

*Improving Livelihoods in Flowers Bank
Village through the enhancement of the
Cohune Processing Facility*

Flowers Bank Community Group
Flowers Bank Village, Belize District
April 2016

1. Project Background:

The Flowers Bank Community Group (FBCG) was established in June 2000 with the aim of addressing the community's livelihoods needs and improving the economic situation of the residents. The mission of the group is "to improve the livelihoods of the residents of Flowers Bank Village and those in the surrounding communities located in the Community Baboon Sanctuary". In 2008 the group received funding for the establishment of a facility to produce oil from the cohune nut. Since that time they have produced on average 16 – 20 gallons of oil per month using very labour intensive methods.

The primary objective is to expand from a part-time to a full time operation while improving the efficiency and effectiveness of the daily operations. This will involve the acquisition of new equipment and larger quantities of cohune nuts. The expansion and improvements at the facility is expected to result in a tenfold increase in revenues generated, and will directly impact the livelihoods of the villagers of Flowers Bank and surrounding communities as there will be an increase in employment opportunities at the cohune processing facility and increased opportunities for harvesting of cohune nuts. It is expected that sustained operations will provide alternatives and will reduce the urge for members to resort to activities such as logging and hunting as sources of income.

Another key component of the project is the strengthening of the capacity of the FBCG to manage their business operations. This will result in increased efficiencies in production and marketing.

2. Expected Impacts:

The main objectives of the project are:

- Increase the volume of cohune oil produced
- Improve the administrative and technical management of cohune oil production
- Improve the marketing and distribution of the final product within the country of Belize

The major activities and expected impacts are:

- Acquisition of raw materials and increased production of oil. The group expects to purchase some 500,000 lbs of dried cohune nuts during the first 12 months of operation. At an average kernel to whole nut ratio of 0.127 : 1; 500,000 pounds of nuts will yield approximately 63,500 pounds of kernel. With a ratio of 5 pounds of kernel to 1 liter of oil, 63,500 pounds of kernel will yield some 12,700 liters. This represents twelve times more than the estimated tenfold increase that is projected.

All the literature reviewed for palm oil production indicate primarily positive environmental effects. The sole negative effect that continues to emerge is the extensive land clearing that takes place to make way for palm oil plantations. In the case of cohune oil production this is not an issue as the trees are not removed during harvesting. In fact the oil production operation could be negatively affected by the land clearing that is currently taking place on some of the lands that were pledged as part of the Community Baboon Sanctuary; since some of the cohune trees are being removed to make way for cattle pasture and cornfields. The operation will rely on nut collection from the wild and collectors need to wait for the dried nuts to fall before they can be collected.

The positive environmental impacts include:

- (i) Use of an otherwise underutilized resource as a source of income for rural communities
- (ii) Protection of the trees by collectors and oil producers as a mature tree will yield 800 – 1,000 nuts/bunch per year. Some trees produce up to three bunches per year.
- (iii) Cohune oil has beneficial dietary properties similar to coconut oil
- (iv) The oil has a ready market as it is used in cooking, soaps and cosmetics
- (v) Cohune oil is being considered as a potential biofuel
- (vi) The husk and shell can be used as a source of energy either for generating electricity or as charcoal.

One potential negative effect of the increase in production is the timely disposal of the cracked shells. However, there are several alternative for disposal as the shells are biodegradable.

- Acquisition of new equipment. Because of the anticipated increase in production, it will be necessary to obtain new equipment that can meet the increased demand. The group will be acquiring a new 'cracker' to be used to crack the thick shell of the cohune nut. The objective is to improve on the efficiency and output of the current 'cracker'. The impact of commissioning this new piece of equipment will be an increase in the amount of kernels available for further processing.
- Administrative and Technical Support. The group is expecting to receive administrative and technical support for improving cohune oil production. One of the recommendations made by the PSC is that the group engage the services of a full time coordinator to oversee the business and production aspects of the operation. This will result in improvements in efficiencies and reduction in lost time and resources. Improvement in efficiencies should also have a positive environmental impact.

- Marketing and Development. This activity will focus on improving the marketing and distribution of the final product. It will also involve establishment of standards for product quality and marketing. There is no anticipated environmental impacts from this activity.

3. Mitigation Measures:

The one activity that is expected to have an impact on the environment is the increase in production. This will take two forms:

- (i) Increase in the amount of nuts harvested. This is not seen as a major concern because (a) the nuts need to fall on their own for them to be of any value, so climbing or cutting down a tree would be self-defeating for collectors since the nuts harvested would have no value; and (b) the most recent cohune palm inventory indicated a density of approximately 360,000 stems (all size classes) per hectare in undisturbed forest areas.
- (ii) Disposal of cracked shells. This is also not expected to be a major concern as the shell can be used for generating electricity (BELCOGEN), charcoal and/or biodegradable landfill. The present project calls for the cracked shells to be converted to charcoal and sold locally and/or sold to BELCOGEN as fuel for their turbines. Cracked shells can be given away to persons interested in using them as landfill. In such cases, the recipient is responsible for cartage.
- (iii) Disposal of spent shredded kernel. The spent shredded kernel, locally referred to as 'trash', has residual nutritional value and is fed to chicken and pigs as an alternative feed source. This is sold to local small farmers at \$0.01 BZD per pound.

All the other activities are geared toward improving and increasing production, and will result in the impacts stated above.

4. Monitoring Program:

There are currently no protocols or standards for oil production in Belize. As a result the monitoring program will need to follow the food safety guidelines for BAHA and the solid and liquid waste disposal regulations from the Department of the Environment. Those can be found in the Additional Information section of this document.

5. Lines of Responsibility:

The Executive of the Flowers Bank Community Group is the body with ultimate responsibility for the entire facility and its operations. The Executive is responsible for ensuring that administrative and operational protocols are in place and are being followed. For the first 12 months the coordinator will be responsible for the daily

administration and operation of the facility. That person will be responsible for ensuring that all the necessary safeguards are in place and the production protocols are followed. The coordinator reports to the executive and anyone working in the facility reports to the coordinator. These lines of responsibility will remain in place until such time as the coordinator is replaced by a full time manager.

6. Cost estimates and sources of funds:

There are no anticipated costs associated with ensuring that potential impacts are avoided or mitigated. Any ancillary costs should be considered part of the operational/production costs.

7. Additional Information:

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

Food Safety:-

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

SECTIONS:

Annex 1: 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 2: 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 3: 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.