



ENVIRONMENTAL MANAGEMENT PLAN

WESTERN WOMEN AGRO-PROCESSING ASSOCIATION

Contents

PROJECT BACKGROUND:..... 2

EXPECTED IMPACTS: 3

MITIGATION MEASURES: 3

MONITORING PROGRAM:..... 4

LINES OF RESPONSIBILITY: 4

CULTURALLY APPROPRIATE CONSULTATION AND PARTICIPATION 5

COST ESTIMATES AND SOURCES OF FUNDS:..... 5

ADDITIONAL INFORMATION:..... 7

PROJECT BACKGROUND:

Seven Miles El Progreso is located on the Georgeville/Mountain Pine Ridge Road in the lower reaches of the Maya Mountains in the Cayo District. The village was formed in the late 1970s by refugees that fled Central America due to war. By 1980, there were already twenty (20) families living in the village. The 2010 census puts the population at approximately 500. Major economic activity includes: small scale production of vegetables, mainly tomatoes, sweet pepper, corn, beans, cucumber, cabbage, string beans, carrots, potato, cilantro, pumpkin, etc. that is sold in San Ignacio and Belmopan. In recent years, some people have entered the service sector primarily as resort and agriculture workers. While no figures are available that are specific to the area, expert opinion suggests that Seven Miles is one of the more economically challenged communities in the Cayo District. A rapid needs assessment of households in the area established a baseline of approximately \$1,000 per month for monthly family incomes which need to cover all food, health, educational and operational expense.

The Western Women Agro-processing Association (WWAPA) was started in 2010 as a family gathering and social activity and has developed into a business opportunity for the members of the community. Since 2010, WWAPA has been processing a variety of different products such as chicken, tomato salsa, jalapeno, habanero pepper sauce, vegetable pickles, jams, jellies and candied fruits. Other women have been engaged in individual baking, sewing and production of flowers and plants. In 2012, WWAPA received assistance from the FAO/UN, to construct a small wooden building (12ft x 20ft) to be used as a working area, one butane stove, cooking pots and three stands to display their processed products. The facility has been upgraded, little by little, and is limited to production only. The display of products are currently available in the same room as production, the space keeps reducing and requires more space in order to create a better place for display and marketing of products. With the increase in tourism traffic on the Mountain Pine Ridge Road and the relative difficulty in marketing their products, the group decided to undertake a project that would use the former to benefit the latter.

The project proposes the following:

- Expansion of the agro-processing that is currently being done; the group does bottling of fruits and vegetables.
- Training in pottery and craft making, agro-processing and sewing.
- Establishment of plant nurseries
- Establishment of a gift shop/snack shop/recreation center that will cater to the local community and tourist who pass by to or from Caracol.

Also family nights will be organized by WWAPA, inviting villagers to bring out their families to enjoy themselves in a healthy and safe and family friendly environment. This will provide a

means of recreation for the community and be a very good business opportunity for WWAPA to increase sales in their snack shop.

Activities:

- Put in place the infrastructure that will serve as an outlet for the marketing of locally produced items such as food preserves, arts and craft, and plants.
 - procurement and installation of a wooden building (20 x 40) to be used as a gift shop, snack shop, market outlet, and open recreation area.
 - Procurement and installation of potable water (2,000 gallons) and solar system (to produce 8,100 watts per day) for the running of all equipment's of the building
 - Construct a septic system to handle liquid waste disposal
- **Develop capacity and provide training for 10 women in different areas of entrepreneurship and proper project administration**
 - Train 10 women and youth in food processing, basic and advance sewing, cake decorating, Arts and Crafts (jewelry making), Pottery making and Plant propagation.
- **Start and maintain the operations as proposed in the project document**
 - Installation of Gift shop, Snack Shop, Nursery and production of plants
 - Production of variety of Agro-processing products, and arts and crafts, including pottery

EXPECTED IMPACTS:

There are few environmental impacts from the implementation of this project and most will be positive. The project calls for the establishment of plant nurseries which will help to maintain and restore some of the plant cover in the area and generate income at the same time. The entire operation will depend on solar power for energy which eliminates the need for connection to the grid.

The primary concern would be the improper disposal of food product containers by customers. This will be addressed by ensuring that garbage containers are conveniently placed around the facility and frequently emptied. The western part of the country is now part of the Solid Waste Management Project that has a transfer station in San Ignacio and a sanitary landfill at Mile 24 on the George Price Highway. Hence the adequate disposal of garbage will not pose a problem.

MITIGATION MEASURES:

The mitigation measures will include:

- Develop adequate and well maintained storage for fresh fruit and finished product. Fruit storage will be based on the regulations for handling and storage of food as defined in the Public Health and BAHA legislation.

- Ensuring that garbage containers are strategically placed around the facility;
- Reduce on the amount of solid waste generated;
- Adequately dispose of solid and liquid waste in the manner as prescribed for establishments of that type;
- Ensure that they follow best practices for the handling of the items they will produce and sell.
- Improve on the composting system for agro-processing production waste. Currently skins, trimmings and fruit that do not meet the quality standards are fed to livestock (cattle, chicken, pigs and rabbits) or composted in an open compost pile. The compost is then used in the existing nursery and on tree crops.

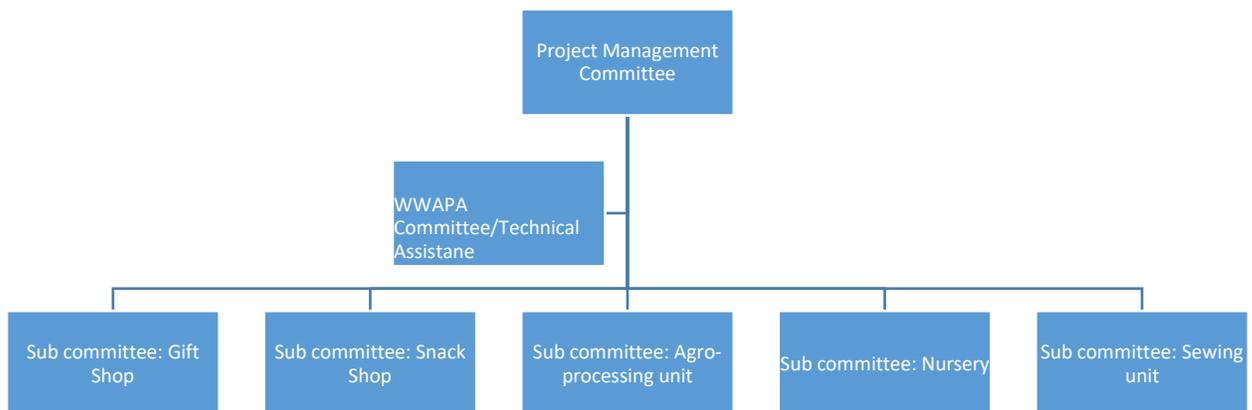
The majority of the production waste will continue to be fed to livestock. The composting will be improved by constructing a bin to contain the waste material and control insect pests. Compost will be used in the existing and the planned nurseries.

MONITORING PROGRAM:

Any monitoring program will of necessity be an integral part of the operation and maintenance of the facility and nursery. It will also need to fit within the framework of the BAHA and Public Health Regulations.

LINES OF RESPONSIBILITY:

The Executive Committee of the Western Women Agro-processing Association will be first in the line of responsibility. The lines of responsibility will then flow down as is indicated by the organogram below. Anyone working in the building will be under the supervision of the person selected as the operations manager. That person will report to the Executive Committee. Nurseries will be assigned to specific persons who will report to the nursery sub-committee.



The daily operations of the group will be supervised by a member that is identified after group consultation. This person could be permanent or may change on a pre-arranged basis.

CULTURALLY APPROPRIATE CONSULTATION AND PARTICIPATION

In July and August of 2013 Dr. Roy Young, the consultant hired by BEST to do the baseline assessment and Project Orientation held two 1-day workshops in San Antonio, Cayo for residents in San Antonio, Cristo Rey and Seven Miles (El Progreso). Participants in the workshops were informed of the project and were encouraged to come up with ideas for sub-projects that would be beneficial for the environment and which would generate income. During the development of the sub-project proposals, groups met and discussed their individual concepts. The Technical Officer and proposal writing consultant worked with each groups to ensure that there was inclusion and consensus. After much consultation, the Western Women Argo-Processing Association requested assistance in developing capacity in the production and marketing of locally produced food preserves and crafts, thereby generating additional income for members. The Technical Officer then did the relevant due diligence to ensure that the concepts were technically sound and financially feasible. There is no special protocol that is used for meetings and consultation with these groups, but requires that members be notified at least five days in advance of any meeting. Dates and time are set at the convenience of the group.

COST ESTIMATES AND SOURCES OF FUNDS:

Item	JSDF - SNRL	Group contribution		Total
		New	Existing	
1 Complete building with facilities	54,617.36	0.00	0.00	54,617.36
Materials for Septic	1,297.25			1,297.25
Labour for construction of septic		400.00		400.00
1 building (Agro-Processing unit) with accessories			10,000.00	10,000.00
1 Solar System	15,550.00	0.00	0.00	15,550.00
1 Refrigerator	980.00			980.00
1 Freezer	1,900.00			1,900.00
1 Blender	275.00			275.00
1 juicer	970.00			970.00
1 Popcorn Maker	300.00			300.00
1 ice machine	278.90			278.90
2 Rotoplast (1000 gallons)	2,526.12			2,526.12
1 Cetron Gas Stove	520.00			520.00
1 Tank with accessories	300.00			300.00
3 Picnic tables	1,320.30			1,320.30
3 Folding tables	440.10			440.10

12 plastic folding chairs white	813.60			813.60
1 Projector	1,000.00			1,000.00
1 laptop with accessories	2,500.00			2,500.00
3 Sewing Machines	1,200.00			1,200.00
Raw Materials (Sewing)	3,000.00	7,139.00		10,139.00
Labour for sewing		3,286.50		3,286.50
1 complete nursery built and installed	5,000.00			5,000.00
Wheel borrow	194.63			194.63
Mintcraft pro shovel	38.72			38.72
Sprinkler (Gear drive)	36.56			36.56
1 Hose (Gilmour med duty)	88.65			88.65
5200 plastic pots	2,080.00			2,080.00
Raw materials for nursery		7,893.50		7,893.50
Bottles (136 cases of 24 pints)	5,576.00			5,576.00
4 Pots (cooking aluminum)	672.00			672.00
2 Pots (stainless steel)-large	680.00			680.00
20 buckets (buckets with covers)	260.00			260.00
2 drums (1 large and 1 med)	150.00			150.00
Labels (3500 labels)	700.00			700.00
Raw Materials and supplies for Snack Shop		47,217.30		47,217.30
Raw materials for Agro-Processing		4,483.09		4,483.09
Giftshop-labour		1,578.50		1,578.50
Giftshoplabour		9,360.00		9,360.00
Giftshop- Stock	3,500.00	3,337.00		6,837.00
Kitchen Utensils (deep fryer, containers, etc)	2,000.00	2,000.00		4,000.00
1 Grill	300.00			300.00
1 big burner stove	200.00			200.00
Marketing and Advertisement	1,500.00			1,500.00
Pottery maker	1,200.00			1,200.00
Training (6 trainings)	12,000.00			12,000.00
				0.00
Total	125,9665.19	86,694.89	10,000.00	222,660.08

ADDITIONAL INFORMATION:

Liquid waste disposal in most of Belize is done through a septic system. The facility already has a functional septic system that was installed when the building was constructed and is currently being used. The current capacity of the system was designed to meet any normal increases in usage over the short to medium term.

The village of Seven Miles has a garbage collection that collects garbage from individual premises once per week. This garbage is then transferred to the San Ignacio/Santa Elena – Benque Viejo Transfer station. The station is approximately 12 miles from the village. The municipal government (in this case the village council) is responsible for ensuring that the garbage is collected, transported and delivered to the transfer station in a timely and sanitary manner. Persons and establishments that require a more frequent collection service are encouraged to transport their solid waste to the Transfer Station.

The Solid Waste Management Authority is currently managing two waste Transfer Stations, namely the Belize City Transfer station, San Ignacio/Santa Elena – Benque Viejo Transfer station. These are located at the old Belize City dumpsite and the old San Ignacio/Santa Elena – Benque Viejo dumpsite.

These Waste Transfer – Transfer Stations play an important role in a community's total waste management system, serving as the link between the community's solid waste collection program and the final waste disposal facility, in this case the regional sanitary landfill located at Mile 24 George Price Highway. A transfer station provides a safe, efficient, and cost-effective means to process and transfer solid waste from the waste generators to a final disposal site.

Wastes are brought to the facility by collection vehicles (garbage trucks) as well as self-haul vehicles ranging from pickup trucks to dump trucks. The waste is dumped onto a concrete floor (the "tipping" floor) inside of the transfer station. Recyclable materials such as PET bottles (soft drink and water bottles), HDPE bottles (chlorox/bleach bottles), glass bottles, aluminum and steel cans are sorted out manually and removed from the facility. The residual waste is then loaded by a front end loader into large-capacity transfer trailers and hauled to the regional sanitary landfill.

The Sanitary Landfill is located at mile 24 on the George Price Highway approximately 2 miles heading due north along the paved access road. This facility was inaugurated on July 30, 2013. It started receiving waste on August 6, 2013. This is the country's only Sanitary Landfill. The entire parcel of land where the landfill facility is located is 370 acres. This is the final disposal location for waste originating from municipalities in the Western Corridor (Belize City, San Ignacio/ Santa Elena – Benque Viejo, San Pedro Ambergris Caye and Caye Caulker). The first Municipal Solid Waste cell (Phase I) occupies approximately 5 acres. The Mile 24 Regional Sanitary Landfill was designed, constructed and supervised in accordance with internationally accepted standards for municipal solid waste landfills.



Possible design for the compost bin.

The following pieces of legislation provide the framework for this Environmental Management Plan:

Food Safety:-

Annex 1: BELIZE AGRICULTURAL HEALTH AUTHORITY (FOOD PROCESSING PLANTS) (POTABLE WATER) (MINIMUM STANDARDS) REGULATIONS, CHAPTER 211, REVISED EDITION 2003, SHOWING THE SUBSIDIARY LAWS AS AT 31ST OCTOBER, 2003

PUBLIC HEALTH ACT, CHAPTER 40, REVISED EDITION 2003, SHOWING THE SUBSIDIARY LAWS AS AT 31ST OCTOBER, 2003

SECTIONS:

Annex 2: 22. Removal of Refuse By-Laws

PUBLIC HEALTH ACT, CHAPTER 40, REVISED EDITION 2003, SHOWING THE LAW AS AT 31ST MAY, 2003

Section 53.

(1) Where any lot, house or premises is without a drain sufficient for the effectual drainage of flood water or domestic waste water a medical officer of health may by written notice require the owner or occupier of the lot, house or premises within a reasonable time therein specified to make a drain or drains emptying, in the case of flood water, into any public drain, and in the case of domestic waste water, emptying into such sump or pit or place as a medical officer of health may direct.

- (2) A medical officer of health may require any such drain or drains to be of such material, construction and size and to be laid at such level and with such fall as may appear to him to be necessary and proper and may require any sump to be of a size and type approved by the Director of Health Services.
- (3) If such notice is not complied with the medical officer of health may after the time specified in the notice do the work required and may recover in a summary manner the expenses incurred by him in so doing from the owner, or may declare the same to be private improvement expenses.
- (4) For the purposes of this section “domestic waste water” means any water or liquid matter other than ordinary flood water.

Effluent Regulations:-

Annex 3: ENVIRONMENTAL PROTECTION ACT CHAPTER 328 REVISED EDITION 2003, SHOWING THE SUBSIDIARY LAWS AS AT 31ST OCTOBER, 2003; ENVIRONMENTAL PROTECTION (EFFLUENT LIMITATIONS) REGULATIONS

Read in conjunction with

Annex 4: ENVIRONMENTAL PROTECTION (EFFLUENT LIMITATIONS) (AMENDMENT) REGULATIONS, 2009

Solid Waste Disposal:

ENVIRONMENTAL PROTECTION ACT, CHAPTER 328 REVISED EDITION 2003, SHOWING THE SUBSIDIARY LAWS AS AT 31ST OCTOBER, 2003

Section:

35. No person shall deposit waste in a place other than on a site approved by the Department for the elimination or storage of waste or for the operation of a waste treatment plant or a waste management system.
36. For the purposes of Regulations 32 to 35: (a) “waste” includes solid or liquid residue from industrial, commercial or agricultural activities, rubbish, household garbage, used lubricants, demolition debris, pathological waste material, bodies of animals, motor vehicle wrecks, chemical and radioactive material, and empty containers; (b) “waste management system” means a combination of technical and administrative operations for the removal, collection, transport, storage, treatment and final disposal of waste.

