

CLP Market Assessments

Market system for Chilli – Gaibandha chars

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1. Introduction

1.1 Objective of this study

To examine opportunities for market development in the chili market system that is important for CLP participants in Gaibandha. Identify the main market development opportunities, outline support needs, and identify actors and resources needed to realize more reliable income and employment opportunities.

To produce an exemplary market-system report that demonstrates market-system mapping and illustrates the kind of results, findings and recommendations that can be expected to emerge from using a market development approach in design of future interventions.

To orientate key staff in the CLP market development unit to the market-system mapping approach – through their active participation in the fieldwork planning, data collection and interpretation of results.

1.2 Rationale for selection of chili market-system

Chili is one of the most important cash crops for char dwellers, and is well suited to char soils. It is highly profitable; many core beneficiaries of CLP are involved in chili cultivation, harvesting and processing. It is much easier to cultivate and crops can be harvested within three to four months. Chili can survive on char soil and climatic conditions well. Scarcity of resources has led char people to cultivate chili. But there is a lack of information about the efficient use of inputs in chili production. For example, farmer's use of Urea is much higher than the recommended dose. The present market study was under taken to determine the level of technical efficiency of the chili producing farmers and to explore options for interventions benefiting CLP graduated and existing core beneficiaries.

2. Location and Methodology

2.1 Locations of assessment

The assessment was conducted in Fulchari and Gaibandha Sadar in Gaibandha district where CLP worked in first phase and started second phase since April 2010. The locations were chosen to understand chili market chains, its prospects and problems for determining scope for interventions that benefit the CLP core beneficiaries.

2.2 Methodology

A 6 member team (comprised of CLP staff and staff of its implementing organization) was formed and led by a senior staff from CLP market development unit. The team attended a 3 day orientation on market assessment. Desk information review; primary data collection through in-depth interview; focus group discussion; PRA exercise on seasonal calendar; participatory market mapping workshops with market actors and stakeholders were the main methodology of the study. Study tools were developed for collecting information from the following market actors and stakeholders in Fulchari and Gaibandha Sadar. Actors interviewed or participated in the study include:

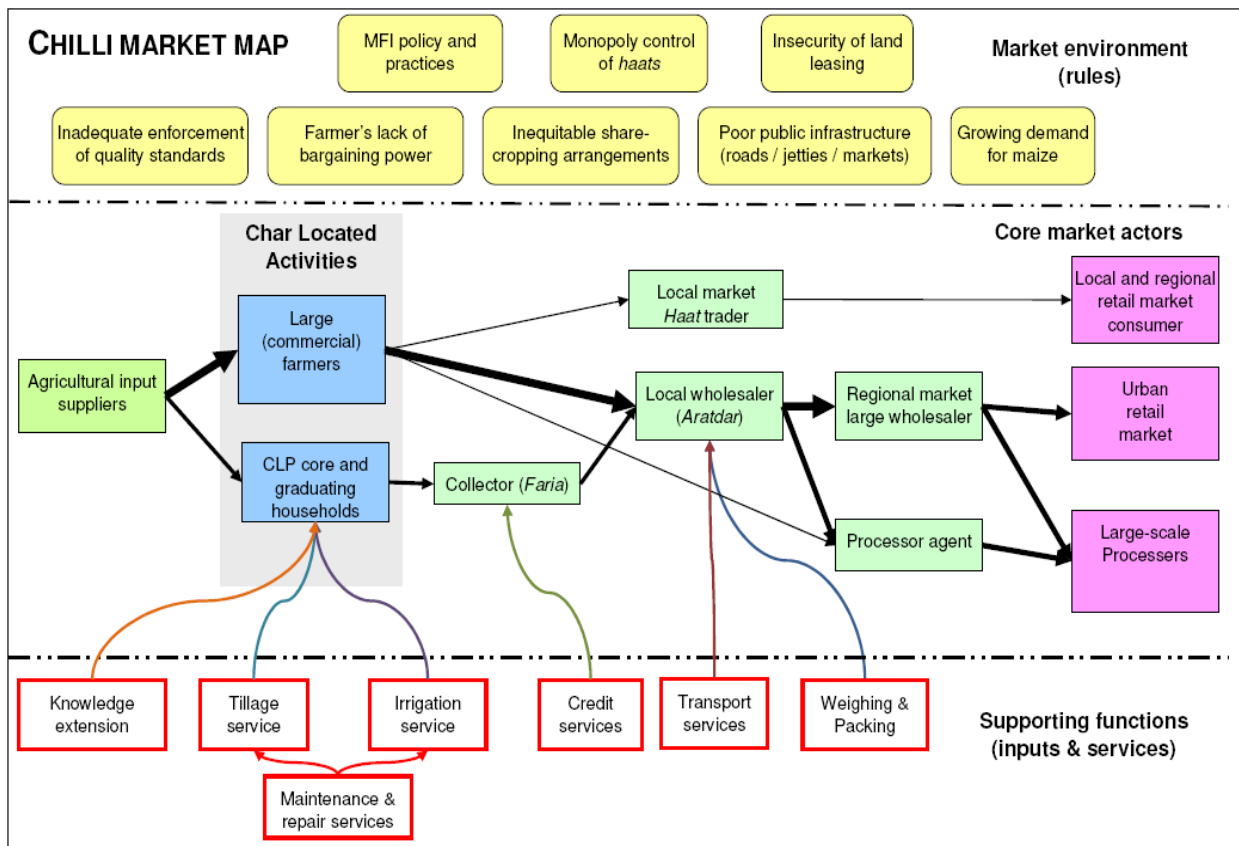
- 40 Farmers,
- 11 Input suppliers
- Forias/Traders
- 4 Wholesalers

- 4 Local processor
- 8 Service providers (irrigation, weighing, tractor, transporter, etc.)
- 2 DAE
- 5 MFIs

Limitation of the study

Availability of information from government institutions was a problem; most of the institutions visited did not have chili specific readily available information. Time and timing was also not right as people were busy about Eidul Azha, Government officials were engaged in school examination duty. Time for collection of information was also short. Besides, lack of past studies related to this area of interest in the study area was another limitation of this study.

3. Chilli market system



3.1 Core market-chain functions

Input supply

Seed: Most of the char households preserve their own seed for next season. They use local variety and cultivate in traditional method. All the interviewed households are reluctant to use improved seed. The study team found 28 seed sellers working in chars of Gaibandha and Fulchari.

Fertilizers: The seed sellers who also sell fertilizer collected from mainland. According to the farmers, the quality of fertilizers is not checked and therefore they do not get expected result in production of chili. There are 96 fertilizer sellers in the area.

Production

Land preparation: Starts in October; 4-5 tillage needed depending on soil condition. In the study area, most of the farmers use power tiller for land preparation and a very little percentage of farmers use country plough.

Fertilizer application: It starts with application of cow dung. About 10 MT of cow dung is needed for one hectare of land. Other fertilizers required are Urea (250 kg), TSP (200kg), and MOP (150kg). All TSP and 50 Kg of MOP are applied during land preparation. After 25 days of planting seedlings, 84 Kgs of Urea and 34 Kgs of MOP fertilizers are to be broadcasted on the surface land. Second and 3rd doses of fertilizers are to be applied on the surface land after 50 days and 70 days of planting. Each time 83 Kgs of Urea and 33 Kgs of MOP fertilizers are to be applied after irrigation. It has been observed that farmers in the study area do not follow this method of fertilizer properly. They use all fertilizers at the beginning of cultivation. They also use more Urea than the recommended limits.

Sowing: After land preparation, plants are sown in rows. Generally, distance between two rows is 60-70 centimetres and distance between 2 plants is 30-40 centimetres. Planting should be done in the afternoon and watering is necessary 2/3 days in the morning and afternoon.

Irrigation: Irrigation and water management is critical in chili cultivation. The plants have shallow root systems. Normally, 4-5 irrigations are needed due to sandy nature of the land. First irrigation starts after 15-20 days of sowing. Chili does not tolerate drought. They need for water during flowering and fruiting stage is especially high. Fields should be irrigated if there are signs of wilting at midday.

Chili plants are also sensitive to water logging. Flooded fields should be drained within 48 hours. Otherwise, the chili plants will soon die.

Weeding: weeding starts after one month when the plants is at 2 leaves stage; weeding is necessary in every month.

Harvesting: For green chilies harvesting starts after 15 days of flowering. For red dry chili farmers have to wait until the chili is reddened. Normally 10 MT-11 MT of green chili or 1.5MT-2 MT of red dry chili can be produced on one hectare of land.

Processing

Three major steps involved in processing dry red chili which are as follows:

Drying: Processing green into dry chili is done in different ways. The most common technique used by smallholders in the area is open-air sun drying on a mat on the field or in the courtyard for 12-15 days depending on the availability of the sun light. Farmers interviewed use this type of drying. This processing cannot protect chili from dirt, insects though sometimes they use fishing net to protect chili from poultry birds. The best technique would be a solar dryer that ensures the highest quality dry chili. But because of various reasons like lack of knowledge, availability of materials and technology, farmers in the area do not practice this technique.

Storing: The dried chili is packed into sacks of the ordinary market size, mini or maxi bag, and stored on bamboo platform or on the floor in the house. According to one Agriculture Extension Officer, chili can be stored for about 12 months in this manner without any change in quality if it has been dried well and has a moisture content of less than 10%.

Grinding and consumptions: Generally dry chili is consumed /used in all local dishes including *dal* (lentil soup) and poultry meat curry. Some consumers do not use dry chili as such but grind it to powder and use in dishes.

Marketing

Farm gate selling: After harvest, farmers sell their chili to collectors or *Forias* in the village which is known as farm gate selling. Chili farmer in Fulchari and Gaibandha are not exception, they also sell their green or dried red chili to these *Foria*.

Selling in the assembly market: Almost all char villages have a market at once or twice a week in nearby main land. It is known as assembly market or primary market where products from surrounding villages are sold. From this assembly point products are then taken to destination and end markets. This is also known as wholesaling market. Normally, retailing does not take place in this market. Farmers in the study area sell both their green or dry red chili in Fulchari and Gaibandha town depending on the season and presence of buyers. For example, green chili in the surrounding areas is mostly sold in Jamalpur town as many large green chili buyers come to this market for buying. Fulchari market sells dried red chili because market traders, wholesalers and company agents come to this place.

Large urban/district/supermarket: The market traders, wholesalers, and companies take the products to kitchen markets/supermarkets or processing plants in large urban centers, district town or national markets. Traders and wholesalers interviewed in Fulchari and Gaibandha informed that they export the dried chili in Bogra, Rangpur and processing plants run by ACI, Square, BD Food and Praan.

3.3 Rules / Business environment

In the study area, business environment for chili, maize and other agricultural products are more or less similar in relation to availability and quality of inputs and services; government extension system; land leasing system; infrastructures and farmers organisation.

Quality of inputs

Most of the retailers in the mainland or char area selling seeds, fertilizer, pesticides, micronutrients are of low quality or adulterated by different means. Interview with farmers confirms that all most all farmers are not able to recognize quality inputs. They informed that except one or two retailers, most of them promote inferior quality inputs to get more commission and to make more profit. Sometimes inputs seller also lack knowledge and awareness about the quality inputs.

DAE on behalf of Upazila service monitoring committee is responsible for monitoring the availability and quality of inputs such as seeds, fertilizers, pesticides. But due to lack of man power, resource and other socio-political factor, they cannot play this role effectively.

However, the situation is improving slowly. For example, government has reduced the price of some fertilizers. As a result of these initiatives, it is expected that traders will adopt less unfair means to increase profit.

Banks/MFI policy & practice

Banks: The char farmers do not have the purchasing power or working capital for buying quality seed, fertilizer and insecticides. Therefore, they depend on mainland input sellers who sell these inputs much higher price than the market rate. Farmers sell their product just after harvest to repay the cost of inputs and other loans.. They cannot hold the maize stock for getting prime price. In this context, farmers need credit support to continue production and achieve sustainable Livelihoods. Bangladesh Bank has directed

all public and private banks to provide financial service to these poor farmers. But in practice the banks have high risk perception of chars regarding repayment capacity of the borrowers and lack incentives due to lack of infrastructure (road, transportation, building, electricity, etc.).

NGO/MFIs: Their credit schemes have inappropriate repayment schedules although some of them have already started seasonal loan to meet the requirement poor farmers.

Insecurity of land (leasing)

CLP core beneficiaries and marginal farmers usually produce chili or maize as sharecropper or take lease of land from local landlords or influential having control over lands. There are 3 types of land leasing system which are as follows:

System-1: If Land owner share 50% of the cultivation cost, s/he gets half of the share of total crops produced.

System-2: If Land owner do not share cultivation cost, s/he gets 1/3 parts of total crops produced.

System-3: Farmer cultivates lands in agreement with land owner and pay Tk 2000/ *Bigha* (33 decimals of land) for one crop. The leasee farmer stops cultivation if the land owners return back the money after season. Otherwise the farmer will continue production until the land owner return the money back to the farmer.

All these leasing and land use system are operated without any written agreement. As a result, there is no security that the farmers can use the land on long term basis. In fact, policy and practice related to land rights/lease/use allow marginal and small holder farmer to use the land in a limited scale.

Farmer's bargaining power

Char farmers have no organization and therefore unable to bargain with landowners, buyer and inputs suppliers. Weak competition among chili buyers and input suppliers (in some seasons) put farmers in this situation. Informality of land ownership / leasing gives power to land-owners and make poor farmers vulnerable and compel them to accept unfair terms of share-cropping arrangements

Lack of investment in knowledge / extension

Commercial incentives for increasing farm-level productivity are low: As the poor farmers operate with subsistence production capacity, they lack commercial incentives for increasing farm-level production. They sell their limited product to local collectors or primary assembly market just after harvest to repay loans taken for cultivation, buy food and clothes for family members and invest rest of the money to further production.

Buyers (e.g. processing mills) have more profitable alternative uses for investment capital: Food processing companies usually take the advantage seasonal gluts. They send their commission agents to buy chili from the primary assembling markets to build their required stock during the harvesting season. They also buy from local wholesalers in other times to maintain their stock and continue processing. Therefore, they do not see much commercial incentives for increasing farm level production which they think very risky.

Costs of engagement with (individual) farmers are very high. Farmers are not organised and therefore commercial firms or lead firms find it very difficult to engage the individual or scatted farmers in commercial production. Distribution of credit, inputs and collection of produce are not possible for these commercial firms. These firms also have perception/experience of not getting product from the supported individual farmers during harvest.

DAE services are under-resourced and staff lack incentives: As mentioned earlier DAE has not sufficient manpower to provide proper extension service to scattered char farmers.

Farmers lack voice to demand better public extension services: farmers living in the char do not any organisation and therefore unable to demand better public extension services for maize and high value crop cultivation in the char.

Previously limited policy attention to / public investment on chars: For various reasons, government and development agencies could not pay attention to infrastructure development in char for long time. Only recently DFID and some national and international NGOs or donor funded project like CLP are becoming seriously involved in char agriculture development. Public private investment is needed to have more roads, jetties, small scale storage in chars.

Technologies for infrastructure on chars unavailable / too costly: People in char are dependent on primary production technology as because of non- availability of improved technology. Policy attention is needed to overcome this situation.

3.2 Supporting Functions – who does, and who pays

Extension

Char farmers mostly go without extension needed in their production, processing and marketing. Government appointed SAAOs are limited in number thus not visible in the area. Mainly, a few private Agriculture Service providers mainly supply seeds and fertilizers with limited information on the use of these inputs. They need capacity support to diversify product and services demanded by the farmers. In this context, CLP's and other NGO's private inputs service suppliers models can be tested/scaled up to establish a well functioning extension system in the area.

Irrigation

Large farmers own their own irrigation systems. Smaller farmers purchase irrigation services from large farmers or 'water sellers' who have invested in bore-holes and water-pumps. Interview with the water sellers reveal that there are 1000 water seller in the study area.

For farmers, the total cost of irrigating chili field is around Tk. 6000 per hectares (8% of their total investment) depending on the number irrigation purchased). Payments for fuel are made up front, service charges may be deferred until harvest time.

Water sellers invest in shallow bore-holes and water pumps. A typical individual set up covers 5 – 10 hectares of land. There are a growing number of irrigation service providers in the area, and farmers appear to have some choice, and ability to negotiate reasonable prices

Tillage

Power tiller services are available in the chars. Large farmers own their own power tiller for cultivation. Smaller farmers purchase tillage service from this farmers or commercial power tiller service providers. The cost for tilling one acre of land is Tk. 1050. In chili cultivation, tillage is required for 3-5 times for land preparation. The demand for tillage service is on the rise as farmers are moving away from traditional ploughing. However, the study team was not able to collect any reliable information on the demand, supply and performance of tillage service in the study area.

Financial services

Government and commercial bank are absent in chars. The poor farmers mostly depend on loans from family, friends and relatives.

Three NGOs namely GUK-Gaibandha and Guano Shasto Kendra (GSK) and SKS provide seasonal loan to their group members only. GSK has a target for distribution of 3 million taka out of which they already have distributed 0.8 million for chili cultivation in the current season. The loan size is minimum Tk. 3000 and maximum Tk. 15000 disbursed at 8%-12% interest rate. Bigger loans are provided in successive years. The total loans have to be repaid within the season after harvest. GSK claims that their repayment rate is 100%. GUK-Gaibandha also provides seasonal loans with 6% interest rate. They have already distributed 2 million taka of which 0.4 million was disbursed for chili production. All three NGO's financial services are limited to their group members only.

Besides, as mentioned earlier, credit is embedded in input supply, irrigation and tillage service. Farmers pay this loan immediate after harvest by selling crops. Share croppers in some cases get supply of inputs in advance and take 50% of the harvest.

Transport Services

Boat is the main means of transporting chili from char. Farmers bring their chili to boat landing site and pay Tk. 20 for transportation of a mound of chili. In dry season the boatman claims Tk 30 for a mound of chili.

Weighing and Packaging

Weighing: Large traditional weighing machine made of wood and bamboo structure is used in the market place for weighing chili. *Koaldar* or weighing person provides this service to farmers, market traders and wholesalers as necessary at the cost of TK. 20/ mound of chili. During chili trading season the person weighs 80-100 mounds of Chili on each market day and earns Tk 1000.00. There are 7 weighing persons in Fulchari Market.

Packaging: Both medium and large sized jute bag or plastic bags are used for green or dry chili storing and marketing. A bucket made of bamboo or cane weighs of 5kg is also used for retailing chili in the village market. Chili powder is retailed or wholesaled in different sized plastic bags.

3.4 Value chain analysis

In the study area 17,000 farmers having average land size of 24 decimal, produce above 3000 MT of chili per year out of which 90% (300 MT) is sold as green chili. About 1200 MT of dry chili is exported by wholesalers to processing company and national market. Another 600 MT is imported by processing companies like ACI, BD Food, Praan and others. About 900 MT processed and consumed locally. There are 250 collectors/market traders, 12 wholesalers, 10-12 local processors and 10-12 processing company agents are involved marketing of chili produced in the study area.

There is high demand for dry chili in the in the national market. Currently chili is grown on 170041 hectors of land. The country produces 340,000 MT of chili annually. Despite this domestic production, it also imports 30000 MT of chili every year from India.

The gross profit sharing ratio of the chili value chains is given in the table.

Actors	Profit sharing per MT chili		
	Cost	Revenue	Gross profit
Farmers	39,000	72,000	33,000
Traders	131,000	144,100	13,100
Wholesaler (dry chili)	143,000	171,600	25,000
Processors (chili powder)	241,000	300,000	59,000

Though the above value chain analysis need further recheck and review to draw any final conclusion, it apparently indicates that trader and wholesaler enjoy lion shares of retail price as their investment cost is less than the farmer or processors. Mainly their cost includes transport, storage and *haat* tax. Farmers need to organize themselves for price negotiation with traders and wholesalers who are not interested to improve the situation of farmers.

4. Problems and opportunities

drying (processing) is poor – high humidity, limited awareness of issue, lack of technology and knowledge lead to problems with crop storage, wastage and ultimately lower prices. Underlying problem is lack of knowledge and engrained traditional practices.

Market information: Farmers lack knowledge of different chili varieties and what types of chili are in most demand at different assembly markets. Fluctuation in demand and prices is a problem that remains unresolved.

Short-term storage facilities – both on farm and within the market chain (at *haat* / wholesalers). Plus finance to enable farmers / wholesalers to retain crop on their property for longer.

Crop insurance – can protect farmers investments against extreme weather, flooding. But insurance providers do not have a ‘presence’ on the char, and awareness of insurance concept is very low. May be opportunity is to embed insurance with micro-finance agri-loans.

Improvements in yield: there is a good potential for increasing yield from better quality seeds (e.g. hybrid) and inputs. Current constraints are related to seed supply chains and low production skills. See Agri-Services Market above

Knowledge / extension services – Farmers need better information on inputs and their sources, improved production skill, changing weather conditions, see Agri-Services Market above

Bargaining power: Individual farmers are vulnerable to cartel-behaviour by buyers – especially where selling points / options are few. Farmer organisation or farmer-

5. Vision for a better market system

5.1 Vision of sustainable outcomes

Chili could be an important livelihood diversification option of CLP graduated Char households. Access to market information and effective agri-services provision based on the char is key. ‘ASP’ would offer accurate market information, as well as production advice (e.g. cultivation practices) to chili farmers for a small fee.

Chili producer organisation on a small scale (10 – 20 households) is also important – particularly around bulk purchasing and marketing of produce. Farmers might (informally) organise specially markets.

Access to financial services: seasonal loans, crop insurance would provided by local micro-finance organisations. The ASP might play a role as an agent in this?

5.2 Plausible intervention strategies

Development (innovation) of the ASP function: Input supply embedded with production and processing knowledge would be able to contribute to improve service market in the char. This is necessary because main land input suppliers do not take any interest to improve the situation char farmers. Facilitation for establishing relationship between MFIs/banks and the agricultural service providers could be an option tested in extending loans and crops insurance service in the char. Mobile based client identification, premium or loan instalment collection system could be introduced by the MFIs/banks for operating these financial services.

It seems that DAE has no plan for increasing field level extension worker in the near future. Taking this as an opportunity, CLP Agricultural Service Provider model could be established as a sustainable pro-poor private sector business (see Agri-services Market)

Facilitation of small -producers marketing groups: Value chain or functional upgrading would be possible, if char farmers were to organise themselves better with regard to marketing issues. Currently, individuals who go to markets to sell their chili at a higher price, make no arrangements about prices, selling times or quantities. They need to organise themselves for improving their marketing negotiation skills. As dry chili being a storable good, it is an opportunity for the char farmers to improve their situation.

Technology innovation in the 'crop drying process: The problem is already mentioned in previous sections that the char farmers lack proper production techniques and technology. The cultivation practices need to be improved in terms of inputs and fertilizer application. Technological innovation is also needed for drying chili. Currently, the traditional drying system cannot ensure the level of drying necessary for chili storage or processing. Part of this problem could be addressed through demonstration / marketing of simple solutions like locally adapted solar drying technology that can be developed by using materials available in the char.

6. Conclusion

The value chains of dry or green chili are weak as char farmers are loosely integrated and their position in the chain is weak. This is due to the facts explained in core, supporting and the business environment sections. It is evident that Lack of knowledge about good agricultural practices and weak marketing situation related to the low quality processing technique resulted in low yields and low product quality.

The trader and wholesalers behave as curtail, not willing to support farmers. Therefore, future potentials of char farmers depend on development private agricultural service providers dealing with a wide range of inputs, technology and services and farmers' organization active for improving production, processing and marketing.