PROJECT BACKGROUND

Los Buenos Amigos Society Limited (LBASL); hereby present the Environmental Management Plan (EMP) for the project entitle Improving the Quality of Life through the Production of High Quality Pineapple.

Los Buenos Amigos Cooperative Society Limited

The Cooperative was founded in 2006 and has been functional and auto sustainable up to date. Presently there are 60 members of whom six (6) are females, fifty-four (54) males; ethnically there are 25 Mayans (10 Mopan and 15 Ketchi) and 35 Mestizos. The Cooperative Executive Committee is comprised of Mr. Mauricio Hernandez, President, Mrs. Isabel Rash, Vice President, Mr. Noe Florian, Secretary, and Mr. Elder Perez Treasurer. The cooperative focuses on producing fruits (pineapple, oranges, and plantains) and basic grains (corn and beans) which are sold in the local market.

Cooperative Objective

General Objective

1. Improve the livelihood of the group members by providing a sustainable working environment to enhanced the economic impact to the community by increasing the marketability of agricultural products and providing entrepreneurship opportunities to its members and their families those taking care of our environment.

2. Plant 250,000 MD2 pineapples and sell to Citrus Products of Belize Limited (CPBL)

Specific Objectives

1. To establish a training program targeted to facilitate the peer to peer technology transfer among experienced groups on how to protect our natural resources, thus minimizing the negative environmental impact in the community.

2. To develop and establish a feasible working group to create job opportunity which will increase the standard of living amongst the community and thus provide a better educational opportunity for the children, which in return will bring progress to the community.

3. To establish a long term sustainable project that will generate knowledge and experience in pineapple production and marketing.
ACTIVITIES

The main activities of the project are:

1. Trainings

2. Land preparation
   a. Land clearing
   b. Drainage

3. Planting

4. Maintenance
   a. Fertilization
   b. Pest and disease control
   c. Weed control

5. Harvest

EXPECTED RESULTS

1. Establish an auto sustainable pineapple project with a secure market, to ensure sales of cooperative production.

2. Provide additional source of income for members to improve their livelihood, those creating opportunities for future generations.

3. Establish an efficient production system design to reduce problems of soil erosion, deforestation, contamination of water source and maintain site biodiversity.

The cooperative also undertook to develop an Environmental Policy which can be seen in Annexes 2 (policy) and 3 (forms are to be used).

1. TRAINING/WORKSHOPS

Before implementing the projects it is important that specific organizations provide training/workshops for Los Buenos Amigos Cooperative Society Limited (LBACSL). The trainings are to ensure that members in the cooperative gain knowledge of all aspects of the project to be implemented. Trainings will be provided for each activity in the project implementation plan.

Entities and time for trainings will be as follows;

Belize Enterprise for Sustainable Technology (BEST)

Follow on project implementation plan. Monitoring that project complies with all requisite or policy requested by BEST. The training will be program before implementing project and during projects development.
**Pesticide Control Board (P.C.B.)**

The PCB will train members of cooperative on proper management of pesticides, including validation of an Integrated Pest Management Plan as an integral part of the present EMP. Also ensure that all members have license to use pesticide, and that no restricted red-labelled pesticides or other agrochemicals shall be procured with the project funds. Schedule for training is at beginning of project and monitoring every four months.

Specific topics for training by PCB are as follows:

- What is PCB
- What is a pesticide
- Storage of pesticide
- Proper use of pesticide, include protective gears for applicator.
- Interpretations of pesticide label for human health, animal health, plant health and the environment.
- Estimates of dosages to use per pest or disease intended to control according to pesticide label information.
- License for members of cooperative to ensure that members understood training and are ready to use or purchase pesticide.

**Ministry of Agriculture**

Ministry of agriculture will provide training for pineapple production. Schedule for training are at the beginning of project and monitoring every two months after implementation.

Specific topics for training by ministry of agriculture are as follows:

- Soil preparation
- Drainage
- Taking of soil samples and leaf samples for analysis
- Interpretation of soil and leaf samples
- Recommendation of fertilizer to be use according to soil and leaf samples and plant requirement.
- Monitoring of pests
- Monitoring of diseases
- Recommended products to use for specific pests or diseases
- Implementation of good agricultural practices for optimum pineapple production
Citrus Products of Belize Limited (CPBL)

Agronomist of CPBL will provide training to the cooperative to program harvest for the factory.

Specific topics for training by CPBL are as follows:

- Production estimate
- Harvest programing
- Fruit quality
- Transportation

2. LAND PREPARATION

a. Cleaning of land

Intended land use for planting was fallow land once used for the cultivation of corn and beans. Fallow land was clean with the use of machete by members of LBACSL. The land clean was fourteen (14) acres, this to plant two hundred and fifty thousand (250000) MD2 pineapples. Planting area is thirteen (13) acres and drainage area is 0.898 acres round off to 1 acre. Planting density will be nineteen thousand two hundred and thirty (19230) plants per acre.

Impact Identified for cleaning of land

- Soil erosion

Measures to minimize soil erosion

Soil erosion is a major problem when clear land is exposed to adverse climatic condition. Heavy rainfall saturates soils and excess water starts running down streams. The excess running water carries fertile soil; this wash away of soil is known as soil erosion.

Soil erosion can be minimized by cover cropping. Cover cropping is planting a particular crop to cover clear land. The idea of covering clear land is for cover crop to hold soil (by use of root system) from wash away during excess rain.

To reduce the impact of soil erosion the cooperative will plant pasture around crop area that is around the edges of the farm. Fibrous roots of pasture have proven to hold soil particles strong enough to reduce the impact of soil erosion.

Implementation plan to minimize soil erosion impact

LBACSL will plant Bombasa pasture around farm edges to minimize the soil erosion impact. Planting of pasture seed is at one (1) pound per acre. Bombasa seeds for planting are available in Blue Creek community shop, Circle R. Time for planting pasture seeds is after land has been clean.

b. Drainage of 14 acres of land for pineapple planting

Average annual rain fall in Trio village, Toledo district Belize C.A. is 2800 mm. Crop area must be drain to reduce impact of soil saturation. Under saturated soil conditions plant root system stuns
growth, reduce gaseous exchange, and reduces nutrients uptake, increase problems of pest and
disease those causing the death of the crop.
All drainage system will drain to a natural low land in site area. Drainage system will be done by
LBACSL with the use of spades. Drainage will be done using primary and secondary drainage system.
Primary drainage will be spaced parallel in fourteen acres every two hundred and fifty (250) feet.
Secondary drainage will be space at sixty (60) feet parallel to each other and forming ninety (90)
degree to primary drainage. Total area estimated for drainage within the 14 acres is 0.898 acres
round off to one acre.
Dimensions for primary drainage will be as follows:
  • Entrance:
    o Depth- three feet (36 inches)
    o Width top- three feet (36 inches)
    o Width bottom- two feet (24 inches)
  • Out/Tail
    o Depth- Depend on land level
    o Width top- four feet (48 inches)
    o Width bottom- two and a half feet (30 inches)
  • Note:
    o Estimate area for primary drainage is 0.188 acres (that is: \(\frac{3+4}{2}=3.5\) feet X 781
      feet long (that is square root of 14 acres x43560 square feet in an acre) = 2733.5
      square feet X 3 primary drains = 8200.5 square feet in 3 primary drains/43560
      square feet in one acre= 0.188 acres space for 3 primary drainage
Dimensions for secondary drainage will be as follows:
  • Entrance:
    o Depth- two feet (24 inches)
    o Width top- two feet (24 inches)
    o Width bottom- one feet (12 inches)
  • Out/Tail
    o Depth- Depend on land level
    o Width top- two feet and a half (30 inches)
    o Width bottom- one feet and a half (18 inches)
  • Note:
    o Estimated area for secondary drainage is 0.71 acres
Impact Identified for draining of land

- Wash of soil nutrients

Measures to mitigate wash of soil nutrients

Measures use to mitigate wash away of soil nutrients is by reapplying sources of nutrients back to the soil to replace nutrients been wash.

Implementation plan to mitigate wash away of soil nutrients

Tendencies of soil nutrients and nutrients wash way can be evaluated by soil analysis. LBACSL in conjunction with ministry of agriculture will take soil sample to be analysed in Dole Honduras Laboratory. The objective of analysing soil is to evaluate nutrients extracted by plant or wash away and estimate nutrient to be apply into soil for replenish. Time for sample soil and send for analysis will be before draining and every six (6) months thereafter.

A map of the drainage system can be found in Annex 4.

3. PLANTING

Planting is going to be done manually by LBACSL. Planting density will be at 19230 plants per acre. Planting will be done in single rows. Planting space will be twelve (12) inches between plant and twenty four (24) inches between rows.

4. MAINTAINANCE PROGRAM

a. Fertilization

Fertilization is done base on soil analysis and plant requirement. Plants require various fertilizer blends during its development stages. Supply of macro nutrients requirement can be done with fertilizer applications to the ground and micro nutrients requirements can be done with foliar applications. Granular fertilizer and foliar fertilizer applications will be done by members of LBACSL. Granular applications will be done manual and foliar applications with the use of a knop sock sprayer.

Ground fertilizer applications will be as follow:

- At planting
  - Fertilizer blend: 18-46-0 (18% nitrogen, 46% phosphorus and 0% potassium)
  - Dosage: 110 pound per acre
  - Applications: One application at planting

- Growth:
Fertilizer blend: 15-15-15 +10%S (15% nitrogen, 15% phosphorus, 15% potassium and 10% S)
- Dosage: 110 pound per acre
- Applications: three applications on month two (2), month four (4) and month six (6) after planting.

Flowering
- Fertilizer blend: 23-0-30 (23% nitrogen, 0% phosphorus, 30% potassium)
- Dosage: 110 pound per acre
- Applications: two applications, first application at flowering that is seven (7) months after planting and second application two months after flowering that is nine (months) after planting.

**Foliar fertilizer applications will be as follow:**
- Combination of two foliar fertilizer to be use per application:
  - Impulse
  - Micro blast
- Dosage:
  - Impulse at 0.89 pound per acre
  - Micro blast at 0.44 pound per acre
- Applications: Foliar fertilizers applications must be done every two months after planting.

Impact identified
- Change in soil pH

**Measures to minimize change in soil pH**
Applications of fertilizers to the soil can change soil pH, thus making the soil acidic. Acid soils reduce the availability of nutrients to the plant. Applications of soil amendment products can stabilize soil pH and reduce the impact of soil acidity.

**Implementation plan to reduce impact of soil acidity**
Implementation plan to reduce the impact of soil acidity for applications of granular fertilizer will be the application of Triple Cal. Triple Cal applications to be done base on soil analysis conducted before draining and every six (6) months thereafter. Application of soil amendment (Triple Cal) will be done by members of LBACSL manually.

**Recommendation of usage of Triple Cal**
- Triple Cal- 30% calcium + 15% magnesium + 15% sulphur
b. PEST AND DISEASE CONTROL

The management of pest and disease in crop production is fundamental for optimum production. Pest and disease can destroy hundred per cent of plantation if not manage adequately. Integrated pest management (IPM) is a program use to control pest and disease. IPM includes all good agricultural practices for control of pest and diseases. Good agricultural practices include proper soil preparation, proper drainage system, good weed control, efficient nutrition program, monitoring of possible pest or disease in crop, monitor of severity of pest, monitor of damage in crop and base on damage decision of pesticide to use for control of identified pest of disease.

Pesticides to be used for control of possible pest and disease in pineapple production

At Planting

- Activity- Seed treatment
- Pesticide- Eneroot RG
- Dosage- 150 grams in 18 liters of water to treat 500 pineapples seed
- Applications: One time at planting

Plant growth/vegetative stage

- Activity- fungus (*Phytophtera spp.*) control
- Pesticide- Aliette 80 WG
- Dosage- 600 grams per acre
- Application: Depend on monitoring/presence of fungus; this can be two to three applications per crop cycle of twelve months.

Fruit production

- Activity: Control of ants and stink bug (chinche)
- Pesticide- Cyperkill 500 EC
- Dosage: 60 cc per acre
- Application: one to two applications during fruit formation

Impact identified

- Death of all insects in area cultivated

Measures to mitigate identified impact

Minimum use of pesticide can reduce the impact of killing both pest and beneficial insects.

Implementation plan
Minimum use of pesticide involves two main aspects; one is the implementation of good agricultural practices to reduce the threat of possible pest or disease and the second one is monitoring of pest and disease for early control using minimum dosage of pesticide.

Good agricultural practices involve

- Proper soil mechanization (if soil mechanization is to be implemented or minimum tillage)
- Proper drainage
- Good weed control program
- Efficient nutritional program
- Good monitoring program for early identification of pest/disease to use minimum dosage of a particular pesticide.

Monitoring program for identification of pest/disease and application will be done by members of cooperative under the supervision of pesticide control board.

c. WEED CONTROL

Weed control is fundamental for two main aspects of production; one is that weeds tend to be a host for pest and disease. Two, weeds compete with crop for sunlight and nutrients. Management program for weed control is essential for production. Weed control in pineapple production must be done with selective herbicides. Control of weeds in pineapple can be done pre-emergent and post emergent. Pre-emergent is the control of seeds of weeds before shooting to ground surface and post emergent is control of weeds germination to ground surface.

Pre-emergent weed control

- Activity- Pre-emergent control of weeds
- Pesticide- Diurex 80 WG and Amethryne
- Dosage- Diurex 80 WG at 1 kilo per acre and Amethryne at 1 liter per acre
- Application- one application before planting or immediate after planting

Post emergent weed control

- Activity – post emergent weed control
- Pesticide-Hyvar 80 WP
- Dosage: 0.65 kilogram per acre
- Application: Three applications per year

Impact identified

- Pesticide residues in soil
- Possible contamination of near water source

Measures to minimize impact of pesticide residues in soil
Measures to minimize herbicide residues in soil include pre-emergent weed control and usage of recommended dosage of herbicide by product fabricant.

**Implementation plan to minimize impact of soil residues**

Use pesticide of low residual effect on soil. Control of weeds will be done pre-emergent and early post emergent, this to use minimum dosage per acre as recommended by herbicide fabricant. Pre-emergent application of herbicide and early post emergent control will be done by members of cooperative and supervised by pesticide control board.

**Measures to minimize impact of contamination of near water**

Measure to minimize the impact of contamination of near water is by implementing a filter area to block off run off of water to near water source.

**Implementation plan to minimize impact of near water contamination**

A natural drain runs across the area to be planted with pineapple. To reduce the impact of contamination of near water, this natural drainage is going to be block with the objective of allowing water with pesticide content to settles and filters into soil. Construction of blocking area for filtering of water will be done by LBACSL under the supervision of pesticide control board and ministry of agriculture.

5. **HARVEST SYNCHRONIZATION**

Harvest synchronization will be done with the assistance of Citrus Products of Belize Limited (CPBL). The synchronization of harvest is to plan production to openings of factory for delivery. It is important to synchronize harvest in order to avoid problems with fruit left in the fields. In order to synchronize harvest growth regulator is applied to mature pine apple plants to stimulate flowering and a second application is done five days before harvest to stimulate ripening of fruit.

**Growth regulators to be used for stimulation of flowering and ripping of fruit**

- Activity: Growth regulator application
- Growth regulator name: Ethrel 48 SL
- Dosage: 1.21 liters per acre
- Application: One application seven month after planting to stimulate flowering and a second application to fruit five days before harvest for fruit ripping.

**Impact identified**

- Cross application to other plantation for drift

**Measures to avoid impact of cross application from drift**
To reduce the impacts of drift localize application of growth regulators must be done by plant preferably with the use of knop sock sprayer. Applications must be done early mornings or late evenings when there is no wind blowing.

**Implementation Plan**

Application of first growth regulator seven months after planting, ensure proper dosage be applied, application must be done under no wind conditions; this to ensure/avoid problems with drift. Applications must be done with knop sock sprayer localize per plant. Applications will be done by members of LBACSL under the supervision of CPBL.

---

5. **HARVEST**

Harvest will be done manually by member of LBACSL. Quantity of fruit harvest will depend on production synchronization between CPBL and cooperative. Harvest starts three days before opening of factory for pineapple processing, this is to ensure that 80000 pound of pine apple be process per day. Transportation of pineapple to the factory will be done with local truck owners.

**PREPARATION FOR FOLLOWING CROP**

- Identification of poor areas for replanting
- Replanting of missing plants
- Sources of plant seed from previous plantation shoots
- Star program for weed control and nutritional program
As per the EMF, “The monitoring must be done on a fixed schedule that is detailed and documented.” To broaden the scope of the simple Yes/No monitoring approach in order to increase related meaningful and usefulness, please include time reference to each activity as pertinent; “before xxx”; “every xx weeks/months”; “continuously”, etc. Please also make sure that the activities are formulated so that they are consistent with the table’s structure that implies that answering Yes means related compliance. Thus, for example “Deforestation” should be replaced by “No deforestation”.

### TABLE OF COMPLIANCE

<table>
<thead>
<tr>
<th>No.</th>
<th>ACTIVITY</th>
<th>COMPLIANCE</th>
<th>OBSERVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>1</td>
<td>Clearance of new land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Deforestation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Clearance of Follow land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mechanization of Land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Drainage of Land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Set of barriers along drainage to retain soil from washing away by runoff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Planting along countor to prevent soil erosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planting of cover crop</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Monitoring Program

**Environmental Management Plan**

**Activity Monitored:** Fertilization

**Date:**

**Department:** Ministry of Agriculture

**Representative:**

**Cooperative:** Los Buenos Amigos Society Limited

**Representative:**

### Table of Compliance

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Compliance</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Estimate of land area for planting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Estimate of planting density</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Take Soil samples for analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Analyze soil nutrients content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Analyze soil organic content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Analyze soil pH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Estimate Soil amendment requirement base on soil analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Estimate plant nutrient requirement base on soil analysis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## MONITORING PROGRAM

**Environmental Management Plan**

**ACTIVITY MONITORED: PEST AND DISEASE CONTROL**

**DATE:**

**DEPARTMENT:** Pesticide Control Board

**REPRESENTATIVE:** Los Buenos Amigos Society Limited

### TABLE OF COMPLIANCE

<table>
<thead>
<tr>
<th>No.</th>
<th>ACTIVITY</th>
<th>COMPLIANCE</th>
<th>OBSERVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>1</td>
<td>Training of pesticide control board on use of pesticide for crop production.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Certificate of training to cooperative members from pesticide control board on the use of pesticide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Establishment of sediment settle are for filtration of pesticide residues in water draining from crop site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Identification of pest or disease.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Evaluate damage in crop.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Evaluate severity in crop.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Determine application of pesticide base on analysis of damage and severity to crop.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COST ESTIMATE FOR ENVIRONMENTAL MANAGEMENT PLAN

The following is cost estimate of environmental management plan. Cost estimate fund source are from grant.

Table below shows summary of cost estimate for environmental management plan.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEED PROGRAMING</td>
<td>$ 750.00</td>
</tr>
<tr>
<td>LAND PREPARATION</td>
<td>$ 2,185.00</td>
</tr>
<tr>
<td>FERTILIZATION</td>
<td>$ 750.00</td>
</tr>
<tr>
<td>PEST/DISEASE CONTROL</td>
<td>$ 2,010.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$ 5,695.00</strong></td>
</tr>
</tbody>
</table>

Table below shows EMP cost estimate for seed programing
## SEED PROGRAMING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COST PER UNIT</th>
<th>UNITS REQUESTED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture Inspection</td>
<td>$ 200.00</td>
<td>1</td>
<td>$ 200.00</td>
</tr>
<tr>
<td>Soil Samples</td>
<td>$ 25.00</td>
<td>4</td>
<td>$ 100.00</td>
</tr>
<tr>
<td>Package of Soil Samples</td>
<td>$ 15.00</td>
<td>4</td>
<td>$ 60.00</td>
</tr>
<tr>
<td>BAHA permit to send samples for analysis</td>
<td>$ 10.00</td>
<td>1</td>
<td>$ 10.00</td>
</tr>
<tr>
<td>Dole Honduras cost of soil analysis</td>
<td>$ 70.00</td>
<td>4</td>
<td>$ 280.00</td>
</tr>
<tr>
<td>Others</td>
<td>$ 100.00</td>
<td>1</td>
<td>$ 100.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$ 750.00</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table below show EMP cost estimate for land preparation

## LAND PREPARATION

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>COST PER UNIT</th>
<th>UNITS REQUESTED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture Inspection Construction of barriers along drainage to retain soil wash from runoff</td>
<td>$ 200.00</td>
<td>1</td>
<td>$ 200.00</td>
</tr>
<tr>
<td>Pasture seed(kilos) to plant along edges of farm to prevent soil erosion</td>
<td>$ 50.00</td>
<td>4</td>
<td>$ 200.00</td>
</tr>
<tr>
<td>Planting Pasture (Day Work)</td>
<td>$ 75.00</td>
<td>12</td>
<td>$ 900.00</td>
</tr>
<tr>
<td>Watch team to keep surrounding areas reserve</td>
<td>$ 30.00</td>
<td>10</td>
<td>$ 300.00</td>
</tr>
<tr>
<td>Pluviometer to measure rainfall</td>
<td>$ 30.00</td>
<td>1</td>
<td>$ 30.00</td>
</tr>
<tr>
<td>Others</td>
<td>$ 200.00</td>
<td>1</td>
<td>$ 200.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$ 2,185.00</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table below show EMP cost estimate for fertilization
## Fertilization

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Per Unit</th>
<th>Units Requested</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture Inspection</td>
<td>$200.00</td>
<td>1</td>
<td>$200.00</td>
</tr>
<tr>
<td>Soil Samples</td>
<td>$25.00</td>
<td>4</td>
<td>$100.00</td>
</tr>
<tr>
<td>Package of Soil Samples</td>
<td>$15.00</td>
<td>4</td>
<td>$60.00</td>
</tr>
<tr>
<td>BAHIA permit to send samples for analysis</td>
<td>$10.00</td>
<td>1</td>
<td>$10.00</td>
</tr>
<tr>
<td>Dole Honduras cost of soil analysis</td>
<td>$70.00</td>
<td>4</td>
<td>$280.00</td>
</tr>
<tr>
<td>Others</td>
<td>$100.00</td>
<td>1</td>
<td>$100.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>$750.00</td>
</tr>
</tbody>
</table>

## Pest/Disease Control

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Per Unit</th>
<th>Units Requested</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticide Control Board Training</td>
<td>$200.00</td>
<td>1</td>
<td>$200.00</td>
</tr>
<tr>
<td>Certificate of Training</td>
<td>$6.00</td>
<td>40</td>
<td>$240.00</td>
</tr>
<tr>
<td>Construction of sediment for pesticide filtration</td>
<td>$400.00</td>
<td>1</td>
<td>$400.00</td>
</tr>
<tr>
<td>Protective Equipment for application</td>
<td>$117.00</td>
<td>10</td>
<td>$1,170.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>$2,010.00</td>
</tr>
</tbody>
</table>

### Consultations:

Both the Department of the Environment and the Pesticides Control Board were consulted on the final plan and both agencies did not request modifications to the plan. The implementation recommendations of the PCB can be found in Annex 1.
ANNEXES

Annex 1: Pesticides Control Board Recommendations:

1. Organized a two day training session at Trio Village on Good Pesticide Management Practices and some of the topics to be covered are:
   a. Integrated Pest Management (Pest Identification and IPM implementation) specific to pineapple production.
   b. Pesticide Classification.
   c. Toxicity and Hazard Classification.
   d. Understanding Pesticide Label.
   e. Safe Handling of Pesticides (Purchase, Transport, Storage, Personal Protective Equipment (PPE), Application, Pre-Harvest Interval.
   f. Pesticide Waste Management.
   g. Recognition and First Aid Treatment of occupational Pesticide Intoxication.
   h. Pump and Nozzle Selection,
   i. Calibration of Knapsack and calculation of dosages,
   j. Pesticide Record Keeping.
2. Prepare a list of Approve Pesticide for Pineapple Production.
3. Proper field sanitation (removal of infested plants and burning of plant residue).
4. Posting of warning signs at every pesticide application.
5. Only person's trained and certified should apply pesticides. No minor should be allowed to handle pesticide application.
6. Avoid herbicide application along primary and secondary drains to avoid soil erosion and weed control to be carried out manually or mechanically (machete / weed whacker).
7. Emphasizes on use of correct dosage as per label directions and timing of pesticide application.
8. Proper storage of pesticides.
9. Monitoring of pesticide use and record keeping by PCB Inspectors.

Annex 2: Environmental Policy of Los Buenos Amigos Cooperative

Cooperativa Los Buenos Amigos (L.B.A)
Pолитика Мейорамиенто Ambiental
La cooperativa Los Buenos Amigos se compromete a cumplir los postulados establecidos en la política de Mejoramiento Ambiental.

De esta manera los Miembros de L.B.A se comprometen con un cambio progresivo a una cooperativa segura, financieramente viable y ambientalmente sostenible en la cual se practique la conservación y se analicen y minimicen regularmente los impactos nocivos al medio ambiente.
Los siguientes puntos a cumplir son los siguientes:

Agroquímicos:
1) Los pesticidas serán usados como parte de un sistema integrado en el manejo del cultivo, luego de que otras medidas hayan fallado. Sus dosis de aplicación serán mínimas necesarias para controlar la enfermedad y mantener la producción, las cantidades y frecuencia serán determinadas por un personal competente de acuerdo con el grado de infección.
2) Las aplicaciones serán cuidadosamente realizadas por personal entrenado, en este caso serán capacitados por el departamento de PCB.
3) Las aplicaciones de agroquímicos serán registradas por escrito para hacerlas rastreables.
4) Cuando sea imperativo el uso de químicos, la sustancia usada deberá estar debidamente autorizada para el uso en Piña, también tomaremos en cuenta que el químico usado sea específicamente para la plaga en quistión.
5) Antes de cada aplicación de herbicida se deberá de realizar una evaluación de maleza para determinar si la aplicación de herbicida es necesaria o si lo que requiere es chapia, esto se determinara de acuerdo al porcentaje de infección o el nivel de altura de maleza.

Fertilizantes:
1) Durante las aplicaciones de fertilizante, las aplicaciones serán registradas por escrito tomando en cuenta también las calibraciones de copas que serán usadas con el fin de aplicar a la dosis correcta.
2) La persona de dicha labor será capacitados con temas relacionados al buen uso de los fertilizantes para la conservación del medio ambiente.

Conservación de Ríos y Otras Fuentes de Agua:
1) Los miembros de cooperativa no explotaremos los bancos naturales de nacimiento de agua.
2) Desde la orilla de la quebrada se respetaran 15 metros horizontales, permitiendo en esa franja de terreno que la vegetación existente se desarrolle.

Drenajes:
1) No se aplicaran químicos a los drenajes durante las aplicaciones de agroquímicos.
2) Los drenajes se mantendrán con chapia como parte de mantenimiento para el buen flujo de agua.
3) Manejaremos algún tipo de cobertura de suelo artificial o natural que nos proporcione la efectividad para la prevención de erosión de suelo.
Manejo de Desechos:
  1) Todos los desechos o desperdicio en la plantación serán manejados correctamente siendo expulsados a su destino correcto o lugar competente de acuerdo a la legislación local. (Basureros Acreditados por leyes locales del país)

Enveses Vacios:
  1) Los enveses Vacios serán retornados al suplidor competente, de esta forma dar acabo el reciclamiento de dichos envases para la prevención de algún impacto negativo al medio ambiente, Los miembros serán responsables de realizar el triple lavado antes de retornarlo al suplidor.

Prevención de Erosión de Suelos:
  1) Se manejara la plantación con un nivel aceptable de maleza y cobertura natural de manera que el suelo no permanezca desnudo en su totalidad.

Operaciones de Mantenimiento y Reparación:
  1) Desechos de aceites y lubricantes
  2) Fragmento de maquinaria y metal.
  3) Pedazos de madera inservibles
  4) Herramientas quebradas
Annex 3: Reporting Forms

<table>
<thead>
<tr>
<th>DATE APPLIED</th>
<th>TRADE NAME</th>
<th>COMMON NAME</th>
<th>DOSAGE</th>
<th>PEST CONTROL</th>
<th>TOXICITY CASES</th>
<th>APPLICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Los Buenos Amigos Cooperative Society Limited
PESTICIDE RECORD KEEPING
CLASS OF PESTICIDE - HERBICIDE

* Pesticide record keeping data sheet for HERBICIDE application in pineapple production
### Pesticide/Fertilizer Record Keeping

<table>
<thead>
<tr>
<th>DATE APPLIED</th>
<th>TRADE NAME</th>
<th>COMMON NAME</th>
<th>DOSAGE</th>
<th>PEST CONTROL</th>
<th>TOXICITY CLASS</th>
<th>APPLICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Pesticide record keeping data sheet for INSECTICIDE application in Albanese production*
## LOS BUENOS AMIGOS SOCIETY LIMITED

### PESTICIDE/FERTILIZER RECORD KEEPING

#### LOS BUENOS AMIGOS COOPERATIVE SOCIETY LIMITED

<table>
<thead>
<tr>
<th>DATE APPLIED</th>
<th>TRADE NAME</th>
<th>COMMON NAME</th>
<th>DOSAGE</th>
<th>PEST CONTROL</th>
<th>TOXICITY CLASS</th>
<th>APPLICATION</th>
</tr>
</thead>
</table>

*Pesticide record keeping sheet for FUNGICIDE application in pineapple production.*
<table>
<thead>
<tr>
<th>DATE APPLIED</th>
<th>TRADE NAME</th>
<th>COMMON NAME</th>
<th>DOSAGE</th>
<th>PEST CONTROL</th>
<th>TOXICITY CLASS</th>
<th>APPLICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Pesticide record keeping data sheet for PESTICIDE/FERTILIZER application in pineapple production.
Annex 4: Drainage Map of the area

LOS BUENOS AMIGOS COOPERATIVE SOCIETY LIMITED
MAP SITE FOR CULTIVATION OF MD2 PINEAPPLE

AREA FOR EXPANSION

KEY
- Primary Drainage and water settle
- Secondary Drainage
- Tertiary Drainage
- Entrance
- Road side
- Space between
- Space between Tertiary drainage 30 feet
- Space of site to forest 60 feet
- Space road side to site 15 feet

NOTE:
- Space between Secondary drainage 200 feet
- Space between Tertiary drainage 30 feet
- Space for entrance road 15 feet
- Space of site to forest 60 feet
- Space site low land 60 feet
- Space road side to site 15 feet