

Feasibility Study
Bee Farming,
Honey
Production
and Processing

in District Chitral



15 December, 2014

PREFACE

This Honey and Bee Keeping feasibility study is one of a series of five such studies developed for the Chitral Area Development Project, a project of THRIVE Pakistan. The purpose of the assignment was to identify a number of key products in Chitral and three neighbouring valleys and to provide the necessary information to enable small-scale business operators wishing to enhance their incomes in sustainable ways. This feasibility study is intended to be a significant contribution of the CIDP project for the communities of Chitral.

The feasibility study has been prepared for those potential entrepreneurs and businesspersons who want to start a new business or to expand an existing business in Chitral and the surrounding valleys. The feasibility study provides all of the relevant information required to establish a successful Honey and Bee Keeping business.

In addition to outlining socio-cultural ideas about honey, financial information and a business plan, the study provides key recommendations for creating brands and boosting sales. A tabulated format in Microsoft Excel with all details is also part of this study: it contains all of the relevant calculations and links required to operate the business models.

The information, costs and numbers used in the feasibility study were collected from actual sources and resources from Chitral in 2014. Potential users of this feasibility study are expected to reconfirm current prices and to conduct a short assessment or validation of this feasibility study, prior to starting a business or investing in the sector.

We would like to take this opportunity to convey our sincere thanks to all the stakeholders involved, including the Action Consulting Team, the Thrive Management team, and the local Support organization of Chitral all of whom provided excellent support and input in numerous ways.

The feasibility studies are available at the CIDP (THRIVE) website, the Chitral Chamber of Commerce website and the Chitral Agriculture and Horticulture Departments.

The “CIDP Team” wishes the users of this document and those who initiate businesses the best of luck and success in their business endeavors.

The THRIVE and CIDP Teams January 2015

DISCLAIMER

This feasibility study was conducted by Action Consulting Private Limited for the Community Improvement Development Project (1st May, 2009 – 31st December, 2014) for THRIVE Pakistan. The project was funded by Norwegian Government. The facts and figures used in the feasibility were collected during the assessment in the fourth quarter of 2014. The users of this feasibility study are expected to re-evaluate the prices, costs and resources prior to establishing the enterprise. The user is solely responsible for all costs incurred while establishing a business based on this study.

Every effort has been made to ensure that the costs quoted are accurate and that all details of establishing or expanding a honeybee-focused business have been taken into account. Individual inputs and results will vary depending on factors such as the value of the Rupee, the number and market strength of competitors, the demand for honey and its by-products in different places, the availability of skilled workers and natural factors such as the health of bees and environmental and climatic conditions.

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BEE FARMING, HONEY PRODUCTION AND PROCESSING IN DISTRICT CHITRAL

A series of 05 value chain studies was conducted by THRIVE's CIADP project in Chitral. The studies were conducted by Action Consulting (Private) Limited. The honeybee farming, production and processing study was one of those five studies. The results of the honey value chain show that there is great potential to establish multiple initiatives within the value chain of honey business. (See Annexure 02 for details of honey production in Chitral District.)

Opportunity Rationale

Honey is a gift of nature, which is extracted and packed hygienically from various sources in Pakistan. Honey is known for its healing properties and as a cure for many different illnesses. It is also used for various sweet dishes, food products and medicine. In Pakistan in particular, both children and elderly people are thought to benefit from honey and its by-products. In many households the 'food table' of children and older people is considered incomplete without a jar of honey. Children and older people would be the primary target market for honey: these make up over 50 per cent of the total population. Unlike other countries, where honey is consumed throughout the year, irrespective of the weather conditions, in Pakistan, the use of honey is traditionally discouraged during the summer due to the perception that it is "hot" in nature. People believe that honey should not be used during hot weather: nor should it be used in large quantities. These assumptions, however, are different in Arab countries where the weather is even hotter. In these countries honey is consumed in large quantities throughout the year. Nevertheless, in Pakistan and many other countries, the consumption of honey as a sweetener and in many foods increases substantially during the winter and remains relatively limited during the summer. The use of honey in medicines, however, tends to remain constant throughout the year.

However, entrepreneurs in Pakistan should understand the situation as it relates to honey consumption in both domestic and international markets. Although average household income patterns are improving, honey is still considered an expensive item and is purchased by a limited number of households in limited quantities. Pharmaceutical companies in the East and the West use honey extensively in manufacturing medicines. Eastern pharmaceutical companies in particular are the largest consumers of honey, using it in almost all major prescriptions/medicines.

It is suggested that traders should utilize honey for those operating food-product businesses such as spices, pickles, jam and jellies. Pakistan has a large agricultural base. During the different cropping seasons, honeybee farming can be adopted as a side business to produce honey on a commercial scale. Since honeybees are the primary means of crop pollination, they contribute to increasing yields and the overall health of the crops.

Project Brief

The project of honey production, processing, packaging and marketing envisages farming honeybees, extracting the honey, and processing it in small production units, followed by packaging and distribution, or by directly supplying the honey to the consumer market. The proposed business will start with 20-60 beehives initially; within a few months it can be expanded to around 100-150 hives. These will be placed in those parts of Chitral where wild plantations or crop farming is common. In such areas, the prospective entrepreneur may sign a contract with the local farmers or the landowners to allow the placement of beehives in the locality. This is not formally necessary and most of the honey producers presently work without any formal agreement. The next step will be the subsequent movement of the beehives from one place to another so that the bees find enough flowers in the apiary site to fill the honey

comb. The site owners may or may not charge rent against this facility; however, the proposed project will incur expenses on this account. Once the hive is ready and filled with honey, it will be extracted using prevalent extraction techniques and will be stored in large plastic drums. Processing and packaging will be performed in the production facility. Quality Testing will be outsourced to a third party, depending on the scale of the project. Finally, packaged honey of different grades will be supplied to the specified markets through distributors.

a) Market Entry Timing

Honey is used as a food mostly during the winter season, which lasts for about three to four months in the entire country. The demand for honey increases during the chilly winters when children and aged people need honey to keep them warm and to protect them from coughs, bronchitis and other seasonal diseases. This is the best time to market the product. However, when we assessed the supply side of honey, we learned from the honey producers that the bees produce honey in March, April, May, September, October and November. During the remaining six months production is either stopped or is so small that it can only feed the bees of the hive. Therefore, it would be appropriate to start production from March and bring products to the market starting in November. This would help the business integrate its production and marketing operations.

b) Legal Status of Honey Business

The legal status of a business plays an important role in any setup; the proposed Honey Processing and Packaging Unit is assumed to operate on a Sole Proprietorship basis.

c) Proposed Location

Honey production and processing procedures are simple and can be performed in a small facility. With limited needs for electricity and other utilities, it is expected that small facilities in Chitral Town area will be suitable for this business. Skilled manpower and the availability of the raw materials are the key elements driving the decision about facility location. The production facility will operate across the District, as production is a mobile activity with hives moved according to the weather and the availability of flowers. It is proposed that the whole District of Chitral (Chitral Town, Garam Chashma, Kusht, Bhooni and Mastuj) would be suitable for honey production sites.

d) Project Costing

The project costing will address various levels of honey business from bee farming to production and processing. The bee farming can be started with minimum of 20 hives. The production/ processing business can also be managed at various levels, including bulk production and selling to vendors, local packing and improved international packing. The cost of the project also varies depending on the scale and level of the business.

As noted above, the study has been developed based on a value chain study conducted in 2013 by Action Consulting Private Limited for the THRIVE CIADP project. The feasibility study was originally developed for the local entrepreneurs and potential honey producers of Chitral and surrounding villages. The facts, figures and prices used in the study are based on the actual costs (as of November 2014) in Chitral and surrounding villages. The entrepreneurs and producers who want to use this study should consult the realities of their respective regions prior to applying the study to specific businesses elsewhere.

FEASIBILITY STUDY

HONEY BEE KEEPING, PRODUCTION AND PROCESSING

(FOR CHITRAL LOCAL PRODUCERS)

This feasibility study is prepared for the local people of Chitral and surrounding areas. The study shows that it is feasible for the local producer to start, expand or diversify their honey businesses. The feasibility study addresses all the major components of a profitable business. The user can use the study to develop a business plan based on their needs, levels of production and available human and financial resources. The customization will affect the “return on investment” of the business.

Market Feasibility

Beekeeping is a profitable business in Pakistan. About 7,000 beekeepers are now rearing an exotic species, *Apis mellifera* in modern beehives. There are about 300,000 colonies producing 7,500 metric tones of honey annually in Pakistan. Congenial climatic conditions and bee flora in the country provide excellent opportunities for the expansion of beekeeping. Honeybee flora is present over vast areas in all the provinces including Gilgit-Baltistan, Chitral, FATA and AJK. It is estimated that the industry can support 1,000,000 honeybee colonies across Pakistan.

According to import and export figures available with the Karachi Chamber of Commerce and Industry, over 124,155 Kg of honey was imported¹ during 1996-97 while exports were estimated to reach 577,740 Kg during the same period. The demand for Pakistan's honey is gradually growing in some western countries including the UK, Germany and Italy because of its medicinal properties.

Keeping in mind the existing and growing demand, finding markets to sell honey would not be an issue: with the right conditions, even a single bee farmer can produce and sell hundreds of kilograms of honey in a season.

a) Classifications of Honey

In Pakistan, as elsewhere in the world, honey is classified by its floral source, and there are also divisions according to the packaging and processing methods used. There are also regional honeys. In the USA honey is also graded on its color and optical density according to US Department of Agriculture Standards. Honey is graded on a scale called the “Pfund scale”, which ranges from 0 for "water white" honey to 114 for "dark amber" honey.

Floral Sources: Generally, honey is classified by the floral source of the nectar from which it was made. Honeys can be from specific types of flower nectars or can be blended after collection. The pollen in honey is traceable to floral sources and therefore the region of origin. The rheological properties (essentially how ‘thick’ the honey is) and the Melissa palynological properties (the kind and amount of pollen per gram) of honey can be used to identify the major plant nectar source used in its production.

Blended: Most commercially available honey is blended, meaning it is a mixture of two or more honeys differing in floral source, color, flavor, density or geographic origin.

Polyfloral: Polyfloral honey, also known as wildflower honey, is derived from the nectar of many types of flowers. The taste may vary from year to year, and the aroma and the flavor can be more or less intense, depending on which flowers are prevalent.

¹Suppliers and Importers of Honey can be found at www.alibaba.com/countrysearch/PK/honey.html - www.tradekey.com

Monofloral: Monofloral honey is made primarily from the nectar of one type of flower. Different monofloral honeys have distinctive flavors and colors because of differences in their principal nectar sources. To produce monofloral honey, beekeepers keep beehives in an area where the bees have access to only one type of flower. In practice, because of the difficulties of containing bees, a small proportion of any honey will be from additional nectar from other flower types. Typical examples of North American monofloral honeys are clover, orange blossom, blueberry, sage, tupelo, buckwheat, fireweed, mesquite and sourwood. Typical European examples include thyme, thistle, heather, acacia, dandelion, sunflower, honeysuckle, and varieties from lime and chestnut trees. In North Africa (e.g. Egypt) examples include clover, cotton, and citrus (mainly orange blossoms).

Honeydew Honey: Instead of taking nectar, bees can take honeydew, the sweet secretions of aphids or other plant sap-sucking insects. Honeydew honey is very dark brown in color, with a rich fragrance of stewed fruit or fig jam, and is not as sweet as nectar honeys. Germany's Black Forest is a well-known source of honeydew-based honeys, as well as some regions in Bulgaria, the Tara mountains in Serbia and Northern California in the United States. In Greece, pine honey (a type of honeydew honey) constitutes 60–65% of the annual production. Honeydew honey is popular in some areas, but in other areas beekeepers have difficulty selling the stronger flavored products.

The production of honeydew honey has some complications and dangers. The honey has a much larger proportion of indigestible content than light floral honeys, thus causing dysentery to the bees, resulting in the death of colonies in areas with cold winters. Good beekeeping management requires the removal of honeydew prior to winter in colder areas. Bees collecting this resource also have to be fed protein supplements, as honeydew lacks the protein-rich pollen accompaniment gathered from flowers.

b) Market Preferences

Given the uses of honey, the preferred type of honey in Pakistan is a blend of wild and natural: this is most in demand for use in medicines and food. Users also prefer to have pure, clean and hygienically packed honey. The following are some of the local and international honey brands and their prices (in Rupees) that are frequently available in markets across the country.

| Sr. | Honey Brand | 125g | 235-250ml | 1/2 kg | 1 Kg |
|-----|-----------------|------|-----------|--------|-------|
| 1 | <i>Marhaba</i> | - | 160 | 340 | 650 |
| 2 | <i>Qarshi</i> | 150 | - | 300 | - |
| 3 | Life Style | - | 198 | 329 | 630 |
| 4 | <i>Al-Shifa</i> | - | 513 | 848 | 1,390 |
| 5 | Young's | - | 195 | 390 | 720 |
| 6 | Salman | - | 200 | 402 | 635 |

Local Organic Brands

| Sr. | Honey Brand | 125g | 235-250ml | 1/2 kg | 1 Kg |
|-----|-------------|------|-----------|--------|-------|
| 1 | Small Bee | - | - | 300 | 600 |
| 2 | Big Bee | - | - | 200 | 400 |
| 3 | Barry | - | - | 750 | 1,500 |

Price: The price of honey is based on the quality of the packing and the honey's purity. The average selling price for one Kg of processed and branded honey ranges from 600 to 1,400 Rupees. The local and organic honey can range from approximately 400 to 1,500 Rupees per Kg. The honey from the "Barry" honey is the most expensive and highest in demand. The category of user for the purpose of this feasibility study is "medium": that is, more conscious of price than brand, but considers that average and acceptable packing is sufficient. Keeping the above market prices² in mind, the cost of honey in this feasibility study is kept as Rupees 400-600/kg (the producer can establish his own cost based on his overheads and production plan) to create a space and demand in the market.

Place: The honey can be sold close to the source to wholesalers, vendors in the nearest markets, and shopkeepers. The honey displays and stands can also be placed where tourists will see them, such as hotels, picnic spots, restaurants, bus stands, airports and the offices or outlets of CSOs and NGOs to attract the attention of tourists.

Promotion: Depending on the scale of sales, various promotion techniques can be utilized, including:

- Placing flyers in NGO offices, shops, hotels and other tourist spots;
- Placing banners and posters on the road sides to attract customers and promote sales;
- Utilizing social media to promote honey and its by-products;
- Arranging honey exhibitions during different cultural events and national days, in summer camps, hotels and picnic spots.

Packing and Packing/Branding: Packing and packaging will require a little extra attention. A variety of sizes i.e., 1/2 and 1.0 Kg jars should be available for a range of customers. Large containers or drums should be arranged for wholesale dealers and vendors for bulk use. The bottles and jars should be sealed with tape to ensure no leakage, which will add value to the product.

The packaging will have an additional impact on the sale. Information about the honey, including the area and origin, the type of bee has produced it, the kind of flora, the size, quantity, calories and other health benefits will directly affect the product's value and therefore the demand for it. The more distinctive the 'brand' and the more consistently high the quality, the greater the sales will be.

Selling Strategy: Multiple options can be used for the sale of honey. Awareness of Chitral's organic honey is very low in the market. The product sale with "organic" tag will create a niche market in urban areas. The product can be placed in major handicraft outlets e.g. Nomad gallery in Islamabad, Tourist spots in Chitral, Gilgit and Hunza, and hotels and restaurants (with major tourist turnover). There is a range of retailers in major cities who deal in Islamic and organic products: examples include Saeed Ghani in Karachi, Lahore and Islamabad, Albilag³ in Lahore, Karachi and Islamabad, Hyperstar and Metro, HKB, Lahore, Akbri Store, Swera, EURO store on GT Road and hundreds of similar super stores in all major cities of Pakistan.

The only consideration is the branding of the product, keeping the target markets' needs and demands in mind.

² For an idea of honey prices visit: <http://www.pk.all.biz/honey-bgg1092288>

³ A local outlet in Lahore, famous in religious books, organic products.

Organizational and Technical Feasibility

As far as the organizational structure is concerned, the scale recommended below is small, and does not require a large number of individuals and experts to start the business. The business can be started with minimal human and financial resources.

Skills and Human Resource:

The following skills would be required in the potential human resources required for this business:

- A Manager with basic honey production knowledge. He should also have experience of bees and hives, with supporting management skills. The manager should also have good communication and IT skills for managing and promoting the business.
- The Marketing/Sales person or manager should have good marketing skills with knowledge of local, provincial and national honey markets. The person should also have an idea of by-products and the target markets for honey and by-products. Since the marketing person will also handle the distribution mechanism, he should have good knowledge of local and regional distribution and logistical technicalities.
- A sales or marketing person will obtain orders and establish linkages in the market. Initially the Manager can handle this task but a marketing expert will probably do a better job.
- The Bee Keeper/Helper is the key position. An experienced and dedicated beekeeper will not only save resources but will ensure better production with the available resources.
- The Processing and Packing Staff should also have prior packing experience. Timely and high-quality packing can make a good business. Any flaws in packing or delays in packing time will ruin the marketing efforts and therefore affect profits and the reputation of the business.

Machinery

- The only machinery required is for packing and sealing the bottles.
- An air-tightening machine can be used but the cost of the machinery will delay the BEP and affect the maturity process of the business. This machine can be added to the business in the 2nd or 3rd year of operation.

FINANCIAL FEASIBILITY

Capital Requirements

The following capital requirement covers three stages of investment. The development stage is used to lease or rent land (especially during the off season, when they have to move the hives to green locations), machinery, equipment and fixed assets. The second stage is that of managing the expenses prior to starting the business, such as registration, marketing, and surveys, while the third stage is directly linked with production, the purchase of raw materials (that is, the bees and hives), paying salaries of staff and managing overheads such as utilities and rents.

| Sr. | Investment Item | Amount (Rs.) | Percent |
|------------------|-------------------------------|----------------|---------|
| 1 | Fixed Assets | | |
| | 1.1 Machinery | 18,000 | |
| | 1.2 Fixed Assets | 364,850 | |
| Sub-Total | | 382,850 | |
| 2 | Pre-Operating Expenses | | |
| | 2.1 Pre-Operating & Marketing | 47,200 | |
| Sub-Total | | 47,200 | |
| 3 | Working Capital | | |
| | 3.1 Over heads | 55,800 | |
| | 3.2 Raw material | 48,400 | |
| | 3.3 Salaries | 414,000 | |
| Sub-Total | | 518,200 | |
| TOTAL | | 948,250 | |

NOTE: All prices in the feasibility study have been collected, compared and confirmed with respective markets and updated as of December 2014. The variation in the prices, salaries and material costs should be consulted again prior to implementation of business.

An amount of Pakistani Rupees 948,250 would be required to start the business. The amount will vary if changes are made in the production plan. There will be a subsequent reduction in the initial capital required if the fixed assets and human resources are managed by the entrepreneur rather than being salaried positions. If a farmer already has the beehives, he will be able to reduce the startup costs.

The formation of honey production groups (4-5 producers) will be very beneficial and productive in terms of collecting the honey to reach bigger clients and larger markets.

| Source | Amount | Use |
|--------------|----------------|-----------------|
| Equity | 948,250 | Working Capital |
| Total | 948,250 | |

Production Plan

The enterprise will be economically viable if the above production plan is followed and both the honey and wax are utilized and sold as products and if market conditions are favorable. Based on the information collected from local bee keepers in Chitral, approximately 3-5 Kg of honey is collected from each beehive every month during the peak season. In the off peak season it is reported to be 10-15 Kg per month. The estimate of production quantities is based and calculated on these sources (that is, an average of 10 Kg per month per hive). The production of wax and royal jelly is also estimated based on the information given during the value chain assessment. Approximately one Kg of wax is extracted from eight Kg of honey. The traditional means (that is, by hand) is the most appropriate for extracting the most wax efficiently and without losses. Machines are also available for wax extraction but there is the possibility of damaging the wax and its properties. The empty combs can be returned to the hives to be refilled.

If the quantity of the honey and by-products is too great for a producer to manage, it can be reduced; in that case the machinery, infrastructure and the human resource requirements will also be reduced.

| Product | Products | Production | | | | Unit Rate | Total Sale | Remarks |
|---------|----------------------|------------|-----|-------|-------|-----------|----------------|---------------------------|
| | | Qty | Nos | Month | TOTAL | | | |
| 1 | Honey (Produced) | 80 | 1 | 6 | 480 | 1,000 | 480,000 | 6 month running in Summer |
| 2 | Pollen Grain | 20 | 1 | 6 | 120 | 1,000 | 120,000 | |
| 3 | Wax in Kg | 10 | 1 | 1 | 10 | 1,000 | 10,000 | |
| 4 | Royal Jelly in Grams | 20 | 1 | 1 | 20 | 4,000 | 80,000 | |
| 5 | 0 | | | | - | - | - | |
| | | | | | | | 690,000 | Per year |

Markets, Machinery and Expansion

The market/sales points for the honey and by-products are either on the roadside near the hives or the nearest villages, cities, or towns. As noted above, tourists can be a significant market. No heavy machinery is required but a “tapping” machine, to extract the honey from the combs, is useful⁴. The cost of machinery for international standard packing will not be suggested to local people, keeping in mind their economic status.

The local producer can develop a business plan for expansion to meet international standards. The addition of processing machines is only viable if the production is more than one thousand Kg of honey per year. If the quantity of honey produced is not managed well (for example, if the honey is contaminated or if jars are damaged), the “return on investment” will be reduced.

⁴ Tapping machine vendors are listed in the List of Vendors and Suppliers as Annex 01.

Fixed Assets and Machinery Required

All of the basic and required assets to start the business with minimum investment are listed below. The bees are included in the cost of hives⁵. There are four combs required in each hive and one only extractor is required for one set of 20 hives. The wax production can be maximized if moveable, rather than fixed, frames are used.

| Sr. | Description | Units | Price | Total |
|------------|---|-------|--------|---------|
| 1 | Standard Langstroth bee hive (with bees) | 20 | 14,000 | 280,000 |
| 2 | Comb foundation press | 1 | 5,000 | 5,000 |
| 3 | Honey extractor | 1 | 10,000 | 10,000 |
| 4 | Nucleus hives | 100 | 50 | 5,000 |
| 5 | Pollen traps | 10 | 500 | 5,000 |
| 6 | Empty Wooden Box | 20 | 2,000 | 40,000 |
| 7 | Tent | 1 | 10,000 | 10,000 |
| 8 | Smoker | 1 | 300 | 300 |
| 9 | Drum | 15 | 500 | 7,500 |
| 10 | Overall | 2 | 500 | 1,000 |
| 11 | Tools (Brush, Bee Veil, Hive Tool, Gloves etc.) | 2 | 500 | 1,000 |
| 12 | Queen Catcher | 1 | 50 | 50 |
| Total cost | | | | 364,850 |

| Sr. | Machinery | Units | Price Per Unit | Total |
|--------------------|-----------------|-------|----------------|---------------|
| 1 | Tapping Machine | 1 | 18,000 | 18,000 |
| Total Cost: | | | | 18,000 |

Materials

There are two types of material required in any business, i.e. direct and indirect material. The indirect cost is those which are essential in any case, while the direct is associated with the quantity and number of units produced.

| Raw Materials | Unit Price of Materials | Quantity Needed | | Nos./ Months | Total Cost | Remarks |
|--------------------|-------------------------------|-----------------|------|--------------|------------|-------------------|
| | | Nos. | Rate | | | |
| Direct Materials | Supplemental feeding / Colony | 200 | 60 | 1 time | 12,000 | yearly Cost |
| | 0 | - | - | - | - | |
| Indirect Materials | Tapping Paper | 300 | 20 | | 6,000 | |
| | Bottle with Caps (0.5kg) | 480 | 20 | | 9,600 | Seasonal Purchase |
| | Bottle with Caps (1.0kg) | 480 | 30 | | 14,400 | Seasonal Purchase |

⁵ Bees are locally available in all UCs of Chitral. A list of local and city vendors is also included in the List of Vendors and Suppliers as Annex 01.

| | | | | | | |
|----------------------------|-----------------------------|-------|----|--|---------------|-------------------|
| | Bags for Wax | - | 1 | | - | |
| | Stickers for Bottles | 2,000 | 2 | | 4,000 | Seasonal Purchase |
| | Card Boxes for 0.5kg bottle | 20 | 40 | | 800 | Seasonal Purchase |
| | Card Boxes for 1.0kg bottle | 20 | 80 | | 1,600 | Seasonal Purchase |
| | 0 | | - | | - | |
| Total Material Cost | | | | | 48,400 | Per year |

Human Resource Requirements

There are two types of labour categories involved in the production. Direct labour is required throughout the project from start to end to manage each and every activity of the project. It is advised that this labour category should be managed by the owner, or his relatives who are local people, to save on their accommodation, food, travel and other living costs.

The indirect labour can be hired when required, e.g. at the time of honey collection, packing of honey in bottles and selling in the market.

| Category | Titles | No. | Months | Monthly Salary | TOTAL (Per Year) |
|------------------------|-------------------|----------|--------|----------------|------------------|
| Indirect Labour | Manager | 1 | 12 | 15,000 | 180,000 |
| | Marketing Officer | 1 | 6 | 12,000 | 72,000 |
| Direct Labour | Bee Keeper | 1 | 12 | 10,000 | 120,000 |
| | Packaging Staff | 1 | 3 | 7,000 | 21,000 |
| | Processing Staff | 1 | 3 | 7,000 | 21,000 |
| Total | | 5 | | 51,000 | 414,000 |

Overhead costs

The overheads are calculated on an 'assumption' (first year) basis: the cost for the next three years can be added with 10-20% increments. An estimated cost of transportation is added in the overheads. This will vary based on the type of vendors, suppliers and distribution channels adopted by the entrepreneur. The cost of transport can be included in the direct product costs.

| Sr. | Item | Monthly | Annual | Remarks |
|----------------------------------|------------------------|---------------|---------------|--------------------------------|
| 1 | Repair and Maintenance | 500 | 6,000 | |
| 2 | Electricity | 500 | 6,000 | |
| 3 | Telephone | 250 | 3,000 | |
| 4 | Transportation | 20,000 | 20,000 | Supply to Market |
| 5 | Depreciation | 11,800 | 11,800 | One Time Expense |
| 6 | Refreshment | 1,500 | 9,000 | 3 months when outside the area |
| Overhead per Product Unit | | 34,550 | 55,800 | |

Pre-Operating Expenses

The pre-operating expenses are those required to manage the expenses prior to starting a business, i.e. registration, market searches, and surveys if needed. If the search for locations has already been done the cost can be reduced. For an existing business only additional promotion and expansion cost would be required.

| Sr. | Items | No. | Rate | Amount |
|-------------------------------------|--|-------|--------|---------------|
| 1 | Survey | | | |
| | Market Search | 1 | 15,000 | 15,000 |
| 2 | Promotion (Banners, Flyers, Stalls) | | | |
| | Banners (to place in area shops and on road sides) | 24 | 50 | 1,200 |
| | Flyers for Outlets and Shops | 2,000 | 3 | 6,000 |
| | Shelf at major outlet in town | 5 | 5,000 | 25,000 |
| Total Pre-Operating Expenses | | | | 47,200 |

Profit Analysis

The profit is calculated on a one-year basis. The profit may increase from the second year, as most of the costs will be either reduced or removed - i.e. establishment, pre-operating expenses, fixtures, and assets.

| | | |
|---|---------|----------------|
| Gross Sales | | 690,000 |
| Less: Returns & Allowances | - | |
| Net Sales | | 690,000 |
| Less: Cost of Goods Sold | | |
| Materials | 48,400 | |
| Labour | 414,000 | |
| Overheard | 55,800 | |
| Promotion | 47,200 | |
| Gross Profit | | 124,600 |
| Less: Administrative and Selling Expenses | - | |
| Operating Profit | | 124,600 |
| Net Profit before Tax | | 124,600 |
| Less: Estimated Income Tax | | NA |
| Net Profit After Tax | | 124,600 |

Break Even Analysis

There are three stages to arrive at the break even point.

| | | | | | | | | |
|-----------------------|--------------|---|-----------------------|---------|---|---------|------------------|--------|
| 1. BEP - Sales | Annual Sales | x | Annual Fixed Cost | 690,000 | x | 382,850 | 1,537,640 | Rupees |
| | Annual Sales | | Annual Variable Costs | 690,000 | | - | | |

| | | | | |
|----------------------------|--------------------|-----------|--------------|-------|
| 2. BEP - Production | BEP Sales | 1,537,640 | 1,538 | Units |
| | Unit Selling Price | 1,000 | | |

| | | | | |
|----------------------------|--------------------|---------|--------------|---------------|
| 3. BE on Investment | Net Profit | 124,600 | 13.14 | Profit Margin |
| | Total equity x 100 | 948,250 | | |

LIST OF VENDORS AND SUPPLIERS OF MACHINERY AND EQUIPMENT

| S # | Name | Area | Contact # | Category | Product |
|-----|----------------------|------------------------------|--------------|----------|---------|
| 1 | Mr. Nabi Bux | Reshun Green Lasht (Chitral) | 0301-8912476 | Supplier | Honey |
| 2 | Mr. Muhammad Rasheed | Green Lasht (Chitral) | 0941-484049 | Supplier | Honey |
| 3 | Mr. Jamil | Tarnab Farm (Peshawar) | 0333-9000429 | Supplier | Honey |
| 4 | Mr. Muhammad Ijaz | Tarnab Farm (Peshawar) | 0333-9000429 | Supplier | Honey |

Note:

1. All the material and Fixed Assets are available in the local market and all three Vendors/ Suppliers will provide the whole setup at one time.
2. The Hashoo Foundation's Groups also sell the Honey Production setups at the local level.

REFERENCES

- Government of Pakistan, Small and Medium Enterprise Development Authority. *Feasibility Study*
- *THRIVE-CLADP Honey Value Chain, Chitral Pakistan Agricultural Research Council*
(<http://www.parc.gov.pk/index.php/en/faq-s/60-faqs/85-honey-production>).