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**Feasibility Study  
on  
Peanut Post Harvest  
Processing and Marketing**

Submitted to the

**Upland Development Programme  
in Southern Mindanao (UDP)**

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## EXECUTIVE SUMMARY

This business shall be entitled “**Peanut Post Harvest Processing and Marketing**”. This business name is chosen to highlight and/or capture the nature of the business. The choice on the name was also made as a way to promote the peanut production and marketing undertaking, not only within the locality but also to other areas where the project will transact business.

The business is owned by the Peanut Growers Association of South Cotabato. It is an association of peanut farmers/growers that was organized sometime September of 2001 through the initiatives of the Upland Development Program (UDP). It is not yet registered with any government-registering agency but it has a plan to register with the Securities and Exchange Commission (SEC) to acquire its legal personality.

The Association is based in Barangay Palo 19, Tampakan, South Cotabato. Present membership size is 36. However, it has plans of expanding its membership base to 100 for the first year of operation and continuously increase thereafter, within the next five years. Likewise, its area of coverage within the next five years will also be expanded to the municipal and provincial level.

The highlights of the **Market Study** showed that the project is very feasible since there is an enormous demand for peanut both in the international and domestic market. In the Philippines alone, 76,216 metric tons is required per year but only about .12% (for the first year) and .95% (for the fifth year) are the targeted market share of the project. As for the national buyers, the initially identified market is Jockers Food Industries, which is located in Pulilan, Bulacan. However, since fifty eight percent (58%) of the small, medium and large scale peanut trading and manufacturing industries are located in the National Capital Region (NCR), these are also good market prospects for the project. Dried shelled peanuts will be sold at an average of P30.00/kg.

As for the **Technical and Production** aspects, the study showed that this project is also technically feasible since the technology for production is already available and tested by the farmers. The recommended peanut varieties, which are Pn9 and Pn10, are also proven suitable to targeted project sites. The targeted volume of production is likewise, achievable as the farm size area is planned to be increased gradually from ¼ha/farmer on the first year to up to 1.0 hectare/farmer on the fifth year. Peanut shall be grown by the individual farmer-members of the PGA while post harvest processing and marketing will be handled by the Association.

The **Organization and Management Study** also showed that the project will be organizationally viable with the proposed organizational set-up. The set-up is simple and easy to manage with only very few people to be engaged/hired for the project.

Finally, the **Financial Study** clearly showed that the project is indeed feasible with very profitable operation considering that the average ROI is projected at 49%. Cash flow projections also showed that the project can sustain its operation even beyond the fifth year with an ever-increasing positive cash balances at the end of each year.

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## **1.0 MARKET STUDY**

### **1.1 Demand**

#### ***1.1.1 Foreign Demand***

The peanut is one of the most nutritious foods today. Besides being an incredibly widespread and nutritious plant, the peanut has a remarkable number of economic uses. Most of the world production is crushed for oil that is used mainly for cooking. The presscake from oil extraction is a protein-rich animal feed which is also used to produce peanut flour.

In the United States, the peanut crop is used differently than in the rest of the world. About half of the crop in the U.S. is ground into peanut butter, while salted peanuts account for 20% of the crop and about 16% is used in confections.

In SouthEast Asia, peanut is used as a human food. The seeds or kernels are eaten raw, boiled, roasted, made into confectionery or made into sauce on many dishes.

Over the past one hundred years, the peanut has developed far beyond its former role as a nice snack to crunch or smear on sandwiches. As the world population has reached six billion people and protein deficiency becomes more and more apparent, the need for a cheap, reliable protein source is going to become imperative. This is when the peanut may have to rise to the occasion to help feed the world.

#### ***1.1.2 Domestic Demand***

Philippine peanut consumption has risen steadily over the past decade. Approximately 66% of total available peanut are consumed as food, 26% as feed and 8% as seeds. The seeds or kernels are eaten raw, boiled, roasted, made into confectionery and snack foods and are made into sauce on meat and rice dishes.

Local peanut processors and feed manufacturers are the primary buyers of the peanut available in the country. Fifty eight percent (58%) of the small, medium and large-scale peanut trading and manufacturing industries are located in the National Capital Region (NCR). They are engaged in production of: peanut butter (39%); candies (22%); peanuts (35%); and, sauces (4%).

The Philippines required about a total of 76,216 metric tons/year of peanuts and that 57% of the requirement was sourced from other countries.

In 1999, the Philippines imported about 46,000 metric tons of raw unshelled peanuts valued at more than \$29 million. More than 60% of the imports came from China. India supplied about 20% and Vietnam just fewer than 10%.

In addition to the shelled peanuts, the Philippines imported about 600 metric tons of peanuts already processed into various snack foods at a total cost of almost \$700,000.

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## 1.2 Supply

### 1.2.1 Foreign Supply

Peanuts are grown in countries with warm climate all over the world. India produces about six million metric tons annually and is easily the world's leading producer. Mainland China is the second largest producer of peanuts with about 2.7 million metric tons produced annually. The United States and Africa are the other leading peanut producing areas.

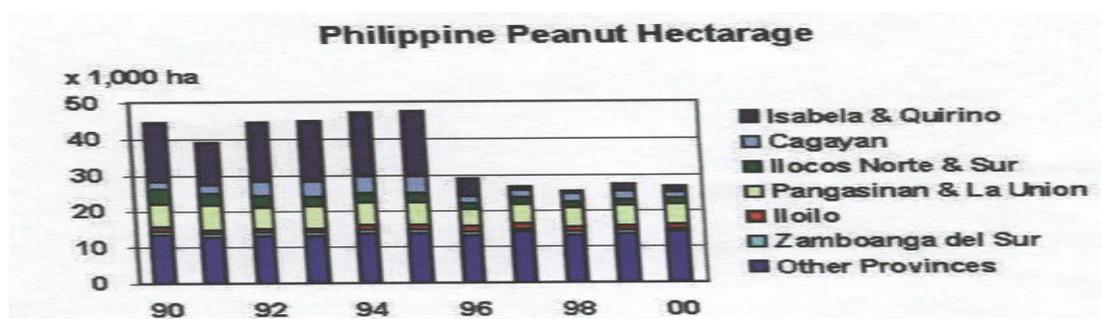
In Asia, Indonesia is the highest peanut-producing country with 792,000 tons average production from 1981 to 1985, followed by Burma (600,000 tons) and Thailand (149,000 tons).

### 1.2.2 Domestic Supply

The Philippines, being a warm climate country, also produces peanuts but has not been able to put its name in the list of world top peanut producers. The provinces of Isabela, Quirino, Cagayan, Ilocos Norte, Ilocos Sur, Pangasinan and La Union are the primary producers of peanut in the Philippines.

In Mindanao, Caraga and Northern Mindanao Regions are the primary peanut producers. Farmers have harvested more than 3,500 tons of peanuts from about 4,600 hectares in 1998. Today, about 58 organizations in Region 10 (Northern Mindanao) and Region 13 (Caraga Region) are members of the Northern Mindanao Peanut Industry Association (NMPPIA). Each member organization represents 50 to 300 peanut growers or a total of more than 3,000 households. Association growers maintain an average of 1/2 hectare farm size with an average production of 1.5 tons per hectare.

While there was an increasing trend in peanut consumption in the Philippines, planted area and production, however, have dropped significantly. The area planted to peanuts in 1990 was just less than 45,000 hectares. By 1998, this was down to 25,400 hectares. Domestic production during 1999 amounted to a little more than 25,000 metric tons. In the Cagayan Valley and Ilocos regions, which accounted some 65% of national production in 1990, the planted area dropped from approximately 29,000 hectares in 1990 to just over 7,000 hectares in 1999, or about 28% of the total.

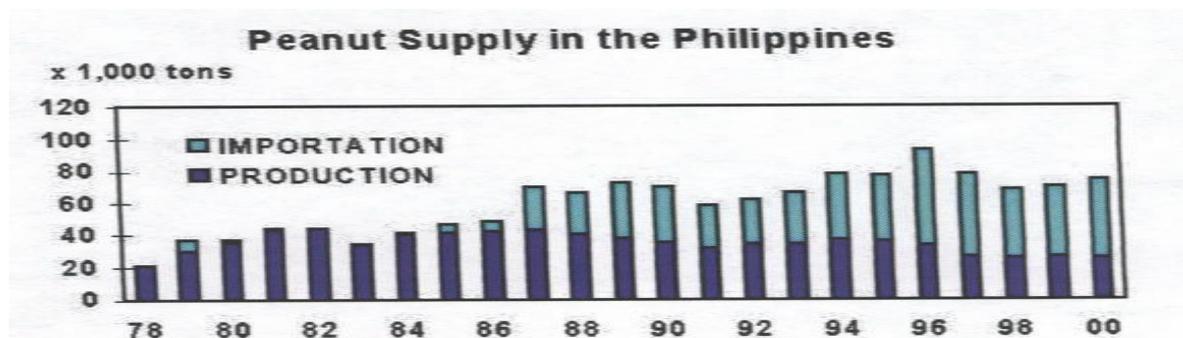


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As shown in the graph, this decreasing trend in production hectarage was attributed to a number of problems related to peanut production. Peanut farmers have had to cope with a total lack of organization and technical support. Most of the Mindanao peanuts are grown using seeds saved by the farmers from previous harvest and are marketed locally.

In a research study done by Peanut Integrated Research Program (Peanut IRDP), the survey indicated that raw material cost, quality and unavailability as well as product quality, were the major constraints to production and expanding markets. On raw material quality, the problems raised were non-uniform sizing, discolored nuts, and presence of molds and aflatoxin. Problems related to product quality were lack of consistency, rancidity, limited shelf life and presence of aflatoxins. The lack of appropriate equipment, technology and packaging, which affect product quality, were also cited as problems.

### 1.3 Demand-Supply Analysis



As can be gleaned from the supply/importation graph, it is very evident that for the last ten years (1990-2000) the demand-supply gap has shown an increasing trend with importation much higher than the local production. There was over 300% increase in Philippine importation of peanuts from 1987 to 1994 and 340,961 kilograms of peanut products were exported in 1996.

This clearly tells us that the prospects for market of peanuts are really that great. In fact, as quoted from an article released by Growth with Equity in Mindanao (GEM), peanut is considered as a sunrise crop in Mindanao. The soil and climate in much of the Philippines, particularly so in Mindanao, is ideal for peanut production.

Philippine production of peanuts cannot meet the demand of local manufacturers who are now relying more and more on imported peanuts which is a more reliable source in terms of meeting their requirements on time and in satisfying their quality specifications. Therefore, there is a need to source out additional domestic suppliers of peanuts that will be more reliable in terms of quality specifications of local product manufacturers. This project is in fact, in response to this need.

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## **1.4 The Product (To Be Marketed)**

The product to be marketed is dried shelled peanuts. The peanut varieties to be grown by the Peanut Growers Association (PGA) of Palo 19 shall be *Pn9* and *Pn10*. These peanut varieties are preferred since they belong to the seven peanut varieties, which are considered confectionery peanut. These varieties are less greasy, have better texture, more crunchy and better taste. They have higher yield per unit area (2.5 tons/hectare), higher resistance to *Cercospora* leaf spot and bigger seed size compared to the other peanut varieties.

## **1.5 Target Market**

Since the PGA farmer-members of Palo 19 will be producing *Pn9* and *Pn10* varieties which are suited for confectionery processing, these peanuts will be sold both to local and national peanut processors/manufacturers.

Locally, when better peanut price is at hand, these peanuts will be sold in the immediate market within the geographical area, (e.g. Tacurong City, Koronadal City, General Santos City or even Davao City).

As for the national buyers, the initially identified market is Jockers Food Industries, which is located in Pulilan, Bulacan. However, since fifty eight percent (58%) of the small, medium and large scale peanut trading and manufacturing industries are located in the National Capital Region (NCR), these are also good market prospects for the project. The Bohol Peanut Kisses in the Visayas Region can come as another market prospect.

Considering the enormous demand for peanut, marketing is not seen as a major problem. The primary concern of the project is on how to meet the volume requirement of the buyers as well as producing the desired peanut quality. Getting a "Marketing Agreement" with a prospective buyer is also seen as a better option.

Peanut prices in the local market and the cost of freight and handling shall be the major considerations in future decisions as to whether market the peanuts locally or to other buyers/processors of other farther regions.

## **1.6 Market Share**

The present demand for peanut in the Philippines is estimated at 76,000 metric tons per year. This project intends to supply 18-tons/per shipment at an average of 4 shipments for the first year to 16 shipments for the fifth year. Therefore, the target market share is only very negligible at .10% on the first year to .41% on the fifth year, still considerably low if seen in the total perspective.

## **1.7 Competitive Position**

In terms of quality and price, these peanut varieties command a much higher price compared to the native variety. *Pn9* and *Pn10* are normally sold in the local market at P30.00/kilogram while the native variety is sold only at P15.00/kilogram.

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Since the peanut varieties to be grown are the varieties more preferred by peanut processors and manufacturers, the project has a competitive edge over the other peanut producers/suppliers. Moreover, the marketing strategy to be used is organized marketing, and as such, the project has also a better advantage of meeting the required volume of the prospective buyers. Strong support and networking with resource providers and the other peanut growers association, e.g. Growth with Equity in Mindanao (GEM), Upland Development Program (UDP), Northern Mindanao Peanut Industry Association (NMPIA) and others, will put this project in a better position in terms of financing and market information.

## **1.8 Marketing Program**

### **1.8.1 Marketing Scheme**

The Peanut Growers Association (PGA's) peanut processing and marketing is basically an organized marketing program since this organization stands as the umbrella organization that will implement and look closely on the marketing activity. Being such, the organization will ensure the proper management operations of the project.

As a matter of organizational policy, the farmer-members of the PGA will be the one to produce peanuts. They will be provided with financial and technical assistance to ensure that the peanuts are produced at the right time and quality. To start with, each farmer-member will plant a ¼ hectare peanut farm. This farm size will be gradually increased at ¼ hectare per year until a 1-hectare farm size is reached. The reason for this phasing is to make sure that any initial production problem that may arise will be on a small-scale basis and can easily be corrected. Furthermore, it shall also be done to help ensure that production stays in balance with available markets.

The farmer-members will then market their produce to the PGA either fresh unshelled or dried shelled and unshelled. For fresh peanuts, the PGA will be the one to dry. Post harvest processing plant will be established to cater to the post harvest facilities requirements of the members. These facilities shall include the peanut stripper, sheller, and dryer.

### **1.8.2 Buying Price**

The buying price for dried unshelled peanuts will be at P13-15.00/kg and shall be increased by 5% each year while dried shelled peanuts shall be bought at P28-30.00/kg and to increase by 5% over the next four years.

The Association shall store the bought dried shelled peanuts until a desired 18- ton volume (1 van shipment) is reached before it is shipped to the national buyers. In cases where local market is opted, the volume may not be that specific. It is also targeted that for the first year, at least 4 shipments will be reached if the farmers will do the synchronized planting patterns.

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### **1.8.3 Selling Price**

The dried shelled peanuts will be sold to the local and national processors at an average price of P30.00/kg and is estimated to increase by 5% per year over the next four years. If a Marketing Agreement is executed between the buyer, the pricing is assumed fixed. However, in cases where there are peanut price fluctuations, it may be sold between P 27-P35/kilogram.

### **1.8.4 Promotional Measures**

Producing and maintaining good quality peanuts will serve as the main promotional strategy of the business. Furthermore, as a way of promoting the PGA as an organization as well as its products, the project will print some calendars highlighting the business at the top portion of the calendar. It shall be distributed as give-aways to the existing peanut grower-members as well as to prospective members during Christmas season.

### **1.8.5 Distribution System**

There will be no distribution channel to be used. The PGA will directly sell to the prospective buyer/processor/manufacturer. This is done to avoid marketing layers and reduce the possibility of very thin margins. No promotional costs will be incurred. Maintaining high quality peanuts is enough good promotion for the project.

### **1.8.6 Terms of Sales**

Peanuts will be sold cash on delivery (COD). Letters of Credit may also be resorted to once the buyer has already established a good paying track record to the PGA.

### **1.8.7 Marketing Costs**

Marketing costs will include transporting/hauling, freight and handling. Peanuts will be transported from the plant site to General Santos City port where it will be containerized for freight to Manila. Transport and handling cost is estimated at P.50 per kilo. It will be forwarded to the buyers' location through a 20 foot containerized van. The prevailing costs from General Santos City to Manila ranges from P 24,000 to P36, 000 per container van or an average of P 30,000/van. Sulpicio Lines had the lowest quotation while WG&A gave the highest price. Other marketing costs shall include the transportation and travel of the Project Manager/Marketing Officer, the cost of sacks for packaging which is estimated at P5.00/sack and calendar printing costs.

## **1.9 Expected Marketing Problems/Issues/Concerns**

The expected marketing problems were identified as follows:

- Susceptibility to mycotoxin contamination in almost all post harvest operations
- No product grades and standards to help determine the prices in the market
- No price support from the government
- Dearth of information on current and market trends and situation
- Low utilization of peanuts products and by-products
- Labor intensive post harvest handling

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• Pest infestation in storage

**1.10 Proposed Interventions/Mitigating Factors**

- Adopt a storage technology to preserve viability and reduce quality deterioration
- Biological means to control storage pests
- Study techniques to monitor the presence of aflatoxin in raw peanut products
- Find ways of salvaging peanut found unsafe for consumption by human & animal
- Information dissemination and training on aflatoxin prevention and determination
- Develop grading standards as basis for pricing
- Study on peanut market situation and establish price information system

**2.0 TECHNICAL AND PRODUCTION STUDY**

**2.1 The Product**

**2.1.1 Description of the Product**

Peanut is a low branching, widely cultivated leguminous annual herb with showy yellow flowers having a peduncle, which elongates and bends into the soil where the ovary ripens into a pod containing 1-3 edible seeds. The scientific name for the common, commercially grown peanut is *Arachis hypogaea* L. Contrary to the popular opinion, the peanut is not really a nut like pecan or walnut. It is actually a bean, a close relative to the black-eyed pea in the family Leguminosae. Legumes are plants that contain nodules of nitrogen fixing bacteria, which return remarkable amounts of nitrogen to the soil.

**2.1.2 Chemical Composition and Nutritional Information**

Peanut seeds consist of 50% oil and 25% protein. Although the protein in peanut is deficient in sulfur containing amino acids, the percentage of protein in peanuts is higher than in most meat. The remainder of the peanut is carbohydrates, water, fiber and ash. Peanuts are rich in B-complex vitamins, especially thiamin, riboflavin and niacin. With all these, and oil which is 80% unsaturated fat, the peanut is an ideal energy source for everyone, especially people on a low cholesterol diet.

**2.1.3 Varietal Properties**

The peanut varieties to be produced and marketed are *Pn9* and *Pn10*. These peanut varieties are preferred since they belong to the seven peanut varieties, which are considered confectionery peanut. These varieties are less greasy, have better texture, more crunchy and better taste. They have higher yield per unit area (2.5 tons/hectare), higher resistance to *Cercospora* leaf spot and bigger seed size compared to the other peanut varieties.

**2.1.4 Uses of the Product**

The biggest chunk of the total world production of peanut is crushed for oil that is used mainly for cooking. The oil can also be used in the production of cosmetics, paints, shampoo, soap, lamp oil, and textile fibers and for lubricating machinery. The presscake from oil extraction is protein-rich animal feed which is also used for peanut flour production.

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When the peanuts are used for human consumption, the seeds or kernels are eaten raw, boiled, roasted, made into confectionery and snack foods and are made into sauce on meat and rice dishes.

Not only the seeds of the peanuts are of use, but also every other part of the plant. The shells are high in cellulose fiber and can be used as boiler fuel or in producing particleboard along with many other uses. The peanut vines and leaves make excellent feed for livestock as well as green manure to fertilize the next year's crop. The roots, too are composted to enrich the soil.

## **2.2 Production Process**

### **2.2.1 Harvesting**

Peanut is ready for harvesting 98-100 days after planting when the color of the leaves turn brownish like the color of coffee. To make sure that the peanuts are all ready for harvest, get samples or pull out some plants coming from different location in order to determine the maturity of the pods. If the peanut pod breaks off the peg easily, that's a good sign. Next open the pod and examine the peanuts inside. If the color is pale pink (for red varieties) and the kernel is watery, then allow for extra time to mature (about 1-2 weeks).

Peanut harvesting shall be done as follows:

1. The soil is loosened with a digging implement such as a sharpened stick or bolo before uprooting the plant. Pull the plants and display the pods on top of the furrows to allow for initial sun drying. In heavy soils, a plow is passed on the sides of the row before the plants are pulled.
2. The pods of the peanut are removed by using hand or stripper.

### **2.2.2 Drying**

1. Dry Season: Freshly harvested peanuts have about 25%-50% moisture content. The newly uprooted plants are laid inverted on the ground (also known as window) and left to dry under the sun from 1-3 days. In situations when peanut stripper is available, the partially dried peanut is brought to the shed or temporary storage for stripping and/or hand picking. The detached pods are dried for 1-2 days to be able to lower the moisture content to about 10%-12%.
2. Wet Season: During the rainy season, pods are stripped either by hand or machine, right after harvest to prevent deterioration. Solar or mechanical dryer can be used for drying.

In order to determine the right moisture content; the pods are to be shaken near the ears. If one hear the sounds, it manifests that the kernels have dried and loosen-up. Break the pods and test the kernels. If oil shows and not the whitish liquid, then the seeds are already dry.

There are three existing dryer designs tested for peanuts and are described as follows:

Dryer Description	Remarks
1. Flat bed Dryer	<ul style="list-style-type: none"> <li>• give highest drying rate which was 1.41% w.b./hr</li> <li>• drying cost was P.0.98/kg.</li> </ul>
2. Rotary Drum Dryer	<ul style="list-style-type: none"> <li>• gave lowest drying rate which was 0.16% w.b./hr</li> <li>• drying cost was P0.67/kg</li> </ul>
3. Silliman University Pit Dryer	<ul style="list-style-type: none"> <li>• gave mean drying rate which was 0.74 w.b./hr</li> <li>• offered lowest drying cost at P0.48/kg.</li> </ul>

(Source: Groundnut Industry II, Philippines)

For this project, since it is just starting, solar drying is highly recommended when the production is still not in big volume. However, if dryer equipment is really that needed (especially during rainy season), the use of the *rotary drum dryer* is recommended. As the volume of production increases to a level where solar and rotary drum dryer is no longer practical, the *flat bed dryer* is recommended.

### 2.2.3 Threshing/Stripping

Threshing or stripping is the separation of pods from the plant. Ways of threshing/stripping of peanuts are:

- Handpicking - pods are detached from peg manually. This method is tedious and labor-intensive
- “Hampasan” or Impact Method – This is done by beating the root portion of a bundle of plants on a bamboo crate. Because of the impact, some threshed pods are broken or damaged, thus affecting the quality of the crop.
- Threshing or Stripping Machine – involves the use of machine and/or equipment to detach the pods from the pegs. There are at least four (4) machines already tested for threshing/stripping and are described below:

Equipment	Capacity (kg/hr.)	Efficiency	Pod Damage	Pods with vine
1) Pedal-operated rice thresher	66.6	98%	8.2%	18.3 %
2) Paddle stripper/winner	30-40	--	2-4%	10-15%
3) Manually-operated rubber tire stripper	60-80	95%	3-5%	--
4) Groundnut stripper/winner	18-24	--	2-4 %	10-15

(Source: Groundnut Industry II, Philippines)

Taking into consideration the objective of gradually increasing the volume of peanut production over a period of 5 years, it is recommended that *the manually-operated rubber tire stripper* will be used since it has a relatively higher threshing/stripping capacity, higher efficiency and lower rate of pod damage.

### 2.2.4 Shelling

Shelling is the removal of kernels from the pod by cracking the shell with a wood or hard object. Portable mechanical shellers have been made and tested with satisfactory results. These equipment are described below:

Equipment	Capacity (kg/hr)	Shelling Efficiency	Cleaning Efficiency	Kernel Damage	Remarks
1. ViSCA manual groundnut sheller	28	96.8%	92.8%		Needs 2 persons to operate
2. UPLB manual groundnut sheller	18-20	98%			Needs 1 person to operate
3. UPLB motor-operated groundnut sheller	130-160	98.3%	97.5%		Shelling cost P0.75/kg vs, of manual P1.24/kg
4. UPLB AGMEC sheller	68.47	96.07%	88.60%	1.49%	Shelling cost P0.30/kg vs, of manual P1.24/kg
5. MMSU multi-purpose sheller	1.2				Needs 2 persons to operate
6. MMSU multi-purpose sheller-cleaner	24				
7. Rubber tire sheller	170-195	98.7		3.5%	Needs 1 person to operate
8. CLSU manually-driven groundnut mill	143	93.33%			
9. KKU sheller	191.31	94.95%	87.92%	3.75%	Shelling cost P0.18/kg vs., of manual P1.24/kg

(Source: Groundnut Industry II, Philippines)

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After reviewing the comparative advantages of the above shelling machines, it is recommended that the *UPLB motor-operated groundnut sheller* will be used since it has higher capacity, higher efficiency, and need only one person to operate, though it will incur additional costs for power.

### **2.2.5 Storing of Shelled and Unshelled Peanuts**

Mainly the wholesalers or cooperatives store peanuts. It is stored in nylon sacks in shelled or unshelled form from 6-12 months. For the unshelled peanuts, the shell acts as protective covering against mechanical damage and insect infestation. For prolonged storage, farmers/traders prefer to manually shell their crop.

In commercial scale storage, air-conditioned room with dehumidifiers to maintain a 40% relative humidity and temperature of 15.5% will maintain seed viability for at least six months if original seed moisture of 10-12% is maintained at a safe level. Other major considerations in peanut storing are as follows:

- a) Seed moisture content equilibrium at 80% relative humidity is 11.1%;
- b) Shelled peanuts can be stored safely from contamination of *Aspergillus flavus* at room temperature for one year if packed in 60% CO<sub>2</sub> atmosphere;
- c) Temperature had a greater impact in seed viability than relative humidity;
- d) Storing shelled peanuts with initial moisture content of 10% in polyethylene bags with ash could maintain an 87% seed germination up to four months in storage under ambient conditions; and,
- e) Aflatoxin contamination starts from harvesting and continues on to storage.

To help ensure production of quality peanuts, PGA shall provide technical support to the farmer-suppliers by way of providing an agricultural para-technician to help supervise and monitor the production practices of the farmers. The para-technician, along with the agricultural technicians of the Department of Agriculture (DA), shall provide technical advice, coaching and mentoring to the peanut farmers.

### **2.3 Plant Size and Production Schedule**

For a start, the project intends to service at least one hundred (100) farmers with an average peanut farm size of ¼ hectare per farmer. The number of farmers to become suppliers of the association is also targeted to increase by 25 farmers per year. The targeted level of production is 1.5 tons per hectare or 375 kilos per farmer. This, however, is targeted to be increased to one half (1/2) hectare per farmer within the period of five years.

The targeted volume of production is shown in the following table:

Year	No. of Farmers	Farm size per Farmer	Production/Farmer (kg/cropping)	Total Production/Cropping	Total Production/Year (3 cropping)
2003	100	¼ha.	375	37,500	112,500
2004	125	½ha.	750	93,750	281,250
2005	150	½ha.	750	112,500	337,500
2006	175	½ha.	750	131,250	393,750
2007	200	½ha.	750	150,000	450,000

Since the cropping period for peanut is 98-100 days, it is targeted that there will be 2 croppings per year at the minimum and 3 croppings at the maximum. For purposes of projection, it is targeted here that the total number of cropping is 3, taking into consideration that the farmers may plant on a staggered basis, so the targeted cropping is still realistic.

#### 2.4 Plant Location

The peanut post harvest processing plant of PGA shall be located in Barangay Palo 19, Tampakan, and South Cotabato. It is considered as the “Bagsakan Center” and the most strategic location since majority of the peanut growers assisted under the Upland Development program (UDP) are located in this area. It is accessible to any type of 4 wheeled vehicle, so product transporting will not be a problem. Please refer to attached map of the proposed plant site.

#### 2.5 Building, Machinery and Equipment

The project shall have a multi-purpose shed house to serve as the shed of the machines/equipment and storage of dried peanuts while still accumulating the desired volume before transporting them to the buyers. The other machines/equipment needed are described in the following table:

Type of Building/Machinery/Equipment/Description	Capacity (kg/hr)	No. of Units	Unit Cost	Total Cost	Estimated Life Span (years)
1. Multi-Purpose Shed House/Warehouse	18 tons storage capacity	1	P 150,000	P 150,000	20 yrs.
2. Manually-operated rubber tire stripper	60-80	4	5,000	20,000	5 yrs
3. UPLB motor-operated groundnut sheller	130-160	2	25,000	50,000	5 yrs
4. Rotary Drum Dryer	50	2	10,000	20,000	5 yrs
5. Weighing Scale	1,000 kls	1	10,000	10,000	5 yrs
<b>Total</b>				<b>P 250,000</b>	

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The multi-purpose building and the other machines/equipment shall be purchased in cash and source of funds shall be a loan amounting to P250,000.00 to be accessed from UDLF. The peanut stripper, sheller and rotary drum dryer shall be manufactured locally through the DA-APC carpentry shop. The design of these machines shall be sourced from its original manufacturer.

During the first three years, the peanut stripper and sheller shall not be used in its full capacity. To optimize its use, it can be used for rentals to other peanut farmers within the locality.

Fuel, oil, lubricants and other maintenance costs is estimated at 20% of total machinery/equipment costs or an average of P 20,000/year.

## **2.6 Raw Materials and Supplies**

The primary raw material for this project is unshelled and shelled peanuts that shall be bought either fresh or dried. However, it is more preferred to buy dried peanuts since the PGA will be having a limited drying facilities. The individual farmer-suppliers shall mainly do the drying. However, if really necessary, the PGA can also purchase wet/fresh peanuts and dry them in its drying facilities. During sunny days, solar dryers will be used while during rainy/wet days, the rotary drum dryer will be utilized for drying. In the overall, the PGA post harvest facilities will involve stripping, shelling, drying and storing.

The supplier of the raw materials shall be the targeted 100 farmer-members of the association. Over the period of five years, this targeted number of peanut suppliers is expected to increase to 200 farmers, both PGA members and non-members alike. These farmers are expected to be situated within Barangay Palo 19 of Tampakan, South Cotabato, as well as from the neighboring barangays and sitios. Once the project has gained favorable track record, it is expected that more and more farmers will be encouraged to plant peanuts and will serve as the prospective suppliers of the project.

Dried unshelled peanuts shall be bought at P13.00-15.00/kg or an average of P14.00/kg. Unshelled peanuts are preferred in this project to help maximize the use of the available post harvest facilities. Dried shelled peanuts shall also be purchased at a price range of P28-30.00/kg. In like manner, the quality of peanuts as a result of proper drying, stripping, shelling and storage will ensure the best quality possible.

The unshelled peanuts will be bought from the farmer-suppliers in cash. This is also one way of helping the farmers earn immediate income out from planting peanuts. The PGA has to source out a working capital loan of P400, 000.00 from UDLF to ensure that the raw materials to be purchased from the farmers are paid in cash. This working capital is deemed sufficient to accumulate one 18 ton-volume appropriate for 1 containerized van shipment.

The volume of raw peanut that will be purchased from the farmer-suppliers on a year to year basis are shown in the table below:

Year	Raw Peanuts Requirements (kgs)
2003	112,500
2004	281,250
2005	337,500
2006	393,750
2007	450,000

## 2.7 Utilities

Electricity for light and power requirement of the post harvest facilities shall be needed for the project. This shall be supplied by the South Cotabato Electric Cooperative (SOCOTECO) and is now available at the proposed plant site. The power rate at the site is pegged at the average of P 3.00/kwthr and the expected kilowatt-hour requirement of the project is estimated at 500 per month.

## 2.8 Waste Disposal

The expected wastes generated by the project are the vines and leaves of harvested peanuts that are subjected to threshing and the peanut shells as a result of peanut shelling. However, these wastes are no cause for problems since the vines and leaves can be used as compost (organic fertilizer) while the shells can be used later as fuel for the boiler of the dryer, which the Association may opt to acquire in the future. Meanwhile that there's no boiler yet, the shells may still be used as compost.

For waste disposal purposes, a large compost pit will be dug near the plant site where the peanut vines, leaves and shells shall be dumped and allowed to decompose. No cost shall be involved.

## 2.9 Labor Requirements

The project will not require so many number of skilled and unskilled laborers since it will not engage into peanut production. Labor requirement shall include only the following:

Type of Laborer	No. of Persons Required	Compensation Rate	Benefits (10% of rate)	Total
1. Stripper Operator	4	P1,500/mo.	150.00	6,600.00
2. Sheller Operator	2	P 1,500/mo.	150.00	3,300.00
3. Scaler/ Classifier and Quality Controller	1	P 2,000/mo.	200.00	2,200.00
4. Rotary Dryer Operator	2	P1,500/mo.	150.00	3,300.00
4. Para-Technician	1	P 3,000/mo.	300.00	3,300.00
5. Building Caretaker and Guard	1	P1,000/mo.	100.00	1,100.00
<b>Total</b>				<b>19,800.00</b>

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Aside from the monthly compensation, government-mandated statutory benefits like SSS medicare and 13<sup>th</sup> month pay will also be afforded to the hired laborers.

Labor is readily available in the area. The operators of the peanut stripper, sheller and the scaler/classifier will be provided with on-the-job training on how to operate the machine, and weigh and classify the peanuts.

## 2.10 Total Production Costs

Total Production Costs for Year 1 only shall be the following:

Production Cost Items	Unit cost	No. of Units	Total Cost
1. Raw Peanuts (Unshelled)	P 13.00/kg	112,500 kgs	P 1,462,500
2. Shelling Costs	P 0.75/kg	112,500 kgs	84,375
3. Utilities Costs	P 1,500/mo.	12 mos.	18,000
4. Drying Costs	P 0.67/kg	112,500 kgs	75,375
4. Labor Costs	P 19,800/mo.	13 mos.	257,400
<b>Total</b>			<b>P 1,897,650</b>

## 3.0 ORGANIZATION AND MANAGEMENT STUDY

### 3.1 Name and Form of Business

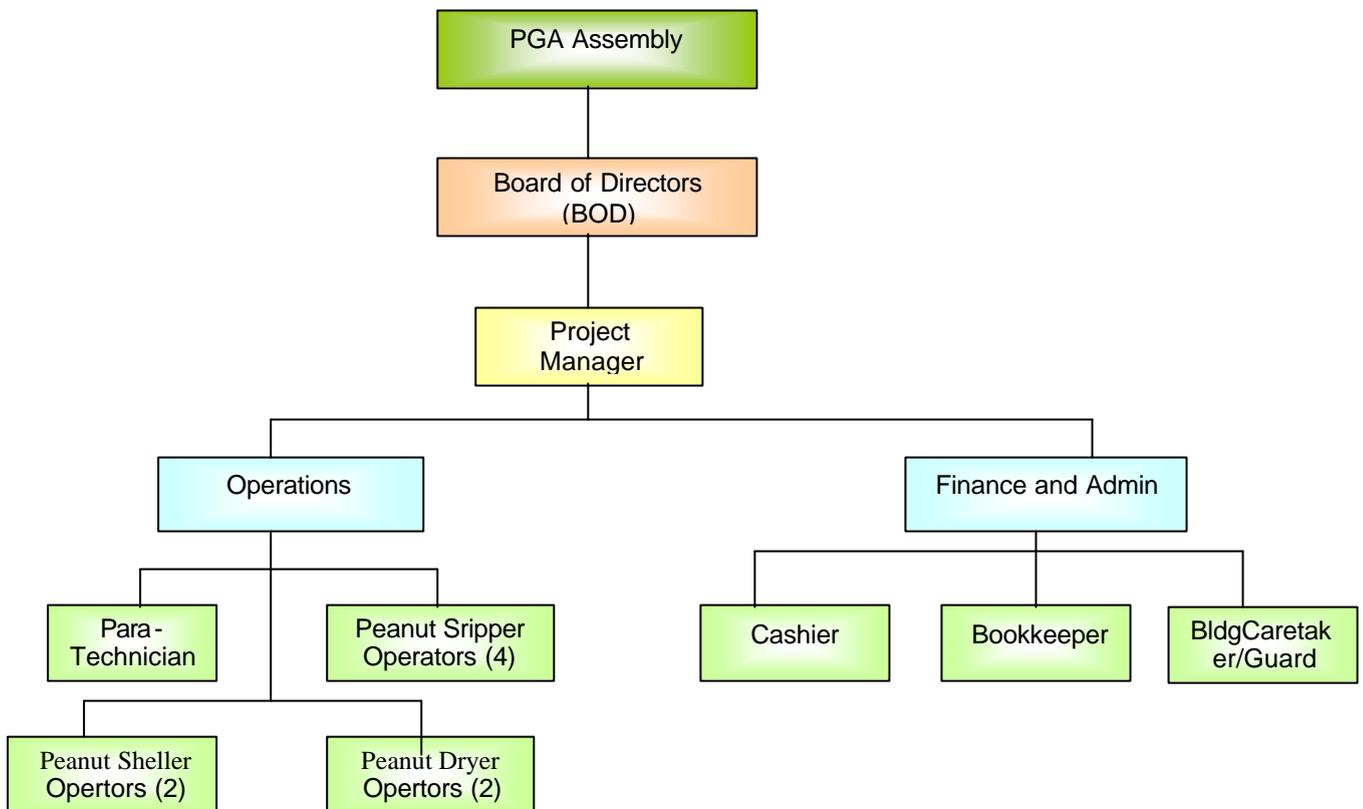
The name of the business will be "**Peanut Post Harvest Processing and Marketing**". This business name is chosen to highlight and/or capture the nature of the business. It is also one way of promoting the peanut production and marketing undertaking not only within the locality but also to other areas where the project will transact into business.

The proprietor of the business is the Peanut Growers Association (PGA) of South Cotabato. It is an association of peanut farmers/growers that was organized sometime September of 2001 through the initiatives of the Upland Development Program (UDP). It is not yet registered with any government-registering agency but it has a plan to register with the Securities and Exchange Commission (SEC) to acquire its legal personality.

The Association is based in Barangay Palo 19, Tampakan, South Cotabato. Present membership size is 36. However, it has plans of expanding its membership base and area of coverage to the municipal and provincial level within the next five years.

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## 3.2 Proposed Business Management Structure



## 3.3 Description of Duties and Responsibilities and Qualifications

### 3.3.1 PGA Assembly

- Composed of the total bonafide Peanut Growers Association members;
- Has the responsibility to approve, decide veto, and recommend policies presented and decided upon by the Board of Directors;
- Prime movers of the community as it go for the successful implementation of the project
- Right to nominate and veto set of BODs/Officers in the organization
- Provide capital support to all projects undertaken by PGA

### 3.3.2 Board of Directors

- Composed of five persons, namely: President, Vice-President and three (3) other members with the Secretary/Treasurer as ex-officio member;
- Should be a member of the PGA and duly elected by the General Assembly
- Formulate organizational as well as operational policies, systems and procedures (PSPs) for the successful management of the project;
- Plan and monitor the implementation of the policies, systems and procedures (PSPs);

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- Actively involve in the continuous education and capacity-building activities the members of the organization by conducting assessments to identify their needs, issues and concerns, be it through training, exposure trip, coaching and mentoring and other forms of capacity building activities; and
  - Responsible for recruiting additional/new membership to the association.

### **3.3.3 Project Manager**

- Must be a professional person to be hired by the organization, either a competent and qualified person within or outside the community;
- Responsible for the over-all implementation of the project particularly in the areas of production, marketing, finance and administration;
- Execute the policies, systems and procedures (PSPs) formulated by the BOD;
- On the production aspect:
  - Look after the proper scheduling, appropriate application of technologies;
  - Determine the cluster/group of stakeholders who shall produce peanuts in a strategic manner so that supply will always be available;
  - Continuously strategize to increase the level of peanut production;
  - Supervise the hired peanut stripper and sheller operators and monitor the operations of the machines/equipment;
  - Supervise the scaler/classifier/building caretaker, driver and truck helper, to ensure that their activities are performed according to the requirements of their job;
- On marketing:
  - Identify possible opportunities and markets of the product;
  - Transact business with the peanut buyers;
  - Establish access and linkages to external agencies/institutions that maybe able to provide various forms of assistance to the project;
  - Access market information from different sources; and,
  - Identify credible institutions/organizations or groups for accreditation to the association
- On Finance and Admin:
  - Supervise the Cashier and Bookkeeper to ensure that their activities are performed according to the requirements of their job;
  - Make sure that the financial recording and internal control systems are enforced at all times; and,
  - Ensure that Financial Statements are prepared regularly
- Regularly report to the BOD as to the status of project operation;
- Together with the President, represent the organization during meetings/consultations to FPUFAI;
- Comeup with project reports regularly; and
- Ex-officio member of the BOD and act as Secretary/Treasurer

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### **3.3.4 Cashier**

- Receives cash (e.g. peanut sales and other forms of payments) that go into the organization;
- Issue the necessary documents (e.g. official/acknowledgement receipt) as supporting documents to all cash receipts;
- Check the legitimacy and accuracy of all requests for cash disbursements;
- Prepares the necessary documents to support the cash disbursements (e.g. check/cash vouchers, petty cash voucher);
- Disburses cash/checks according to the documents submitted/prepared;
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time

### **3.3.5 Bookkeeper**

- Maintains all the required books of accounts of the organization (e.g. Cash Receipts Book, Cash Disbursement Book, General Ledger, Journal Ledger, Subsidiary Ledgers)
- Records all transactions of the organization to the appropriate book of account;
- Prepares the monthly trial balance and monthly financial statements;
- Check the accuracy and propriety of all liquidation of cash advances;
- Prepares bank reconciliation; and
- Prepares billings/request for payments to all entities that have payables to the organization.
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

### **3.3.6 Peanut Stripper Operator (4)**

- Handles the operation of the peanut stripper;
- Schedules the farmers who shall be serviced by the machine;
- Responsible for the proper maintenance of the machine/equipment
- Prepares a daily accomplishment report as to the total number of farmers served and the total number of kilos stripped by the machine;
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

### **3.3.7 Peanut Sheller Operator (2)**

- Handles the operation of the peanut sheller;
- Schedules the farmers who shall be serviced by the machine;
- Responsible for the proper maintenance of the machine/equipment
- Prepares a daily accomplishment report as to the total number of farmers served and the total number of kilos shelled by the machine;
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

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### 3.3.8 Peanut Dryer Operator (2)

- Handles the operation of the peanut dryer;
- Schedules the farmers who shall be serviced by the machine;
- Responsible for the proper maintenance of the machine/equipment
- Prepares a daily accomplishment report as to the total number of farmers served and the total number of kilos dried by the machine;
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

### 3.3.9 Agricultural Para-Terchnician (1)

- Provides technical support to the peanuts farmers by way of technical advice, field coaching and mentoring on peanut production practices;
- Schedules the peanut farmers on the use of the post-harvest facilities;
- Prepares accomplishment report;
- Directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

### 3.3.10 Scaler/Classifier/Quality Controller (1)

- Classifies, weighs and quality control the peanuts sold into the organization;
- Responsible for the proper maintenance of the weighing scale;
- Prepares a scale sheet and forward it to the cashier to facilitate proper payment to the farmer;

### 3.3.11 Building Caretaker/Security Guard (1)

- Ensure that the peanuts are piled-up and stored properly inside the building
- Maintains cleanliness and sanitation inside and outside of the building;
- Oversee/safeguard the contents and the entire building and directly reports to the Project Manager; and
- Performs other functions that maybe assigned from time to time.

## 3.4 Compensation Plan (Management and Admin Staff)

Position	No. of Persons Required	Compensation Rate (per month)	Benefits (10% of rate)	Total
1. BOD (honorarium)	5	500.00		32,500.00
2. Project Manager	1	5,000.00	500.00	71,500.00
3. Cashier	1	3,000.00	300.00	42,900.00
4. Bookkeeper	1	3,000.00	300.00	42,900.00
<b>Total</b>				<b>189,800.00</b>

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### 3.5 Pre-Operating Activities and Expenses

Pre-operating expenses shall include the following:

<b>Activity</b>	<b>Costs Involved</b>
1. Association registration with SEC	2,500.00
2. Getting of Business/Mayor's Permit	500.00
3. Setting of the Association's office	2,000.00
4. Purchase of typewriter, office cabinet, tables and supplies	10,000.00
<b>Total</b>	<b>15,000.00</b>

### 3.6 Total Administrative and Pre-Operating Expenses

The total administrative and pre-operating expenses for Year 1 only is estimated at P 204,800.00.