Market Demand Assessment Report

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USAID's Climate-Resilient Ecosystems and Livelihoods (CREL)

Component 4: Improve and diversified livelihoods that are environmentally sustainable and resilient to Climate Change

Winrock International

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Abbreviations

Acronym	Abbreviation
AED	Agriculture Extension Department
BADC	Bangladesh Agricultural Development Corporation
BARI	Bangladesh Agricultural Research Institute
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BFRI	Bangladesh Forest Research Institute
BHMOA	Bangladesh Hotel and Motel Owner's Association
BRAC	Bangaladesh Rural Advancement Committee
BRDB	Bangaladesh Rural Development Board
BSCIC	Bangladesh Small and Cottage Industries Corporation
CCC	Co-Management Committee and Council
CMC	Co-Management Committee
CPG	Community Patrol Group
CREL	Climate-Resilient Ecosystems and Livelihoods
DAE	Department of Agricultural Extension
DFO	District Fisheries Officer
DLO	District Livestock Officer
DOC	Day Old Chick
DOF	Department of Fisheries
ECA	Ecologically Critical Area
ECOTA	Economic Corporation Organization Trade Agreement
EPB	Export Promotion Bureau
FAO	Food and Agriculture Organization

FAOSTAT	Food and Agriculture Organization Statistical Database (United Nations)
GDP	Gross Domestic Product
GI	Geographical Indicator
GOB	Government of Bangladesh
ICS	Improved Cooking Stoves
IDF	Integrated Development Foundation
IGA	Income Generating Activities
IPAC	Integrated Protected Area Co-Management
JDPC	Jute Diversification Promotion Center
MoA	Ministry of Agriculture
MOEF	Ministry of Environment & Forests
MOFL	Ministry of Fisheries & Livestock
MT	Metric Ton
NGO	Non-Government Organization
NP	National Park
NSP	Nishorgo Support Project
PA	Protected Areas
PF	Peoples' Forum
PPI	Pro-Poor Income
R.Ex.	Resource Extractor
RF	Reserve Forest
SHED	Social Health and Education Development
SME	Small and Medium Enterprise
SRDI	Soil Resource Development Institute
SWOT	Strengths, Weaknesses, Opportunities and Threats
TOR	Terms of Reference

ToT	Training of Trainers
TRIPS	Trade Related Intellectual Property Rights (TRIPS) Agreement
UNDP	United Nations Development Programme
USAID	United Stated Agency for International Development
VC	Value Chain
VCA	Value Chain Analysis
VCF	Village Conservation Forum
WS	Wildlife Sanctuary
WTO	World Trade Organization
Bigha	33 decimal
Kani	40 decimal in Chittagong and Cox's Bazaar, 30 decimal in Sylhet region
Lakh/Lac	100,000
Sadar	Administrative center of a district
Upazila	Sub-District

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Part I: Market Demand Assessment for South West Region (Khulna, Satkhira & Bagerhat)

1. Market Demand Assessment for Vegetable

1.1 Main Market, Buyers &Competition

Since the project areas are located in remote regions, the end market of vegetables in most places is small and not linked to the national market for vegetables. Based on the information collected from the project areas, the overview of end markets for vegetables can be provided in the table below:

Almost all of the vegetable produced in the region is consumed locally, and there is even a gap in supply which is filled in by vegetables being imported from Khulna. Marginal farmers tend to consume around 60% of their produce and large farmers consume up to 5% of their produce. They both tend to sell the vegetables to local retailers or arotdars which are bought by local consumers.

No major competitor for these vegetables was seen in the study region. Vegetables imported into these regions tend to be the ones which have very high market demand, and most of these vegetables are not imported into the more remote areas due to infrastructure issues.

Table 1: Market Analysis for Vegetables

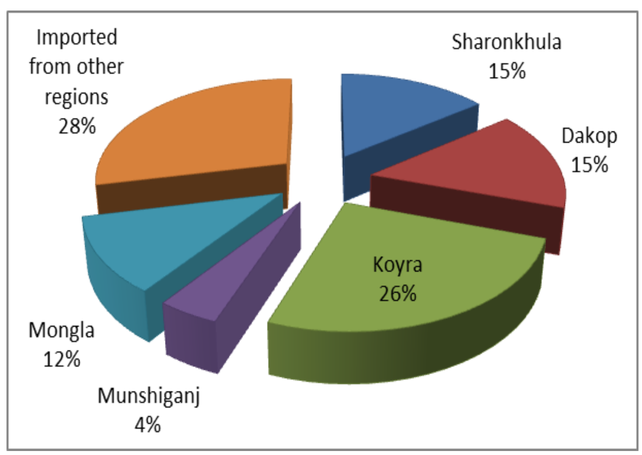
	Sharonkhola	Dacope/Koyra	Chandpai	Munshiganj
Main Market	Rayenda Bazar	Local	*Source: BBS and the primary survey*	
Buyers	Households, passing cargo vessels, local haats	Households	Households	Households
Market Opportunity	High unmet local demand	Unmet local demand; Linkage to Tala, Paikgacha, Bagerhat Bazars	Linkage to Mongla (hub for vessels)	Unmet local demand

1.2 Demand/ Supply Situation

Based on the data from BBS and the primary survey carried out during the assessment, the total vegetable market volume in the project areas can be calculated to be around 35,000 tons.

Vegetables sold in these regions are almost completely used up for local consumption by households. In Sharonkhola, 10% of vegetable sales in Rayenda Bazar caters to passing cargo vessels, which buy a lot of their food from there, but this adds up to about 1% of the total vegetable sales for all the project regions together. To meet this demand though, almost 70% of the vegetables sold at Rayenda Bazar is imported from other regions like Jessore, Khulna.

Chart 1: Total Vegetable Market Size



Source: BBS and the primary survey

Vegetable prices in these locations are higher (approximately 30% more) than the price in the national market. This is mainly because of the low local supply of vegetables in these regions. In places like Chandpai, where vegetable cultivation is very low, and the roads are of poor quality, small households tend to consume very little vegetable. The imported products that come to these areas consist mainly of onions, chili, etc.

The consumption pattern reveals that the average daily consumption composition is shaped by the locally available vegetables. Rarely vegetables from distant villages reach these markets. Thus, it can be expected that increase in productivity of vegetables will result in an increase in the local consumption.

1.3 Market Opportunity

There is a huge demand-supply gap for vegetables in these regions. The import of vegetables from other regions of Bangladesh to most of these regions is almost none. The local consumption of vegetables largely depends on the supply and the price of vegetables, which is higher than the national level markets. Due to the perception that vegetables cannot be grown on saline soil, some areas do not have the practice of cultivating vegetables. This allows for a large potential for households to take up vegetable cultivation, firstly to enrich their own consumption, and then selling the excess production in the local bazaars for additional income. Based on the graph above showcasing the total market size of vegetables in the project areas, there is at least scope for 28% growth to meet the current market demand.

2. Market Demand Assessment for Tilapia and White Fish

2.1 Main Market, Buyers &Competition

The fish markets in all the project areas are well developed and linked to the major district markets, like Khulna, Jessore, Dhaka. Based on the information collected from the project areas, the overview of end markets for tilapis and white fish can be provided in the table below:

Table 2 Market analysis for Fish value chain

	Sharonkhola	Dacope/Koyra	Chandpai	Munshiganj
Main Market	Rayenda, Tafalbari, Sharonkhola Bazars	Local bazars, Tala, Koyra Bazars	Local bazars, Mongla Bazar	Kalbari, Shonarmore, Nowabeki, etc.
Buyers	Arots, households, passing ships, local bazars	Arots, households	Arots, households	Arots
Market Opportunity	High unmet local demand	Potential to export more to Tala, Khulna, etc.	High unmet demand from Khulna, Dhaka; hub for Tour Vessels	High unmet local demand; demand from Khulna, Dhaka

2.2 Demand/Supply Situation

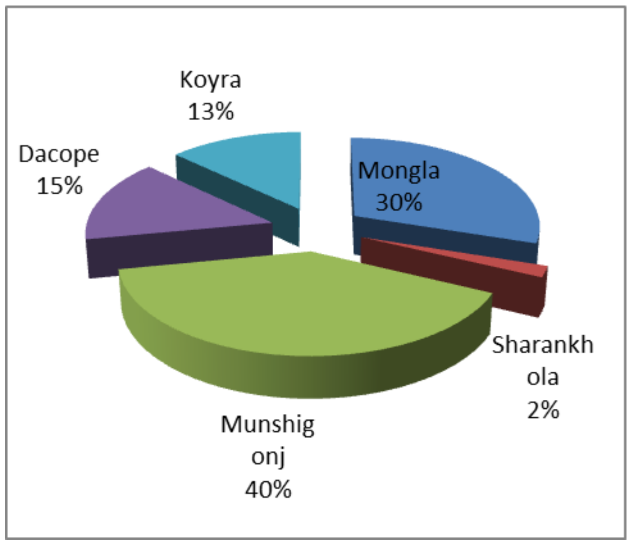
Based on the data from DoF and the primary survey carried out during the assessment, the total market volume of Tilapia production in the project areas can be calculated to be around 5,000 MT.

The majority of production is carried out in Mongla and Munshiganj, most of the cultivated fish tends to be exported to divisional towns around Bangladesh like Khulna and Dhaka. Thus, there is a huge potential for supplying more fish from these regions. Dacope and Koyra still have a large unmet local demand for tilapia and white fish, since fish cultivation is not very high in these regions, and the large sized fish tends, both captured and cultured, tend to be imported out to Khulna and other regions.

2.3 Market Opportunity

The market for big size of tilapia and white fish is growing not only all over Bangladesh, but in these local regions also. The households have a strong culture of fish consumption, and not just of smaller sized fish, but also of bigger fish like pangasias, tilapia, carp, etc.

Chart 2: Total Market Volume (5000 MT)



Source: Primary data, In-depth Interviws, Questionnaire

There is an overall perception that fish cultivation for commercial purposes cannot be carried out in small ponds. Thus, most of the cultivation of bigger fish is carried out only in the ghers, and small farmers do not pursue fish cultivation in their small water bodies.

The study team found a perception gap among the target population, that small ponds are not ideal for cultivating fish commercially. Most households tend to cultivate fish in a very small scale without any proper inputs or feed being used. This is largely for own consumption and they sell the excess at random intervals at very low prices. Thus, addressing this misperception is a key challenge for enhancing cultured fish production in these regions, by showcasing the profitability that can be achieved from semi-intensive cultivation in homestead ponds.

The average pond-size of 5 decimals can be used for poly culture of tilapia along with white fish.Tilapia, mono-sex tilapia, remains a potential species for aqua-farming since they are saline tolerant and can survive in low water levels. Also, Tilapia has a shorter cycle which allows 2 cycles per year in semi-intensive form and 3 cycles in intensive practices.

3. Market Demand Assessment for Sunflower

3.1 Main Market, Buyers &Competition

The market for sunflower has not yet taken off in a running commercial manner. BRAC is planning to start its own sunflower oil brand, and thus expanding its sunflower seeds source in these regions. There are some new companies also who are looking to expand their products and start producing sunflower oil – City Group and Amrit Group (based in Barisal).

Currently, there is only sunflower being produced in bulk in Sharonkhola, and traders are sourcing from there to sell to local and national level oil crushers/mills. In Dacope, Koyra and Munshiganj sunflower is grown in the homestead in very small quantities, and consumed at home as unrefined oil.

3.2 Demand/Supply Situation

Based on the data from the District Agriculture Office, the total sunflower production in the project areas is recorded at around 550 tons.

BRAC is currently sourcing sunflower seeds mostly from Sharonkhola, from the farmers that they are providing inputs and cultivation information to. They are currently looking to expand their cultivation area from around 2 acres to over 8 acres in the coming year. BARI has also started promoting sunflower cultivation in these regions.

Current production of sunflower seeds from the project areas is approximately 550 tons, from which about 300 tons is sent to oil mills located in Barisal, Thakurgaon, Pabna. This is mostly crushed, partially refined and sold to different locally based companies use sunflower oil in their products. Recently, exporters are also looking into buying sunflower seeds from these oil mills in order to export to places like the Middle East and Russia.

3.3 Market Opportunity

Sunflower contains 42% oil. It also contains linolic acid and Omega 3 & 6 fatty acid which makes it a healthier alternative to soya bean oil. The sunflower grown in Bangladesh tends to have higher oil content of up to 45%. One kg sunflower seed can produce around 500-600 ml oil which is greater than any other oil seeds. According to FAO, the average yield of sunflower is 1.4 tons per ha, but the potential yield is 2 to 3 tons per ha. Thus, there is a huge potential to grow more sunflower and promote a newly expanding market for edible sunflower oil in Bangladesh.

The production of edible sunflower oil is just taking off in Bangladesh, BRAC being the first one to be establishing an international quality refinery. Other companies have interest in this area and are in the process of setting up similar refineries. Currently, national oil producers do not have the technology to be able to produce properly refined sunflower oil.

Part II: Market Demand Assessment for North-East Region (Sylhet)

4. Market Demand Assessment for Vegetable

4.1 Main Market, Buyers & Competition

The end market for these vegetables is mainly local and urban consumers. Local consumers mostly buy their products from local retailers or local bazaars. While urban consumers buy mostly from urban markets and smaller bazaars. A portion (7%) of homestead vegetables is consumed by the farmers themselves or lost in production. Homestead farmers' generally sell their produces in the local market while commercial farmers' products reach the urban markets, especially in peak season.

No major competitor for these four vegetables was seen in the study region. Vegetable production is ubiquitous throughout the country, thus the larger markets procure products from wherever they can. No particular competitive indicators (like quality, color, size, shape) were found for other region's production belt that can put stress on this region's product marketing.

4.2 Demand-Supply Situation

Among these four vegetables, tomato and brinjal have wider market reach, their consumption is very prevalent in these regions. Taro and forash have more area specific consumption patterns; thus their demand varies seasonally. In off seasons, Taro and forash are mostly consumed locally, with taro from other regions, namely the southern belt, entering the market to meet the local demand. In the peak season, local production caters to the local demand and then is traded to urban town markets. These two products' reach generally ends here. As for tomato and brinjal, in the off-season a large portion of the local production is consumed locally while a smaller volume is traded to town marketa. This trading is primarily done for higher profitability. In peak season, tomato and brinjal are traded in large volumes to the urban town markets. Market demand is very high for summer tomatoes, which is now being produced in a limited volume especially in areas of Hakaluki Haor.

4.3 Market Opportunity

As mentioned above, market opportunities for vegetables lie throughout the region and beyond. There are also specialty crops like forash (French bean) growing in and around the Hakaluki site with market opportunities at the national level via divisional market hubs in Sylhet and Srimongol. Haor areas in particular have alluvial rich soil, allowing higher productivity and lower fertilizer costs for vegetable production. In addition, the market system for vegetables has been strongly established allowing a clear channel for the products to move, essential for vegetables due to their short shelf life.

5. Market Demand Assessment for Fishery

5.1 Main Market, Buyers & Competition

For a region known for its fishery resources, it was found to be supply deficient and importing fish from Mymensingh, Jessore and the southern belt to fill in this gap. The main market players are the arotdars and small retailers who sell to local consumers. Retail markets procure from small farmers and often the fish get sold at the pond sites right after harvest. On average, the fish are netted every 20-25 days. Only fish of suitable size are kept for consumption or sale while the rest are released back into the ponds to grow further. Arotdars work with bigger volumes, at least 1 mound (40kg) per catch. They usually have pre-arrangements with large farmers and collect straight from the ponds, bearing the transportation costs.

Small retailers serve the local markets while arotdars sell to local big bazaars and at thedivisional trading hubs in Srimongol and Sylhet. From there, the products spread out further, but are completely consumed within the region. The beneficiary producers do not have the ability to penetrate national markets in Bhairab or Dhaka yet.

5.2 Demand/Supply Situation

The fish market in Sylhet region is heavily impacted by haor fish in the short term. With strong market preference for natural fish, during fishing season, increased haor-catch pushes down the price of cultured fish. In addition, fish from Mymensingh and Jessore are cultured with significantly upgraded techniques, which allow them to competitively price their products in the market. However, to the fish consumers, freshness and sources are important price determinants which create preference for local cultured fish despite its higher price.

Overall, the local demand is still unmet by local production of both cultured and haor-catch fish. On average, small commercial farmers which make up a portion of the beneficiaries, produce 481 kg of fish, both carp and tilapia every year. 15% of this is used up for self-consumption. As per the beneficiaries' feedback, 40% of the beneficiaries who culture fish are doing so commercially while the rest are at a subsistence level.

Fish is a product with round the year demand while the product can have a longer shelf life by being left in the pond to grow when the price is low. This allows the small farmers some control over price. However, pressure from lenders for repayment narrows down the window for waiting.

5.3 Market Opportunity

Fish is culturally a staple food for Bangladesh. There remains a strong national and local demand which is not fully catered to from the local supply. This happens despite the fact that the region is ideally suited for fish production with ready access to water in most areas. This unwillingness to culture fish indicates both a challenge as well as an opportunity for the growth of the sector.

The study team found a perception gap among the target population especially, in the haor areas. Small farmers are unwilling to scale up their production as they believe that the haor-catch serves the majority of the market and therefore the market price would fall if they increase production. However, talking to the large commercial farmers, we found many of them to be major haor fishermen before, who shifted to cultured fish because although the haor fishes are higher in value per unit, their dwindling supplies meant the revenue generated is no longer sufficient for them. Addressing this misperception is a key challenge for enhancing cultured fish production in Sylhet.

Tilapia, mono-sex tilapia, remains a potential species for aqua-farming. The average pond-size is ideal for tilapia farming, while the low water level requirement means fish production will remain uninterrupted even in the dry season (Winter-summer). Also, Tilapia has a shorter cycle which allows 2 cycles per year in semi-intensive form and 3 cycles in intensive practices.

6. Market Demand Assessment for Duck (Layer)

6.1 Main Market, Buyers & Competition

End market for duck egg is the household consumers. Any other type of consumer, specially industrial or other retail is not seen in this region. Duck eggs are not generally used for commercial products or in hotels/ restaurants. Typically the buying patterns of the household consumers are generally up to a dozen at a time. They mostly buy it from retail shops. In rural areas, consumers sometimes buy egg directly from homestead duck farmers. Demand for bigger duck egg is higher. Also duck egg consumption generally increases in winter season.

Local production volume is not yet sufficient to fulfill the national market demand. There are some duck rearing belts located in pockets of Moulvibazar, Habiganj, etc. Due to their large production volume throughout the year, they have better access to those markets. Despite that, even in off-season the regional town markets sometime procure eggs from these belts to meet the local demand.

6.2 Demand/Supply Situation

Duck egg supply has high seasonal variation throughout the project region. However, its demand is more or less even around the year. Commercial farmers have around 78% of market share while the rest comes from homestead farmers. In peak season, duck egg sales are around 230 pieces/day in small markets, while in off-season the number comes down to 50 pieces/day. Though there is a large fluctuation in the seasonal sales volume, the sellers believe that the demand is high throughout the year. They think that they could sell 3 times the current supply of duck eggs without any significant implication to the price level of the commodity.

6.3 Market Opportunity

Duck rearing has good market potential. The demand is growing and all the traders in the study region are confident to sell 3 - 4 times of the current volume if produced.

A major opportunity could be to enhance the capacity of the homestead duck rearers to rear 25-30 ducks in lieu of the current practice of 8-10 ducks. This would enhance their protein intake as well as increase the market share of the homestead based egg suppliers with enhanced access to institutional finance, a significant percentage of VCF members can be integrated to this duck egg value chain.

Duck rearing also has two additional market opportunities. Firstly it can also be reared for the meat, rather than focusing solely on eggs; target beneficiaries can procure suitable species and rear them for 3-4 months targeting to sell on them during winter when the demand for duck meat is at its peak. Secondly, the haor based beneficiaries can offer duck rearing services to the owners of a sizable number of ducks in the wet season; it can be a good alternate source of income. This practice is not very prevalent yet. However, it has good earning opportunities, generating around BDT 230/day.

Part III: Market Demand Assessment for South East Region 2 (Cox's Bazar)

7. Market Demand Assessment for VC1: Sewing & Stitching, Dress Making, Hand Embroidery, Nakshikantha, Hand Crocheted Prayer Caps, Fishing Net Making

7.1 Market Size and Penetration

There is no reliable estimate of total number of enterprises and related market actors and value chain members in Chakaria, Himchari (Cox's Bazaar) and Teknaf. However, the team during the study has gathered some discrete information about the number of enterprises in Chakaria, Himchari (Cox's Bazaar) and Teknaf. There are about 19,000 different enterprises having trade-licenses from Municipal Corporation in Cox's Bazaar, Chakaria and Teknaf. The local business enterprises during the survey provides an estimation about number of enterprises in Chakaria, Himchari (Cox's Bazaar) and Teknaf which is about 95,000 excluding agro business like vegetable growing, fishery, poultry rearing etc. During the interview with market actors in Chakaria, Himchari (Cox's Bazaar) and Teknaf the participants reported that in each growth center of the Upazila/Thana there are about 5,000 enterprises. Combining all the above information, the team projected and estimated that about 250,000 different enterprises exist in Cox's Bazaar District excluding agricultural farms.

The following sector dominant features were also taken into account:

- Number of firms in the supply chain and their functions and features
- Market size, segments, scopes and features
- Market growth rate of individual sub sectors and position in the business lifecycle
- Backward and/or forward integration industry units
- The types of distribution channels used to reach consumers
- Status in achieving economies of scale in purchasing, manufacturing, transportation, and marketing
- Capacity utilization of the firms
- Cost of production and margin on sales
- Return on investment
- Capital requirements and the ease of entry and exist.
- The pace of technological change in both production process innovation and new product introductions
- Learning and experience effects.
- Capacity outsourcing or sharing

At the same time the following Sector Variables/Driving Forces were also assessed:

- What is the growth and profitability index and how strong is the index for motivating the actors to produce and sell the product/service under consideration?
- What is causing the industry's profitability structure and business environment to change?
- Which companies/supply chains are in the strongest/weakest positions?

- What strategic moves are the companies of the industry likely to make next?
- What are the key factors for success?
- What are the prospects for above-average profitability?

Sewing and Stitching and Dress Making

Sewing, stitching and dressmaking started as a family need and become a semi-commercial trade to cater the local neighborhoods. Almost all the women have proficiency in sewing and stitching, however dressmaking requires a little skill in measurement, cutting and stitching. The target groups are engaged in the process as a hobby without commercial and market orientation. Large volumes are a challenge that cannot be met by a single small group of producers.

However, due to the simplistic nature of the work, and the ever increasing demand, the dressmaking sector is expanding remarkably. Currently the mainstream market is completely catered by the regional and national market actors. However, the scope for entering in basic and simple products such as women's inner skirt (petticoat), blouse, pajama, long housecoats (maxi), children's casual wears (nima, chemise) has a huge potential that can be catered by the local target groups.

Hand Embroidery and Nakshikantha

Hand Embroidery and Nakshikantha as well as related similar products are widely categorized as "handicrafts". Handicraft represents less than 1 percent of all exports from Bangladesh. In contrast, the global market for handicrafts is estimated to be close to $100 billion. Surely this represents a huge opportunity for this country in terms of rural employment creation. The women in the target area are eager to show their fine handicraft skills, being naturally proficient with stitches passed down from mother to daughter and all having a genuine interest in crafts. However, four important issues make handicraft in general and hand embroidery and nakshikantha in particular a non-expanding sector - price, quality, design and quantity. The sector is suffering from classic case of conventional marketing 4Ps. Products not meeting the needs of the customers; products lacking appropriate pricing strategy, products lacking effective promotion/communication and distribution (place).

The target groups are still producing hand embroidery and Nakshikantha as a hobby without commercial and market orientation. Large volumes are a challenge that cannot be met by a single small group of producers. Consistency in quality cannot be maintained over different groups of producers where there is no or limited connection between them. Timely delivery is a challenge since the products are being produced by the group members in leisure time after completing different family chores. Empowering small groups of producers is therefore not likely to bring significant value addition and growth. Though access to quality raw materials is not a fundamental problem in the local markets, however to cater the specialized up-market at the national level certain high quality raw materials (stones, glass beads, pearls, vegetable dye, etc.) are required, these are not available in local market.

The expansion of the production specifically for national market a combination of craft skills with business skills would be required. Bulk purchasing of raw materials, skills of preparing samples, marketing and communication in print and electronic (internet) is required. The required service providers for developing skills of designs, cataloging, photography, promotion is not available in Cox’s Bazaar. It would be highly unrealistic to assume that with a little training, a new design or two and some capacity building, market linkage, a small group of producers will be able to secure sales to stores at the national markets. Similarly, it is unrealistic to assume that large stores and boutique houses in the national level would be interested to source tiny volumes of one particular product from a single supplier in a far-away remote area. Generally stores and boutique houses place a limit on the number of suppliers that they choose to buy from to make it administratively and economically manageable. As a result it is not only must the supplier be able to make volume, but will also need to be able to make a whole range in volume in order to have a chance of competing to supply.Currently Cox’s Bazaar hand embroidery and Nakshikantha do not represent in the national market as a source. Certain handloom products are sourced from the neighborhoods particularly from Banderban and Moheshkhali.

Hand Crocheted Prayer Caps

A large number of rural women at different villages especially in Teknaf are engaged in making hand crocheted prayer caps (*tupi*). More than 4,000 vulnerable women in the upazila are directly engaged in making these caps and they are supporting their families by earning about Tk. 2,500 to Tk. 3,000 every month. The women are working after they receive export orders from traders of Pakistan, Oman and other Arab countries since 2009. According to SU Haider, President of the Bangladesh Handicrafts Manufacturers and Exporters Association, one of the country's largest associations of exporters, noted that Muscat Festival is an ideal platform to display Bangladesh's finest handicrafts which are well known all over the world.

Fishing Net Making

Blessed with an extensive coastal stretch, Cox’s Bazaar is a critically important regionof the country for fisheries both sea and fresh water. Fishing net is one of the major gears used by fishermen next to fishing boats. The type of fishing net used generally differs greatly and mainly depends on the season, type of fish, type of landings, convenience, etc. Fishing net making is a flexible as well as a consumer oriented industry. The type of nets to be manufactured, in terms of mesh size, largely depends on the demand of the fishermen. Despite the enormous demand for fishing nets, the development of the fishing net making in Cox’s Bazaar has been very slow and has not kept pace with the development of fisheries. The supply of fishing net is largely conditional and is based on the tradition, quality, and price. The demand for handmade fishing nets is extremely limited and seasonal, moreover the economic viability for handmade fishing nets are extremely low.

7.2 Main Market, Buyers & Competition

End market for duck egg is the household consumers. Any other type of consumer, specially industrial or

Sewing & Stitching and Dress Making

- The required inputs (threads, strings, *chumki*, *jori*, pearls, crochets, buttons, design books, embroidery books, etc.,) are generally purchased from Dhaka (ChakBazaar, Gausia market, Sadarghat, etc.) as well as certain loom clothing from Narshingdi
- Average sales of the these inputs in a day is aboutTk400,000 – Tk700,000
- However, during religious festivals especially “Eid”the sales figure is more than Tk. 2,000,000 – Tk. 3,000,000 a day.

- The presence of specialized boutique shop exclusively dealing with designer clothes in Cox's Bazaar is very limited.
- Demand for women clothing specially women's inner skirt (petticoat), blouse, pajama, long housecoats (maxi), children's casual wears (mina, chemise) are very high
- There are about 100 shops selling inputs in the Cox's Bazaar catering the local market
- The dress sellers purchase dresses from Chittagong and Dhaka, local sourcing is limited due to poor quality

Hand Embroidery and Nakshikantha

The primary hand embroidery and *nakshikantha* products are produced in Jessore, Tangail, Mymenshing, and Rangpur regions. The local hand embroidery and nakshikantha is a very new and limited effort undertaken by a few producers especially in Teknaf region. However, lack of volume, quality and non-conformity with standard unique stitching styles the products are generally used in the local and neighborhoods. Only a negligible amount of the produce is actually traded in the local market. Majority of the hand embroidery and nakshikantha products found in the local market are fed by the national market. However, the local Chittagong Hill Tracts are and especially the Rakhain community in Cox's Bazaar has very special styles and designs of hand embroidery and nakshikantha products which are very unique from the mainstream products. Demand for this unique hand embroidery and nakshikantha products have limited demand due to poor marketing.

Hand Crocheted Prayer Caps

The primary competition is machine knitted crocheted prayer caps available at a much lower price. The local demand favors the machine knitted prayer caps. The hand crocheted prayer caps are extremely high export market. Volume and contract production from a few buyers is one of the primary impediments in enhancing profitability. Organizing the groups, engaging other buyers, improving negotiating skills, providing market information regarding price, quality, and consumer preference can substantially improve the present impediments; currently each women producer can produce 5-6 caps in a week.

Fishing Net Making

A part of the local fishing nets market is catered by the locally produced handmade fishing nets by the women. However, the market is not very large, a women (depending on the size, the average size is 10.5 feet) can produce 6 nets a year. Average price of fishing net is about Tk. 2,000 to Tk. 3,000. The peak season for net sales are May through September. During this time net is sold at a much higher rate usually from Tk. 3,000 to even Tk. 4,500. In the lean seasons a net is usually sold at Tk. 2,000 to Tk. 2,500. The local input sellers procure the necessary inputs from Chittagong and Comilla. Finished nets are also procured from Chittagong, Noakhali, and Comilla.

7.3 Demand/Supply Situation

Sewing & Stitching and Dress Making

The demand for women's inner skirt (petticoat), blouse, pajama, long housecoats (maxi), children's casual wears (*nima*, chemise) is very high in the local market. Currently the market is almost completely catered by the national and regional market players. A few local NGOs have started to link their beneficiaries with the local dress market. With the increasing training on sewing and stitching skills, local producers have started to enter the market. The suppliers are interested to outsource the basic products from the local women to reduce cost as well as inventory.

Hand Embroidery and Nakshikantha

The demand for hand embroidery and nakshikantha products is not very high. The market is currently catered by the national and regional market actors. The shops in the "Burmese Market" are the primary seller of these products. The locally produced products rarely enter into the mainstream market because of its low volume and lower quality

Hand Crocheted Prayer Caps

The demand for hand crocheted prayer caps is mostly for the overseas market, the local consumption is very low. Every year about 20 million caps are being exported to different countries all over the world. The primary cap manufacturing hub in Bangladesh is Bogra and Chittagong. More than 500,000 women are engaged in producing these caps.

China and India are the two major competitors of Bangladesh hand crocheted prayer caps. However, Bangladesh is one of the most favored countries to the importing countries because of quality and price competitiveness.

Fishing Net Making

The handmade fishing nets are generally used by small fishers. The users believe the handmade fishing nets are more durable than the machine made nets. However, some of the fishers in Teknaf believe that hand-made nets produced by the local women are cheaper because they are made from cheaper yarn. Majority of the fishers in the area are quickly shifting to machine-made nets.

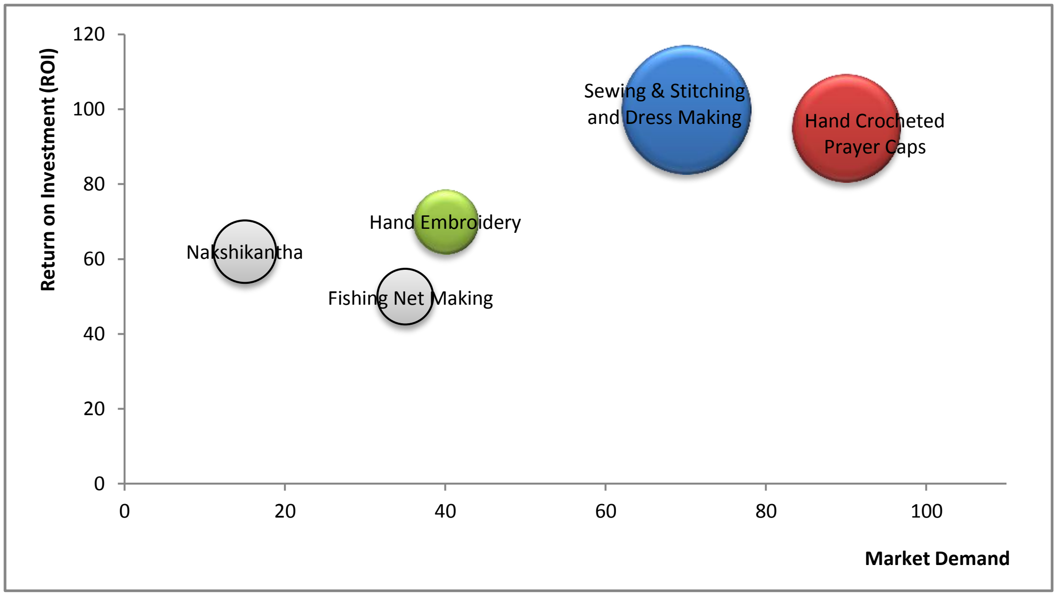
7.4 Market Opportunity

Opportunity identification should be in line with the broad objective of the project. Since all the projects within CREL working areas are focused on poverty eradication and climate conservation, CREL should look forward to opportunities to two types of opportunities:

1. To look for opportunities that the target beneficiaries can utilize and enter into the value chain as a mainstream actor. If the target beneficiaries are already actors within the value chain, CREL should look for opportunities to increase the scope of value addition by the beneficiaries.
2. In doing the mainstreaming, the environment and climactic conditions are unharmed, through minimum utilization of natural resource extraction and minimum adverse impact on environment due to value chain activities.

Opportunities should be feasible for the target beneficiaries to adopt. Target beneficiaries have to have some previous skills, experience, knowledge or resource to utilize the opportunities identified. Hence all the opportunities identified might not actually opportunity for the target beneficiary. For example – if the beneficiaries do not have the experience or resources in dairy cattle rearing, they cannot utilize whatever opportunities are identified in the dairy value chain.

Figure 1: Comparative matrix on the ROI of the different sub-sectors[1]



Sewing & Stitching and Dress Making

The target beneficiaries generally have the requiredskills, experience, as well as knowledge to capitalize the present opportunity in the primary local dressmaking sector. The existing demand for women's inner skirt (petticoat), blouse, pajama, long housecoats (maxi), children's casual wears (*nima*, chemise) is very high in the local market. The availability of all the raw materials required for the primary dressmaking in the local area is also a great opportunity for the target group.

Hand Embroidery and Nakshikantha

Market Opportunity for Hand Embroidery and Nakshikantha is minimal in the local market. Generally women are involved in this process and they prefer to do it as their side activity after completing all their regular family chores. For preparing one Nakshikantha it takes 2 months and need to invest almost 2000 Tk. and profit is around 1000-1500 Tk. which is mostly sold to the local villagers. Thus in a year they can only make 6 Nakshikantha and year around profit 6000-9000 Tk. which is not that satisfactory (ROI is very low). Similarly in Hand Embroidery mostly women are involved and they consider it as their side income. Very few of them are doing it commercially and selling it to the nearby villagers who providing them orders.

Though the local demand is quite low but in national level the demand is quite high. These products can be sold in different boutique shops like Aarong, Kumudini, Karuponno, TMSS, MIDAS, etc. if proper promotional activities are done. The primary opportunity lies if these women can receive proper training on quality design then it can be possible to link them into the mainstream value chain.

Hand Crocheted Prayer Caps

Saudi-Bangladesh Textile Mills Ltd. is 100% export oriented joint venture project with Saudi Arabia are producer and exporter of prayer caps, embroidery caps, Arabian Yashmagh, Ghutra, Tufi, hand crocheted

[1] Primary data: in-depth interviews

caps, head covers, head scarf. The primary opportunity lies in Improving negotiating skills and competitive advantage of the local women through organizing them and linking them with mainstream value chains.

Aarong, Kumudini, Karuponno, TMSS, MIDAS, etc., are also engaged in exporting their products including local hand crocheted prayer caps. BSCIC and Ministry of Commerce has special cell for promotion of women entrepreneurs through different export facilities and incentives. Moreover Bangladesh Handicrafts Manufacturers and Exporters Association are also working for the promotion of caps in Middle Eastern countries through participation in Handicraft fairs. These opportunities can also be tapped for improving price and skills and the local women.

Fishing Net Making

Opportunities for handmade fishing net are gradually decreasing primarily because of quality issues and low volume. Improved knitting skills, improved raw materials can help makes these women producers competitive in the market.

8. Market Demand Assessment for VC2: Strawberry, Capsicum and Medicinal Plants

8.1 Market Size and Penetration

Strawberry

The country has demand for 50 tons of strawberries per season, which local traders import from different countries including the US, Thailand and Australia. The annual growth rate of fresh strawberry is increasing at a geometric progression in Bangladesh. Since the introduction of strawberry about 6 years ago, the demand for the new products has increased several hundred times. With the increased awareness about the products availability in the local market, the end consumers have started to consumer in larger quantities. Although, in the strict sense of marketing, the product is still at a trial stage, the market behavior shown all positive signs of a successful product adaptation, such as repeat purchase, continuous demand, increase in consumption pattern – from experiment to trial to almost a steady consumption. Presence of institutional purchase by hotels, super shops, food processing industry is also another significant indicator of market maturity.

Strawberries are usually eaten raw or used in preparing ice creams, jams, jellies, pickles, chocolates, biscuits, cakes and milk shakes. The strawberry fruits have potential to be used as jam, jelly, syrup and as a foundation in beverage and ice creams. One of the sellers has expressed that certain festival shows marked consumption of strawberries such as Eid, Weddings ceremonies, Valentine's Day, Christmas, etc.

Bangladesh showed a remarkable growth in fresh fruit consumption in the last 10 years. Fresh fruit consumption has increased from 26.5 grams in rural area and 35.6 in urban in the year 2000 to near about 60 grams in urban area in 2012. This is partly due to the increased availability of exotic fruits. Consumption of guavas, mangoes, jackfruit, pineapple, lichees, etc., has increased about 50% from a decade ago. The demand for eating processed fruits such as pickle, jam, juice, has increased up 57.7% over the last 20 years.

The import of apples, grapes and pears are primarily from India, Bhutan, South Africa, Australia, and China. $139.5 million imports of fresh fruits in FY 2011. Despite high tariffs, apple imports and consumption have been growing at about 2-3% a year.
Export of edible fruits and nuts citrus fruits 345.73 December 2011 to 490.96 in January 2013 showing an increase of 42.01

Capsicum

Capsicum or popularly known as Mishti Morich (sweet pepper) / Shimla Morich, is relatively a new product in Bangladesh catering a niche high end market of Bangladesh. The larger consumption is Dhaka and a few urban cities such as Chittagong and Sylhet. The largest consumers are hotels and restaurants in the cities. Due to significant change in food habit and advent of new recipes capsicum has become one of the basic food ingredients in Bangladesh.

However, there is no specific statistics regarding the market size of capsicum in Bangladesh, it is estimated that more than 150 tons of capsicum is consumed in Bangladesh per year. A large majority of the demand (about 90%) is catered through import of capsicum primarily from India, Thailand and China.

Considering its popularity in Bangladesh, a large number of farmers have started to produce capsicum mostly in South West (Jessore) and North Western regions (Rajshahi and Rangpur) of Bangladesh. A little amount is also grown in Sylhet and Chittagong.

The demand for capsicum is steadily increasing due to changes in consumers' food preferences and importantly the demand is not seasonal rather round the year.

The capsicum supply chain is essentially handled by the chili market chain. In Cox's Bazaar only a few traders are currently engaged in catering primarily the demand of local hotel. The products are brought from Dhaka. The current yearly consumption of capsicum in Cox's Bazaar is about 5-10 tons

Medicinal plants

The practice of traditional medicine is deeply rooted in the cultural heritage of Bangladesh and constitutes an integral part of the culture of the people of this country. Different forms of Traditional medicines have been used in this country as an essential means of treatment of diseases and management of various health problems from time immemorial. The practice of traditional medicine in this country has flourished tremendously in the recent years along with that of modern medicine. As a result, even at this age of highly advanced allopathic medicine, a large majority (75-80%) of the population of this country, particularly in the rural and semi-urban areas, still prefer to use traditional medicine in the treatment of most of their diseases even though modern medical facilities may be available in the neighborhood. However, the concept, practice, type and method of application of traditional medicine vary widely among the different ethnic groups living in different parts of the country according to their culture, living standard, economic status, religious belief and level of education. Thus traditional medicine practice in Bangladesh includes both the most primitive forms of folk medicine (based on cultural habits, superstitions, religious customs and spiritualism) as well as the highly modernized Unani and Ayurvedic systems (based on scientific knowledge and modern pharmaceutical methods and technology). These various aspects of Traditional medicine practice in Bangladesh, their current official status (acceptability, recognition, etc.) in the country as a means of treatment, and their contribution to, and impact on, the overall health management programs of the country are described and discussed in this paper supported by documentary evidences and scientific data.

Total yearly market value of medicinal plants in Bangladesh about Tk500 crore, however, the illegal market is worth about 1,000 crore per year. 80% of the medicinal plants are imported from India, China and Malaysia (primarily from India). There are about 600 renowned herbal medicine companies in Bangladesh that requires medicinal plants as their primary raw material. The Unani practicing doctors are contributing for Tk410 corer by producing Unani medicines and different Unani institutes are contributing about TK340 corer. There are about 120 different types of medicines prepared from medicinal plants. 70% of the medicinal plants are used as medicines and rest 30% are used as food consumption. The medicinal plant industry is growing at rate of 25% per year. To cater the industry, Bangladesh need to produce quality plants urgently.

The following medicinal plants are imported from different sources:

- Indian: Amla/ Indian gooseberry/ Amalaki, Chandan
- Malaysia, Indonesia, and Thailand: Saffron, cinnamon, cardamom, cloves, etc.

It may be noted that cloves and saffron can be produced in Chittagong, Jessore, Gazipur, Shatkhira, Naogaon. Malabar nut,as well as Vasaka, Holy Basil or Sacred Basil, Arjuna, Indian Pennywort/ Centella, Stone Apple, Aloe Vera etc., are cultivated in limited quantities in Bangladesh.

In Cox's Bazaar region, Wild Asparagus, Devil's Cotton (Olat Kambal), Ashwagandha / Indian Ginseng, Turmeric, Aniseed, Aloe Vera, Mentha, Lily, Rose, Nigella Seed, Holy Basil, Sesame Seed, Indian Bedellium Tree, Indian Pennywort, Fenugreek Seed, Fenugreek Leaf, Asafoetida, etc., can be grown very profitably. For a quicker return within 2 to 6 months time the following can be produced in Cox's Bazaar area:

- Aloe vera
- Stevia
- Holy basil
- Malabar nut
- Wild asparagus

8.2 Main Market, Buyers & Competition

Strawberry

The value chain is focused on domestic fresh fruit market. Exports of strawberry do occur on a largely opportunistic basis two such consignments were sent to Oman recently.

The overall fresh fruits market although is expanding at a rate of about 5% every year, however, import of certain non-traditional fruits have declines significantly. At the same time, import of apple, orange, grapes, etc., has increased significantly in the last 5 to 10 years.

Import of fresh strawberry is insignificant in Bangladesh, although there are large quantities of processed strawberry products such as pulp, essence, etc., are imported every year.

Capsicum

Capsicum or popularly known as *Mishti Morich* (sweet pepper) / *Shimla Morich*, is relatively a new product in Bangladesh catering a niche high end market of Bangladesh. The larger consumption is Dhaka and a few urban cities such as Chittagong and Sylhet. The largest consumers are hotels and restaurants in the cities. Due to significant change in food habit and advent of new recipes capsicum has become one of the basic food ingredients in Bangladesh.

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Medicinal plants

This sector is deprived of proper institutional laws and therefore it is very difficult to standardize the import and export process

Major users of medicinal plants:

- Hamdard Laboratories producing about 133 products
- SadhanaOusadhaloyproducing about 150 products
- ShaktiOusadhaloyproducing about 138 products
- Ayurvedic Pharma Ltd producing about 135 products
- Human Drugs Ltd producing about 28 products
- National Pharma producing about 16 products
- Kundeswari producing about 48 products
- Mujaher producing about 39 products
    - Traditional Medicine Resource
    - Crude drug market
    - Wild habitat
        - Forest floor
        - Homestead & Fellow land
    - Cultivation
    - Import

8.3 Demand-Supply Situation

Strawberry

The country has an annual demand for around 250 tonnes of strawberry. Currently strawberries are imported from Thailand and Australia at Tk 900-Tk.1,200 per kg. In addition to this, strawberry pulp and flavor is also imported.

Capsicum

The country has an annual demand for around 150 tonnes of capsicum. Currently capsicums are imported primarily from India, Thailand and China at Tk. 300-Tk500 per kg. In Cox's Bazaar about 5-10 tons of capsicum are required and is currently catered through national suppliers.

Medicinal plants

The demand –supply situation of medicinal plant can be described by the following table:

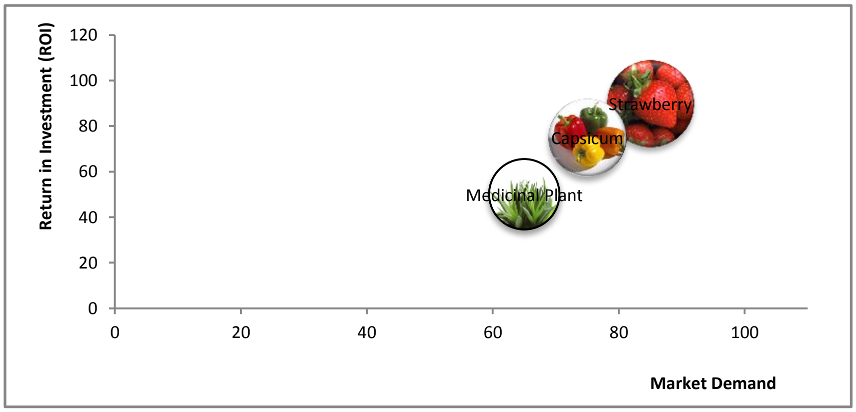
Table 3: Demand-supply situation of medicinal plant[2]

Description	Number of Enterprises	Production (Import)	Medicine Production	Medicine Import	Medicine Export
Unani	210	4 corer	320 corer	0	0
Medicine produced by Unani practitioners	51,292	3 corer	410 corer	0	0
Ayurvedic	162	3 corer	280 corer	0	0
Medicine produced by Ayurvedic practitioners	4,3861	3 corer	340 corer	0	0
Unani and Ayurvedic medicine export potential					1,500 corer

8.4 Market Opportunity

Opportunity identification should be in line with the broad objective of the project. Since all the projects The market oppurtunities of Strawberry, Capccicum and Medicinal Plants are shown by the figure:

Figure 2: Market Opportunities of Strawberry, Capsicum & Medicinal Plants



[2]Source: Hakim Mohammad Ferdous Wahid, Role of Traditional Medicine in Social Economic Development of Bangladesh, November 14, 2012

Strawberry

Both local and national markets require about 150 tons of strawberry per season. Bangladesh is at the moment producing only 40-50 tons. Apart from the fresh fruit market, strawberry is required in food processing companies such as in production of jelly, jam, juice, bakery, ice-cream, flavor and essence and pulp production. The demand in the food processing market is more than 400 tons per year.

The target beneficiary can be linked with both fresh and processed strawberry markets. Considering the new RU3 and Festival variety which has high flavor and color, the local strawberries has been high market acceptance and demand. The recent market behavior also suggests that there is high demand for organic food and fruits using no chemical pesticides, preservatives and ripening agents. If CREL can introduce its brand, it can easily enter this extremely high premium market. It may be noted that strawberry produce higher yield in organic environment.

In addition to the fresh market, a small pulp factory in Cox's Bazaar BSCIC area through private sector partnership can cater the market round the year and minimize the risk even further for the producing beneficiaries. However, this is not an urgent issue at the current market conditions where demand for fresh fruits is still higher.

Capsicum

- Capsicum has a higher income elasticity of demand than other stable crops.
- Capsicum tends to require two to four times more labor than cereal crops and provide opportunities for unskilled labor.
- Capsicum provides opportunities for growers to move up the value chain, as a growing market exists for high-quality processed spices,
- The production of capsicum is concentrated in a few countries mostly developing nations. The top 10 producers of capsicum accounted for 80% of production. India is dominant producer (44%) followed by China with a 9% market share. Bangladesh was the world's fastest growing producer of capsicum and by 2004, its third largest producer

Medicinal plants

Medicinal plants are consumed by a large number of Ayurvedic, Unani, Homeopathic industries and practitioners in Bangladesh. The number of such industry and practitioners are provided below:

Table 4: Number of industry and practitioners[3]

Traditional Practitioners	Ayurvedic and Unani	Recognized	6,000
		Institutionally Trained	1,000
		Unregistered	10,000
	Homeopathic	Registered	25,000
		Unregistered	20,000
Modern practitioners	Prescribe TM		500
Traditional/Folk remedies	Ojha/Fakir		50,000
Traditional Drug Producers	Ayurvedic		161
	Unani		261
	Homeopathic		76
	Others (Street vendors)		100

[3] Jasim Uddin Chowdhury, Traditional Systems of Medicine in Bangladesh, Bangladesh Council of Scientific and Industrial Research (BCSIR) Laboratories, Chittagong

Apart from the above, the medicinal plants are also used by the food processing, cosmetic, beverage and toiletries industry.

Considering the market opportunities, the following chart shows relative attractiveness of cultivating strawberry, capsicum and medicinal plants in Cox's Bazaar rated on profitability and return on investment.

9. Market Demand Assessment for VC3: Floriculture and Apiculture

9.1 Market Size and Penetration

Growth of commercial flower production can be traced back to the early 70s that got impetus in the mid-80s when large-scale commercial production started in Jhikargacha upazila of Jessore district. Later it quickly replicated largely in Jessore, Savar, Chuandanga, Mymensingh and Gazipur which turned out as the major flower production belt in Bangladesh. Presently, Jessore is contributing about 70% of Bangladesh's flower production and engages about 10,000 growers in a small, but dynamic industry. The newly growing production belts are recently found in Chittagong, Cox's Bazaar, Rangpur for flowers and Khulna, Bandarban, Khagrachori, Rangamati for ornamental plants. Graduated model farms consisted of rudimentary greenhouses and were producing new and high value products such as Gerbera daisies which were previously exclusively supplied by importers. Although this import substitution typically started initially with larger, more sophisticated farmers, the knowledge and skills to do this business but they were eventually trickle down to the smaller and less sophisticated farmers. Yet the flower market in the country started to expand significantly from 2000 onward with rapid urbanization and cultural proliferation with new festivities like Language Day, Religious Festivals, Valentine's Day and of course wedding ceremonies. Presently, according to the Assistant General Secretary of Dhaka Flower Traders *Kallyan Bohumukhi SomobaySamity* about 50,000 families are directly engaged in flower production while more than 1 million people are directly or indirectly dependent on this value chain.

Two interesting variants of the flow are highlighted in the value chain map:

- Integrated input supplier, trader, wholesaler: these businesses enhance profits by linking the farm directly to urban retailers. These represent a small minority of the product flow, but an interesting one to pursue and develop.
- "Flower assembly": beyond the simple production of flowers, some common flower-based products require "assembly" or stringing at the village level. This creates off-farm employment for women although the team did note some suspect intermediary dealings with regard to the recruiting of the women.

Floriculture

To cater the market demand, different flowers such as chrysanthemum, tuberose, and gladiolus have been imported from India and orchids, gerbera, anthurium and Thai rose from Thailand every year. Bangladesh had to spend roughly Tk. 2-3 million in importing flowers and ornamental plants from abroad. About 90% of the domestic flower industry's revenues are derived from four varieties of flowers; roses, tuberoses, marigolds and gladiolas. Imports of cut flowers increased five times between 2002 and 2007. At the same time, retailers claim that as late as 2006, the flower industry was practically nonexistent. But now the locally grown flowers are taking market share from imports. At the same time the overall flower market is continuing to grow. Imports still represent somewhere between 20 to 30% of the market particularly at the high end of the scale. Retailers prefer imported flowers because of their freshness (they maintain cold chain) and wider options for selection.

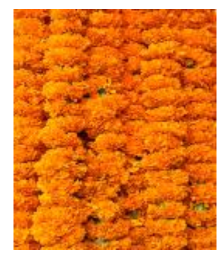
Apiculture

In Bangladesh, about 1,075 metric tons of honey is produced in a year. Of those, 810 mt are produced through scientific bee cultivation, 225 MT through honey hunters in the Sundarbans region and 40 MT from other regions. It is believed that this total production can be made more than double through proper initiatives of apiculture. Bee cultivation can be a lucrative profession and the CREL target people can earn a remarkable livelihood in return for little investment. However, acute shortage of training facility, mustard cultivation, fruit orchards, research organizations and experts, has significantly undermined the sector.

9.2 Main Market, Buyers & Competition

Floriculture

The demand for flower specially rose and merry gold is growing all over the country and especially in Cox's Bazaar district. In the last 5 years the flower sales in Cox's Bazaar has increased more than 300 times. Despite the increasing local consumption, the primary market of locally cultivated flowers is Dhaka and Chittagong. Almost 80 of the locally produced flowers are sold to Dhaka market.



Apiculture

In Cox's Bazaar apiculture is quite rare to find. There are only few collectors or bee hunter but the number is quite low. Some of the ethnic community in Whykkong still practice apiculture but not in a commercial way. They just sell them to the local villagers and use for themselves. Despite its potential for cultivation, high income opportunity and enormous benefits, apiculture is almost non-existence in Cox's Bazaar. They (almost armature, as a hobby) are farming bees and collecting honey.

9.3 Demand/Supply Situation

Floriculture

According to the President of Bangladesh Flower Growers and Exporters Association (BFGEA) currently the demand for Rose, Marigold, Gladiolus, Gerbera, Orchid, Lily, Tube Rose and some other flowers are also increasing and apart from meeting local demand, the flowers have excellent opportunity for exporting in large amounts if appropriate steps are taken to maintain the quality. The flower industry is growing by more than 10 per cent every year. The current market size is Tk10 billion and the flowers are cultivated in more than 2,500 acres of land across the country, particularly in Jhenidah, Savar, Tangail, Mymensingh, Gazipur, Narayanganj, Jessore and Chakaria.

To maintain the freshness of the exportable flowers, except orchid, flowers require a storage facility of less than 10 degrees Celsius temperature. In winter the natural cold chain helps the business immensely since the flowers remain fresh all day long and the growth of both flower variety and flowers increases substantially. At least 35 types of flowers are available in winter. While, in summer, both the types of flowers and the farm productivity are reduced and only a few items could be marketed because of lack of cold chain.

According to the Assistant General Secretary of Dhaka Flower Traders Kallayan Bohumukhi Somobay Samity Swapon Roy, per day about Tk 5.0 million worth of flowers are being sold in Dhaka market. More than 50,000 families are engaged in cultivating flowers and 200,000 people are directly and indirectly dependent on this sector.To meet the country demand, a large amount of flowers are imported every year.

Apiculture

Beekeeping and honey production is a low-tech, easy to start, highly profitable enterprise and is used in Bangladesh as a livelihood strategy for generating self-employment and supplemental cash income among rural poor and subsistence farmers including indigenous minorities and women. Through appropriate interventions and modest technological improvements, honey producers can increase their income significantly. In a country with a high rate of poverty, beekeeping represents a significant contribution to economic development.

Bangladesh has the potential of producing 10,000 MT of honey and current production is estimated at only about 1000 - 1100 MT. There is an estimated demand of about 2500 MT of honey in the country and the demand is gradually growing due to increased awareness of its health benefits and the use of bee hives to pollinate a number of important horticultural crops. The demand - supply gap is met by importing honey from other countries. An estimated 15 - 20,000 beekeepers, including the *Mowalis*, the honey hunters of the Sundarbans mangrove forest, are engaged in beekeeping and honey hunting in Bangladesh. FTF volunteers report that Bangladesh honey due to its unique color and flavor has high export potential but before that can happen there is a need for an organized marketing system to boost domestic sales and further upgrade processing, packaging, and labeling to comply with international market requirements.

Due to the concerted efforts of the agencies like Bangladesh Institute of Apiculture, Bangladesh Small and Cottage Industries Corporation and other National and International agencies the total honey production in the country has increased from 596.20 tons in 2002 to 1,109.50 tons in 2005. Though there is an estimated demand of 2,500 MT of honey in the country and also the demand for honey is gradually increasing. With the technical and financial support from various International organizations like Hunger Free World, CIDA, SIDA, NORAD, WINROCK International, FAO of UN, OXFAM, UNDP, ICIMOD etc., there are 14,500 beekeepers are involved in beekeeping sector and 1,000 beekeepers are engaged in commercial honey production by practicing scientific methods of beekeeping management. The country currently producing about 800 to 900 MT of honey every year and rest are being imported from other countries.

9.4 Market Opportunity

Floriculture

To satisfy the market demand, various flowers, such as chrysanthemum, tuberose, and gladiolus have been imported from India and orchids, gerbera, anthurium and Thai rose from Thailand every year. Bangladesh has to spend roughly Tk. 2-3 million in importing flowers and ornamental plants from abroad. About 90% of the domestic flower industry's revenues are derived from four varieties of flowers; roses, tuberoses, marigolds and gladiolas. Retailers prefer imported flowers because of their freshness (they are kept in a cold chain) and breadth of product selection.

Apiculture

Around 25,000 cultivators including 1,000 commercial apiculturists in the country produce at least 1,500 tons of good quality honey a year[4]. The demand of honey in the country is around 2,500 tons annually. About 70 percent of the requirement is imported from abroad, particularly from India, Australia, China, and different European countries. A large quantity of locally produced honey is sold at an extremely low price due to lack of appropriate marketing facilities, as result the local producers are losing their interest in apiculture. Local producers sell honey to several local companies and NGOs including Ape, Fame, BASA, Proshika and other individual buyers. Honey from mustard is sold for Tk80 to Tk100 per kg while honey produced from litchi is sold for Tk110 to Tk120. Honey produced from black seed and coriander is of higher quality and expensive, they are sold at Tk140 to Tk160. After the processing, the honey marketing companies sell the honey for Tk400 to Tk600 per kg in local markets. It is generally claimed that the locally produced honey contains more nutritional value than the imported one.

Honey is produced from mustard flowers from first week of December to last week of January while guji teel (oil seed), black seed and coriander flowers from last week of January to first week of March, litchi gardens during March, keora, kholshi and bain flowers during March-April, and from sada teel (oil seed) fields from second week of April to second week of June, in different regions of the country, depending on the availability of the items, apiculturists said.

Commercial apiculturists Monir Hossain, Shahid Miah and Joynal Abedin of Gachhbari village under Kaliakair upazila in Gazipur district have set up 66 boxes (a box has three to ten frames, each containing about 3,000 to 4,000 honeybees) at a mustard field of Narandia in Kalihati upazila under Tangail this season and collects about 200 kg of honey in eleven days.

It was reported by the producers that honey production all over the country has declined over more than 50 percent in the mustard fields early this year due to unfavorable weather especially dense fog. The litchi orchards in the northern district also saw fall in honey production due to excessive use of insecticides which killed millions of honeybees as well as severe drought early this year. According to Afsar Ali, a honey producer of Sagardighi in Ghatail upazila of Tangail, President of Tangail District Unit of Bangladesh Apiculturists Welfare Association (BAWA), around 60 commercial cultivators of Tangail district produce over 100 tonnes of quality honey a year. Mohammad Nurul Islam, Director of Bangladesh Institute of Apiculture believes that finance is one of the major impediments in honey cultivation, in this regard access to bank finance to the producers can significantly help in developing the sector. Irresponsible pesticide spray by the orchard owners particularly before noon is a direct threat for honey cultivation. It may be noted that the honey bees generally collects the nectar before noon.

[4]Mohammad Nurul Islam, Director,Bangladesh Institute of Apiculture (BIA), Dhaka

Bangladesh Small and Cottage Industries Corporation (BSCIC) first initiated bee keeping on behalf of the Government in 1977 for employment generation and poverty reduction through income generation. Initially BSCIC offered training to the interested persons and supplied a box with a queen bee and for 20 bee keepers they supplied a honey extractor free of cost. They also placed demonstration hives in the crop fields, supervised and gave technical support to the bee keepers. Their project continued up to 2005 and till then they have trained 18,000 persons. In recent years many NGOs and private entrepreneurs have become interested in promoting bee keeping. BSCIC and the Bangladesh Institute of Apiculture (BIA) an NGO, established in 1981, are currently involved in training, extension and marketing of honey and bee keeping in the country. A number of other organizations such as Proshika, CMES, Hunger free world, BASA, PROAS, Fame enterprise, etc., are also engaged in capacity development and marketing of honey on Bangladesh. BIA and Proshika are providing accessories like Bee box, Bees, knife, queen gate, bee veil, queen excluder, honey extractor etc. on credit. So far with the support and encouragement of the Government and NGOs approximately 30,000 bee keepers have been trained of which about 14,500 people are directly involved in bee keeping and about 1,000 bee keepers are engaged in commercial honey production.

The main honey producing crops in this region are:

- About 65% from mustard flower (November-February)
- About 15% from litchi flower (February-March)
- About 20% from forests

If each of these 1.000 bee keepers work for 5 months then 1,50,000 man days work is created and if 20% of the 1,000 keepers i.e. 200 people migrate to Sundarban and work for another 3 months then another 18,000 man days jobs created. Thus, the total job in this sector is 168,000 man days per year.

Among the three species of bee Apis mellifera, introduced in Bangladesh, is highly productive and gaining popularity day by day. It can produce 50 kg honey per colony per annum.

Supply and demand of honey in Bangladesh:

- Due to concerted efforts the total production of honey in the country has increased from 596.20 tons in 2002 to 1460 tons in 2007 (BIA Report, 2008).
- The total price of the produce at Tk 200/kg is Tk 292 million (USD 4.232 million)
- There is an estimated demand of 2,500 tons of honey in the country. Part of the demand is met through import from different countries like India, Australia, Singapore, Pakistan, USA etc.
- Despite this Bangladesh also exports some honey to different country like United Arab Emirates, India, Singapore, Thailand etc. In 2006, 530.1 tons of honey was exported to these countries and earned USD 2.89 million (BIA report 2008). This is highly encouraging.

Future prospect of Honey:

Bangladesh has a great potential for bee keeping with her vast green land covered with large number of bee plants throughout the country. Cox's Bazaar region in particular has special significance for bee keeping.

Demand of honey by pharmaceutical, cosmetic companies as well as at individual level is gradually increasing. As per prediction of BSCIC there is a potential of 20,000-30,000 tons of honey production in the country and more than 50,000 people can be engaged in this sector.

Beewax: Beewax is collected from the combs of wild hives, frame hives and capping. About 75% of beewax produced worldwide goes into cosmetics and pharmaceutical uses. Beewax also used as manufacture of candle, polishes, eyebrow pencils, rouges, pomades, ink, carbon paper, water proof canvas etc. it has numerous uses in military and atomic research.

Royal jelly: Royal jelly is used for stamina and cures of disease, as a cosmetic ingredient, a compound medicine. Royal jelly is actually a special feed / main to queen bee larvae. Production of royal jelly is to use a queen mangkokan filled with larvae aged 1-2 days (grafting) and attached to the frame of the next frame is inserted into the colony

Bees as Part of Ecosystems: Pollinators strongly influence ecological relationships, ecosystem conservation and stability, genetic variation in the plant community, floral diversity, specialization and evolution. Bees play an important, but little recognized role in most terrestrial ecosystems where there is green vegetation cover for at least 3 to 4 months each year. In tropical forests many species of plants and animals would not survive if bees were missing. This is because the production of seeds, nuts, berries and fruits are highly dependent on insect pollination, and among the pollinating insects, bees are the major pollinators. In farmed areas, bees are needed for the pollination of many cultivated crops, and for maintaining biodiversity in 'islands' of non-cultivated areas. The main role of bees in the different ecosystems is their pollination work. Other animal species are connected with bees: either because they eat the brood or honey, pollen or wax, because they are parasitic to the bees, or simply because they live within the bees nest.

Benefits of Beekeeping include:

1. Pollination
   - Bees pollinate flowering plants and thereby maintain the ecosystem.
   - Bees pollinate cultivated crops.
2. Honey
   - People everywhere know and like honey, a valuable food and income source.
3. Beeswax and other products
   - Beeswax, propolis, pollen and royal jelly. These products have many uses, and can be used to create income.
4. Few resources are needed
   - Beekeeping is feasible even for people with minimal resources.
   - Bees are obtained from the wild.
   - Equipment can be made locally.
   - Bees do not need the beekeeper to feed them.
5. Land ownership not essential
   - Hives can be placed anywhere convenient, and so beekeeping does not use up valuable land.
   - Bees collect nectar and pollen wherever they can find it, so wild, cultivated and wasteland areas all have value for beekeeping.
6. Nectar and pollen are otherwise not harvested
   - Nectar and pollen are not used by other livestock: only bees harvest these resources, so there is no competition with other crops.

- Without bees these valuable resources could not be harvested.

7. Different sectors and trades benefit from a strong beekeeping industry
   - Other local traders benefit by making hives and equipment, and from using and selling the products.
8. Beekeeping encourages ecological awareness
   - Beekeepers have a financial reason to conserve the environment: ensuring that flowers are available and bees are protected.
9. Everybody can be a beekeeper
   - Bees can be kept by people of all ages.
   - Bees do not need daily care and beekeeping can be done when other work allows.
10. Beekeeping is benign
    - Beekeeping generates income without destroying habitat.
    - Encouraging beekeeping encourages the maintenance of biodiversity.

Part IV: Market Demand Assessment for South East Region 1 (Chittagong)

10. Market Demand Assessment for Vegetable

10.1 Main Market, Buyers & Competition

Vegetables*:* The end market for vegetables in the region is reasonably diverse with the consumers ranging from private households of various income groups to restaurants. As the consumption pattern of various income levels is fairly similar, no segregation in such manner has been done. However, the consumers of vegetables can be segregated, by the geographic location of purchase, into three levels – a) local bazaar or village level, b) regional level which includes Chittagong Metropolitan City and c) outer region level that is consumers in other districts.

About 15% of the vegetables that are produced locally are consumed by people attending the local bazaars situated close to farms in the villages. As the local arotdars also retail 70% of their traded volume directly to consumers, the rest 30% comes through local vegetable retailers. The consumption pattern reveals that the average daily consumption composition is shaped by the locally available vegetables. Rarely vegetables from distant villages reach these markets.

The regional level consumers buy the vegetables for consumption from the regional bazaars that are larger and are more diversified in terms of availability of items than local bazaars. Their consumption composition demonstrates a broader range of vegetables due to a variety of sources from within the region including the ones that come from other districts. According to the study, 78% of the vegetables produced in the program areas are consumed at this regional level. The end consumers buy almost all of it from vegetable retailers situated in regional level markets like Reazuddin Bazaar, Bahaddarhat Bazaar etc. in Chittagong metropolitan area. The reason behind this large portion is the population density of the metropolitan area and the presence of many restaurants of different sizes. The outer district level receives the rest 7% of vegetables produced in the program areas.

Medicinal Plants*:* The end market of medicinal plants is essentially segregated into two levels: a) regional and b) national. The extracts from the medicinal plants travel through the value chain to reach the herbal medicines producers which in turn reaches the consumers throughout the country. The household usage of extracts from medicinal plants compared to consumption as herbal medicine, it is considered to be negligible and not accounted for in this consumption calculation. Moreover, as per market study, 95% of the extracts of medicinal plants that are consumed as herbal medicines are imported from India, Pakistan and China.

Among the total produced extracts of medicinal plants from the program areas in Chittagong, Rangamati and a small part of Cox's Bazaar, nearly 30% goes to local herbal medicine producers at the regional level and 18% goes to the national level herbal medicine producers. The national level consumers acquire their products from national level herbal medicine producers, which represent nearly 53% of the total products extracted from medicinal plants cultivated in these program areas.

10.2 Demand/Supply Situation

There is a significant demand-supply gap in the market. The big vegetable bazaars in the regional levels shows a 20% gap in demand which is currently not being met. Moreover, the regional level bazaars represent a good 78% of consumption of vegetables produced in the program areas of the region and at least 40% of the vegetables available in the regional level bazaar come from outside the district. The presence of high consumption vegetables like potato, bean, gourd and brinjal from far away locations of the north-west part of the country (Bogra, Dinajpur, and Rangpur) shows a potential gap in the regional production. As per the analysis, the local production of vegetables in the program areas can be increased up to 30% without making an impact on the current price.

The medicinal plants market illustrates a completely different scenario. The presence of herbal medicine producers in the market indicates a steady demand for extracts from medicinal plants throughout the year. Currently the demand is being met by imported processed extracts from India, Pakistan and China which represents about 95% of the consumption in the local herbal medicine market. However, all of the rest 5% are locally produced and processed extracts from within the region. As a result, the demand-supply gap is huge and can be met with a large increase of current commercial production.

10.3 Market Opportunity

The market opportunity for vegetables and medicinal plants is well drafted by the soil nature. The soil in this region is highly fertile and favorable for vegetables and medicinal plant production. Assessing the capacity, it is seen that at least 75% of beneficiaries have cultivable land and cultivable land is also available for leasing which directs towards a potential expansion of the production to meet the yet unmet demand.

Traders are well-connected with regional and even national markets. So, with increased supply of vegetables, the opportunity for vegetable traders will increase. The inclusion of women in the vegetables value chains can potentially increase the productivity per household and at the same time can generate income through economic activities.

11. Market Demand Assessment for Fruits

11.1 Main Market, Buyers & Competition

The end market for fruits collected from the program areas in Chittagong, Rangamati and part of Cox's Bazaar district are mainly located in three levels: a) local consumers, b) regional consumers, and c) consumers in other districts. Both the regional and local markets in the study area are largely dominated by imported fruits sourced from other regions of Bangladesh and abroad.

The local consumers buy the fruits from the local bazaars situated not far from the farming locations. These bazaars sell almost 13% of fruits produced locally which is consumed by the people living locally. Here the consumption composition (items eaten) is largely controlled by the availability of seasonal fruits that are produced locally.

The regional consumers buy the fruits from small, medium and big fruit vendors from the regional level which is Chittagong city and around. The big bazaars like Reazuddin Bazaar, Falmandi, Bahaddarhat Bazaar etc. serve as the major locations for the consumers who buy from the big and medium vendors. About 73% of the fruits produced in the program areas are consumed here. This high percentage of consumption of local food is mainly due to the population density and the presence of high to medium income groups in the metropolitan area.

Another 14% of the fruits produced in the program areas go out of the district and are consumed by consumers located in adjacent districts like Bandarban, and Cox's Bazaar; and also further away districts like Dhaka.

From the in-depth interviews, the market size of the regional level of fruit trading can be estimated to be Mango: BDT 1,000 crore, Litchi: BDT 40 crore, Pineapple: BDT 100 crore, Jackfruit: BDT 30 crore, Plum: BDT 10-12 crore.

11.2 Demand/Supply Situation

It was seen in the market that a large portion of the fruits are sourced from outside the district. Almost 60% of the fruits available in the local market are sourced from across the country. Popular fruits like mango, litchi, banana, jackfruits, berry, etc. are sourced mostly from north western part of the country, from districts like Rajshahi (mango), Dinajpur (pineapple, late variety litchi), Rangpur (banana), Natore (hybrid watermelon), Comilla (plum) and Meherpur & Chuadanga (early variety litchi). Moreover, there are various fruits that are imported from other countries. For example malta comes from South Africa, which is seeing a declining trend due to increased demand for it in the European market in recent years. On the other hand, though there is some production of strawberry in the region, the demand is low in the region and most of the strawberries produced locally are sent to the capital to cater to the national level.

The demand for seasonal fruits is steep. However, in the peak season when the demand is high and price hits the highest point the farmers exhibit the tendency to collect the fruits in a hurry to gain from the infatuated rates. This results in overflow of supply in the market, leading to a sharp decline in price and wastage of fruits due to limitation of capacity of proper storage and transportation. This also results in wastage of 1-2 tons of fruits which are usually dumped in the garbage.

11.3 Market Opportunity

The regional fruits market holds great potential for substituting the imported fruits and fruits sourced from locations outside the region. The mangoes from Rahshahi, Chapa Nawabganj, Dinajpur, and Bogra can be replaced with extensive cultivation of *Amropali* and *Ranguain* – two local high yielding varieties of mangoes – in the program areas. Litchi and banana can be grown in the fallow strips of lands in the hilly areas where cereal crops and vegetables cannot be cultivated.

Studying the supply demand dynamics of the regional market, which represents 73% of consumption of fruits produced in program areas, it is evident that the inflow of fruits to the arots can be controlled by proper dissemination of capacity information. For example: farming zones can segregate the collection and transportation time to get rid of the overflow mentioned in the previous points.

Moreover, expansion of capacity in terms of storage and transportation can greatly enhance the handling quality of fruits.

12. Market Demand Assessment for Handicrafts

12.1 Main Market, Buyers & Competition

The consumers for handloom generally are common in both the segments as the product is generally used both simultaneously for functional and aesthetic or decorativevalues. Nearly 56% of the handloom products produced in the project areas in Chittagong, Rangamati and part of Cox's Bazaar go to the national level and are sold in the bigger metropolitan areas of the country for a good price. Another 24% of these handloom products are consumed at the divisional level which is Chittagong metropolitan area and around. The rest 20% is consumed in the localities within a short distance from the producers.

For the handicraft end market, there are only divisional and local levels of consumption. The local consumption is basically composed of functional utility items like baskets, hanging baskets, fishing nets, carry baskets, storage boxes, etc. It represents almost 40% of the consumption of products that are produced locally. The rest 60%, composed of both utilitarian and aesthetic products – e.g. household amenities and decorative items, goes to the divisional level in urban areas of the region.

12.2 Demand/Supply Situation

The market for handloom and handicraft are divided into urban and rural segmentation on the basis of usage pattern. In the rural areas the focus is on the functional utility of products; whereas, in the urban areas the focus is on the design or aesthetic values. The total value of the market of handloom and handicrafts of the greater Chittagong region is estimated to be around BDT 60 crore from the secondary literature reviews and in-depth interviews and almost 15% (BDT 9 crore approx.)of the supply comes from the project areas.

The demand for aesthetic products is seen in the urban areas at the national level. Dhaka, being the capital and the most densely populated area with a high disposable income, is the primary market for the aesthetic handloom and handicraft value added products. Other metropolitan areas like Chittagong, Rajshahi, Sylhet and Khulna are also appropriate for marketing these products. The demand is currently met by the medium and small national level organizations with substantial set up. Involvement of a lot of non-profit organizations (including NGOs) in this sector is significantly observable. The national level retailers of handloom and handicrafts; like Rang, Aarong, Jaatra, Kay Kraft, Bibiyana, Nagardola; partially source the products from the producers located in the remote areas of the country mostly from hill tracts to differentiate with originality and heritage. There are several distribution hubs in the region level that source the products from the remote areas and supply to the national level retailers. However, they mostly produce the crafts and loom items in the urban areas to keep a hands-on control over the quality and efficiency of the production. The aesthetic products are normally highly value added and are sold in the tourist spots in the districts of Rangamati, Bandarban and Cox's Bazaar.

The demand for products meeting the functional utility is mostly observed in the rural and semi urban parts of the region and the country. These products include: baskets to store and carry, bags, clothes, fishing nets, fences, etc. This demand is mostly met by the local suppliers. The producers source the raw materials from within short distance and sell their products locally. The excess demand that arises in the harvesting seasons (for carry baskets and storage baskets) is met by the paikers who fetch products from adjacent districts.

12.3 Market Opportunity

The market opportunity for handloom and handicrafts is well formed as there is a big supply gap of products coming from the places they originated in. For example: the hand stitched clothes, locally known as *Thami*, made and used by the indigenous people of the hill tracts can attract the foreign and local tourists. The originality and heritage can be promoted to make the products known at a national and international level.

Additionally, the products made by beneficiaries located in the program areas can be brought to the national level market to ensure proper price – by making the input supplies conveniently available in the areas and strengthening the market channels from those areas to the distribution hubs. Furthermore, trainings can be provided to enhance quality and productivity.