concept.

This will be important for JKHL as they enter the implementation phase. The details of the proposed cost sharing is set out below as a part of the estimated budget for the project.

**6. BUDGET:** An estimated budget for this PIP is set out below:

**a. Staffing: Expatriate**

- Fruit Processing Technologist and Industry Specialist (two months).
- Fruit Production Agronomist and Procurement Specialist (two months).

**b. Staffing: Local**

- JKHL will contribute two professionally qualified and experienced persons to work with the team. The Director of JKHL will be responsible for managing the team and producing the final report whilst a Project Analyst from JKHL will assist in data collection, interpretation in general and particularly in financial analysis and projections. The analyst will also visit and obtain information from various government departments and institutions including the Mahaweli authority (see Appendix C for JKHL staff bio data forms).
- Local secretarial support.

**c. Costs:**

o	Technical assistance support and travel costs (ISTI contract).	\$ 52,000
o	Contingency (5% of MED participation)	\$ 2,600
o	Accommodation and food while in Sri Lanka (based on US\$50 p/day x 2 advisors x 120 days)	\$ 3,000
		-----
	Total MED Share	\$ 57,600
o	Local JKHL participation as follows:	
o	Accommodation and food while in Sri Lanka	\$ 3,000

o	Local office and transport logistical support	\$ 6,000
o	Staff and labour input (2 staff + 1 secretary)	\$ 10,000
o	Documentation preparation support	\$ 2,000
		-----
	Total JKHL Share (estimate)	\$ 21,000
	Total Cost (MED plus JKHL Estimated Share)	\$ 78,600
		=====

**7. SHARED LEARNING:**

To assist in carrying out the assignment, EIED will provide JKHL with historical data including existing cultivation, how the produce is disposed of at present, the numbers, size and types of outgrowers who can be invited to participate in a contractual agreement to supply JKHL with produce. Previous studies relating to fruit production, harvesting, marketing, and processing in Sri Lanka will be identified and assembled by the JKHL counterparts before the advisors arrive in Sri Lanka.

The advisors will conduct a seminar on completion of the project to share information with others that may be interested in fruit drying and pulping. In this way the lessons learned will be shared.

**8. INVESTOR GROUP:**

Name: John Keells Holdings Limited (JKHL),  
Business Development Division

Address: P. O. Box 76  
130 Glennie Street, Colombo 2, Sri Lanka.

Contact: Mr. Jagath Fernando, Director  
Mr. Ranel T. Wijesinha, Director Business Development Division.

## APPENDIX A

### TERMS OF REFERENCE

<b>FOR:</b>	Fruit Processing Horticulturalist and Industry Specialist
<b>DURATION OF SERVICES:</b>	Two months
<b>COUNTERPARTS:</b>	John Keells Holdings Limited, Business Development Division
<b>RESPONSIBILITIES:</b>	The advisor will help conceptualize the project design as well as conduct market and technology studies associated with the project.

Specific responsibilities will include:

- o Reviewing the existing activities of fruit processing companies operating in Sri Lanka, particularly the Mahaweli, to determine capacity, technology employed, product types produced, constraints, market focus and general competitive position in the Sri Lankan industry;
- o Conceptualizing and designing the project parameters around which the project financial analysis will be based;
- o Detailing the appropriate technologies to use for drying and pulping operations, developing facility and equipment requirements and their costs;
- o Preparing market information in coordination with that developed by SRD as a part of their MED marketing contract and helping to identify companies that could be buyers and possibly equity partners;
- o Assisting with the financial analysis;
- o Conduct a workshop on fruit pulping and drying operations;
- o Prepare a manual on fruit drying techniques and equipment requirements for fruit pulping and fruit drying; and
- o Other duties as mutually agreed.

## **QUALIFICATIONS:**

The Fruit Technology advisor shall have overall knowledge of the fruit processing business from production of raw materials through to marketing of product. He (she) will ideally have a post-graduate degree in food technology and/or food engineering.

The advisor will have had between five and ten years of direct experience with: (i) hands on experience working a fruit processing production line; (ii) experience in planning and managing project feasibility studies; (iii) broad based knowledge of the key fruit industry companies internationally and how they conduct business; (iv) experience in project conceptualization, analysis and design; (v) working familiarity with facility layout and costing; (vi) knowledge of equipment requirements and costs; (vii) and familiar with spreadsheet programs and project writing.

## APPENDIX B

### TERMS OF REFERENCE

<b>FOR:</b>	Fruit Production Agronomist and Procurement Specialist
<b>DURATION OF SERVICES:</b>	Two months
<b>COUNTERPARTS:</b>	John Keells Holdings Limited Business Development Division
<b>RESPONSIBILITIES:</b>	The advisor shall have overall responsibility for analyzing raw material procurement and production to serve the proposed fruit drying and/or pulping processing operations. This advisor will review the existing raw material situation as well as production potential in the Mahaweli and develop schemes that will assure supply to a proposed processing facility. He (she) would work closely with the fruit processing advisor and other team members.

Specific responsibilities will include:

- o Being an integral and active member of the team conducting the pre-feasibility study and working closely with the JKHL counterparts;
- o Reviewing existing data on the historical production of mango, banana, guava, papaya and other possible fruits for processing as well as production practices presently and those recommended by local groups that have had experience in Sri Lanka;
- o Determining and detailing raw material procurement strategy including whether raw materials are available in sufficient supply to support a processing facility or whether plantations will need to be developed;
- o Preparing design and cost details for the establishment of fruit tree plantations if necessary to supply a processing facility;
- o Assisting with the financial analysis;
- o Conducting a workshop on the design and establishment of fruit tree plantations;
- o Preparing a manual on designing and establishing fruit tree plantations;
- \* Other duties as mutually agreed.

## **QUALIFICATIONS:**

The Fruit Production and Procurement advisor will ideally have a university degree in pomology, horticulture or agronomy. He (she) will have had between five and ten years of direct experience with: (i) procuring raw materials for a food processing firm; (ii) experience in planning and managing fruit plantations in tropical countries; (iii) experience in project analysis work would be helpful but not essential; (iv) demonstrated ability to work with others; (v) and ability to prepare documents required to complete a pre-feasibility report.

**APPENDIX C**

**RESUMES FOR PARTICIPATING JOHN KEELLS HOLDINGS LIMITED,**

**BUSINESS DEVELOPMENT DIVISION PERSONNEL**

**APPENDIX D**

**PROPOSED FRUIT CULTIVATION PROGRAMME**

**UNDER IRRIGABLE UPLAND SCHEMES**

**ZONE 01 OF SYSTEM "B"**

10/5

**IRRIGATION COMMERCIALIZATION TEST PROGRAM; AND  
PLASTICS MANUFACTURING VIABILITY REVIEW  
FILE NAME: PIPIRRG.ASY**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**IRRIGATION COMMERCIALIZATION TEST PROGRAM; AND  
PLASTICS MANUFACTURING VIABILITY REVIEW**

**FEBRUARY, 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES & CONCEPT:**

The objective is to establish a test program to demonstrate on outgrower farms the commercial practices required to successfully use drip irrigation systems in the production of high value fruit and/or vegetable crops. Also, a success will lead to the establishment of a plastics manufacturing operation for drip irrigation components and other plastics items of use to Mahaweli farm families at one of the Mahaweli industrial parks. This project will build on lessons learned at the Agritech Systems (Private) LTD (ASY) demonstration farm already underway in system H. This project will be a phased program involving several components including:

#### **Phase I: Production Demonstration with Outgrowers:**

This phase of the project would focus on the purchase of drip irrigation equipment and its installation on the farms of outgrowers. Specifically it will include:

- \* selecting 10 to 15 outgrowers for participation in each of three systems of the Mahaweli using drip irrigation equipment to grow high value crops they presently produce, or could produce, such as gherkins, chilies, table tomatoes, melons, papaya, passion fruit;
- \* the installation of drip irrigation equipment on each of the outgrowers farms at no cost to them;
- \* providing extension services to the farmers so as to show them how to use the irrigation systems and monitor the production to ensure the farmers learn the benefits derived from its use;
- \* ensure a market for the products that farmers are requested to produce if different from what those normally produced; and,
- \* evaluate the financial success of the project and write up the results for others to benefit from.

#### **Phase II: Establish Viability of Manufacturing Operations for Drip Irrigation Equipment and other Plastics Products:**

This phase of the project will focus on an assessment of the viability for establishing manufacture of drip irrigation equipment and other plastics items at an industrial site in the Mahaweli. Specifically it will include:

- \* preparation of a project pre-feasibility study that will look at technical and financial factors important to determining the success of establishing a plastics manufacturing operation in the Mahaweli. For example, it will examine technical issues associated with raw material supplies, equipment maintenance, operating costs as well as markets for the products to be produced;
- \* if the feasibility project proves positive implementation of the manufacturing operation will be considered for joint development by MED and ASY during a second phase of assistance. ASY is reasonably confident that viability will be shown because they already have plastics operations and they can make a gradual shift of some production to a Mahaweli location.

The intent of the project is to help a local investor (ASY) of the Maharaja Organization undertake a risky project by providing the support necessary over a sufficient period of time to bring the risks to acceptable levels. Several start-up risks exist for the introduction of drip irrigation equipment and practices that MED can help share. The principal risks associated with phase I are; ensuring that when introducing a new technology to the Mahaweli farmers they will use the system properly; assurance of a market for the products that farmers are asked to produce; and guidance in how to set up the production activities using drip irrigation systems. Principal risks associated with Phase II are ensuring that Mahaweli laborers can be trained to operate plastics manufacturing operations; and, that markets will be large enough to support a plastics manufacturing venture. Finally, the financial viability of these activities is not ensured and this project will help confirm the financial viability as well as the technical practicality of the projects.

This PIP will assist (ASY), a firm that is already operating in System H. The company does have a nucleus diversified agricultural operation and is looking to expand its activities with outgrowers. This project will provide ASY information concerning the commercial introduction of drip irrigation systems on outgrower farms. This is important, because if successful, it will provide a path to Mahaweli farmers for expanding yields and incomes. Also, it will help develop a means for sharing information with others and expanding the production of high quality high value fresh fruits and vegetables for potential export. This is extremely important to the expansion of the fresh fruit and vegetable export industry.

Finally, the PIP will assist ASY determine the viability of manufacturing the irrigation and plastics equipment in the Mahaweli and in making an expanded investment commitment to System H and the Mahaweli.

This PIP project will require resources for capital expenditures, and operating costs. Capital expenditures will be for the drip irrigation systems to be placed on outgrower farms; and for equipment to install the systems. Operating costs are for production, harvesting, and marketing. The help MED proposes to provide includes provision of a fruit and vegetable irrigation agronomist to help orient installation of the irrigation systems, production, harvesting, and marketing of products grown. Also, in phase II it will require the assistance of a plastics manufacturing industrial engineer that can prepare the feasibility study for the plastics manufacturing plant. ASY would provide local counterparts to work with the advisors and to help carry out the installation of equipment. ASY is asked to pay for the equipment if MED pays all other costs. The actual establishment of the plastics manufacturing facility is not to be a part of this project. The details of the assistance and expenditures required are set out on Schedule A and Appendix A.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* The market for selected high value crops ( specialty bananas, melons, papaya, mango)and tropical dried fruit is a deep and rapidly growing market in the USA, EEC, Japan and other temperate zone countries and has been steadily increasing for the past 8 to 10 years. For example, the dried fruit market has grown to a 305 thousand ton market per annum in the U.S. alone. This is based on consumption of 1.27 kgs, per person per annum x 240 million people. (Source: Canning, Freezing and Drying Almanac, USA).

Further, for selected fresh products the market, according to SRD has an open window for fruit from Sri Lanka during the period from January to end April if Sri Lanka can organize to supply it.

- \* Sri Lanka can produce mango, guava, pineapple, passion fruit, papaya other tropical fruits and melons due to the conducive climatic conditions of sunshine, rainfall, and temperature. Also, adequate irrigation water is available to support production in the dry seasons.
- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems and are non-irrigable with flood systems. Tropical fruit tree crops can be grown on these lands using drip irrigation systems that obtain water pumped from wells or the canals. Success of this proposed project could help point the way to increased utilization of these Mahaweli land resources.

- \* The expected arrangement for management of this project is as an integrated part of ASY's operations. ASY will use its nucleus estate in system H as a training center for teaching farmers in the test program how to work with drip irrigation systems. They will work with outgrowers on a contract or participatory basis, best arrangements will be determined during the project. Development of this project will provide additional alternative cropping options for outgrowers. Also, it will provide MED and EIED with information that can be useful to other investors and outgrowers that may want to utilize drip irrigation systems.
- \* ASY as a major plastics producer in Sri Lanka is interested in establishing a non-agricultural manufacturing operation in the Mahaweli and this is something that can be very positive for the development of the region.
- \* ASY, if the test program proves technically and financially viable, has the capacity to implement an expanded project successfully. ASY is one of the largest Sri Lankan firms with successful operations in many activity areas including agribusiness. ASY is also a leading manufacturer of plastic consumer products of the type needed by Mahaweli farm families. ASY has the management and technical talent, with appropriate advisory assistance, to implement both the drip irrigation program and the plastics manufacturing operations.

### 3. **INCOMES AND EMPLOYMENT:**

Fruit production, harvesting, packing are labor intensive activities on a seasonal basis and will provide full employment for surplus farm labor. During the harvest season when labor requirements are highest non-family labor may be required.

The fruits or vegetables planned for production are high value crops and their ensured productivity through use of drip irrigation systems will help to increase farmer incomes. For example, this past season average chili yields were 500kg per acre. ASY on its drip irrigated plot obtained yields of 1600kg per acre. At the price of chili this produced revenues of Rp100,000 over the average farmers revenue. In fact, it produced enough revenue to pay for the irrigation system in one season. This project will help farmers produce crops that provide revenues well in excess of returns gained on paddy.

Also, the establishment of a non-agricultural plastics manufacturing operation will help to create off farm employment opportunities for more skilled laborers. This can be helpful to building a community that will attract other non-agricultural business ventures in the Mahaweli region.

The details of the employment and income impacts will be developed as a part of this project.

4. **BUMPERS AND LAUTENBERG AMENDMENTS:**

It meets USAID requirements as regards the Bumpers and Lautenberg amendments.

5. **PRE-INVESTMENT PROGRAM IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

MED will work together with ASY to carry out this project. The tasks to be conducted are set out on schedule "A". A brief discussion of how activities are to be implemented and what cost sharing items the respective parties will provide is set out below.

- \* Submit PIP document to EIED, USAID and ASY for approval.
- \* The terms of reference and description of the persons sought is attached to this PIP description document.
- \* The MED team will conduct the search for the advisors, submit names to ASY and USAID for approval and confirm arrangements with the advisors once nominated.
- \* During the development stages and execution of the study the MED's MLE advisor and EIED staff will keep in contact with ASY.

MED will provide technical assistance, training materials and market information as follows:

- \* consulting fees for advisors.
- \* international travel for advisors and ASY staff that travel for training outside Sri Lanka.
- \* accommodation for the advisors in Colombo and in the field while they are conducting their work as well as food and other personal needs for the advisors while in Sri Lanka.
- \* local transport and office logistics to the advisors during their stay in Sri Lanka.
- \* a market study for selected plastics products and drip irrigation components in the Mahaweli.

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ASY will provide the following:

- \* purchase of drip irrigation equipment and other equipment necessary to carry out the demonstration on outgrower farms.
- \* connection of electricity.
- \* miscellaneous items and contingencies.
- \* staff to work with the advisors;ie, extension people to work with the irrigation agronomist, and other technicians as appropriate to gain on-the-job irrigation experience.

ASY would provide a person or persons to work with the plastics engineer in conducting the project evaluation for the plastic manufacturing feasibility analysis. In this way the lessons learned will be shared.

The details of the cost sharing are set out below as a part of the estimated budget for the project. It should be noted that ASY has already made a substantial initial investment in this project. They have developed a 10 acre demonstration farm in system H equipped with drip irrigation facilities at a cost of approximately \$45,000. This should be taken into account when finalizing cost sharing arrangements.

**6. BUDGET:**

An estimated budget for this PIP is set out in Appendix A.

**7. SHARED LEARNING:**

ASY will allow other groups interested in the demonstration of the drip irrigation systems on outgrower farms visit the trial areas to see how the practice is carried out and to learn about the costs and benefits. The irrigation advisor will prepare a document summarizing the experiences learned with the drip irrigation test program. He would also conduct a seminar on completion of the project to share information with others that may be interested in drip irrigation practices.

The plastics manufacturing engineer will prepare a feasibility document that can be used by ASY and shared with others that may be interested in the plastics manufacturing project if ASY decides to seek partners in the venture. Also, it will be a document that EIED can share with other parties interested in a similar project. In this way the lessons learned will be shared.

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**8. INVESTOR GROUP:**

**Name:** AGRITECH SYSTEMS (PRIVATE) ltd.  
Member Maharaja Organization

**Address:** No.146, Dawson Street  
Colombo 2, Sri Lanka.

**Contact:** Mr. M.I. Bahar, Group Director/CEO  
Mr. Ranjit Perera, Director  
Mr. N.H.B.Ş. Perera, Director

Title: SCHEDULE A - PROJECT IMPLEMENTATION SCHEDULE  
 File: AGROTECH.WK1  
 Potential Investor: AGROTECH SYSTEMS (PRIVATE) LTD. (ASY)

	1991											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Define the PIP	---	---X										
2. Gain PIP Approval			---	---X								
3. Prepare Terms of Reference	X											
- Fruit & Vegetable Agronomist with Drip Irrigation Exp.	X											
- Plastics Manufacturing Engineer	X											
4. Search for Advisors			---	---	---	X						
5. Conduct Plastics Products Market Study								---	---	X		
6. Obtain Irrigation Equipment			---	---	---	X						
7. Ensure Advisors Living Arrangements			---	---	---	X						
8. Arrange Logistics			---	---	---	X						
9. Sharing Lessons Learned								---	---	---	---	X
10. Advisors Period of Service												
- Irrigation Person						---	---	---	---	---	X	
- Plastics Engineer								---	---	---	---	X

Key:

- Execution
- === Intermittent
- X Completion

**APPENDIX A- BUDGET ESTIMATE**

**AGRITECH SYSTEMS-IRRIGATION DEMONSTRATION PROJECT MAHAWELI**

ITEM		US\$/#	TOTAL
<u>Equipment</u>			
Field and Irrigation Equipment	45	1,875	84,375
Contingency/Miscellaneous	10%		<u>8,500</u>
Total Facilities/Equip.			92,875
 <u>TA, Training, Mkt study PM or#</u>			
Fruit/Veg. Agronomy/Irrigation Expert	5.0	11,000	55,000
Plastics manufacturing engineer	3.0	11,000	33,000
International Expatriate Travel	4.0	4,000	16,000
Per diem Colombo (months)	5.5	3,200	17,600
Per diem Mahaweli systems (months)	2.5	840	2,100
International ASY staff travel (months)	2.0	2,500	5,000
ASY staff (months)	2.0	3,000	6,000
Local travel for TA (\$/Expat/Month)	8.0	1,000	8,000
Plastics products market study (local)	1.0		25,000
Administration/Support Services	1.0		6,000
Project Coordination and Management	3.0	8,000	<u>24,000</u>
Total TA, Training, Mkt. study			197,700
 <u>First Year Operating Expense Estimate</u>			
Management Local Team:	<b>PM</b>	<b>US\$/PM</b>	
Project Manager	12.0	300	3,600
Production Supervisors (ext.agron.	36.0	200	7,200
Admin./Support (for year)	12.0	200	2,400
Local Project Coordination	6.0	500	<u>3,000</u>
Total Local Management Costs			16,200

Production, & Mkt Costs for product produced

Gherkins: (example)

Production (\$1,250/acre X 22.5 acres) 28,125  
Mkting (frt,hdl,etc. related to farmer)(\$100/acre ) 2,250

Total Operating Costs 30,375

Total First Year Management & Operating Costs 46,575

Total Project Cost (Capital, Management & Operating) 337,150

Project Cost Sharing:

MED Project:

TA, Training, Mkt. study 197,700  
Provide Loan to purchase product 30,375  
Total MED share 228,075

Agrotech Systems:

Equipment capital expenditures 92,875  
Local Management Costs 16,200  
Total Agrotech Systems Share 109,075

Income Statement

Product revenue (example gherkin) 75,500  
Total Revenue 75,500

Product operating costs (from above) 30,375  
Total Operating Costs 30,375

Contribution to Capital and Overhead 45,125

## **APPENDIX B**

### **TERMS OF REFERENCE**

- FOR:** Fruit & Vegetable Agronomist with Drip Irrigation Experience.
- DURATION OF SERVICES:** Five months
- COUNTERPARTS:** Agrotech Systems (Private) Ltd. extension agronomists and other field people. He would work with outgrowers as well.
- RESPONSIBILITIES:** The advisor will help conceptualize the project design and demonstrate the commercial practices required to successfully use drip irrigation systems in the production of high value fruit and/or vegetable crops on outgrower farms.

Specific responsibilities will include:

- \* orientation in the purchase of the drip irrigation equipment, and in installation on each of the outgrowers farms;
- \* providing training to Agritech extension service agents and outgrowers to ensure proper use of the irrigation systems;
- \* orient production practices at the farm level so that land preparation, fertilization, seeding, cultivation, and other practices are properly done;
- \* keep records on the farms to ensure technical production and cost information is gathered that summarizes findings of the demonstration trials;
- \* Prepare a manual on fruit and vegetable production techniques and equipment requirements under drip irrigation systems in Sri Lanka;
- \* Conduct a workshop on fruit and vegetable production under drip irrigation systems; and,
- \* Other duties as mutually agreed.

## **QUALIFICATIONS:**

The Fruit and Vegetable Agronomist shall have overall knowledge of producing tropical fruit and vegetables under drip irrigation conditions. He (she) will ideally have a post-graduate degree in agronomy and/or irrigation engineering or some combination of both.

The advisor will have had between five and ten years of direct experience with: (i) field planting, cultivation, and harvesting of tropical fruits and vegetables; (ii) practical experience in selecting, and installing drip irrigation equipment on small plots; (iii) knowledge of setting up demonstration plots to permit collecting relevant agronomic information; (iv) knowledge of drip irrigation equipment requirements and costs; (v) ability to prepare written documentation required.

## APPENDIX C

### TERMS OF REFERENCE

<b>FOR:</b>	Plastics Manufacturing Industrial Engineer
<b>DURATION OF SERVICES:</b>	Three months
<b>COUNTERPARTS:</b>	Agrotech Systems (Private) Ltd. and Maharaja group plastics manufacturing and market analysts.
<b>RESPONSIBILITIES:</b>	The advisor shall have overall responsibility for analyzing the advisability of establishing drip irrigation and plastics products manufacturing activities in the Mahaweli. This advisor will review the existing industry situation as well as the conditions likely to be provided by the Mahaweli to assist in developing a plastics facility in one of the Mahaweli industrial parks. He (she) would work closely with ASY assigned team members.

Specific responsibilities will include:

- o Reviewing the existing activities of ASY's plastics business in Sri Lanka, to determine capacity, technology employed, product types produced, and their apparent ability to expand their activities to the Mahaweli;
- o Conceptualizing and designing the project parameters around which the project financial analysis will be based;
- o Detailing the appropriate technologies to use for the manufacture of irrigation equipment and other plastics products and estimating equipment requirements and their costs. This would include existing equipment that might be transferred as well as new equipment that might be required;
- o Reviewing the market information prepared by MED/EIED marketing team as well as the information being learned from the irrigation trials to help arrive at a conclusion concerning the potential size of the market over the next five years;
- o Preparing together with ASY financial staff a financial analysis for the project;
- o Conduct a workshop on opportunities for plastics manufacturing in Sri Lanka and particularly the Mahaweli;
- o Other duties as mutually agreed.

## **QUALIFICATIONS:**

The Plastics Manufacturing Industrial Engineer shall have overall knowledge of the plastics manufacturing business from raw materials through to marketing of product. He (she) will ideally have a post-graduate degree in industrial engineering with specialization in plastics.

The advisor will have had between five and ten years of direct experience with: (i) in plant manufacturing experience; (ii) experience in planning and managing project feasibility studies; (iii) broad based knowledge of the drip irrigation equipment manufacturing industry; (iv) experience in project conceptualization, analysis and design; (v) working familiarity with facility layout and costing; (vi) knowledge of equipment requirements and costs; (vii) and familiar with spreadsheet programs and project writing.

**TOMATO PROCESSING**  
**FILE NAME: PIPTOMAT.VW**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**Tomato Processing**

**FEBRUARY, 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES AND CONCEPT:**

The objective is to evaluate appropriate process technology for bulk tomato paste production in the Mahaweli to establish feasibility of the concept. As a phase II objective experimental plots of process tomatoes will be planted to confirm production success. The successful processing and commercialization of tomato will assist at least 500 outgrowers and most likely many more by providing an alternative crop. Tomato production could help reduce risks for nucleus gherkin farmers and their outgrowers by reducing dependency on gherkins.

This PIP will assist Vanathawilluwa Vineyard (VW) a leader in the Sri Lanka gherkin industry to enter tomato production on a commercial scale. VW will spread the knowledge gained to their outgrowers and other firms interested in growing tomatoes.

The objective is to complete two distinct tasks that will lead to determining feasibility of an integrated tomato production and processing project in the Mahaweli. These tasks will be carried out on a phased basis:

#### **Phase I:**

The phase I task involves working with the VW management to develop a solid conceptual framework for processing tomatoes in Sri Lanka. This would involve a review of the process technology, packaging, and size of facilities utilized in tomato processing. It would examine how a modest size facility could be set up in Sri Lanka to produce bulk product for sale to international processors that would prepare the final consumer product. Assistance in identifying international buyers would be provided as the advisor is able. It would take the concept agreed to between VW and the advisor and develop capital, operating and financial returns to the venture in an effort to evaluate feasibility.

#### **Phase II:**

Once phase I findings support the concept as being viable establishment of commercial trial plots for selected varieties of processing tomatoes would be undertaken. This would be done in at least systems H and G; and possibly C. The objective is to examine cultivation practices for selected varieties of processing tomatoes to establish that it can be done successfully. Also, it would aim to detail costs to produce processing tomatoes.

Successful production of tomatoes would be followed by the construction of the process facility recommended in phase I and the establishment of commercial tomato growing by VW and the outgrowers.

This PIP will provide the services of the specialist required for the phase I activity. The advisor to be provided would be a tomato processing engineer. The processing engineer would require assistance of a financial analyst from VW that could help put together the cost information for the phase I financial evaluation of the processing facility. He will work with VW staff to ensure they are fully informed on the project and its concept.

If phase I proves successful a tomato production agronomist would be provided under a phase II PIP.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* The market for tomato products is available to VW and other Sri Lankan tomato producers domestically. VW also has been asked by a gherkin customer they deal with in Australia for supplies of bulk packed tomato paste that can be used in their institutional packs.
- \* VW is actively seeking ways to diversify production operations in order to spread the marketing risk associated with being a one crop producer. They view the successful development of this project as a means to diversify into an alternative cropping option that will help stabilize their nucleus farm and outgrower incomes.
- \* The expected arrangement for management of the tomato project, should it prove viable, is as an integrated operation where VW will manage a nucleus estate and involve several hundred outgrowers on a contract basis. The details of the arrangements will be similar to those used by VW with present outgrowers. VW has worked successfully with 400 plus outgrowers in the Mahaweli and has a committed interest in building even stronger relationships with outgrowers.

It will provide MED with information that can be useful to other potential investors and outgrowers that may want to invest in tomatoes in the Mahaweli Systems.

- \* VW has the capacity to implement the project successfully. VW has several other agribusiness activities in Sri Lanka and is a successful gherkin producing company.
- \* This project, when implemented, will introduce improved tomato production, marketing, harvesting and processing technology to Sri Lanka.

- \* It will provide an analysis of key technical (production and processing) issues important to establishment of an integrated tomato production and processing project. It will help detail the potential profitability of the venture for VW and can serve as the basis for helping other groups that might be attracted to a tomato investment in the Mahaweli.

### **3. INCOMES AND EMPLOYMENT:**

Tomato production is a labor intensive crop on a seasonal basis. It is not likely to add new workers to the roles of each farm but it will make fuller use of existing farm family labor. During the harvest season when labor requirements are highest non-family labor may be used by the 400 to 500 outgrowers.

Profitability of tomato can be several times that of paddy. Estimates set out in appendix A, suggest net earnings of at least Rs. 15,475 per acre in a good season. This is much more than the Rs. 4/4,500 net earnings on paddy per acre, per season.

### **4. BUMPERS AND LAUTENBERG AMENDMENTS:**

This pre-investment program meets USAID requirements as regards the Bumpers and Lautenberg amendments.

### **5. IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

#### **a) Implementation:**

MED will work together with VW to implement this project. The implementation tasks are set out in attached Schedule A "Project Implementation Schedule". A brief discussion of how each key task is to be accomplished is set out below.

- \* Submit PIP document to EIED, USAID and VW for approval.
- \* The MED team will conduct the search for the tomato process advisor and submit names of candidates to VW, EIED and USAID for approval.
- \* VW will arrange for accommodation and board for the advisor.
- \* VW will provide transport and office logistics for the advisor during his (her) stay in Sri Lanka.

#### **b) Shared Cost Component:**

The project has a shared cost component. MED will assist by identifying the tomato process advisor, paying his (her) salaries and the cost to bring the advisor to Sri Lanka.

VW will arrange local living costs and pay for logistical support of the persons while in Sri Lanka. They will make staff people available to work with the advisor. VW has already made major investments in developing land and staff.

The details of the cost sharing are set out below as a part of the estimated budget for the project.

**6. BUDGET:**

The estimated budget is set out below:

*	Technical assistance support and international travel costs (ISTI contract).	\$ 38,000
*	Contingency (5% of MED participation)	\$ 1,900
*	Local VW participation as follows:	
o	Accommodation and food while in Sri Lanka	\$ 2,800
o	Local office and transport logistical support	\$ 2,600
o	Staff and labor input	\$ 4,000
o	Documentation preparation	\$ 1,000
		-----
	Total Cost	\$ 50,300
		-----
	MED Share	\$ 39,900
	VW Share (estimated)	\$ 10,400
		=====

**7. SHARED LEARNING:**

The advisor will conduct a seminar on completion of the project to share information with others that may be interested in tomato processing. In this way the lessons learned will be shared.

Also, to share information learned VW will assign counterpart(s), as appropriate, to work with the advisor. The advisor would prepare the pre-feasibility document. It will be available to other tomato firms that are looking for similar diversification opportunities.

**8. INVESTOR GROUP:**

**Name:** Vanathawilluwa Vineyard

**Address:** 441/1A  
Razeendale Gardens  
Colombo 4, Sri Lanka

**Contact:** Mr. Nimal Viswakula  
Managing Director

Title: SCHEDULE A - PROJECT IMPLEMENTATION SCHEDULE  
 File: PROJIMPL.WK1  
 Potential Investor: VANATHAWILLUWA VINEYARD (VW)

	PHASE I												PHASE II							
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1. Define the PIP	---	X									---	X								
2. Gain PIP Approval			---	X							---	X								
3. Prepare Terms of Reference		X																		
- Tomato Prod. Agronomist		X																		
- Tomato Proc. Engineer		X																		
4. Search for Advisors			==	---	X							---	X							
5. Arrange for Seed Varieties													---	X						
6. Ensure Equipment Available													---	X						
7. Ensure Advisors Living Arrangements in Sri Lanka			====	---	X								---	X						
8. Arrange Logistics				---	X									---	X					
9. Sharing Lessons Learned									---	DR							==	---	---	DR
10. Advisors Period of Service																				
- Tomato Prod. Agronomist																				
- Tomato Proc. Engineer						---	---	---	X											X

Key:

- Execution
- === Intermittent
- DR Target For Draft Report
- X Completion

## APPENDIX A

### ESTIMATED COSTS AND RETURNS OF TOMATO PRODUCTION

<u>INCOME:</u>	Rs.
Average yield per acre (3250 kgs) x estimated farm gate price (Rs.8.5/kg)	27,625
<u>OPERATING COSTS:</u>	
Land and Bed Preparation	900
Seed Material and Nursery	1,850
Transplanting	250
Fertilizer	1,700
Weed Control & Earthing	1,800
Pest/Disease Control	550
Water Management	200
Watching/Bird Control	900
Harvesting	4,000
 TOTAL COST	 12,150
	-----
Net Income before tax	Rs. 15,475
	=====

Source: EIED marketing group

## **APPENDIX B**

### **TERMS OF REFERENCE**

<b>FOR:</b>	Tomato Process Engineer
<b>DURATION OF SERVICES:</b>	3 months
<b>COUNTERPARTS:</b>	VW management team
<b>RESPONSIBILITIES:</b>	This advisor will assist VW management develop a solid conceptual framework for processing tomatoes in Sri Lanka and highlight feasibility.

Specific responsibilities will include:

- \* a review of the process technology, packaging, and facility sizes utilized in tomato processing in Sri Lanka so as to relate them to international standards and recommend a proper facility size for VW.
- \* examining how a modest size facility could be set up in Sri Lanka to produce bulk product for sale to international processors. It would involve detailing a facility and the complete equipment requirements for it.
- \* as he is able, help in identifying international buyers to contact to find out if a bulk product from Sri Lanka would be of interest to them.
- \* taking the concept agreed on for a processing plant and develop capital, operating and financial returns to such a venture in an effort to evaluate feasibility.
- \* Other duties as mutually agreed.

#### **QUALIFICATIONS:**

The process engineer should have an engineering degree and shall have practical knowledge of the issues associated with processing fruits and vegetables, particularly tomatoes. He should understand facilities design and construction, equipment layout and flows, the proper handling and control procedures used to process tomatoes; and, costing procedures for a tomato processing operation.

## **APPENDIX B**

### **TERMS OF REFERENCE**

<b>FOR:</b>	Tomato Production Agronomist.
<b>DURATION OF SERVICES:</b>	4 months
<b>COUNTERPARTS:</b>	VW field managers and extension agronomists.
<b>RESPONSIBILITIES:</b>	This advisor will assist VW in the establishment of commercial trial plots for selected varieties of processing tomatoes. The objective is to examine cultivation practices for selected varieties of processing tomatoes to establish that it can be done successfully. Also, it would aim to detail costs to produce processing tomatoes.

Specific responsibilities will include:

- o procurement of several seed varieties that can be successfully grown in dry tropical conditions;
- o instruction and assistance in the:
  - development of tomato production including seed bed preparation, transplanting practices, and correct soil moisture management;
  - harvesting of tomato including the proper practices for the removal from plants and selection of desired sized tomato for the market; and
  - post harvest handling and preparation for processing (cleaning, peeling, pulping, concentrating,) to enable commercialization of tomato on outgrower schemes in the Mahaweli regions.
- o conduct a workshop/seminar on tomato production practices;
- o prepare a field based manual on tomato production; and,
- o participate in other tomato industry activities as mutually agreed.

## **QUALIFICATIONS:**

The tomato production advisor will ideally have a Bachelor of Science degree in Agronomy or Horticulture. He (she) will have had between five and ten years of broad and direct experience with: (i) hands on experience producing tomato under sub-tropical and/or tropical conditions; (ii) nursery bed design and production of transplants; (iii) experience in transplanting for proper plant population in commercial plots; (iv) irrigation techniques required for successful tomato production; (v) knowledge of suitable tomato varieties and pre-knowledge of varietal behavior; (vi) knowledge of how to establish trial plots to assess plants performance against several production variables; (vii) access to commercial seed sources; (viii) a good knowledge of harvesting and post harvest product handling; and (ix) hands on experience in utilizing farm equipment and knowledge of spraying for disease and pests.

**DRIED FRUIT**  
**FILE NAME: PIPDRIED.CTC**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**DRIED FRUIT**

**February 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES & CONCEPT:**

The objective of this Pre-Investment Program (PIP) is to establish a small commercial "fruit drying " project that will demonstrate the commercial practices required to successfully market dried fruits from System C, Mahaweli, Sri Lanka into international markets, particularly Europe. This project will involve two major phases of work (establishing viability and implementing a commercial scale demonstration facility). Each is discussed below.

#### *Phase I: Establishing Viability*

In establishing viability several key issues determining viability of the venture will be reviewed and confirmed including:

- \* establishing that raw material supplies will be sufficient to support a small scale commercial drying operation;
- \* determining by fruit type the most suitable cultivar or cultivars normally best for drying operations;
- \* advice concerning the ideal physiological state of the fruit to produce high quality dried products;
- \* determining that dried fruit from Sri Lanka will find a large enough market to support the venture;
- \* advise on packaging and storage requirements to maintain quality of the dried product;
- \* detailing the project concept, design, and layout for the project so that financial viability can be analyzed and established.

In addition to analyzing the above issues this Phase of the project will provide training for selected staff of CTC that would be involved in the fruit drying venture to ensure that trained people will be in place to manage the Phase II commercial demonstration facility.

### **Task 1: Confirm the Supply of Raw Materials**

This would involve examining the cultivation of several tropical fruits (banana, pineapple, mango, jack fruit) that can be dried as well as the existing availability of fruit to supply a drying plant while new plantings of fruit are developed. The objective of this task would be to ensure a raw material supply plan can be put in place to supply the recommended drying plant. Also, this evaluation will examine the role of outgrowers as suppliers of raw fruit.

### **Task 2: Develop Market Information**

During this task the investigator will develop market information for dried fruit products to be produced. An initial task will involve collecting samples of dried fruit product in Sri Lanka to send to selected markets for testing, particularly in Europe and the USA. This would be to confirm quality and potential acceptance of the fruit. It would also include information on the size of market, growth potential, prices, and identification of market contacts that might become buyers and/or equity participants. The information developed in this task would incorporate the market information developed by SRD as a part of their MED contract.

### **Task 3: Project Concept, Design and Selection of Appropriate Technology**

This task will involve the investigator in evaluating the existing situation with respect to fruit drying in Sri Lanka and in recommending the most appropriate facilities and process technology to utilize. In addition he would assist in developing ideas for value added processing of dried fruit. For the technology and equipment recommended investment and operating cost estimates will be prepared and project viability analyzed and established.

### **Task 4: Training of CTC Project Staff**

The objective of this task would be to give selected CTC staff responsible for the dried fruit project the opportunity to visit operating fruit drying facilities. It would provide them with exposure to on-line concerns related to raw materials, processing techniques, packaging and shipping practices. Also, it would provide CTC staff the opportunity for direct contact with marketers and buyers of dried fruit.

The completed viability evaluation will be documented and will be used to ensure Ceylon Tobacco Company's (CTC) Board of Directors of project feasibility. This document, together with CTC's corporate profiles, could be used to assist in selecting suitable equity partners from target markets.

## ***Phase 2: Construction and Implementation of Commercial Scale Drying Plant***

Once project viability has been demonstrated the project would move to the implementation Phase. With authorization from the CTC Board of Directors they would move ahead with this phase of the project. This phase would involve:

- \* the arranging of fruits to supply the plant from CTC's nucleus estate as well as outgrowers;
- \* the harvest and transport of raw materials to the plant;
- \* the post harvest handling, drying, packing, shipping and marketing to domestic and export customers; and,
- \* provide on-the-job training for CTC staff in the projects several aspects;
- \* evaluate the financial success of the project.

The intent of the project is to help a local investor (CTC) undertake a risky project by providing the support necessary over a sufficient period of time to bring the risks to acceptable levels. Several start-up risks exist for the "fruit drying" project that MED can help share. The principal risks are; securing a market; guidance in how to set up drying, packing, shipping, and marketing operations; and having a long term supply of the necessary raw materials required to supply the packing plant.

This PIP will assist CTC, a firm that is already operating in System C on a tropical fruit demonstration farm. This project will help CTC put in place the capacity to produce, harvest, dry, pack, ship and market dried fruits to export markets. This is important; because, if successful it will provide a demonstrated path to firms in Sri Lanka that want to expand exports of dried fruits. This is a principal bottleneck to expansion of the industry, and necessary to solve if quality product is to be produced and marketed from Sri Lanka.

CTC does have a nucleus agricultural operation in System C and is very experienced at working with outgrowers throughout Sri Lanka. Outgrowers supply, from 7,000 acres, all of the tobacco used by CTC in Sri Lanka. This project will provide CTC knowledge about a new high value horticulture business that will help them to diversify their activities and reduce risks. Also, this knowledge will be shared with the Mahaweli outgrowers that supply fruits to the project. Finally, the PIP will assist them in making an expanded investment in System C of the Mahaweli. The completed project will be used to show others how to become involved in high value fruits for drying and export as well as provide a basis on which CTC can expand operations further.

This PIP, in Phase II will require resources for capital expenditures, and operating costs. Capital expenditures required will be for such items as the drying building and the equipment items necessary to fully equip the building. Operating costs are for purchase of raw materials, and out of pocket expenses associated with handling, drying, packing, shipping and marketing.

The help MED proposes to provide during Phase II includes provision of appropriate technical assistance to orient raw material purchasing, handling, drying, packing, shipping and marketing. Also, it will require the assistance of technical people that can ensure the drying plant is constructed properly. This will involve such things as guidance in purchase of equipment, most efficient layout of the plant, setting up the equipment and training labor in how to pack and handle the product. If required MED will work with CTC to investigate ways to fund the buildings and equipment, but it would be best if CTC can obtain these items as their share in the project. The details of the assistance and expenditures required during Phase I are set out on Schedule A and in Section 6 below.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* The market for tropical dried fruit is a deep and rapidly growing market in the USA, EEC, Japan and other temperate zone countries and has been steadily increasing for the past 8 to 10 years, serving a 305 thousand tons market per annum in the U.S. alone. This is based on consumption of 1.27 kgs, per person per annum x 240 million people. (Source: Canning, Freezing and Drying Almanac, USA).
- \* Sri Lanka can produce mango, guava, pineapple, passion fruit, papaya and other tropical fruits due to the conducive climatic conditions of sunshine, rainfall and adequate irrigation water.
- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems and are non-irrigated. Tropical fruit tree crops can be grown on these lands using drip irrigation systems; therefore, success of this kind of project will help increase utilization of these Mahaweli land resources.
- \* The expected arrangement for management of this project is as an integrated operation where CTC will manage a nucleus estate where they cultivate a minor proportion of their requirements while the balance of raw material inputs will be provided by outgrowers on a contract or participatory basis. Development of this project will provide additional alternative cropping options for outgrowers. The details of the arrangements with outgrowers can be determined as a part of the study. Also, it will provide MED with information that can be useful to other

investors and outgrowers that may want to enter this business in the Mahaweli areas.

- \* This project, when implemented, will introduce improved fruit harvesting, dried fruit processing technology and marketing to Sri Lanka.
- \* CTC, if the project is technically and financially viable, has the capacity to implement the project successfully. CTC is one of the largest Sri Lankan firms with successful operations in many activity areas including agribusiness.
- \* It will provide an analysis of a fruit production and drying project that will detail the profitability of the venture and serve as the basis for attracting new investment to the region in addition to providing CTC with needed support.

### **3. INCOMES AND EMPLOYMENT:**

Fruit production, harvesting and drying are labor intensive crop activities required on a seasonal basis and will thus provide full employment for surplus farm labor. During the harvest season when labor requirements are highest non family labor may be used.

The fruits to be studied are high value crops and will help to increase farmer incomes. A properly produced banana crop can result in net returns of over Rs.60,000/- per acre, per annum. This is about 14 to 15 times the return from paddy which is Rs. 4/4,500 per acre per annum. The details of the employment and income impacts will be developed as a part of this project.

### **4. BUMPERS AND LAUTENBERG AMENDMENTS:**

It meets USAID requirements as regards the Bumpers and Lautenberg amendments.

### **5. PRE-INVESTMENT PROGRAM IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

MED will work together with CTC to carry out this project. The tasks to be conducted in Phase I are set out on schedule "A". A brief discussion of how activities are to be implemented and what cost sharing items the respective parties will provide is set out below.

- \* Submit PIP document to EIED, USAID and CTC for approval.
- \* The terms of reference and description of the persons sought is attached to this PIP description document. The persons required for Phase I are indicated separately from the team that would be required to carry out actual implementation during Phase II.

- \* The MED team will conduct the search for the advisors, submit names to CTC, EIED and USAID for approval and confirm arrangements with the advisors once nominated.
- \* During the development stages and execution of the study MED's MLE advisor and EIED staff will keep in contact with CTC.

***Phase I:***

During phase I MED will share costs by paying the advisors salary and the cost to bring the advisor to Sri Lanka. Also, international travel for CTC staff that travel for training experiences outside Sri Lanka will be paid by MED.

CTC indicates that they will work together with the Mahaweli Authority to arrange for accommodations. As they are headquartered in Kandy they may be able to house the person there, but if he must be in system C they may need help from the Mahaweli Authority in locating housing. In any event CTC will work this out. CTC will provide food for the advisor.

CTC will provide transport and office logistics to the advisor during his stay in Sri Lanka.

Finally, CTC will make staff people available to work with the advisor to gain on the job training. CTC has already made major contributions towards this project through investments in developing land and staff.

***Phase II:***

During Phase II, if implemented, MED would provide technical assistance, market development and supervision, training materials and market testing assistance as follows:

- \* consulting fees for advisors.
- \* international travel for advisors and CTC staff that travel for market development experience and training.
- \* accommodation for the advisors in Colombo and in the field while they are conducting their work as well as food and other personal needs for the advisors while in Sri Lanka.
- \* local transport and office logistics to the advisors during their stay in Sri Lanka.

- \* both domestic and international transport to test products, materials and equipment.

CTC would provide the following:

- \* construction of drying building and associated structures necessary.
- \* connection of electricity.
- \* equipment for drying facility, packing, shipping and related operations.
- \* transport equipment required to get product from field to plant and from plant to export point and to the end markets.
- \* drip or sprinkler irrigation equipment required.
- \* miscellaneous items and contingencies.
- \* staff to work with the advisors as appropriate to gain on-the-job experience.

CTC will allow other groups interested in fruit drying and packing to visit the plant, when constructed, for a half day on a weekly basis to participate in hands on training. In this way the lessons learned will be shared.

The details of the cost sharing for Phase I are set out below as a part of the estimated budget for the project. The Phase II budget would be estimated during Phase I to ensure the estimates are as accurate as possible; therefore, Phase II budgets or work schedules have not been included in this document.

## 6. BUDGET:

An estimated budget for this PIP is set out below:

### Phase I:

#### a. Staffing: Expatriate

- Dried Fruit Processing Technology Specialist (two months).

**b. Staffing: Local**

- CTC will contribute a professionally qualified and experienced person to work with the advisor. The CTC Agro Development manager could be responsible for managing the team and producing the final report whilst a Project Analyst from CTC could assist in data collection, interpretation in general and particularly in financial analysis and projections. The analyst will also visit and obtain information from various government departments and institutions including the Mahaweli authority.
- Local secretarial support.

**c. Costs:**

The estimated budget for Phase I assistance is set out below:

* Technical assistance support and travel costs (ISTI contract).	\$ 28,200
* Contingency (5% of MED participation)	\$ 1,400
* Local CTC participation is as follows:	
o Accommodation and food while in Sri Lanka	\$ 1,800
o Local office support	\$ 115
o Transport logistical	\$ 800
o Staff and labor input	\$ 425
o Production inputs (fertilizer, herbicides, pesticides, machinery, equipment time, etc.)	\$ 200
o Documentation preparation	\$ 500
	-----
Total Cost	\$ 33,440
	-----
MED Share	\$ 29,600
CTC Share (estimated)	\$ 3,840
	=====

## **7. SHARED LEARNING:**

To assist in implementation of the assignment, EIED will provide CTC with historical data including existing cultivation, how the produce is disposed of at present, the numbers, size and types of outgrowers who can be invited to participate in a contractual agreement to supply CTC with produce. Previous studies relating to fruit production, harvesting, processing and marketing in Sri Lanka will be identified and assembled by the CTC counterpart before the specialist arrives in Sri Lanka.

The specialist will conduct a seminar on completion of the project to share information with others that may be interested in fruit drying. In this way the lessons learned will be shared.

## **8. INVESTOR GROUP:**

**Name:** Ceylon Tobacco Company Limited (CTC)  
Agro Development Division

**Address:** P. O. Box 62,  
126 Paranagantota Road, Mawilmada,  
Kandy, Sri Lanka.

**Contact:** Mr. S. B. Rajakaruna, Agro Development Manager

Title: SCHEDULE A - PROJECT IMPLEMENTATION SCHEDULE - PHASE I  
 File: CTC.WK1  
 Potential Investor: CEYLON TOBACCO COMPANY LTD. (CTC)

	1991											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Define the PIP	---	---	---X									
2. Gain PIP Approval			---	---X								
3. Prepare Terms of Reference			X									
- Dried Fruit Processing Specialist			X									
4. Search for Advisors				---	---X							
5. Arrange for Samples & Test Drying					---	---	---	X				
6. Ensure Advisors Living Arrangements					---	---X						
7. Arrange Logistics					---	---X						
8. Share Lessons Learned						---	---	X				
9. Advisors Period of Service						---	---	X				

Key:

--- Execution  
 X Completion

## APPENDIX A

### TERMS OF REFERENCE

<b>FOR:</b>	Dried Fruit Processing Specialist
<b>DURATION OF SERVICES:</b>	Two months on one or two trips
<b>COUNTERPARTS:</b>	Ceylon Tobacco Company Limited, Agro Development Division
<b>RESPONSIBILITIES:</b>	The specialist will help conceptualize the project design as well as conduct market and technology studies associated with the project.

Specific responsibilities will include:

- o Reviewing the existing activities of dried fruit processing companies operating in Sri Lanka, particularly the Mahaweli, to determine capacity, technology employed, product types produced, constraints, market focus and general competitive position in the Sri Lankan industry;
- o Reviewing raw material supply questions to determine how to best meet supply requirements for a small commercial scale demonstration plant;
- o Conceptualizing and designing the project parameters around which the project financial analysis will be based;
- o Detailing the appropriate technologies to use for drying operations, developing facility and equipment requirements and their costs;
- o Preparing market information in coordination with that developed by S.R. Daines Consultants as a part of their MED marketing contract and helping to identify companies that could be buyers and possibly equity partners;
- o Assisting with the financial analysis;
- o Conduct a workshop on fruit drying operations;
- o Prepare a manual on fruit drying techniques and equipment requirements for fruit drying; and
- o Other duties as mutually agreed.

## **QUALIFICATIONS:**

The dried fruit technology specialist shall have overall knowledge of the dried fruit processing business from production of raw materials through to marketing of product. He (she) will ideally have a post-graduate degree in food technology and/or food engineering.

The specialist will have had between five and ten years of direct experience with: (i) hands on experience working a dried fruit processing production line; (ii) experience in planning and managing project feasibility studies; (iii) broad based knowledge of the key fruit industry companies internationally and how they conduct business; (iv) experience in project conceptualization, analysis and design; (v) working familiarity with facility layout and costing; (vi) knowledge of equipment requirements and costs; (vii) and familiar with spreadsheet programs and project writing.

The following Appendix is something CTC may wish to consider to add in support of their proposal.

## **APPENDIX B**

### **RESUMES FOR PARTICIPATING CEYLON TOBACCO COMPANY LIMITED**

#### **AGRO DEVELOPMENT DIVISION PERSONNEL**

**ONION STORAGE AND HANDLING  
PIPSTORE.AIE**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**ONION STORAGE AND HANDLING**

**FEBRUARY, 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES & CONCEPT:**

The objective is to establish commercial scale storage facilities for salad onions produced in System B that will demonstrate the commercial practices required to successfully store and handle salad onions to lengthen shelf life and provide farmers an optimum shot at the high priced market window. Not only will this project enable salad onion growers to broaden their market domestically it will provide them an opportunity to expand into regional export markets. This project will involve several components including:

- \* support for salad onion cultivation on nucleus estate as well as outgrower lands;
- \* the orientation of construction of post harvest storage and handling facilities;
- \* assistance in demonstrating how packing, shipping and marketing of salad onions to domestic and export customers should be done from the constructed storage and handling facilities;
- \* evaluate the technical and financial success of the project; and,
- \* as possible help identify export buyers for salad onions (white).

This PIP will assist A.I. Earthmovers and the Kapila Group (AIE/KG), two groups with large salad onion production activities underway in the Mahaweli, undertake a risky project by providing the support necessary over a sufficient period of time to bring the risks to acceptable levels. The principal risks relate to extending the storage and consequently the market life of the onions produced; therefore, guidance in how to set up harvesting, and post harvest storage, packing, and marketing operations is important. Further these groups offer the most immediate capacity to expand salad onion production on a commercial scale in the Mahaweli. These firms will spread the knowledge gained to outgrowers.

This PIP will provide the services of a salad onion post harvest specialist to AIE/KG, familiar with commercial onion production as well as storage and handling, for a period of between three to four months to assist in, post harvest practices, designing of onion storage and handling facilities, and orienting their construction and utilization. He will help develop storage and handling practices that can be duplicated by other onion producers. The advisor will work at the AIE/KG selected plots in system B.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* The market for salad onions is available domestically as there is a shortage of supply. Also, without proper storage facilities many onions are lost to rot and optimum prices are not obtained by farmers. Finally, proper storage facilities will provide the opportunity to target some regional export markets.
- \* AIE/KG are actively seeking ways to extend the product life in order to spread the marketing risk associated with being an onion producer. They view the successful development of this project as a means to help outgrowers diversify into an alternative cropping option that will help stabilize outgrower incomes.
- \* The climatic conditions (sunshine, rainfall, soils, temperature, etc.) in the dry zone of Sri Lanka support effective production of onions.
- \* The expected arrangement for management of the salad onion operation is as an integrated operation where AIE/KG will manage nucleus estates and involve many outgrowers on a contract basis once operations are proven successful. The details of the arrangements will be developed as a part of the project.

It will provide MED with information that can be useful to other potential salad onion investors and outgrowers that may want to invest in the Mahaweli Systems.

- \* AIE/KG have the capacity to implement the project successfully. Both have worked successfully in other business ventures and seem to have the staying power necessary to see the project through.
- \* It can yield net revenues that are 45-50% higher than those of gherkins which yield approximately Rs.19,600/net per acre, per season (Source: EIED data). While the production of salad onions can be profitable if produced and stored properly they can also be unprofitable if proper practices are not followed. It is important that proper post harvest handling practices be learned.

## 3. INCOMES AND EMPLOYMENT:

Salad onions are a labor intensive crop on a seasonal basis. It is not likely to add new workers to the roles of each farm but it will make fuller use of existing farm family labor. During the harvest season when labor requirements are highest non-family labor may be used by the outgrowers participating in this project.

Profitability of salad onions can be three to four (12 to 13) times those of paddy. Estimates set out in Appendix A, suggest net earnings of at least Rs. 60,000 per acre in a good season. This is much more than the Rs. 4/4,500 net earnings on paddy per acre, per season.

#### **4. BUMPERS AND LAUTENBERG AMENDMENTS:**

This pre-investment program meets USAID requirements as regards the Bumpers and Lautenberg amendments.

#### **5. IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

##### **a) Implementation:**

MED will work together with AIE/KG to implement this project. The implementation tasks are set out in attached Schedule A "Project Implementation Schedule". A brief discussion of how each key task is to be accomplished is set out below.

- \* Submit PIP document to EIED, USAID and AIE/KG for approval.
- \* The MED team will conduct the search for the post harvest onion specialist and submit names of candidates to AIE/KG, EIED and USAID for approval.
- \* To begin work on this task literature and plans for constructing onion storage and handling facilities will be sent to AIE/KG before the advisor arrives in the field.
- \* MED will inform the advisor of conditions prevailing on the farm tracks where the advisor will work. Based on this information, the advisor will provide a list of the materials necessary to carry out the work before departing to Sri Lanka. AIE/KG has indicated that they have the construction and engineering skills to build the facilities if they know the design for the facility. MED will work with AIE/KG to ensure additional materials required, as listed by the advisor, are made available.
- \* AIE/KG indicates that they will work together with the Mahaweli Authority to arrange for accommodations as they do not have surplus housing of their own. As they are headquartered in system B it might be possible to work out an arrangement with MAARD. In any event AIE/KG will work this out. AIE/KG will provide food for the advisor.

- \* AIE/KG will provide transport and office logistics to the advisor during his stay in Sri Lanka.
- \* AIE/KG will provide the following:
  - construction of storage building and associated structures necessary.
  - connection of electricity.
  - equipment for storage, packing and related operations.
  - transport equipment for moving onions from plant to markets.
  - staff to work with the advisors as appropriate to gain on-the-job experience in post harvest onion handling. AIE/KG will allow other interested salad onion producers to visit their storage and packing shed for a half day on a weekly basis to participate in hands on training. In this way the lessons learned will be shared.

The details of the cost sharing are set out below as a part of the estimated budget for the project. We understand that Kapila has already constructed a shed; therefore, the cost estimated for the shed is to build a facility for AIE. Only AIE will share in the shed costs.

**MARD** has conducted silver skin onion seed farm trials and research trials in system B. While these trials have been limited, the findings, both positive and negative might be of valuable benefit to the AIE/KG advisor (see Appendix B. Mahaweli Seed Farm Trials report, Martin West, November 1990).

Also, **MARD** had a consultant review onion storage in Sri Lanka and he concluded that storage, at least on a pilot basis should be constructed equipped with one or more moisture extraction unit (MEU) to establish the losses in storage in Sri Lanka and to prove its commercial attractiveness. This information is available in a **MARD** report (see Appendix C Onion Storage in Sri Lanka Review of Alternatives, Dr. B.W. Eavis, August 1990). AIE/KG should be given this report to read if they have not already seen it.

The advisor should interact with the appropriate **MARD** research horticulturalist to benefit from the experience learned as regards onions

**b) Shared Cost Component:**

The project has a shared cost component. MED will assist by identifying the post harvest onion advisor, paying his salary and the cost to bring the advisor to Sri Lanka.

AIE/KG will arrange local living costs and pay for logistical support of the person while in Sri Lanka. Also, AIE/KG will provide the land, equipment, counterparts, labor and the materials required by the advisor to orient construction of the storage facilities. They will make staff people available to work with the advisor to gain on the job training. AIE/KG have already made major investments in developing land and staff and in onion planting.

The details of the cost sharing are set out below as a part of the estimated budget for the project.

**6. BUDGET:**

The estimated budget is set out below:

* Technical assistance support and travel costs (ISTI contract).	\$48,000
* Contingency (5% of MED participation)	\$ 2,400
* Equipment for facility	\$25,000
* Local AIE/KG participation as follows:	
o Accommodation and food while in Sri Lanka	\$ 3,500
o Local office and transport logistical support	\$ 4,500
o Staff and labor input	\$ 8,000
o Materials & building construction	\$40,000
o Documentation preparation	\$ 500
Total Cost	\$131,900
MED Share	\$75,400
AIE/KG Share (estimated)	\$56,500

Note: These companies may each want to build a storage facility; therefore, the cost of the buildings and equipment will be higher. Also, because both of the firms are former construction companies the cost estimate for the building may be high (the estimate was based on building a structure of 14,500sqft with special luvored floors.

**7. SHARED LEARNING:**

To share information learned AIE/KG will assign counterparts to work with the advisor. The advisor will keep records of the practices employed and prepare a descriptive manual of the most appropriate practices. This manual will assist other firms that are looking for an opportunity in the salad onion business.

**8. INVESTOR GROUPS:**

Name:	Kapila Group	A.I.Earthmovers
Address:	250-2/3, Liberty Plaza, Col.3,Sri Lanka	517/6,Thimbirigasyaya, Rd. Col.5, Sri Lanka
Contact:	Mr H.K. Soysa Director	Mr. K. S. Kumara, Managing Managing Director

Title: SCHEDULE A - PROJECT IMPLEMENTATION SCHEDULE  
 File: AIEARTH.WK1  
 Potential Investor: A.I. EARTHMOVERS AND KAPILA GROUP

	1991												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1. Define the PIP	---	X											
2. Gain PIP Approval		---	X										
3. Prepare Terms of Reference		X											
- Post Harvest Onion Expert		X											
4. Search for Advisors		---	---	X									
5. Factory, Equipment & Facilities													
- Site Preparation			---	X									
- Electricity/Utilities			---	X									
- Construct Building					---	---	X						
- Arrange Equipment					---	---	X						
- Install Equipment							---	---	X				
- Demonstrate Use									---	---	X		
6. Ensure Advisors Living Arrangements			---	---	X								
7. Arrange Logistics			---	---	X								
8. Share Lessons Learned									---	---	X		
9. Advisors Period of Service					---	---	---	---	X				

Key:  
 --- Execution  
 X Completion

## APPENDIX A

### ESTIMATED COSTS AND RETURNS OF SALAD (B) ONION PRODUCTION

<b><u>INCOME:</u></b>	<b>\$</b>
Average yield per acre (4,000 kgs) x estimated farm price (Rs.20/kg)	80,000
<b><u>OPERATING COSTS:</u></b>	
Land and Bed Preparation	1,400
Seed Material & Nursery	5,900
Planting/Transplanting	1,800
Fertilizer	1,800
Weed Control	3,000
Pest/Disease Control	850
Water Management	1,000
Protection against Birds	1,400
Harvesting	1,200
Post harvest handling	1,000
<b>TOTAL COST</b>	<b>19,350</b>
	-----
Net Income before tax	Rs. 60,650
	=====

Source: Based on EIED marketing group data

**APPENDIX B**

**MAHAWELI SEED FARM TRIALS REPORT**

**BY**

**MARTIN WEST, MARD PROJECT**

**NOVEMBER 1990**

**APPENDIX C**

**ONION STORAGE IN SRI LANKA  
REVIEW OF ALTERNATIVES**

**BY**

**DR. B. W. EAVIS**

**AUGUST 1990**

## APPENDIX D

### TERMS OF REFERENCE

<b>FOR:</b>	Post Harvest Onion Specialist.
<b>DURATION OF SERVICES:</b>	Four months
<b>COUNTERPARTS:</b>	AIE/KG managers, field supervisors and extension agronomists.
<b>RESPONSIBILITIES:</b>	The advisor will assist AIE/KG in, post harvest practices, designing of onion storage and handling facilities, and orienting construction and utilization of such facilities. The advisor will work at the AIE/KG selected plots in system B.

Specific responsibilities will include:

- o instruction and assistance in the:
  - development of storage and handling practices that can be duplicated by other onion producers;
  - proper practices for the removal from beds and selection of desired sized onions for storage to ensure keeping quality; and
  - post harvest handling and preparation for packing to enable commercialization of salad onions over a longer time period;
- o conduct a workshop/seminar on salad onion harvesting, storage, and packing;
- o prepare a field based manual on salad onion harvesting, storage, and packing; and
- o participation in other activities as mutually agreed.

### QUALIFICATIONS:

The post harvest advisor will ideally have an advanced degree in food technology and/or post harvest handling. He (she) will have had between five and ten years of broad and direct experience with: (i) hands on experience harvesting salad type onions under sub-tropical and or tropical conditions; (ii) experience in the construction of onion storage facilities; (iii) practice in the handling of onions into and out of storage facilities; (iv) experience in packing salad type onions for market.

**GHERKINS**  
**FILE NAME: PIPGHERK.FBW**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROGRAM DOCUMENT**

**GHERKINS**

**JANUARY 1990**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES AND CONCEPT:**

This PIP will assist Forbes Agricultural Services (Private) Limited (FAS), a leader in the Sri Lanka gherkin industry with an immediate capacity to enter gherkin production on a commercial scale. FAS will spread the knowledge gained from the technical services provided to their out-growers and other gherkin growing firms, especially those involved in the Mahaweli gherkin growers association through a seminar/workshop to be conducted by the advisor.

The objective is for outgrowers to plant 115 acres and to produce 230 tons gherkins in System C with future production at Uda Walawe for processing by FAS. One hundred acres will be planted at Ridimaliyadda (near Mahiyangane outside System C) and 15 acres planted in System C (Block 1). These 115 acres will be divided into five blocks with planting staggered from 2nd week of January through the last week of February. An additional planting of 50 acres will commence in April 1991 due to current rice planting in System C. Harvesting will extend from around 15th February to mid May 1991. The commercialization of gherkins will assist up to 600 outgrowers by providing an alternative crop to rice paddy.

A purchasing/pre-brining unit will be set up for each block. The existing processing centre at Divulapelessa will be used for the 15 acres in System C. The 100 acres at Ridimaliyadda will be serviced by four purchasing/pre-brining units. Farmers will deliver harvested gherkins to the units where they will be graded, washed and pre-brined in drums. These pre-brined gherkins will be transported twice a week in these drums to two processing centres located at Aluyatawewa (hamlet 205) and Hebarewa (hamlet 204) in System C, where sufficient warehousing is available to allow indoor processing and storage.

This PIP will provide the services of a gherkin brining and fermentation specialist, familiar with commercial gherkin processing, for a period of between two to three months to assist FAS extension staff develop commercial processing practices that can be duplicated on FAS and out-grower lands. The advisor will work primarily at Divulapelessa in the Mahaweli and other FAS processing facilities. The costs of the technical assistance will be shared by MED and FAS (see 5 b. Shared Cost Component).

This PIP will also assist one of the FAS marketing staff to visit gherkin buyers and packers in North America as a means of establishing direct market contacts and to obtain training in product and packaging requirements.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* The market for gherkins is available to FAS and other Sri Lankan gherkin exporters via present buyers in the United States and Europe and is high value.
- \* FAS is actively seeking ways to improve the quality of gherkin processing operations in order to gain a reputation as a quality producer rather than depending on the bottom of the market. They view the successful development of this project as a means to stabilize nucleus farmer and out-grower incomes.
- \* FAS have 25 hectares of Mahaweli land at Divulapelessa in System C, of which part was used for gherkin growing in 1990 and the rest for trials of chilli, lime, vegetables and irrigated tea.
- \* The expected arrangement for management of gherkins will be an integrated operation where FAS will manage their 25 hectare demonstration farm estate at Divulapelessa and involve 500 to 600 outgrowers on a contract basis. FAS has worked successfully with gherkin outgrowers in the Mahaweli and has a committed interest in building even stronger relationships with them. The details of the arrangements will be similar to those used by FAS with other gherkin outgrowers.
- \* This PIP will also provide MED with information that can be useful to other potential gherkin investors and outgrowers that may want to invest in the Mahaweli Systems.
- \* FAS has the capacity to implement the project successfully under sound leadership. FAS has several other agri-business activities in Sri Lanka and is one of the most successful gherkin producing companies.

## 3. INCOMES AND EMPLOYMENT:

Although gherkins are a labor intensive crop on a seasonal basis, it is not likely that many new workers will be added to the roles of each farm, however it will make fuller use of existing farm family labor. During the harvest season when labor requirements are highest, non-family labor may be used by the outgrowers.

Profitability estimates set out in appendix A, suggest net earnings of at least Rs. 48,350 per hectare per season based on an average farm-gate price of Rs.12-50 per kg in a good season. This is much more than the Rs. 8/9,000 net earnings on paddy per hectare per season (Source: EIED data). The gherkin market is sensitive and skill is required in producing a quality marketable and financially viable product.

#### **4. BUMPERS AND LAUTENBERG AMENDMENTS:**

This pre-investment program meets USAID requirements as regards the Bumpers and Lautenberg amendments.

#### **5. IMPLEMENTATION AND COST SHARING ARRANGEMENTS:**

##### **a) Implementation:**

MED will work together with FAS to implement this project. The implementation tasks are set out in attached Appendix D "Project Implementation Schedule". A brief discussion of how each key task is to be accomplished is set out below.

- \* The MED team will conduct the search for the gherkins fermentation and brining specialist, and submit names of candidates to FAS, EIED and USAID for approval.
- \* MED will inform the gherkins fermentation and brining specialist of conditions prevailing at the processing centres where the specialist will work. Based on this information, the specialist will provide a list of the equipment necessary to carry out the work before departing to Sri Lanka. FAS have indicated that they have most of the equipment required. MED will work with FAS to ensure test equipment/ machinery used in both gherkin processing and gherkin slicing and dicing are identified by the specialist and assistance provided in their procurement.
- \* FAS indicates that they will work together with the Mahaweli Authority to arrange for accommodation as they do not have surplus housing of their own. FAS will also provide food for the specialist.
- \* FAS will provide transport and office logistics to the advisor during his stay in Sri Lanka.

**MARD** has conducted gherkin research trials in system B. While these trials have been limited, the findings, both positive and negative will be of valuable benefit to the FAS advisor (see Appendix B. MARD Gherkin Out-grower Report Maha 1989/90 System B, Mahaweli J. E. Gleason). The gherkin fermentation and brining specialist will interact with the MARD research horticulturalist and agricultural economist to benefit from their experience to date.

**b) Shared Cost Component:**

The project has a shared cost component. MED will assist by identifying the gherkin fermentation and brining specialist, paying his salary and the cost to bring the specialist to Sri Lanka.

FAS will arrange local living costs and pay for logistical support of the person while in Sri Lanka. Also, FAS will provide the land, equipment, counterparts, labor and the seed materials required by the gherkin fermentation and brining specialist as well as inputs used to produce the crop trials. They will make staff people available to work with the gherkin specialist to gain on the job training. FAS have already made major investments in developing land and staff.

The details of the cost sharing are set out below as a part of the estimated budget for the project.

**6. BUDGET:**

**Estimated MED participation as follows:**

o	Technical assistance support and travel costs (ISTI contract).	\$ 48,000
o	Contingency (5% of MED participation)	\$ 2,400
o	Accommodation and food while in Sri Lanka (based on US\$75 p/day x 1 advisor x 45 days in a Colombo Hotel = \$3,375 and \$28 p/day x 45 days in a provincial hotel/circuit bungalow = \$1,260)	\$ 4,635
o	Document preparation	\$ 2,000
o	Seminar preparation	\$ 1,000

**Estimated FAS participation as follows:**

o	Gherkin dicing and slicing machinery 1.	\$ 25,000
o	Quality control testing equipment	\$ 1,000
o	Local office and transport logistical support (based on 3,000 kms x \$ 0.33 (Rs.13.2) p/km)	\$ 4,500
o	Staff and labor input	\$ 4,000
o	Production inputs (fertilizer, herbicides, pesticides, machinery, equipment time, etc.)	\$ 6,000
o	Seminar preparation	\$ 1,000
	Total Cost	----- \$ 99,535
	MED Share	----- \$ 58,035
	FAS Share (estimated)	\$ 41,500

**Note:**

1. Providing this investment proves viable FAS plan to purchase processing machinery and equipment costing around US\$ 25,000.00

**7. SHARED LEARNING:**

To share information learned FAS will assign a counterpart at each site to work with the gherkin fermentation and brining specialist. During 1991, the gherkin specialist will give training sessions to the FAS extension people as well as other gherkin growers that may be interested. The gherkin specialist will keep records of the practices employed and prepare a descriptive manual of the most appropriate practices. This manual will assist the other four to five gherkin firms that are looking for similar diversification opportunities.

**8. INVESTOR GROUP:**

Name: Forbes Agricultural Services (Private) Limited

Address: P.O. Box 60  
46/38, Nawam Mawatha  
Colombo 2, Sri Lanka

Contact: Mr. S. Rabindranath, Director  
Mr. Marcel Peries, Consultant

## APPENDIX A

### ESTIMATED COST OF GHERKINS (Irrigated) PRODUCTION / HA

<u>Man Days</u>	<u>Total Labor (Rs)</u>	<u>Machinery Cost (Rs)</u>	<u>Input Cost (Rs)</u>	<u>Total Cost (Rs)</u>
706	35,300.00	600.00	15,750.00	51,650.00

Source: EIED Marketing Division Dec. 1990.

#### Notes:

	<u>Hectare</u>	<u>Acre</u>
Price/kg.	(Rs) 12.50	12.50
Yield/Ha/Season	(Kg) 8,000.00	3,240.00
Gross Return/Ha/Season	(Rs) 100,000.00	40,470.00
Cost of Production/Ha	(Rs) 51,650.00	20,902.00
Net Return/Ha/Season	(Rs) 48,350.00	19,600.00

**APPENDIX B.**

**MARD PROJECT**

**GHERKIN OUT-GROWER REPORT MAHA 1989/90**

**SYSTEM B, MAHAWELI**

**BY**

**DR. J. E. GLEASON.**

## APPENDIX C

### TERMS OF REFERENCE

**FOR:** Gherkin Fermentation and Brining Specialist.

**DURATION:** Two to three months

**COUNTERPARTS:** FAS Field Managers and Extension Staff.

**RESPONSIBILITIES:** The gherkin fermentation and brining specialist will assist FAS in the harvesting, post harvest handling and preparation for processing of gherkins.

Specific responsibilities will include:

- o instruction and assistance in the:
  - harvesting of gherkins including the proper practices for the selection of desired sized gherkins for the export market; and
  - post harvest handling of and processing technology (peeling, brining and processing) of gherkins to enable viable commercialization on out-grower schemes in the Mahaweli regions.
- o conduct a workshop/seminar on gherkin production and processing;
- o prepare a field based manual on gherkin production and processing; and
- o the participation in any other activities as mutually agreed.

### QUALIFICATIONS:

The gherkin fermentation and brining specialist will ideally have a Bachelor of Science degree in Food Technology. He (she) will have had between five and ten years of broad and direct experience in:

- (i) a good knowledge of harvesting, post harvest product handling and processing; and
- (ii) experience in the identification and procurement of both test equipment used in gherkin processing and machinery used to carry out trials on gherkin dicing and slicing.

- (iii) experience in processing, fermenting and brining gherkins under sub-tropical and or tropical conditions, specifically:
  - o controlled fermentation with a strong background in microbiology. He (she) should be knowledgeable in the technical principles of manufacture and vinegar reduction procedure. The candidate must be capable in advising the commercial enterprises in setting procedures, maintaining proper acidity and saline balance in stock storage. The specialist must have complete knowledge in processing procedures, and potential problems associated with tanking and fermentation as well as the ability to control and correct scum, soft slipping pickles, ropy or slimmy brine, floaters (bloaters), and processing sources. He should also be capable of providing advice for procedures necessary for preparing brine stock, dills, sour, sweets and other variations for mixed pickling spices. The specialist must be prepared to examine on going sanitation procedures and develop methodology for treating storage and shipping containers and provide a set of rules for product sanitation.
- (iv) packing of gherkins in bulk and in retail packs.
- ( v) quality control activities from harvesting to packing of gherkins.

**PAPAYA**  
**FILE NAME: PIPPAPYA.CBS**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROJECT IDEA**

**PAPAYA**

**MARCH 12, 1991**

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## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES AND CONCEPT:**

The objective is to plant, grow and market test export varieties of papaya in Uda Walawe on a commercial scale. The commercialization of export varieties of papaya can assist several hundred outgrowers by providing an alternative fruit crop to bananas, melons, mango, and other fruits for export. Further, it will provide guidance on the production of a fruit that can be used as a product for drying. Papaya production reduces risks for nucleus farmers and outgrowers by reducing dependency on unorganized production of fruit crops and builds a stronger base for the fruit export and drying industries.

This PIP will assist Consolidated Business Systems (CBS) a leader in the Sri Lanka fresh fruit and vegetable export industry with the immediate capacity to enter expanded fruit production on a commercial scale. CBS will spread the knowledge gained to outgrowers and other fruit production and marketing firms.

This PIP will provide the services of a papaya production specialist (horticulturalist), familiar with commercial papaya production and packing, for a period of three to five months to assist CBS staff production extension advisors develop commercial production practices that can be duplicated on CBS and outgrower lands. The advisor will work with CBS on their lands which they intend to request from EIED of the Mahaweli Authority.

### **2. RATIONALE:**

The principal rationale supporting this project include:

- \* The market for tropical fruit pulp is a deep and rapidly growing market in the USA, EEC, Japan and other temperate zone countries. Also, the market for dried fruit has been steadily increasing for the past 8 to 10 years, serving a 305 thousand tons market per annum in the U.S. alone. This is based on consumption of 1.27 kgs per person per annum x 240 million people. (Source: Canning, Freezing and Drying Almanac, USA).
- \* Mahaweli areas can produce mango, guava, pineapple, passion fruit, papaya and other tropical fruits due to the ideal conditions of sunshine, day length, adequate rainfall and irrigation. Also, soils are conducive to good production.

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- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems. Tropical fruit tree crops can be grown on these lands using drip irrigation systems and success of this kind of project will help increase utilization of Mahaweli land resources.
- \* CBS is actively seeking ways to diversify operations in order to spread the marketing risk associated with being an exporter of product bought off the open market. They view the successful development of this project as a means to diversify into a crop that can be produced for them and their export business.
- \* The expected arrangement for management of this papaya project is as an integrated operation where CBS will manage a nucleus estate and involve a few hundred outgrowers on a contract basis. The details of the arrangements will be similar to those used by companies that work with gherkin outgrowers. The details will be worked out as a part of the project.

It will provide MED with information that can be useful to other potential fruit exporters and outgrowers that may want to invest in the Mahaweli Systems..

- \* CBS has the capacity to implement the project successfully. CBS has several other fruit and vegetable activities in Sri Lanka and is one of the most successful export companies.

### 3. INVESTOR GROUP:

Name: Consolidated Business Systems Ltd.  
Address: 318 High Level Rd.  
Colombo 6, Sri Lanka  
Contact: Mr. Lasantha Wickremesooriya

**DEMONSTRATION FARM  
FILE NAME: DEMOFARM.MKE**

**MAHAWELI ENTERPRISE DEVELOPMENT PROJECT**

**PRE-INVESTMENT PROJECT IDEA**

**DEMONSTRATION FARM**

**MARCH 12, 1991**

## **PROPOSED PRE-INVESTMENT PROGRAM**

### **1. OBJECTIVES AND CONCEPT:**

The objective is to establish together with a commercial firm with land in the Mahaweli a commercial scale demonstration farm. The purpose of the demonstration farm would not only be to develop a profitable commercial operation for the firm to whom assistance is provided, but to provide other firms with a working example of what is possible in the Mahaweli if properly organized and managed. To develop the demonstration farm several steps will be undertaken and include:

- \* Preparation of a farm development plan that outlines exactly what will be required (equipment, capital, etc.) to set up the farm as well as the cropping mix that should be produced. The plan would show the costs and returns to the venture if managed properly.
- \* Contracting assistance to work with the firms staff to implement the farm and ensure its proper development. The local firm would be responsible for the project, but MED would provide the advisory assistance required.
- \* Once the product is produced the MED team will provide assistance in locating markets for the products produced.

This PIP will assist MikeChris a leader in the Sri Lankan paper products sector diversify its activities into agriculture in the Mahaweli region. MikeChris is presently preparing a request for land which was to have been submitted to EIED by the end of February. The plan they had for the land was potentially well suited for the development of a demonstration farm, but more help could clarify the scope of the farm to achieve maximum profit potential. MikeChris will spread the knowledge gained to outgrowers and other firms that are looking for profitable ways to develop land they have in the Mahaweli.

This PIP will provide the services of a team during step one that can help prepare an effective farm plan. During the implementation step the PIP would provide the services of a farm manager that can ensure the effective execution of the project. The planning team would spend one month to put together the farm plan. The implementation advisor will likely spend at least a full growing season to ensure the project is moving in the right direction. Once it is up and running the implementation advisor would return periodically to help keep things on a correct course.

## 2. RATIONALE:

The principal rationale supporting this project include:

- \* Presently EIED and the Mahaweli Authority are attempting to expand the growth of larger scale nucleus estates in the Mahaweli to serve as centers offering focal support to the outgrowers in the region. To help encourage this development it is necessary to show interested investors what can be done on a commercial scale successfully. For this reason establishment of demonstration farms is being undertaken.
- \* Mahaweli areas can produce mango, guava, pineapple, passion fruit, papaya, and various vegetables due to the ideal conditions of sunshine, day length, adequate rainfall and irrigation. Also, soils are conducive to good production. A proper demonstration farm can help show interested investors how to best use the resources.
- \* Mahaweli lands that remain available for transfer to investors are primarily lands that are off the main canal systems. Tropical fruit tree crops can be grown on these lands using drip irrigation systems and success of this kind of project will help increase utilization of Mahaweli land resources. A proper demonstration farm can serve to show how this can be done.
- \* MikeChris is actively seeking ways to diversify operations in order to spread the marketing risk. They view the successful development of this project as a means to diversify into agriculture on a large scale.
- \* The expected arrangement for management of this demonstration farm is as an integrated operation where MikeChris will manage a nucleus estate and involve several outgrowers on a contract basis. The details of the arrangements will be similar to those used by companies that work with gherkin outgrowers; however, the details will be worked out as a part of the project.

It will provide MED with information that can be useful to other potential investors looking to expand activities and considering investing in the Mahaweli Systems. It will also help outgrowers.

- \* MikeChris has the capacity to implement the project successfully. MikeChris has several other business activities in Sri Lanka and is successful.

**3. INVESTOR GROUP:**

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