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VALUE CHAIN SELECTION: SARANKHOLA UPAZILA, KHULNA DISTRICT



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Action for Enterprise

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Executive Summary

AFE conducted a value chain selection exercise in Sarankhola upazila of Khulna District from May 8-26, 2011. This goal of this exercise was to identify up to three value chains that demonstrated the most potential to be commercially viable and accessible to PROSHAR's targeted group within Sarankhola.

The activities began with a thorough desk review of information available on value chains within the region, creation of an initial list of value chains for consideration and the determination of selection criteria to be used throughout the process. The Team then conducted interviews with key informants throughout the region to get a better sense of the most promising value chains that were active in the region and the various actors and functions being performed throughout them. This process allowed the Team to narrow down potential candidates to a list of 12 that were assessed in greater depth and then carry out further interviews with the market actors within these value chains. Information gained through this process allowed the Team to use short-listing tools to rank each of the value chains against pre-selected criteria and determine the top three with the greatest potential in the targeted area.

As a result of this selection exercise, it was determined that the value chains with the most promise for a potential market-development program within the target area of Sarankhola upazila are rice, grass pea and prawn. While this selection exercise has included a brief analysis of the three chosen value chains from the information that was collected during the selection process, it is not intended to be a complete analysis of each value chain. The logical next step towards a program design would include greater in-depth analysis of the target value chains to better understand the market trends and industry dynamics within, in order to better determine the key issues hindering MSME growth and competitiveness.

I. Introduction

This report presents the results of a Value Chain selection exercise carried out by AFE on behalf of ACDI/VOCA's PROSHAR program in Khulna Division, Bangladesh. The objective of this exercise was to identify value chains with high potential to impact producers in the targeted area (Sarankhola upazila). The field work took place from May 8th to May 26th, 2011. This report is divided into the following sections:

- Overview of Target Area
- Selection Process
- Overview of Short-listed Value Chains
- Final Selected Value Chains

II. Overview of Target Area

Sarankhola upazila is located within Khulna district and is one of the southernmost upazilas in Bangladesh, extending south to the Bay of Bengal with much of its area bordering and comprised of the Sunderbans mangrove forest. The upazila is slightly over 750 square kilometers and has a population of roughly 25,000. With over 35% of the population landless and over half of the arable land being used for single crop production, there is much less agricultural activity in Sarankhola than in neighboring upazilas.¹



Sarankhola is comprised of four unions: Royenda, Khontakata, Dakshinkhali and Dhansagar. Due to the nature of the upazila's location and proximity to both the Sunderbans mangrove forest and the Bay of Bengal, many residents engage in a variety of income-generating activities in addition to agricultural crops. Many people fish or culture both prawn and whitefish for a portion of the year and/or go to the Sunderbans to collect some of its vast amount of natural resource commodities including honey, wood, and grasses.

Because of Sarankhola's location on the coast, it is affected by high salinity levels in the water; areas farther from the river are less saline, but the farther the distance from the river, the more difficult it is to access irrigation facilities. Royenda and Dakshinkhali suffer from higher salinity than Khontakata and Dhansagar due primarily to their proximity to the bay, and are therefore less suitable for saline intolerant varieties of crops. From February to May the water is at its most saline, and those that have

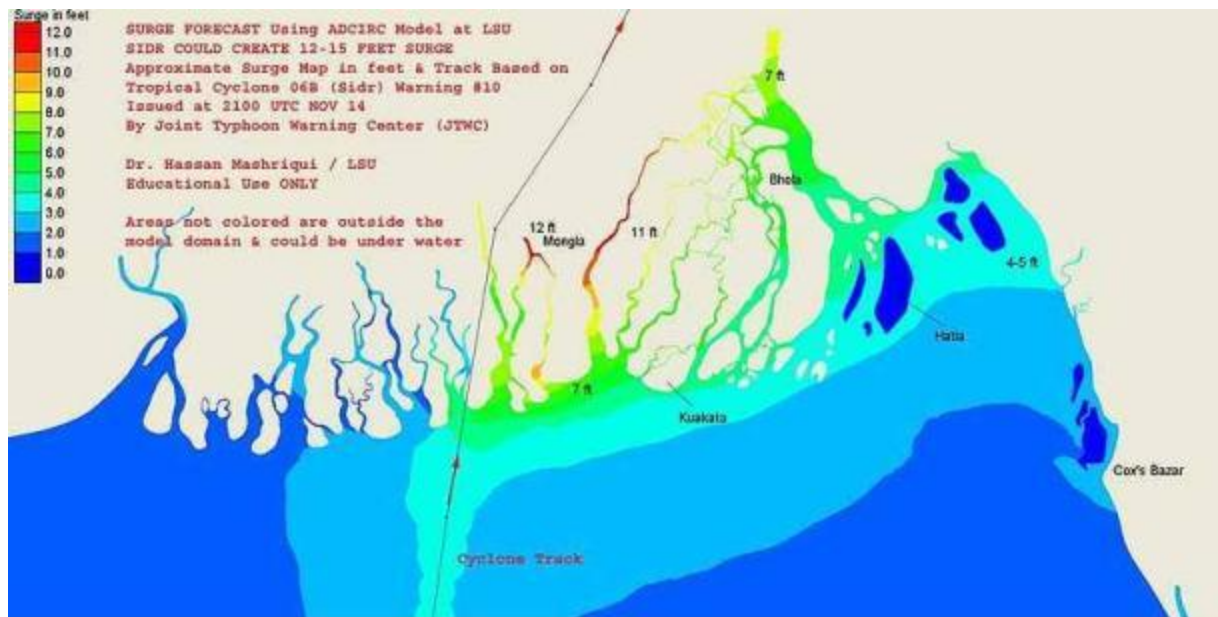
¹ Information obtained from Banglapedia

access to canals and irrigation facilities rely on “sweetwater” or lower saline water stored earlier in the year, while most others are not able to grow most crops during this time. As a result of high salinity throughout much of the upazila, and the lack of access to irrigation for most farmers, the range of potential crops suitable for cultivation is quite limited. Local government agricultural officers are hopeful they will be granted resources from the national level to expand irrigation facilities for farmers throughout the upazila under the Agricultural Engineering Project of the Ministry of Agriculture, implemented by the Department of Agricultural Extension.²

Because of these impediments to agricultural production, many products have to be imported from other areas of Bangladesh; for example most vegetables are imported from the nearby Jessore region. While Sarankhola is a remote upazila, the transportation links are robust enough so as not to severely restrict their trading options. The closest district-level market is in Bagerhat, where most of the products originating from Sarankhola pass through. From Bagerhat, many products are sent to other parts of Bangladesh including the divisional capital of Khulna City.

Cyclone Sidr

In November 2007, Cyclone Sidr made landfall in Southern Bangladesh causing severe destruction and flooding throughout the region and hitting Sarankhola especially hard. It was estimated that up to ten thousand people died from the storm and as a result, hundreds of millions of dollars worth of aid money started to pour into the region. The presence of several organizations continuing relief and recovery programs in this area without a market-development approach, nearly four years after the disaster, is quite worrying given the many negative consequences and unintended distortionary effects that were witnessed by the team while in the field.



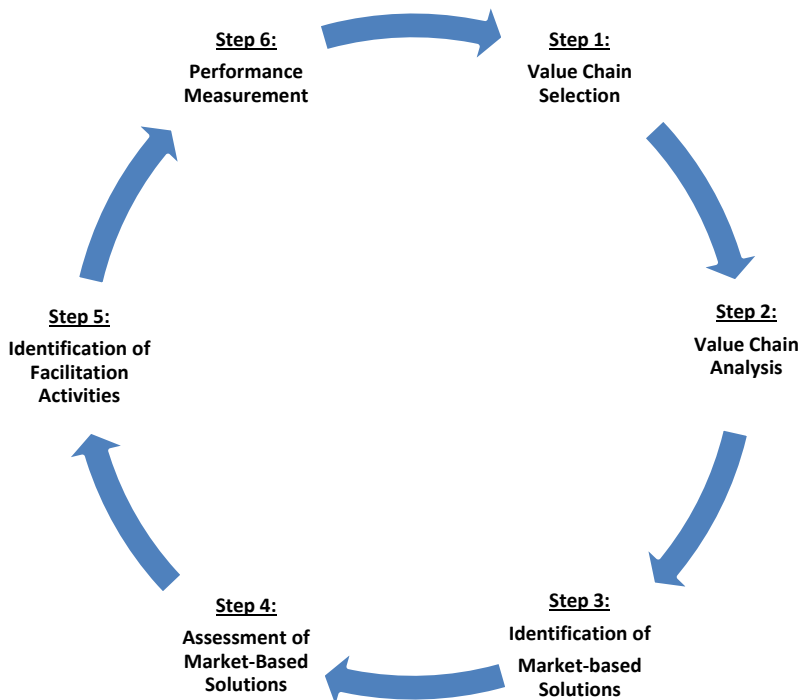
² Information obtained from the Sarankhola Agricultural Extension Officer

Throughout the course of the selection process, many of the key informants and market actors interviewed commented on the negative impacts suffered as a result of these distortionary programs. Many market actors, including from the rice processing and prawn trading industries, had harsh criticism for some of the aid programs being implemented in Sarankhola that continue to distribute agricultural inputs and other assets for free without doing enough research beforehand to recognize how they are distorting the markets. For instance, many of the agricultural inputs distributed for free included seeds for crops with little or no commercial or subsistence value in Sarankhola, such as maize, thereby limiting households' opportunities to engage in more productive activities. In addition, one vegetable trader in Bagerhat complained that some of his employees returned to their homes in Sarankhola to collect assets distributed by development organizations, because they could earn more selling relief and recovery aid products than by working legitimate jobs. In this way, the free handouts are actually taking people out of gainful private sector employment in favor of non-income generating or heavily subsidized activities. The detrimental effects of these types of asset transfer programs could therefore make it difficult to develop a market-based program in Sarankhola. If other organizations continue to distort markets with these types of programs, it can disrupt more market-oriented approaches and foster a culture of dependency among the populations.

III. Overview of Program Design Methodology

The value chain selection exercise conducted is part of a multi-step "program design methodology" shown graphically in **Figure 1** below. Throughout this six step process, the methodology emphasizes the identification and promotion of market-based solutions, which means solutions that are provided by market actors in a commercially viable and sustainable manner. The exercise conducted by AFE involved the Value Chain Selection step shown in "Step 1." Although some analysis of the three prioritized value chains that emerged from the exercise is included, further in-depth analysis would be necessary before proceeding to Step 3 and the Identification of Market-based Solutions.

Figure 1: Value Chain Program Design Steps



Within the Value Chain Selection step, AFE followed a process that included six elements:

1. Determine which selection criteria to use;
2. Identify an initial set of value chain candidates;
3. Review secondary sources of information;
4. Collect primary information (e.g. interviews);
5. Complete short-listing of candidates using a matrix tool; and
6. Compile results for final selection using a ranking grid tool.

These six elements formed the basis of the selection methodology and will be discussed in further detail in section III.

IV. Selection Process

Initial set of value chains

The team first carried out a thorough desk review of available reports on value chains and economic activity in the target area. This was complemented by AFE's experience working in value chains throughout Bangladesh, and the consultants' prior observations while conducting the value chain analysis for apiculture in the targeted area. Based on this process, the team came up with an initial set

of over 25 potential value chains for selection. This initial set of value chains (found in Appendix 3) includes agricultural, livestock and input market value chains.

Initial Short-Listing

From an initial set of nearly 25 value chains, the team focused on generating a short-list of 12 higher priority value chains. The first several days on the ground were spent interviewing key informants in Sarankhola, Bagerhat, and Khulna to gather information that could be helpful in the short-listing process. Key informants interviewed included government representatives, university professors, large traders, NGOs and anyone else with a wide range of expertise among the value chains being considered. Primary considerations during this process were the need for potential value chains to be commercially viable, as well as the potential for the value chains to involve members of the target population of poor and ultra-poor. As a result of these efforts the team selected the following 12 value chains:

1. Grass pea
2. Mung bean
3. Maize
4. Mustard
5. Pumpkin
6. Chili
7. Potato
8. Rice
9. Prawn
10. Whitefish
11. Bitter gourd
12. Betel nut

Short-listing Matrix

This list of 12 value chains was then examined in greater depth by the team over the next several days by collecting primary information from market actors (producers, traders, processors, transporters, retailers) working within the chosen value chains. These interviews were conducted to obtain further information about the primary two criteria to be used for further short-listing:

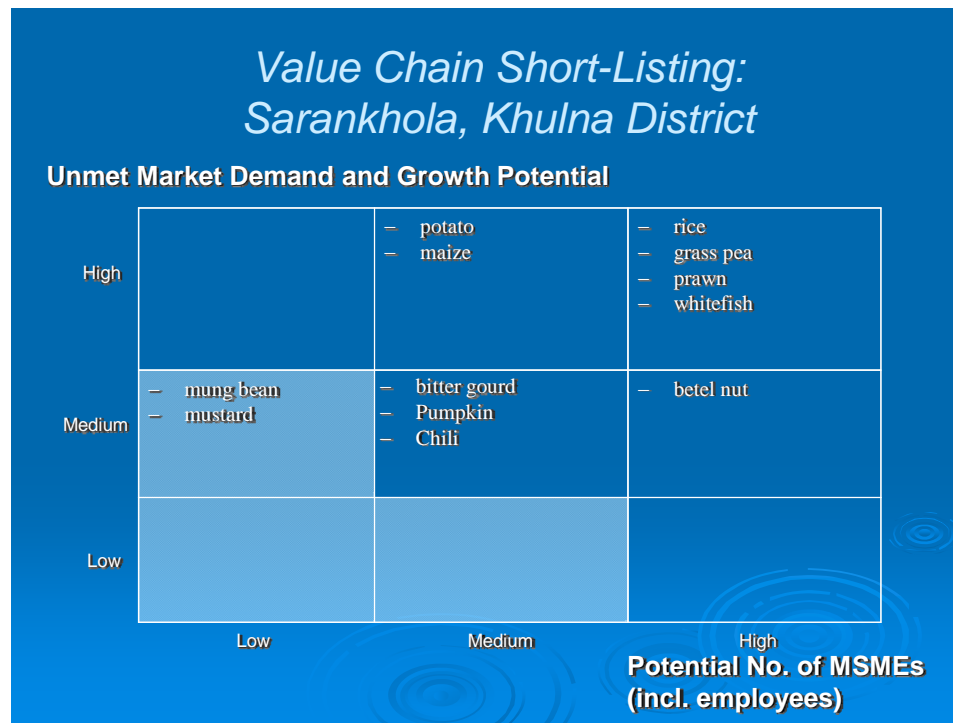
1. Unmet market demand / growth potential
2. Number of targeted MSMEs involved (including employees / laborers)

Prior to conducting the initial short-listing exercise it had been determined based on AFE's previous experience in value chain selection, and in line with the stated goals of PROSHAR in relation to having a market-oriented approach to achieve Strategic Objective 1, that these two selection criteria were the most important and would therefore be used to determine initial short-listing.

The selection team then proceeded to rank each value chain against the two criteria as low, medium or high on the matrix through a participatory process that brought together all findings from the exercise

up until this point. The selection team chose to move forward with further assessment of the four value chains that scored a high ranking on both criteria, as well as the potato and maize value chains which scored high in market demand and medium on # of MSMEs (betel nut was not chosen due to limitations on market demand).

Figure 1: Short-listing Matrix Results



Ranking Grid Exercise

The team next used a ranking grid tool to score the remaining six value chains against seven selection criteria chosen and weighted according to their relative importance as determined in advance by the team. The selection criteria included:

1. Unmet market demand/growth potential
2. Number of targeted MSMEs involved (including employees / laborers)
3. Presence of lead firms (with incentives to develop or improve products, services, or support they provide to targeted MSMEs they buy from or sell to)
4. Supportive government policies or enabling environment (or lack of negative policies)
5. Participation of women (either directly or indirectly)
6. No negative effect on the environment (or a positive effect)
7. Potential to increase incomes and/or consumption smoothing

Each of these criteria was given a weight from one to three based on its relative importance as determined by the selection team given the stated goals of the selection exercise. The team then proceeded to take all information on the value chains compiled up until this point and discuss the

performance of each value chain against each criterion in order to generate a rating from one to five (Rating: 1=Poor, 2=Fair, 3=Good, 4=Very Good, 5=Excellent) for each value chain for each criteria. These ratings were then multiplied by the predetermined weight to produce the weighted score. The total weighted score is therefore out of a possible maximum score of 75 based on the equation below:

The three highest scoring value chains that emerged from this exercise were rice, grass pea and prawn. Following a discussing of the results, the team verified that these three highest potential value chains would be put forward as the selected value chains. Full results for the ranking grid process are shown below in **Figure 2**.

Figure 2: Ranking Grid Results

Criteria	Weight	Rice	Grass Pea	Prawn	Whitefish	Potato	Maize
		Rating/Score	Rating/Score	Rating/Score	Rating/Score	Rating/Score	Rating/Score
Unmet Demand	3	5/15	4/12	4/12	4/12	3/9	3/9
Lead Firms	3	5/15	4/12	5/15	4/12	1/3	2/6
# of MSMEs	3	5/15	5/15	4/12	4/12	3/9	2/6
Income Potential	2	3/6	3/6	4/8	4/8	4/8	4/8
Presence of Women	2	4/10	4/8	2/4	2/4	3/6	4/8
Favorable Policies	1	4/4	3/3	2/2	2/2	4/4	4/4
No Harmful Env. Impact	1	3/3	4/4	2/2	3/3	3/3	2/2
TOTAL Weighted Score	75	68	60	55	53	42	43

V. Overview of Short-listed Value Chains

1. Pumpkin



Pumpkin grows only during the *Kharif* season (from February to June) in Sarankhola, due to the soil type and irrigation issues of the area discussed above. Pumpkin is mostly grown to meet local demand within the upazila as a seasonal vegetable. Exports occasionally occur to markets in nearby Bagerhat and only sporadically occur to the Khulna market when there is sufficient surplus from a bumper harvest. Because Sarankhola cannot grow vegetables year round, pumpkin is imported from other districts during the rest of the year. Only farmers with

access to irrigation facilities are capable of growing pumpkin. As a result of its relatively lower growth potential and lower number of potential target MSME beneficiaries across the vegetable sector, Pumpkin did not rank high enough in the short-listing matrix exercise for further consideration.

2. Chili



For the same reasons as pumpkin (discussed above), chili also grows only during the *Kharif* season in Sarankhola. Chili's produced in Sarankhola primarily meet local seasonal demand. There are occasional exports to Bagerhat markets only sporadic exports to Khulna markets when there is sufficient surplus from a very good harvest. In the offseason, chili is imported from other districts. Only farmers with access to irrigation facilities are capable of cultivating chili. As a result of its relatively lower growth potential and lower number of potential target

MSME beneficiaries across the vegetable sector, chili did not rank high enough in the short-listing matrix exercise for further consideration.

3. Mung bean



Mung bean is a type of pulse used in a variety of Bangladeshi meals and other food items. The most common usage being in the Bangladeshi staple *daal*, a dish consumed at most meals within Bangladesh. Because mung bean is more costly to grow (and consequently more expensive than other common types of pulses) its demand in rural Bangladesh is not as high as substitute products like grass pea.

Mung bean grows in the winter growing season. It is not as saline resistant as other varieties of pulse (including grass pea), and its production cost is also higher for farmers. As a result only a few farmers with large pieces of land that can afford to diversify their production risks by growing several crops in a single season consider growing mung bean as part of their basket of crops. However, traders and *arotdars* within the local upazila and district level markets are common for all types of pulses that grow or are traded in Sarankhola. As a result of its relatively lower unmet market demand and lower number of target potential MSMEs within the value chain that could benefit, especially in comparison to substitute crops like grass pea, it was determined not to proceed further with mung bean.

4. Mustard



Mustard is a type of oil seed that is primarily grown in Bangladesh to be processed into oil used for a multitude of purposes ranging from a cooking order, to a flavor enhancer, to hair or body oil. Although there is high demand for mustard oil, the oil itself generally comes from outside the region and is quite expensive in comparison to substitute oils. In addition mustard cultivation requires irrigation facilities since it cannot tolerate salinity, and as a result of the higher costs of production, it is cheaper and more cost effective to import mustard from

outside Sarankhola than to produce it locally. Similar to mung bean, only people with large land holdings that can afford to diversify their production across a number of different crops produce mustard in the targeted area. Out of approximately 10,000 hectares of agricultural land, only around ten hectares were currently being used for the cultivation of mustard however, exemplifying the limited nature in which

production currently exists within the target upazila.³ As a result of this lower growth potential and lower number of potential MSME beneficiaries, mustard did not rank high enough in the short-listing matrix exercise for further consideration.

5. Bitter gourd



Like pumpkin and chili, bitter gourd grows only during the *Kharif* season in Sarankhola from February to June, for the same reasons. Similarly, bitter gourd production is used primarily to meet local demand within the upazila when it is in season, with occasional exports to Bagerhat market only sporadic exports to the Khulna market when there is sufficient surplus from a bumper harvest. Because Sarankhola can only grow vegetables in one season, bitter gourd is imported from other districts during the rest of the year. Only farmers with access to irrigation

facilities are capable of growing bitter gourd. As a result of this lower growth potential and lower number of potential MSME beneficiaries across the vegetable sector, bitter gourd did not rank high enough in the short-listing matrix exercise for further consideration.

6. Betel nut



Betel nut is a mild stimulant, and is primarily sold throughout the country for chewing wrapped in betel leaves. Given its proximity to the coast Sarankhola's climatic and soil conditions are suitable for growing betel nut trees. In fact nearly every household has at least a few betel nut trees; however, as a result of Cyclone Sidr many of the betel nut trees in the upazila were destroyed or damaged. The resultant supply shock has meant that the demand for betel nut cannot be met through local production. Betel nut trees grow naturally and no specific care is provided to them.

Nuts are harvested during the period from September to November. Unfortunately, betel nut trees can take up to five years to reach maturity and are able to produce nuts. This severely limits the potential impact any program interventions could have on MSMEs in the short term. Once the trees reach maturity however, they can produce nuts for 15-20 years or more.

³ Information obtained from the upazila agricultural extension officer

The 5% of households with over 10,000 trees were producing in a commercial manner unlike many of the smaller households. After harvesting betel nuts need to be dried for a few days at which point they can be stored for the rest of the year. During that time traders collect betel nuts from farmers / households and send them to the Khulna city wholesale market. Despite a high demand and a high number of potential MSME beneficiaries, the growth potential as a commercially viable product was seen as limiting the feasibility of this value chain for further consideration.

7. Maize



Over the past decade, maize has become one of the crops with the highest demand in Bangladesh because of its role as a major raw material input for the animal and fish feed manufacturing industries. As demand for these products has grown in recent years, the demand for maize has increased in proportionately. Domestic production is not currently sufficient, and therefore being imported from outside Bangladesh to meet this growing demand.

Some farmers in Sarankhola have started growing maize in a small scale on pockets of land where irrigation facilities are available. It was observed that BRAC is distributing free maize seeds to farmers as part of their ongoing Sidr relief efforts, and a few other farmers were cultivating maize on their own as this is a new crop to the area. While there are a number of larger maize traders operating within Khulna City, there are no feed mills in Sarankhola. Basic processing in the form of removing the grains from the cob is carried out primarily by women at home with maize being more labor intensive than many other crops.

Maize can be very profitable compared to other competing crops that are grown in the same season, however many of the market linkages between producers in Sarankhola and traders in the upazila and neighboring markets were not fully developed. In fact some farmers expressed difficulty in finding buyers for their product. This, however, did not seem to be indicative of a lack of demand for maize as some traders expressed that they would buy everything that was produced, but rather demonstrative that market linkages are not yet fully developed as a result of this being a new crop in the area which is still only produced in relatively small quantities.

In addition, maize is more detrimental to the land than other crops because of the larger amount of nutrients it extracts from the soil, making it important to use varied cropping patterns. As a result, maize cannot be grown repeatedly on the same soil.

This information formed the basis for the ranking of maize against the seven criteria in the ranking grid exercise that resulted in a weighted score of 43 for this value chain. In comparison to the other top six

value chains, the score was not high enough to warrant further consideration of this value chain for selection purposes.

8. Potato



Potato is a major staple in the Bangladeshi diet and therefore there is always high demand for it. In recent years, some farmers in Sarankhola have begun cultivating potatoes as a result of this high demand. As there are no cold storage facilities nearby however, locally produced potatoes can only be sold in Sarankhola for a few months after harvest and overall production volumes are very low. Throughout the rest of the year, potatoes are brought in from Munshiganj and other northern districts with greater production and access to cold storage facilities. During the time of the Sarankhola

harvest, buyers come from outside the area, including from these same northern districts, to purchase from local producers. As a result of this growing market, more farmers are attempting to get the irrigation systems needed to grow potatoes.

As with many other crops, potato production is limited in the area due to the lack of irrigation facilities needed to grow such a crop in these conditions, so few people are currently involved in this value chain. As a result, there are none of the large potato processing and/or exporting companies here that are found in the north.

Potatoes grow during the season when most land in Sarankhola remains fallow (October-February), so access to improved irrigation systems could enable many more farmers to cultivate potato in Sarankhola potentially significantly increasing their incomes. Women are involved as laborers in harvesting and post-harvest activities such as grading and sorting, and the government has been working to promote potato cultivation as a substitute to rice.

The above information formed the basis for the ranking of potato against the seven criteria in the ranking grid exercise that resulted in a weighted score of 42 for this value chain. In comparison to the other top six value chains, the score was not high enough to warrant further consideration of potato for selection purposes.

9. Whitefish



Whitefish is the main protein source in the region and a very important part of the local diet. As such, there is high unmet demand for it regionally. Most households in Sarankhola maintain small ponds within the homestead area in which they culture carp, although this is not generally practiced in a commercial manner. Most of the harvest is consumed directly by the household or sold in the local market, only rarely is it exported outside the upazila.

In addition to the culturing, several varieties of whitefish are captured from the Bholeshor and Bhola rivers as well as the sea. While some of these fish go to the local market, most go to Khulna and Barisal wholesale markets because of the high demand there. There is significant seasonal variation in the availability of different varieties of whitefish. Hilsha fish is captured from July to November on the rivers, and from January to February waters in the Bay of Bengal are calmer and fisherman head out into the bay for the deep sea varieties.

As a result of so many households having small ponds to raise fish, and given Sarankhola's proximity to water allows many people to engage in fishing activities in addition to their primary work, a large number of people are involved in this value chain. Because most whitefish ponds are located near the homestead, there are high levels of participation of women in this activity as they are often the ones caring for the pond. Most people cultivating whitefish do so as a secondary source of food or income and do not invest much time or planning into it, and therefore do not practice proper feeding or disease management techniques. As a result pond utilization is minimal and yields and income potential are suppressed due to poor aquaculture practices and lack of information. Certain medicines or other chemicals introduced to the ponds in the aquaculture practice can have a negative effect on water quality and potentially cause other negative environmental issues as well.

There are no hatcheries for whitefish fingerlings in the area, and most of the inputs for homestead aquaculture are provided by mobile traders who bring them primarily from Jessore district. There are about 50 *arotdars*, or traders, in whitefish within Sarankhola upazila.

Based on the above information, the team used the ranking grid to score the whitefish value chain against the seven criteria. The whitefish value chain resulted in a weighted score of 42 for this value chain. In comparison to the other top six value chains, the score was not high enough to warrant further consideration of this value chain for selection purposes.

VI. Final Selected Value Chains

The following three value chains were selected based on the relatively high ranking they received against the seven selection criteria. The rationale for these rankings is presented in the more detailed description of these value chains below. These descriptions are just the beginning of a more in-depth “value chain analysis” that will be needed in order to complete a program design exercise for each value chain.

Rice

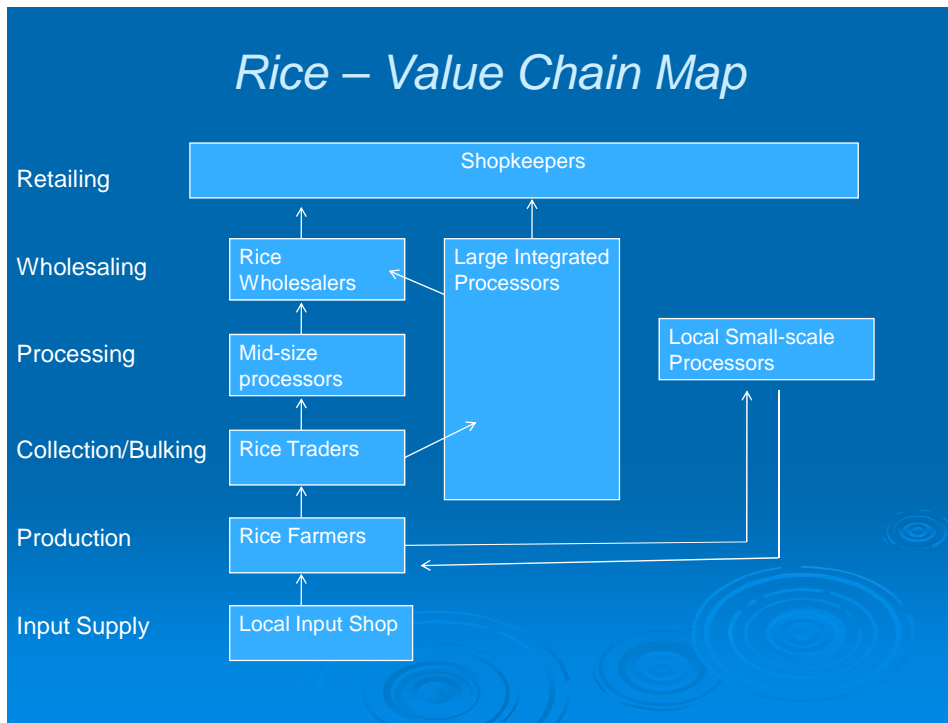


Rice is a staple of the Bangladeshi diet and consumed throughout the country. In Sarankhola, even a farmer who has a very small piece of land will choose to cultivate rice because it is one of the safest options to grow and sell, and will also contribute to their household food security. Because demand is so high nationally, rice is imported by the government from outside the country every year.

The salinity issues in Sarankhola discussed above are the main impediment to growing rice in multiple seasons. The main rice cultivation season is *Aman*, the rainy season of July to October. The rest of the year, much of this land remains fallow due to the salinity and irrigation issues which are the limiting factor to further production. Those that do have irrigation facilities and produce other varieties of rice generally do so for personal consumption, as the costs of production are too high to be competitive with rice produced elsewhere. As the unions of Dhanshagor and Khontakata are somewhat less affected by the salinity issues, some areas within the unions are able to grow rice in other season, up to two or three crops per year. With increased access to irrigation facilities and more saline tolerant seed varieties, it is expected that rice production in the areas could be greatly expanded. Women are involved throughout the rice value chain in all homestead based work related to rice production such as winnowing and threshing as well as serving as laborers in rice mills.

Due to the importance of rice in Bangladesh, the government is actively involved in purchasing paddy for “Open Market Sales” in a way that artificially increases the price paid to farmers. This rice is then distributed to the poorest part of the population at subsidized prices. This practice can cause distortions in the rice market, and the artificially higher prices can limit rice mills ability to purchase rice. Some fertilizers and pesticides are used with rice which can potentially be degrading to the environment but this was not seen as a significant issue any more than with most other crops.

Rice- Value Chain Map



Rice- Overview of Actors

Due to the fact that most farmers grow at least some rice, there are many producers in Sarankhola, although much of it is for personal consumption and not commercial sale. At least 50% of the paddy produced in Sarankhola is exported to Khulna, Barisal or even the northern districts of Bangladesh where larger processing mills can be found. Farmers do not face challenges selling any surplus rice they may have beyond their personal consumption needs, so the unmet demand is well understood by farmers. There are about 50 local small-scale processors within Sarankhola that provide milling services for a fee to farmers for their own consumption. These mills do not purchase the rice or do any selling on their own, but simply provide the service to small farmers; these mills are not suitable for processing to a commercial quality suitable for sale.

There are two mid-sized rice processors located within Sarankhola. As the rainy season, or *aman* varieties, is the primary kind being produced in the area, processors are only able to source rice from Sarankhola from this harvest. The rest of the year these processors import paddy from Barisal and Gopalganj districts which are able to grow rice throughout the year. In Khulna city there are about 20 larger mills collecting paddy from throughout the region. The city is a major trading hub for rice with over 100 wholesalers and 10 *arotdars* associated with these mills. Most rice from Khulna mills is sold locally within the city. At least four of these larger rice mills expanded or improved their facilities over the last few years, converting from semi-automatic to fully automatic mills which has increased their milling capacity and exemplifies the market growth in the region.

There are many rice traders in the region that can deploy up to 15 to 20 *farias*, or buying agents, on their behalf during harvest time in order to procure paddy for them. If not buying from traders, mills often procure paddy in the same way, employing up to 15 *farias* to procure rice directly from producers. In both models it was observed that pre-financing arrangements exist between producers and purchasers. Processors then sell their processed rice to wholesalers, or in some cases it was observed that they were branding under their own name for retail sale by shopkeepers. The team was informed that many of the mills barely break even or even lose money due to price fluctuations on the actual sale of the processed rice itself, but are able to make their profit from the sale of rice husk to the animal feed industries, a byproduct of the processing process. Because most mills buy paddy in cash and sell on credit, they tend to suffer from short term working capital constraints that also leave them vulnerable to fluctuations in the price of rice.

This information formed the basis for ranking of rice against the seven criteria in the ranking grid exercise that resulted in a weighted score of 68 for this value chain. In comparison to the other top six value chains that emerged from the short-listing matrix exercise, rice scored within the top three and is therefore recommended for further consideration in possible market-based program activities within the target area.

Grass Pea



Grass pea, also known locally as *khashary*, is a type of pulse that is used in many food items that are part of the common Bangladeshi diet, such as *daal*. Grass pea is cheaper in comparison to other pulses used for *daal* and is therefore more affordable for the poorer population. In addition to *daal*, it is used in making snack items such as *chanachur* and as a major ingredient to prepare fried foods both at homes and in restaurants. During the Muslim fasting month of Ramadan the demand for grass pea is highest as it is used in the preparation of

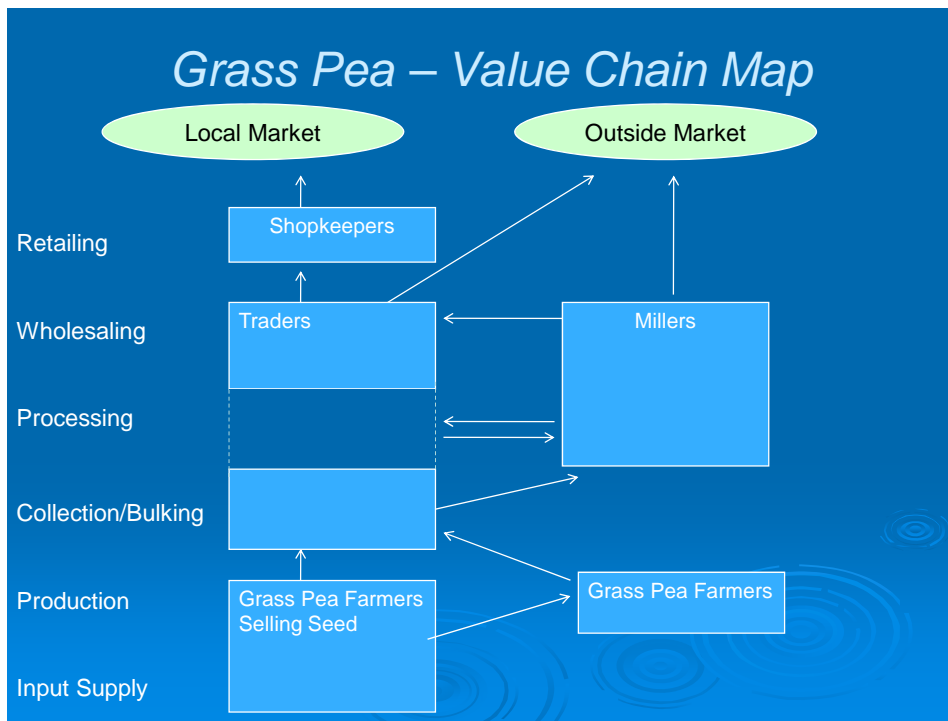
dishes that are made for breaking the fast.

Compared to many vegetables and other crops, grass pea is more saline tolerant, requires less maintenance, and has a very low production cost compared to competing crops. Consequently, it is an ideal crop for most farmers in Sarankhola and is produced by approximately 75% of farmers that have land who feel comfortable growing it given the steady increase in demand and price witnessed in recent year. Subsequently, grass pea is one of the few crops produced in Sarankhola for which there is a surplus locally, allowing them to export outside the upazila. Because grass pea can be stored for a long period of time without going bad, farmers can store the crop and sell it periodically, allowing them potential

income smoothing opportunities with grass pea that are not possible with many other crops like vegetables or potatoes.

Most farmers retain their seeds from the previous harvest or procure seeds from other farmers which can limit their production and subsequent incomes. High yield seed varieties are rare in the area. No packed varieties of grass pea seed are available at the market. There is also a high participation of women in the value chain both at the homestead level involved in post-harvest activities such as cleaning and sorting, as well as being the primary laborers at the processing mills. Grass pea also showed one of the lowest potentials to have a negative contribution on the environment of all the value chains assessed because inputs such as pesticides and fertilizers are not used as much with this crop.

Grass Pea- Value Chain Map



Grass Pea- Overview of Actors

There are no pulse mills in Sarankhola, but there are about 15-20 in Bagerhat and 50 around Khulna who are the major buyers of grass pea from Sarankhola. These mills process many types of pulses with the same equipment, so most are not engaged exclusively in grass pea processing and several new mills have opened in recent years. Mills visited by the team were able to see were processing between 100-200 tons of grass pea per year. After the harvest season, mills are often at very low capacity unless they can find additional pulses to mill with some even shutting down because supply is not sufficient to sustain the business. Traders purchase directly from farmers and either pay to get it processed at the mills in order to do the wholesaling themselves, or sell to the mills directly. Producers must dry grass pea for several days after it is harvested, and because many try to sell their crop too early, a premium is paid for properly dried product. All mills pre-finance traders to ensure their supply, which is a strong

indicator of high demand for this commodity. These mills therefore perform the milling at a cost to traders that want their supply processed while also purchasing raw grass pea from the collecting / bulking traders and selling processed grass pea to wholesaling traders, of which there are about 100 in the Khulna market, through commissioning agents. Millers primarily sell their processed product outside the local market whereas traders of processed grass pea sell both to the outside market and to local shopkeepers.

Most of the pulse processors we met with said that they preferred to deal with intermediaries and that procurement directly from farmers is too difficult because they don't know the areas well, don't want to travel with cash, don't want to worry about bulking and transporting themselves, and don't want to restrict their options of who they purchase from. For most small farmers, they do not want to transport themselves either, and it does not make sense for them to travel all the way to Bagherat with their small quantities of product. As a result intermediaries, or middlemen, in this value chain play a vital role in linking the producers and processors.

Based on the above information the team used the ranking grid to assess the grass pea value chain against the seven criteria which resulted in a weighted score of 60 for this value chain. In comparison to the other top six value chains that emerged from the short-listing matrix exercise, grass pea scored within the top three and is therefore recommended for further consideration in possible market-based program activities within the target area.

Prawn



The sweetwater prawn, or *golda*, value chain is very active at both the input and final product levels of production within Sarankhola. Prawns are one of the major exports from Bangladesh, comprising part of the frozen food for export sector which is the country's second largest foreign exchange earners at approximately 4% of GDP.⁴ Prawns raised in this area grow several inches in size and generally weigh between 50 and 200 grams each depending on how long they are left to grow.

Prawn Fries

Prawn fries, or post larvae (PL), are caught from the waterways surrounding Sarankhola, especially in southern unions, and can provide a valuable source of income for those without land or with land that is too saline affected to grow crops. Many of these PL fishermen catch fries from April to July and spend the rest of the year involved in other income generating activities such as capturing whitefish or

⁴ Information obtained from Katalyst

collecting natural resources from the Sundarban such as leaves, grass, firewood and honey. Up to 50% of producers involved in the PL industry are in areas along the coast not suitable for crop cultivation. Each fisherman can capture 100-150 PLs per day that can be sold to collectors for about 1.5 taka each. These collector/traders then sell to depot owners or *arotdars*. Some fishermen have their own boats and nets, while others are provided with inputs from the fry suppliers. Those that do not have their own boats and nets share a portion of their catch with the equipment owners. These PL are the inputs for prawn farmers that raise the fries to maturity.

PL fishermen compete with commercial hatcheries that produce PLs, of which there are approximately 10-15 in the nearby areas; however, naturally caught fries are preferable to cultivated fries and receive a higher price than their competitors. From April to June there is a government ban on the capture of PL to allow for the spawning season to take place. Unfortunately, many of the PL fishermen continue to fish as they have few other options and in some cases their equipment is seized by the government when they are caught. Many fishermen were found to have debt with local microfinance organizations for the purchase of this fishing equipment.

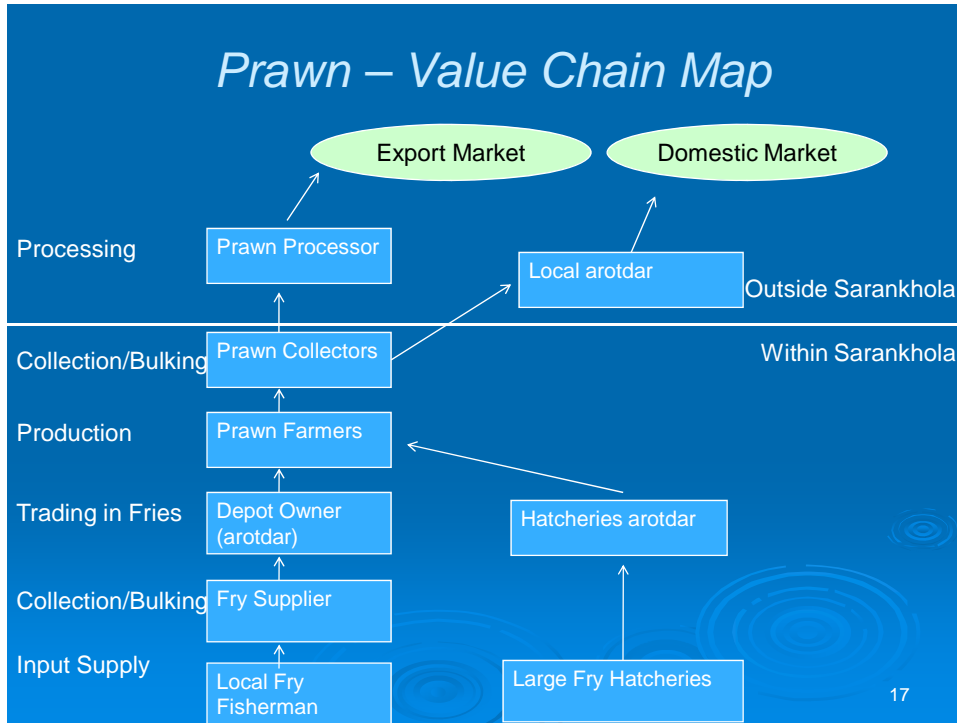
Prawn Culture

Unlike whitefish, prawns cannot be cultured in the homestead. Prawns are cultured from the PL stage in *ghers* which are more substantial than the traditional backyard pond. Of the total of approximately 200-300 *ghers* in the upazila, the unions of Khontakata, and Dhansagar have more *ghers* compared to the other two unions because their greater distance from the sea is correlated with their improved access to sweetwater, or less saline water. As the major input for prawn culture of PL is available within the upazila, any effort to increase the availability of sweetwater through pumping and storing water from the river at certain times of the year can increase production of prawn and expand the number of people involved in different value chain functions being conducted within the target area.

Approximately 40% of all Sarankhola residents are in some way involved in the prawn value chain, mostly in the collection and distribution of PL. Women are often involved at the production level, helping to maintain the *ghers* with activities like feedings. Additionally, the dikes of the *ghers* are quite suitable for small-scale homestead gardening which is often practiced by women. Outside of Sarankhola, the majority of workers in the processing plants are women.

Despite the high phytosanitary standards and traceability requirements for prawn export, the government is working to expand prawn production due to its export potential, by providing incentives to exporters. As a result of these benefits, there is the potential for overfishing of PL as well as for prawn production through *ghers* to potentially decrease nearby soil fertility and increase salinity. Most farmers do not use manufactured feed that is available, but prefer to use maize, rice bran, wheat and other options available to them. While there is a high income potential for prawn production due to the large unmet demand, it could be higher with improved production techniques of farmers for feed and disease management.

Prawn- Value Chain Map



Prawn- Overview of Actors

Local fry suppliers collect the fries from fisherman they work with, in most cases providing them cash advances and supplying them with all the inputs required like nets and boats. These suppliers then sell to the *arotdars*, or depot owners that they are associated with, which sell in turn to the prawn farmers. Local collectors bulk the production from farmers and sell to processors and local buyers through the *arotdars* at the Khulna fish market. Typically each fry *arotdar* works with about 10 suppliers that collect from about 50 fishermen each. There are currently 54 prawn processing plants in and around Khulna City, many with their own collection agents working on their behalf.

Many of the processing plants are running under capacity due to the lack of available supply year round, which was seen to be as low as 15% of demand.⁵ From October to November, supply is much greater as this is the time that harvesting occurs in the local *ghers*, allowing many to work at full capacity production of up to 100 tons per month. At the processing plant, workers clean, freeze and package the prawns in order to export them. These plants process two different varieties of prawns, the head-on saline variety and the headless sweetwater variety, which is the kind grown in and around Sarankhola.

This information formed the basis for our ranking of prawn against the seven criteria in the ranking grid exercise that resulted in a weighted score of 55 for this value chain. In comparison to the other top six value chains that emerged from the short-listing matrix exercise, prawn scored within the top three and

⁵ Information obtained from a prawn processing plant in Khulna

is therefore recommended for further consideration in possible market-based program activities within the target area.

VII. Conclusions and Next Steps

As a result of this selection exercise, it was determined that the value chains with the most promise for a market-development program within the target area of Sarankhola upazila are rice, grass pea and prawn. This conclusion was reached after significant desk research and several weeks of interviews and field work by the AFE selection team within the targeted area. Information obtained through this process was consolidated and analyzed in order to rank each value chain against preselected criteria using short-listing and ranking tools – in order to arrive at the final three value chains that have been put forward. As mentioned earlier, while this selection exercise included a brief analysis of the three chosen value chains (from the information that was collected during the selection process) it is not intended to be a thorough analysis of each value chain. The next step towards a program design would be a more in-depth analysis of the target value chains to better understand the market trends, industry dynamics, and the key issues hindering MSME growth and competitiveness. Subsequent steps to this analysis, based on the methodology outlined previously and depicted graphically in **Figure 1** would include:

Step 3: Identification of Market-based Solutions: Market-based solutions (that can address value chain constraints in a sustainable manner) are identified and prioritized according to their ability to impact the greatest number of MSMEs and increase the growth and competitiveness of the value chain;

Step 4: Assessment of Market-based Solutions: During this step, market-based solutions are assessed and information is collected regarding the demand, supply and commercial feasibility of the market-based solutions that were identified and prioritized in the previous step;

Step 5: Identification of Program Facilitation Activities: During this step, the DO identifies program activities that will promote the sustainable and commercially-viable provision of the targeted market-based solutions;

Step 6: Performance Measurement: Performance measurement systems are developed based on the program activities that have been identified. This system includes indicators for MSME and industry-wide benefits, as well as indicators to measure the sustainability of impact.

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Appendix 1: Interview Guides

Question guide for week one key informant interviews

Agriculture Products

1. What agricultural commodities are being produced in the Sarankhola upazila?
2. Which of these products have the greatest involvement of small-scale producers and what functions do they perform (growing, drying, processing, etc)?
3. Which of these products have the strongest unmet market demand and growth potential?
4. What commodities do you see the greatest growth potential for going forward?
5. Is there a strong demand for any commodity that is not produced widely here?
 - a. If so, why is it not being produced here/can it be?
6. To what extent do the products with strong unmet demand have:
 - a. supportive policies from local authorities and government
 - b. negative effect on the local environment
 - c. participation of women
7. What commodities have the potential to be taken up by a large number of people?
8. For those products that best meet the criteria (high unmet market demand and large number of MSME producers) - please describe the market players and their roles (all actors from production to final market).
9. Are there any firms either in Dhaka, Khulna or locally that are currently sourcing from (or selling inputs to) a high number of producers of these products in the Sharankola?
 - a. If so, who are they? What are they sourcing or selling? What is the nature of their relationship with producers?
10. What challenges do producers face with regards to accessing agricultural and livestock inputs?

Poultry and Beef

11. Ask the same questions as above replacing “agricultural products” with “poultry and beef products (cattle, beef, eggs, milk, etc)”

For Government /Development Organizations

12. Are they providing support to any of the value chain candidates? If so, in what way?

INTERVIEW GUIDE FOR VALUE CHAIN ANALYSIS

CONTACT INFORMATION

Interviewer / Date of interview / Firm Name / Principal product or service

No. of employees / Owner (or contact) / Legal status / Address / Telephone / Email

MARKET ACCESS, TRENDS, AND GOVERNANCE

1. What do you see as your main needs/opportunities in accessing markets?
2. To whom do you sell your product or service (large firms, small firms, wholesalers, exporters, retailers, direct to consumers, etc.)? What percentage goes to each?
3. Describe the relationships you have with these buyers (who determines what to produce, product specifications, prices, and amount purchased?). How much input do you have?
4. How do you promote and market your products/services?
5. How strong is the market for your products/services right now? Next year? What trends do you see?
6. Are some customer groups better than others in terms of sales and revenue growth? Which ones?
7. Do you ever collaborate with other firms on promotion and/or marketing?
8. Who are your major competitors?
9. Do you have a means of communicating information about your firm to others?
(*Attach any brochures, list of products, etc.*)

STANDARDS AND CERTIFICATIONS

1. What standards or certification requirements do your products need to conform to?
2. Who sets these standards and requirements?
3. Who helps you to conform to these standards and requirements?
4. Do you have any problems in this regard?

TECHNOLOGY / PRODUCT DEVELOPMENT

1. What are your major needs/ opportunities in product design and manufacturing (or service delivery)?
2. What other products do you produce/sell? What percentage does each product represent in terms of your gross revenue?
3. What have you done recently to improve your products or services?
4. Is your current equipment or machinery an impediment to growth? Explain. If so, what kind of equipment or machinery could improve your business?
5. Is the current level of your workers training holding back growth? If so, what additional training do they need?

MANAGEMENT/ORGANIZATION

1. In the area of organization and management, what are your major needs/opportunities?
2. Who does most of the work in the areas of: general management/supervision, product design, purchasing, production, shipping, accounting, marketing, repairs, etc. (owner, employees, or external)?
3. What functions do you subcontract/outsource?
4. Do you sometimes collaborate with other firms to produce and deliver customer orders?
5. Which aspects of your business do you intend to change in the next 2 years (machinery, equipment, computers, new products, marketing strategy, quality control, management system, worker skills, etc.)?
6. What management skills would you like to strengthen in order to grow your business?

INPUT SUPPLY

1. What are your major needs/opportunities in the areas of input cost, quality, and availability?
2. Who are your *most important suppliers* and what do you buy from each?
3. Are there problems in obtaining some important inputs? Explain.
4. Have you ever purchased inputs jointly with other business? Explain.

FINANCE

1. Where do you go when you need money for your business?
2. Do you get credit from input suppliers? What are the terms?
3. Do you get production financing from your buyers? What are the terms?
4. Do you have need for additional financing at the moment? If so, what would it be used for?
5. What sources (formal or informal) have you approached for loans, and what have been the key problems, if any?
6. Other (repayment rates in the sector, risk management insurance, etc.)

POLICY/REGULATION

1. What government policies/regulations benefit your business (registrations, inspections, subsidies, incentives, etc.)?
2. What government policies/regulations are obstacles to growing your business?

INFRASTRUCTURE

1. What are the most important infrastructure constraints affecting your business' growth and profitability (road/transport conditions, telephone service, electric supply, crime/corruption, storage, etc.)?
2. What is your industry doing about these problems?

BUSINESS MEMBERSHIP ORGANIZATIONS

1. Is your industry/trade sector represented by national or local business associations?
If so, please name them.
2. Are you a member? If not, why?
3. What are the primary functions and benefits of these associations?
4. What additional services should they provide?

FINAL OPEN ENDED QUESTIONS

1. *What are the major incentives you have for investing in / promoting change in the value chain?*
2. *What risks or constraints do you face in making these investments?*
3. What do you think are the strengths of your industry locally and/or internationally?*
4. What are the main weaknesses of your industry?
5. What do you think is the greatest challenge facing your industry today?
6. Can you name some business owners in your industry who are leaders –for example, in terms of technology, product design, quality, or marketing?
7. How did you get into your business?

** If success factors for international competitiveness have been pre-determined then respondents can be asked to rank their country on a scale of 1 - 5.*

Appendix 2: Initial list of Potential Value Chains

Potential Value Chains for Consideration Based on Desk Review Prior to Selection Exercises

- Poultry- eggs
- Poultry- broilers
- Cattle (whole cow)
- Cattle- meat
- Cattle- milk
- Fish Crab
- Shrimp
- Sesame
- Pulses
- Oil Seed
- Rice
- Mustard
- Wheat
- Lentil
- Eggplant
- Barley
- Sugarcane
- Jute
- Tobacco
- Betel Nut
- Potatoes
- Chilies
- Jackfruit
- Mango
- Poultry input supply
- Livestock input supply
- Agricultural input supply
- Other

Appendix 3: Persons Interviewed

Sl no	Name	Type of actor	Address/Contact
1	Jashim Uddin	Upazila Agriculture Officer	Sarabkhola, Bagerhaat, Mobile: 01717008820
2	Abdus Sabur	Vegetables Arottdar	Rainda Bazaar, Shoronkhola, Bagerhaat, Mobile: 01728566627
3	Md. Saidur Rahman	Vegetables Arottdar	Rainda Bazaar, Shoronkhola, Bagerhaat, Mobile: 01927728365
4	Md. Alamin Khan	Farmer	Purbo Khontakata, Shoronkhola, Mobile: 019282116009
5	Jashim Joardar	Goat farmer	East Khada Village, 3 no Rainda Union, Shoronkhola
6	Aminul Islam Howladar	Goat farmer	South Nolbonia Village, 2 no Khontakata Union, Shoronkhola
7	Khokon Mridha	Cow farmer	Dhanshagor, Shoronkhola, Bagerhaat
8	Ibrahim Khalil Hiru	Fish and Prawn Fries trader/arottdar	“Brishti Fish Traders”, Rainda, Shoronkhola, Bagerhaat, Mobile: 01745058105
9	Md. Shahinur Islam	Project Coordinator and Officer in Charge, Asroi Foundation	Shoronkhola, Bagerhaat, Mobile: 01712562499
10	Md. Raihanuddin Shanto	Transporter	Rainda bazaar, truck owner, mobile: 01711398828
11	Nazma Khatun	Branch Manager, Micro Credit, BRAC	Shoronkhola, Bagerhaat\
12	Md. Tashim Uddin	Project Manager- Crop Intensification Project (CIP), BRAC	Shoronkhola, Bagerhaat\
13	Delwar Hossain	Potato wholesaler	Bagerhaat Sadar Boro Bazaar, Bagerhaat
14	Babul Fakir	Potato wholesaler	Bagerhaat Sadar Boro Bazaar, Bagerhaat
15	Keramot Ali Nannu	Potato/vegetables trader/Arottdar	M/S Madina Enterprise”, Bagerhaat Sadar Bazaar, Mobile: 01198026228
16	Chandan Kundu	Potato/vegetables trader/Arottdar	M/S Madina Enterprise”, Bagerhaat Sadar Bazaar, Mobile: 01198026228
17	Manosh Roy	Grass pea trader	Bagerhaat Sadar Bazaar, Bagerhaat
18	Jogonnath Das	Grass pea trader	Bagerhaat Sadar Bazaar, Bagerhaat
19	Shopon Saha	dealer of Quality Fish Feed	Suparipotti, Bagerhaat Sader Bazaar, Bagerhaat, Mobile: 01711345705
20	Abdul Gaffar	Large pulse and oil seeds (grass pea, mung, mustard) arottdar	“Takdir Bhandar”, Boro Bazaar, Khulna Sadar, Khulna, Mobile: 01729654277
21	Abdul Khalek Talukdar	Grass pea/mung/mustard trader	Khontakata, Shoronkhola, Mobile:

			01729654277
22	Md. Tutul	Fish arotdar	“Raju Fish”, Rupsha bazaar, Khulna, Mobile: 01929648017
23	Jiaur Rahman Jewel	Fish arotdar	“Jewel Fish Traders”, Rupsha bazaar, Khulna, Mobile: 01710350986
24	Bappi Kumar Ghosh	Prawn Commissioning Agent	“Khan Jahan Fish”, Naatun Bazaar, Khulna Sadar, Khulna, Mobile: 01721580550
25	Nazmul Hasan Dulu	Agri Inputs retailer, Large farmer	Rajoir, Khontakata, Shoronkhali, Mobile: 01710619489
26	Idris Ali Howladar	Betel nuts trader	Rajoir, Khontakata, Mobile: 01735582626
27	Kamal Hossain	Rice Processor (Mill Owner)	“Tasin Rice Mill”, Rainda Bazaar, Rainda Union, Shoronkhola, Mobile: 01712872199
28	Habibur Rahman	Prawn fries Depot Owner	Tafalbari Bazaar, Southkhali Union, Shoronkhola
29	Nazrul Islam Khan	Prawn fries supplier	Tafalbari Bazaar, Southkhali Union, Shoronkhola
30	Said Matubbar, Bachu Molla, Mukhles Forazi, Masum Howladar, Mujibor Mridha, Mizan Howladar, Abdul Halim	Fishermen	Rainda village, Southkhali
31	Anonda Shah	Grass Pea Mill Owner cum Wholesaler	S K Enterprise, Kalibari Bazaar, Khulna, Phone: 041 813083
32	Mofiz ullah	Grass Pea Retailer	Boro Bazaar, Khulna
33	Humayun Kabir	Rice Wholesaler	Boro Bazaar, Khulna
34	Moniruzzaman	Rice Mill Owner	“Begam Auto Rice Mill”, Lobonchora, Rupsha, Khulna, Mobile: 01712612742
35	Ali Ahmed	Paddy trader	Kaliganj, Jhinaidah
36	Kamal Babu	Grass Pea Mill Owner/ Processor	“Bhai Bhai Dal Mill”, BSCIC, Bagerhaat, Mobile: 01711930666
37	Sheikh Nazrul Islam	Potato wholesaler	Bagerhaat boro bazaar, Bagerhaat
38	Md. Nasim Mollah	Potato, Vegetable Arotdar	Bagerhaat Boro Bazaar, Bagerhaat
39	Abdul Hai Howladar, Monidra Nath Mitra, Abdur Rahman, Faruk Khan, Yunus Munshi, Zakir Munshi, Habib Talukdar	Prawn farmers	Amragachi bazaar, Dhanshagor Union, Shoronkhola
40	Sushanta Kumar Saha	Prawn Processor/Exporter	General Manager, Gemini Sea Food Limited, Jabusha, Rupsha, Khulna, Mobile: 01714090344