



Chars Livelihoods Programme and iDE

Market Development Project: Findings from the Producer and Service Provider Baseline Surveys

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1. Background

The CLP and iDE are implementing a market development project using a Making Markets Work for the Poor (M4P) approach. This project is a natural extension of the CLP's long-established asset transfer programme. It aims to increase the wellbeing of people on the chars through a wide, interconnected range of interventions in the local livestock sector.

In order for the CLP to assess the impact of the project and monitor its progress, and for future market development projects to learn from the approach taken by the programme, it is necessary for the project to be supported by a robust monitoring and evaluation system.

Market development interventions present unusual challenges for impact evaluation.¹ The complexities of market systems and the broad scope of market development interventions make it difficult to capture impact entirely through formal 'static' methodologies. It is therefore necessary to use a range both quantitative and qualitative approaches. The M&E system for this project comprises a number of modules, which are described in detail in the Monitoring and Evaluation Framework. This system includes Producer Surveys; Service Provider Surveys; Output Monitoring Systems; Village-Level Case Studies; Registration Interviews; and other qualitative tools which are in the process of being designed.

The Monitoring and Evaluation Framework for the project contains a variety of indicators by which the project's impact may be understood. From December 2012 to January 2013 a baseline was established for the project using a series of surveys. A large scale survey addressed the baseline status of producers in the livestock sector on the chars, while five small surveys addressed the baseline status of five distinct groups of service providers in the sector. These surveys collected quantitative data on many of the indicators outlined in the Framework. The complete list of indicators which have been addressed using the surveys described in this report can be found in the table below.

Table 1: Indicators Addressed by the Service Provider and Producer Baseline Surveys

Indicator	Source of Indicator	Modules which Address this Indicator
# service providers having improved business knowledge	CLP Logframe	Service Provider Survey and Interviews
# households in business groups have loans for livestock production	CLP Logframe	Baseline Survey
# households with increased profit from business groups	CLP Logframe	Baseline Survey

¹ See, for example, the discussion in Microlinks (2012), *Monitoring and Measuring Change in Market Systems: Discussion Paper*.

% average increase in total value of business group's livestock assets	Systemic Change	Baseline Survey
% average increase in each business groups' investment in inputs and services (in each production cycle)	Systemic Changes	Baseline Survey
# households enjoying access to inputs (or services) at least 20% cheaper or of significantly better quality	Systemic Change	Baseline Survey and Qualitative Work
% households benefiting from a 'significantly improved' method of selling their produce	Systemic Change	Baseline Survey
# of households with increased productivity (livestock or fodder)	Sector specific results chains	Baseline Survey
# of households using improved livestock rearing practices	Sector specific results chains	Baseline Survey
Volume of char produce being sold on the mainland	Sector specific results chains	Baseline Survey

2. Methodology

2.1 Service Provider Surveys

The service provider baseline comprises data from a series of five small surveys. These took the form of expert-led in-depth interviews with small numbers of respondents from each category of service provider, namely cattle traders (or 'paikers'), milk traders (or 'goalas'), livestock services providers (LSPs), irrigation service providers (ISPs) and char input dealers (CIDs). The five categories of service provider were identified by the project team as important to the impact of the project. Each of these interview series included around twenty respondents.

The surveys collected a mix of quantitative and qualitative information to serve two objectives. First, it was necessary to survey service providers in order to create a baseline for the CLP Logframe indicator of 'number of service providers with improved business knowledge'. Second, the collection of this data provided an opportunity to significantly increase the programme's understanding of the situation of service providers prior to the implementation of the project.

The roles in the market system played by these different groups of actors are very different. The surveys therefore collected different kinds of information on each group of actors. This information has been collated under four broad headings: business knowledge, methods of selling, linkages with the mainland and constraints.

The main body of this report describes that data from these surveys that is relevant to the indicators listed in the M&E Framework, while the rest of the collected information is synthesised and summarised in a series of separate short reports, which are included here as Appendix Four.

2.2 Producer Survey

The producer survey is a crucial element of the project's M&E system, as it provides quantitative data across a substantial number of important indicators. This data will be key to assessing the impact of the project. A number of approaches to collecting this data were considered, namely cross-sectional, rolling and census approaches. The latter was ultimately selected as the most appropriate for this project. The various approaches, and the rationale for their use or rejection, are outlined in detail in the M&E Framework.

The baseline census was conducted in six villages (four treatment and two control) during December 2012 and January 2013. This census was performed in four villages in which the market development interventions will take place, plus two villages in which the interventions will not take place in order to form a control group.

The project will be implemented in two distinct sets of villages; one set in which both the meat and fodder components of the project will be implemented, and another set in which the milk component of the project will be implemented. It was therefore necessary for the baseline to comprise both villages to be affected by the milk sector intervention and villages to be affected by the meat and fodder sector interventions.

Two of each of these sets of villages were selected using a random sampling method. Control villages were then purposively selected to match, as far as possible, the selected intervention villages. The key criteria considered in the selection of the control group were geography, distance to market, the wealth of the village and the level of existing CLP intervention. The use of a control group is necessary in order to demonstrate that the expected differences between indicator achievement in treatment and control villages are endogenous to the project (ie. the changes are caused by the market development project and not by external forces).

The table below shows the villages in which the census was conducted, their region, and the number of respondents in each village. The survey was conducted on a total of 1616 respondents in intervention villages and 641 respondents in control villages, making a total of 2257 respondents.

Table Two: Sample Composition

District Name	Upazila Name	Village Name	Intervention Households	Control Households
Pabna	Pabna Sadar	Char Vobanipur	560	
Pabna	Sujanogor	Char Khalilpur		219
Kurigram	Burungamari	Hellow Danga (East)	145	
Kurigram	Nageswari	Kuti Bamondanga		422
Kurigram	Nageswari	Poschim Fakirgonj	98	
Kurigram	Rowmari	Baishpara	813	

3. Findings

3.1 Indicators from the CLP Logframe

service providers having improved business knowledge

67% of cattle traders have a low level of business knowledge. 41% of milk traders have a low level of business knowledge. 32% of Livestock Service Providers have a low level of business knowledge. 50% of Irrigation Service Providers have a low level of business knowledge. 87% of Char Input Dealers have a low level of business knowledge.

This data addressing this indicator comes from the service provider survey. This is a complex indicator, as there are clear difficulties in the assessment of business knowledge across a spectrum of different actors.

A set of sub-indicators for each category of service provider has been developed in order to capture the different aspects of business knowledge which are most important to each.² Each service provider has been categorised as possessing a high, medium or low level of business knowledge as per these indicators.

Outlining a precise interpretation of the information here is complex, as the figures reflect a large number of different indicators. A full discussion of this data can therefore be found in the series of reports which comprise Appendix Four.

Table Three: Levels of Business Knowledge Among Service Providers

	Cattle Traders	Milk Traders	Livestock Services Providers	Irrigation Services Providers	Char Input Dealers
Low Business Knowledge	67%	36%	32%	50%	87%
Medium Business Knowledge	25%	41%	46%	27%	9%
High Business Knowledge	8%	23%	22%	23%	4%

households in business groups have loans for livestock production

² The full list of sub-indicators used to assess the level of business knowledge for each category of service provider can be found as Appendix One.

Only 2 producers from the sample have loans for livestock production.

This indicator will be used to measure the impact of the project on access to financial services for meat and milk producers on the chars. As the project is specifically aiming to increase access to 'formal' loans, a loan must meet the following basic criteria in order to contribute to this indicator:

- The loan must be used for activities related to livestock production.
- The loan must be provided by a formal institution, such as an MFI, an NGO, or a commercial bank. Loans provided by informal moneylenders or members of the local community are therefore excluded.
- The loan must be of a substantial size (more than 5,000 taka).

The study provides very clear findings with regard to this indicator. Of the entire intervention and control sample, only two households have received loans which meet the criteria, both provided by NGOs. This confirms that the present provision of financial products to livestock producers on the chars is very low.

households with increased profit from business groups

Average profit per household for fodder producers is 2,565 taka in the treatment group, per production cycle. Average profit from meat production is 1,387 taka in the treatment group and 1,332 taka in the control group, per cow per month. Average profit from milk production is 2,281 taka in the treatment group and 2,387 taka in the control group, per cow per month.

Different calculations of profitability have been performed for each of the three sub-sectors. Calculating profitability presents challenges, most notably around seasonality, opportunity costs and asset depreciation. These challenges are exacerbated by a context in which little or no production, cost or expenditure information is recorded by producers. The survey therefore uses very simple calculations in order to produce a broad indication of current levels of profitability. While these may not be precise numbers, it will be possible to understand the general direction of change through comparing these figures to those produced by repeating the same calculations in subsequent years of the project.³

Profitability of Fodder Production

The number of fodder producers on the chars is currently very low. Increasing fodder production on the chars is one objective of the market development project. In the treatment group, 38 respondents are fodder producers, and in the control group only three households produced fodder. It has therefore not been possible to produce a reliable estimate of the profitability of fodder production for the control group, due to the very low number of respondents providing data for this indicator.

The profitability of fodder production is calculated per production cycle. One fodder production cycle lasts between 4 and 8 months. For the treatment group, profit per decimal on average is

³ The various methods of calculating profitability in the three sub-sectors are described in Appendix Two.

583 taka per production cycle.⁴ Fodder producers cultivate an average of 4.4 decimals of land, which gives an average overall profit of 2,565 taka per production cycle.

Profitability of Meat Production

On average, producers make a profit of 1,387 taka per cow per month in the treatment group, and 1,332 taka per cow per month in the control group.

Profitability of Milk Production

On average, producers in the treatment group make a profit of 2,281 taka per cow per month from milk production, while producers in the control group make a profit of 2,387 taka per cow per month.

3.2 Systemic Change Indicators

% average increase in total value of business group's livestock assets

The average value of livestock assets for respondents with livestock is 23,571 taka in the treatment group, and 25,519 taka in the control group. The average number of large livestock per household is 2.41 in the treatment group and 2.77 in the control group.

This indicator provides an assessment of project's impact on the livestock assets of people in producer groups.

The average value of assets for households with livestock is 23,571 for households in the intervention group and 25,519 taka for households in the control group. These figures show the total livestock asset base of producers, and so comprises all livestock, including poultry, goats and sheep alongside cattle. The vast majority of total assets are cattle, which are by far the most valuable asset on the chars.

Another important indicator of livestock assets is the number of large livestock (i.e. cattle) per household. The average number of large livestock per household is 2.41 in the treatment group and 2.77 for in the control group. Though not a headline indicator, this data provides extra depth to the assessment of impact, as it allows for an analysis which addresses whether total asset values have changed due to increased numbers of livestock, or due to an increase in the value of livestock.

% average increase in each business groups' investment in inputs and services (in each production cycle)

Average investment in inputs and services for fodder producers is 459 taka in the treatment group. Average investment in inputs and services for meat producers is 1,111 taka in the treatment group, and 597 taka in the control group. Average investment in inputs and service for milk producers is 955 taka in the treatment group and 479 taka in the control group.

⁴ One decimal is equivalent to one hundredth of an acre.

Investment in inputs and services was calculated through adding the various forms of expenditure. All of these figures show investment per production cycle. For meat and milk producers, this is calculated on the basis of a six-month production cycle for each head of livestock.

The vast majority of expenditure was on inputs rather than services for meat and milk producers, while two thirds of expenditure for fodder producers was on service costs. Cattle feed is the major expense for meat and milk producers.

% of households enjoying access to inputs of significantly better quality⁵

Almost all households already have access to cross-breed cattle. 100% of households have access to fodder seeds through markets on the mainland, and to jumbo grass seeds, but access to other kinds of seeds either on- or off-char is generally very limited. Access to various kinds of feeds and fodders is generally low throughout the year. The fodder which was available to the highest number of households is natural grass, which is available to around 60% of households.

This indicator is complex; inputs and services across the three sub-sectors take a variety of forms, and what constitutes quality is very different for each input or service. There are also difficulties around measuring the quality of some products and services; measuring the quality of concentrated feed, for example, requires very specialised knowledge beyond that which can be reasonably expected of a normal enumerator.

This indicator is therefore addressed in terms of the categories of input which are available to producers on the chars, rather than the variation in quality within these categories themselves. The project team has used their expertise in order to identify which products and services it is more desirable for producers to be able to access. For example, access to ready feed constitutes access to an input 'of significantly better quality' than access to natural grass.⁶ This indicator is therefore split into a number of sub-indicators. The inputs addressed are cattle, fodder seeds and cattle feed and fodder.

% of households with access to cross breed cattle

Cattle are a key input for both char milk and meat producers. Though some cattle used in meat and milk production on the chars are born from cattle belonging to the producers, others are purchased from markets. This question sought to understand the quality of this input through understanding whether improved cross-breed cattle are available to purchase. The data shows that almost all households in both the control and treatment groups have access to cross breed cattle. It may therefore be difficult to assess impact in this area using the data collected by these surveys.

⁵ It should be noted here that this is only one half of the indicator – the full indicator is '# households enjoying access to inputs (or services) at least 20% cheaper or of significantly better quality'. As there are serious challenges to measuring the cost of inputs and services through a static instrument such as the surveys described here, the price component of this indicator will be measured using different modules of the M&E system. The quality of services will likewise be addressed using other modules.

⁶ A description of this hierarchy is included here as Appendix Three.

% of households with better access to fodder seeds

As shown in Appendix Three, 'better access' refers to either moving from not having access to a type of seed to having access, or moving from accessing a type of seed on the mainland to being able to access it on the char or through a CLC, rather than at the mainland market. Three common types of fodder seed were considered; generic 'fodder', jumbo grass and napier grass.

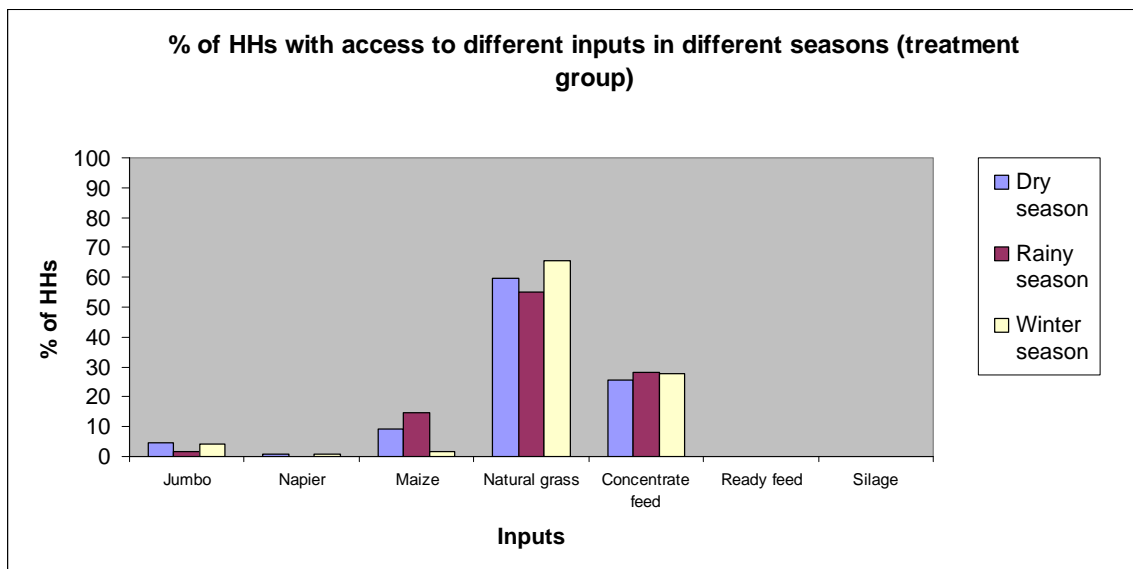
100% of respondents in both the treatment and control groups have access to fodder seed on the mainland, and all producers in both groups also have access to jumbo seeds. Aside from this, access to all kinds of seed is scarce. 29% of respondents in the intervention group have access to fodder seed on the char itself, whilst none of the control group has access to fodder seed on char.

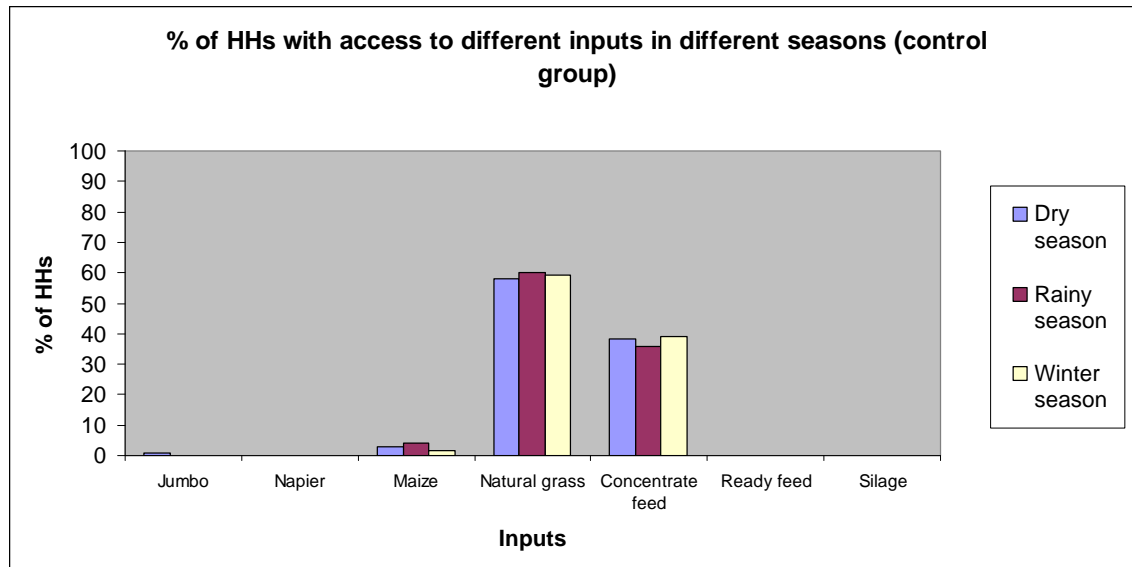
10% of the treatment group has access to fodder seedlings on the mainland, but on char access is only 0.7%. The equivalent figures for the control group are 0.3% and 0.2% respectively. With regard to fodder cuttings, 4.6% of the treatment group has access on the mainland, and 0.2% on the char. The equivalent figures for the control group are 0.3% and zero respectively.

Access to napier grass seed is a little higher, but still low overall. Seedlings were available to 26% of the treatment group and 19% of the control group. Cuttings were available to 11% of the treatment group and 24% of the control group.

% of households with better access to cattle feed

The below graphs show the availability of different cattle feeds and fodders throughout the year. Notably, access to natural grass and concentrate is much higher than other kinds of feed, of which there is very little availability. There is surprisingly little in the way of seasonal variation in availability.





households benefiting from a ‘significantly improved’ method of selling their produce

Currently, all fodder produced on the chars is consumed within the household. Meat is almost entirely sold through cattle traders (‘paikers’), either at the producer’s home or at a market. Around 32% of milk is consumed within the household itself, in both intervention and control groups, while the majority of the remainder is either sold to milk traders (‘goalas’) or sold directly at mainland markets.

As with the previous question, this indicator has been approached through using the expertise of the project team to identify which methods of selling represent a ‘significantly improved’ method (i.e. a method which is more desirable for char producers).⁷

Fodder

None of the respondents sold fodder. The only channel through which fodder was consumed was by the households themselves, who feed it to their own cattle.

Meat

In the treatment group, 58% of cattle sold for meat were sold at the respondent’s homestead, to cattle traders. A further 8% were sold at the homestead to traders through the services of a dalal (a middleman who takes a cut of the sale price). 31% of cattle were sold to a cattle trader at a market, while the remaining 3% were sold to other households on the char.

Similarly, control group households report that all cattle were sold through cattle traders. 49% were sold to cattle traders at the producer’s homestead, while 51% were sold to a cattle trader at market. Whilst some members of the treatment group sold cattle sold both through a middleman and to other households on the chars, this did not occur in the control group.

⁷ The details of this method are also described in Appendix Three.

The number of cattle sold through paikers may have been influenced by Eid-al-Fitr, a period covered by the recall period of the survey during which an increased number of cattle are sold to cattle traders.

Milk

In the treatment group, 32% of milk was consumed by the household itself. 6% was sold to residents of the same char or a neighboring char, and a further 1% was sold at char markets. A substantial proportion of milk was sold onto the mainland: 32% was sold to milk traders (who resell the milk on the mainland), while 26% was sold directly by producers at the mainland market. 1% was sold to small scale processors, such as local sweetmeat shops and tea stalls. It is clear from the service provider survey that much of the milk sold to milk traders is then resold to such processors.

The control group showed similar overall patterns of milk use, though it displayed some important differences. 32% of the milk is consumed within the household, and 12% is sold to residents of the same or a neighboring char. The key difference between treatment and control groups is that in the control, 18% of milk is sold at a market on the char. 16% of milk was sold to a milk trader and 22% directly at the mainland market.

These channels are not optimum methods of selling for milk producers. Very little milk was sold to small scale processors, and none to the formal milk industry.

3.3 Indicators from Sector-Specific Results Chains

of households with increased productivity (livestock or fodder)

Average fodder production per decimal is 29.43 bundles in the treatment group, and 19.98 bundles in the control group.⁸ Average productivity (body weight gain per day per head) is 300g in the treatment group and 260g in the control group. Average milk production per cow per day is 1.61 litres in the treatment group, and 1.52 litres per cow per day in the control group.

As with the calculations of profitability described earlier, the complexities of measuring levels of productivity in a static survey such as this one require that very simple methods of calculation be used.

Productivity of Fodder Producers

Productivity here is calculated considering the whole production cycle (an annual cycle, in which fodder may be cultivated for 4 – 12 months), rather than per cutting (one production cycle may comprise many cuttings). Overall, average fodder production per decimal is 29.43 bundles in the treatment group, and 19.98 bundles in the control group.

Productivity of Meat Producers

⁸ The convention on the chars is to use the 'bundle' as a unit of measurement. One bundle is around 3kg.

The cattle's initial weight, final weight, and the length of the rearing period are taken into account in the calculation of meat productivity. Average productivity (body weight gain per day per head) is 300g in the treatment group and 260g in the control group.

Productivity of Milk Producers

There are two important measurements of productivity for milk producers; the period of lactation and milk production per cow per day.

The lactation period is a key determinant of productivity; a cow producing milk for six months after the birth of a calf is very likely to be more productive than a cow producing milk for four months after the birth of a calf. This important element of a cow's productivity is not taken into account when productivity is measured solely using milk per cow per day measurements. The average lactation period for milk producers in the treatment group is 6.12 months, and the average lactation period for milk producers in the control group is 5.97 months.

The average milk production per cow per day is 1.61 litres in the treatment group, and 1.52 litres in the control group.

of households using improved livestock rearing practices

3% of producers in the treatment group (1% in the control) have good rearing knowledge, 25% (11%) have medium rearing knowledge, 41% (39%) have poor rearing knowledge, and 30% (49%) have very poor rearing knowledge.

2% of producers in the treatment group (0% in the control) have good rearing practice, 32% (8%) have medium rearing practice, 44% (50%) have poor rearing practice, and 22% (43%) have very poor rearing practice.

In order to measure this indicator, the project team have selected the six most important areas of livestock rearing, and assessed the producer's level of knowledge and practice in each of these areas. The areas considered are cattle deworming, vaccination, provision of water, provision of fodder, provision of concentrated feed and housing. The questions asked were straightforward, and allowed for a simple assessment of knowledge and practice by enumerators.

Knowledge and practice were assessed separately, the former through questions about correct way in which to rear cattle, and the latter through questions regarding the producer's current methods of livestock rearing. Producers with knowledge/correct practice in none of these areas are placed in the 'very poor' category. Producers with knowledge/correct practice in 1 to 2 of these areas are placed in the 'poor' category. Producers scoring from 3-4 are in the 'medium' category, while producers scoring from 5-6 are in the 'high' category.

Overall, knowledge levels were found be higher than current practice levels. 3% in the treatment group (1% in the control) have good rearing knowledge, compared to 2% in the treatment group (0% in the control) who have good rearing practice. 25% (11%) have medium rearing knowledge, compared to 32% (8%) who have medium rearing practice.

41% (39%) have poor rearing knowledge, compared to 44% (50%) who have poor rearing practice. 30% (49%) have very poor rearing knowledge, compared to 22% (43%) who have very poor rearing practice.

Volume of char produce being sold on the mainland

No fodder is sold on the mainland (as it is not produced commercially at all). 476 cattle (97% of total cattle sold) were sold on the mainland in the treatment group, and 192 (100%) in the control group. 3656 litres (61%) of milk is sold on the mainland in the treatment group, and 994 litres (38%) in the control group.

Fodder is not yet grown on a commercial basis on the chars. Therefore, no fodder was sold on the mainland.

Of the meat which was produced, 476 (97%) cattle were sold on the mainland in the treatment group, and 192 (100%) were sold in the control group. Meat sold on the mainland includes that which has been sold to a cattle trader at mainland markets or at the respondent's homestead.

Of the milk which is produced, 3656 liters (61%) of milk is sold on the mainland in the treatment group, and 994 liters (38%) in the control group. Milk sold to the mainland includes milk sold to a cattle trader (who then sell on the mainland), milk sold directly by the producer at mainland markets, and milk sold to formal processors.

Appendices

Appendix One: Calculating Levels of Business Knowledge for Service Providers

The indicator addressing the level of service provider's business knowledge is complex. The project team has identified five key groups of service providers which the market development project is aiming to impact, within which there are very significant differences in function. This necessitates five separate methods of measuring business knowledge. Each group of service provider therefore responded to questionnaires which, while having some common features, assessed different areas.

For each of these groups, separate sets of sub-indicators were developed to most accurately capture levels of knowledge. These indicators are described in detail in Appendix Four. Different types of service provider were assessed against different numbers of indicators. For example, ten indicators were used to assess the knowledge levels of LSPs, while four were used to assess the knowledge of milk traders. Each service provider was assessed as having a low, medium or high level of knowledge against each of these indicators.

A simple calculation was then used to establish the proportion of service providers who have an **overall** low, medium or high level of business knowledge.

First, the number of service providers falling into each level of knowledge for each indicator (low, medium and high) were added together. For example, over the four indicators pertaining to knowledge in the milk trader questionnaire, 2 respondents were assessed as having a medium level for the first indicator, 11 respondents were assessed as having a medium level for the second indicator, 12 respondents were assessed as having a medium level for the third indicator, and four respondents were assessed as having a medium level for the fourth indicator. These numbers were added, in this case providing a total of 29.

This total was then divided by the total number of indicators used to assess the knowledge of that group of service providers. Therefore, while the denominator for the example above is four, the denominator for the corresponding calculation for the LSP group was ten. The resulting number was then converted into a percentage of the total number of respondents to the questionnaire. This allows for an understanding of the proportions of each kind of service provider which have low, medium and high overall levels of business knowledge.

Appendix Two: Methods of Calculating Profit

Understanding the profitability of fodder, meat and milk production, as noted in the main body of this report, presents substantial challenges. The calculations here are therefore very simple, and are not intended to represent precise measurements of profitability. Rather, they are intended to allow a comparison of profitability at baseline with profitability after implementation of the project, which allows the project team to develop an understanding of the broad direction of change in the profits made by producers in this sector.

Calculating Fodder Profitability

The profitability of fodder production is calculated in the following way:

- i) The total cost of inputs per decimal (namely seeds, leased land, fertiliser, irrigation, employed labour, transportation costs and market costs, plus any other relevant expenses) is calculated for each fodder producing household. This figure is calculated for the whole production cycle, rather than on a monthly or per cutting basis.
- ii) The total sale value of fodder per decimal is then calculated by multiplying the number of bundles produced per decimal in the last production cycle by the average selling price of one bundle of fodder.
- iii) The total cost of inputs per decimal is then subtracted from the total sale value of fodder.

Calculating Meat Profitability

The profitability of meat production is calculated in the following way:

- i) The total cost of inputs is calculated per head of cattle, for the last six months. This comprises the costs of various feeds, veterinary treatment, vaccination, deworming, housing costs, costs at markets, and the cost of labour employed related to meat production, plus any other relevant costs.
- ii) The present value of each head of cattle (as estimated by the respondent) is subtracted from either the cattle's purchase price (if purchased in the last six months) or the cattle's value six months ago.
- iii) The cost of inputs per head is then subtracted from the difference between the initial and current value of each head of cattle.

Calculating Milk Profitability

- i) The total cost of inputs is calculated per head of cattle, for the last six months. This comprises the costs of various feeds, veterinary treatment, vaccination, deworming, housing costs, costs at markets, the cost of labour employed related to milk production, and transportation costs.
- ii) The total value from milk per head of cattle in the last six months is then calculated, through multiplying the average value of milk by total amount of milk produced. Milk consumed by the household itself is included in this figure.

- iii) The present value of any calves produced by each head of cattle is then added to the total value of milk production.
- iv) The cost of inputs per head is subtracted from this figure.

Appendix Three: Definitions of “Significant Improvements” in the Quality of Inputs, Services and Methods of Selling

A detailed process of identifying which inputs, services and methods of selling constituted a ‘significant improvement’ was undertaken using the expertise of the project team. The outputs of this process are described here in order to guide comparisons of this baseline data with data from follow-up and project end surveys.

“Significant Improvements” in the quality of inputs and services

Cattle

A movement from only local breed cattle being available, and towards cross-breed cattle being available, is a significant improvement (though in practice, as almost all producers had access to cross-breed cattle at baseline, this indicator is redundant).

Fodder Seeds

A movement from any of the types of seed not being available to being available, either on the mainland or on char, is a significant improvement.

A movement from a type of seed being available only at the mainland, towards it being available on the char itself, is a significant improvement.

Feed and Fodder

A movement away from only maize or natural grass being available, and towards any number of Jambo, oil cakes, concentrated feed, ready feed or silage being available, is a significant improvement.

“Significant Improvements” in methods of selling

Fodder Producers

Movements away from producers consuming their own fodder in the household, selling fodder to the local community, and selling fodder to other residents of the char are considered significant improvements.

Selling fodder at mainland markets, to fodder traders or through Char Livestock Centres are all significant improvements. However, selling to fodder traders or through a CLC is a significant improvement on selling at the mainland market, so households undergoing a change of this nature would also qualify for this indicator.

Meat Producers

A movement away from any of the other available options towards selling through a Chars Livestock Centre or to selling through large buyers is a significant improvement.

A movement away from selling to meat trader through a dalal and towards selling to a meat trader without using a dalal is a significant improvement.

A movement away from consumption by the household itself or selling to other people in the village, and towards selling at a market, is a significant improvement.

Milk Producers

A movement away from any method of selling towards selling through a CLC, directly to an informal processor, to a milk processor on the chars or to a formal processor is a significant improvement.

A movement away from selling to other people on the chars, selling to a goala or selling at a mainland market, and towards selling through a pali system, is a significant improvement.

Appendix Four: Short Reports on Service Provider Surveys

A: Livestock Service Providers (LSPs)

1. Background and Methodology

LSPs play an important role in the livestock market system on the chars. The CLP has so far trained and otherwise supported a total of 516 LSPs, with the objective of promoting the health of cattle belonging to CLP core participants and levels of cattle mortality low.

For this element of the baseline survey, a total of 22 LSPs, covering all of the districts in which the market development project will take place, were selected as respondents. The geographical composition of this sample is shown in Table 1. A structured questionnaire was prepared to guide data collection. The data was collected by the CLP's Markets and Livelihoods Unit between the 25th December 2012 and the 9th January 2013. Simple mathematical and statistical tools were used for analysis.

Table 1: Sample size and distribution

Lalmonirhat	Nilphamari	Rangpur	Kurigram	Pabna	Gaibandha	Tangail	Jamalpur	Total
01	01	02	09	04	01	2	2	22

2. Findings

(i) Business knowledge

In order to evaluate the business knowledge of LSPs, three major indicators were selected, each of which comprises a number of sub-indicators. The major indicators are experience, linkages with other actors, and scope of business.

Each of the LSPs in the sample were assessed as having a low, medium or high level of knowledge against each of these sub-indicators. This provided the basis for assessing each LSP's level of knowledge against each of the three major indicators, which in turn allowed for an overall categorization of LSPs into possessing low, medium or high overall levels of business knowledge. The results are shown in detail in Table 2 below.

Table 2: Business knowledge level of LSP

Business knowledge levels of LSPs							
		Low		Medium		High	
		#	%	#	%	#	%

Experience	8	36	9	41	5	23
a. Education Low = Class-VIII-X Medium = Secondary School Certificate High = Higher Secondary Certificate	9	41	10	45	3	14
b. Training Low = 3-20 days of technical training Medium = 21-60 days of technical training High = more than 60 days of technical training	7	32	7	32	8	36
c. Years of Working Experience Low = 1-3 years Medium = 3 - 10 years, High = more than 10 years	9	41	11	50	2	9
d. Technical knowledge Low = 2-5 correct responses to technical questions Medium = 6-10 correct responses High = more than 10 correct responses	9	41	7	32	6	27
Linkages with other actors	7	32	11	50	4	18
a. Linkages with medicine companies Low = Linked with less than 3 medicine companies or representatives Medium = 4 – 6 companies or representatives High = 6 or more companies or representatives	5	23	14	63	3	14
b. Linkages with Department of Livestock Services Low = Less than 5 communications with DLS offices or officials per month Medium = 5 – 10 communications High = More than 10 communications	10	46	8	36	4	18
Scope of Business	6	27	10	47	6	26
a. Village Coverage Low = 1 -3 villages served Medium = 4-6 villages served High = 7 or more villages served	4	18	13	59	5	23

<p>b. Investment in the Business Low = Less than 10,000 taka Medium = 10,000 to 50,000 taka High = More than 50,000 taka</p>	10	46	8	36	4	18
<p>c. Number of Clients per Month Low = Less than 50 Medium = 50 - 100 High = More than 100</p>	5	23	9	41	8	36
<p>d. Income per Month Low = Less than 5,000 taka Medium = 5,000 to 15,000 taka High = More than 15,000 taka</p>	5	23	11	50	6	27

Experience

Four sub-indicators were used for this major indicator; educational qualifications, training received, years of working experience and technical knowledge.

41% of LSPs have an education below a Secondary School Certificate, 45% have a SSC and only 14% have a HSC. Technical training (which focuses training related to livestock rearing and veterinary treatment) was higher, with a good number of LSPs (68%) having received more than 21 days training, while 32% have received less than 21 days. A good number of LSPs (50%) have 3 to 10 years of working experience, 41% have less than 3 years, and only 9% have more than 10 years.

Each LSP was asked 17 questions on livestock rearing and treatment. It was found that 41% of LSPs were able to respond to 2-5 questions correctly, 32% responded to 6-10 questions correctly, and only 27% responded to more than 10 questions correctly. Overall, 36% of LSPs have a low level of knowledge for this indicator, 41% LSPs have a medium level, and 23% achieve a high level.

Linkages with Other Actors

Two sub-indicators are considered when assessing linkages with other actors: linkages with medicine companies or representatives, and linkages with local DLS officials or offices. The data shows that a good number (63%) of LSPs have linkages with 4-6 medicine companies or their representatives, 23% have three or fewer linkages, and 14% have more than 6 linkages.

Rather than a number of linkages, the frequency of communication (for livestock business related purposes) per month has been used in order to assess the level of linkage between LSPs and government livestock services. The data shows that 46% LSPs communicated with Department of Livestock Services officials less than 5 times per month, 36% LSPs had 5-10 communications per month, and 18% LSPs had more than 10 communications per month. Overall, considering both of the linkage sub-indicators, 32% of LSPs have a low level of linkage, 50% of LSPs have a medium level of linkage, and 32% have a high level of linkage.

Scope of Business

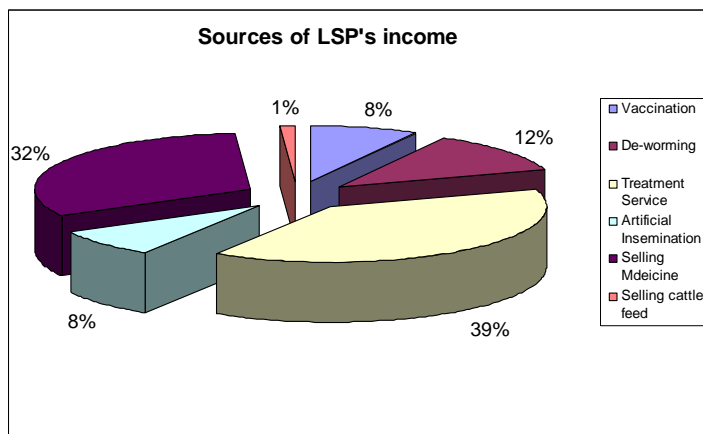
This indicator comprises four sub-indicators: village coverage, investment in the business, number of clients served per month and income from the business per month.

The data shows that 59% of LSPs provide services to 4-6 villages and 23% to more than 6 villages. Only 18% of LSPs serve three or less villages. In terms of investment, 46% of LSPs have invested less than 10,000 taka in their business, 36% have invested between 11,000 and 50,000 taka, and only 18% have invested more than 50,000 taka. 41% of LSPs serve between 51 and 100 clients per month, 36% serve more than 100 clients per month, and 23% serve 50 or fewer clients per month. 50% of LSPs earn 5,100 to 15,000 taka per month, 27% earn more than 15,000 taka per month, while only 23% earn 5,000 taka or less per month. Overall, compiling data for all of the above sub-indicators, 37% of LSPs have a low level of knowledge relating to this indicator, 47% LSPs have level, 37% a medium level of knowledge and 26% achieve a high level of knowledge.

(ii) Method of selling

The survey shows the current types of services which are provided by LSPs in the project's working areas. The services provided are predominantly vaccination, de-worming, treatment, veterinary medicine, artificial insemination and cattle feed. The below graph shows the average percentage of income LSPs generate from different sources.

Graph 1: % of LSP's income from different sources

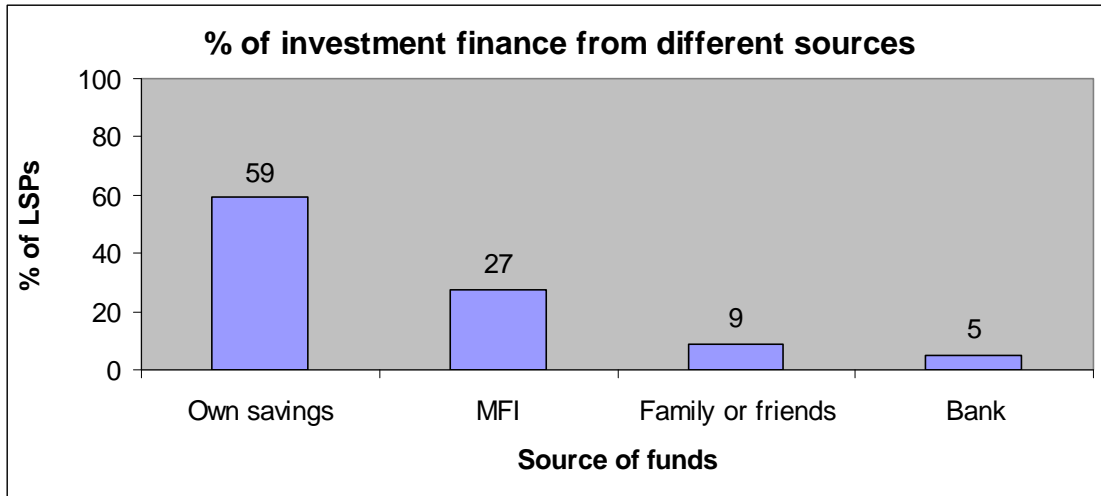


All LSPs in the sample provide vaccination, de-worming, treatment services, as well as selling veterinary medicine. Just 4 LSPs provide artificial insemination services, while only 1 LSP sells cattle feed.

Almost all LSPs (95%) operate their business single-handedly. One LSP has engaged a part-time employee. 95% of LSPs use both cash and credit systems of payment.

Finance for investment by LSPs comes from a number of different sources, as shown in the graph below.

Graph 2: % of investment finance from different sources



The data shows that just over half of LSPs (59%) have invested in their businesses using their own funds. 41% of LSPs have taken loans from a variety of sources in order to finance their business (27% have received finance from MFIs, 9% from family or friends and one respondent from a bank). 79% of total overall capital invested by LSPs is from their own savings, while 21% comes from loans taken from this range of sources. from the interest rates on loans from formal institutions (MFIs and banks) is between 8% and 15%.

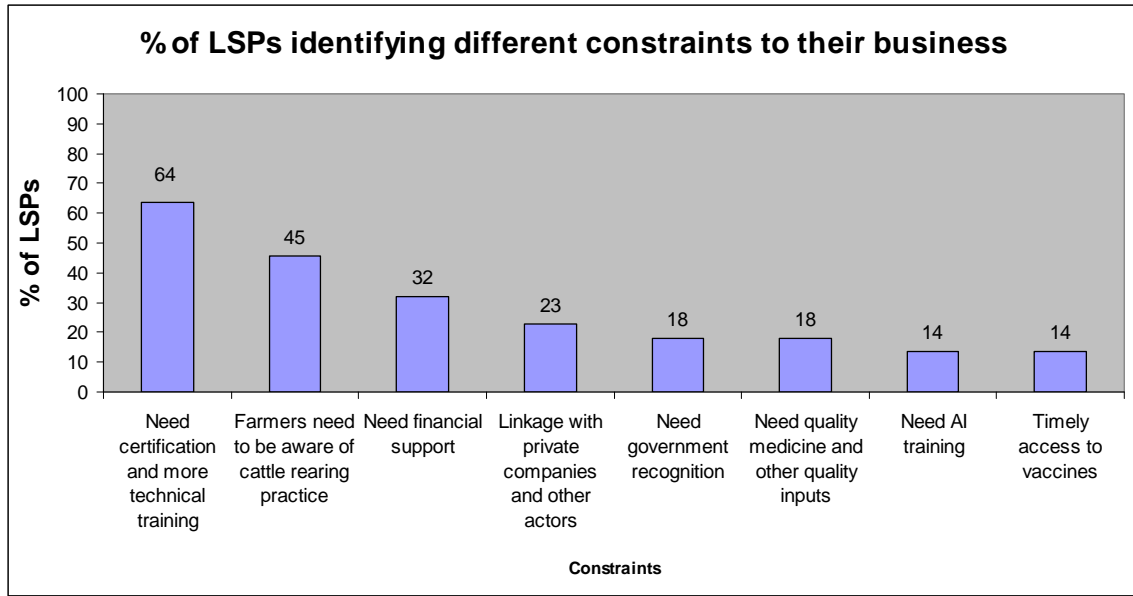
(iii) Business linkages with mainland actors

Although LSPs are char-based, they have good linkages with actors on the mainland. 91% of LSPs consult Upazila level livestock experts (generally from the Department of Livestock Services, though some other livestock experts are sometimes available) when treating animals with critical diseases handling critical treatment cases or any other livestock services, which demonstrates that LSPs and Upazila level livestock experts are well connected. 55% of LSPs only provide their services only on the chars, while 45% also provide services on the mainland. This shows that at least some LSPs have good access to potential customers on the mainland. LSPs are dependent on Upazila livestock offices for their supplies of vaccine. They also need to go to the mainland in order to purchase medicine and other veterinary products from the representatives of companies, or from medicine shops. Each LSP has on average linkages to 4.4 medicine companies or their representatives.

iv) Business Constraints

There are some notable constraints to the businesses of LSPs. The below graph shows the limitations described by LSPs.

Graph 3: % of LSPs identifying different constraints to their business



The data shows that 64% of LSPs would like more certification, and improved training. 45% said that steps should be taken to improve the capacity of producers with regard to cattle rearing, 32% mentioned a lack of access to finance, and 23% mentioned a lack of linkages with private companies and other actors as a constraint. 18% identified challenges in gaining formal recognition from government institutions, 18% felt that there was a lack of quality medicines and other inputs available to them and 14% told felt that their lack of training in artificial insemination was a constraint. 14% of LSPs identified their inability to access vaccines when they need them as a further constraint.

B: Goalas (Milk Traders)

Background

Baseline data was collected from 25 December 2012 to 9 January 2013. A structured questionnaire was developed to guide in-depth interviews. A total of 22 Goalas were selected, spread across all 8 of the districts in which the milk sector interventions will be implemented: Rangpur, Kurigram, Lalmonirhat, Tangail, Pabna, Jamalpur, Gaibandha and Nilphamari.

i) Business Knowledge

Four major areas of business knowledge were addressed in the survey. In each of these areas, the business knowledge of goalas has been categorised as high, medium or low.

Business knowledge levels of Goala						
	Low		Medium		High	
	#	%	#	%	#	%
Knowledge of Hygienic Practices Low = Poor understanding of basic hygiene practices Medium = Follow standard hygiene practices High = Have superior knowledge of hygiene practices	0	0	12	55	10	46
Advice Provided to Clients Low = No advice provided, or only one type of advice Medium = Two to three types of advice provided High = Four or more types of advice provided	10	46	11	50	1	5
Linkages with Other Actors Low = Linkages with one or two other actors Medium = Linkages with three or four other actors High = Linkages with five or more other actors	20	91	2	9	0	0
Potential for Reaching More Clients Low = Are not eager to expand their business Medium = Have target clients but face challenges in reaching them High = Have target clients and can reach them	9	41	4	18	9	41

The survey suggests that around half of goalas have a moderate knowledge of basic hygiene issues, such as safe milk handling processes. A key component of milk hygiene for goalas is their choice of utensil for transporting milk. 55% of goalas use plastic cans, 37% use aluminium pots,

and 9% use household silver utensils. None of these methods are hygienic, which demonstrates a general disregard for hygiene on the part of goalas. Low cost silver utensils or poor quality aluminium pots offer little protection against high ambient temperatures, which greatly reduces the shelf life of milk and the frequency of spoilage, reducing the profits which can be made by goalas. Purpose-built carrying pots which are able to keep milk cool are recommended. Of the few goalas who used safe milk carrying pots, all were supplied with such pots by the CLP as part of a previous project.

A small portion of goalas (18%) follow standard hygienic practices. This includes ensuring the cleanliness of udders, washing hands before and after milking, collecting in a dry and open place, using clean pots, and regularly washing pots with safe detergents rather than with ash.

Around 55% of the surveyed goalas have already received technical training as part of the CLP's Asset Transfer Project. In addition to collecting and selling milk, some goalas also provide advice to producers. Many char goalas are able to provide advice to producers on feeding practice (76%) and cattle management (71%) issues. A number of goalas (36%) are also able to provide advice on hygiene practice to milk producers. Few goalas are capable (14%) of providing advice relating to cattle health and treatment.

90% of the surveyed goalas have only one linkage with suppliers (generally producer farmers) and one linkage with customers (such as sweetmeat shops or tea stalls). No goalas have links with more than four market actors.

27% of goalas have taken loans, from MFIs on the mainland (9%), NGOs (14%) and from other people on the chars (4%). Around 41% of goalas are business orientated and keen to reach new customers. 18% of these goalas report requiring financial assistance in order to reach these clients, suggesting that access to finance is one challenge facing some goalas on the chars.

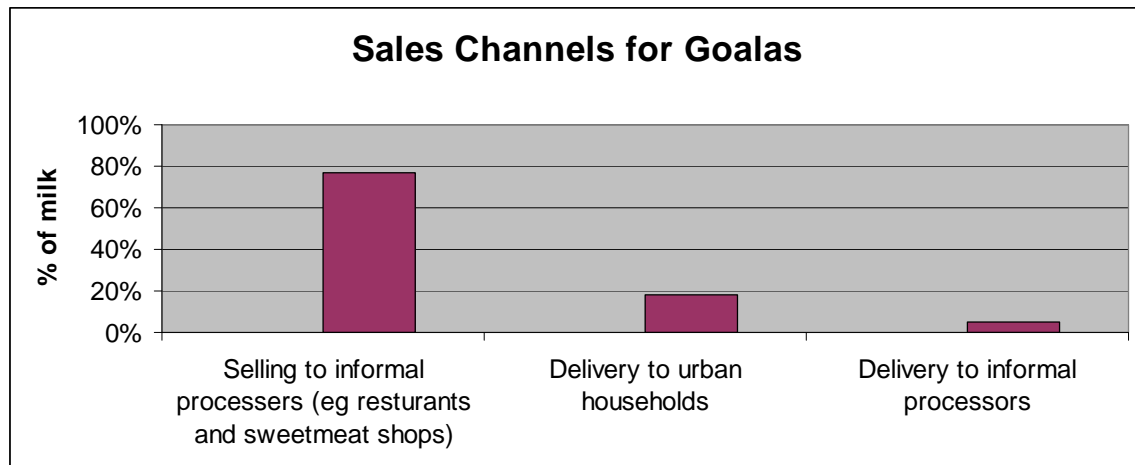
ii) Methods of Selling

Type of business	% of Goalas
Single handed operation	95.5
Collector group member	0
Pali system member	0
Collect from local bazaar	4.5

In the chars, the vast majority of goalas (95.5%) operate single-handedly, without any staff, except during some peak periods in which part time labour is engaged. They collect milk from producer households and sell it at the nearest market. Milk collection on a bulk basis, from local bazaars, has been observed only in Pabna. In Pabna District, one of the more prosperous regions in which the project will be implemented, a formal processor, Milk Vita, is present in the upstream of the value chain. Here, the

interviewed goala has one member of permanent staff to collect milk and delivery it to Milk Vita's processing plant.

Goalas usually sell milk at informal local markets. The below graph shows the channels through which they sell their milk.



Significant proportions of milk (77%) are sold to restaurants, sweetmeat shops and tea stalls. Goalas also find a market in selling directly to urban households, often door to door (18%). In Pabna, bulk collections of milk are delivered to formal processors. The vast majority of milk is sold to informal processors such as sweetmeat shops or tea stalls. Thus, char goalas are strongly controlled by these mainland actors. Nevertheless, 86% of goalas realise that there are big business opportunities through linking with large buyers.

Goalas have few opportunities to share problems or identify potential opportunities with other actors, either on- or off-char. Goalas have very limited access to other dairy value chain actors on the mainland. They are strongly regulated by specific clients such as sweet shops, tea stalls or urban-households; therefore, they have few opportunities to diversify their businesses. Additional linkages market actors, such as mainland traders, big dairy farms, buyers from large companies or big processors could help build the capacity of goalas, as well as contribute to increased profits.

iii) Business Linkages

The data shows that char goalas are heavily linked with mainland sweetmeat shops and restaurants. Although a proportion of goalas sell milk to urban households, the principle linkage is with mainland shop owners. The survey shows that other mainland actors, such as representatives of big dairy farms, have little to no interaction with char goalas.

Goalas regularly collect milk from producers, generally using systems of advanced payment. Mainland informal processors are able to control the price paid for milk.

The physical distance between the chars and the mainland makes the exchange of business information difficult and infrequent. There is therefore little coordination between mainland buyers and char goalas.

iv) Business Constraints

All char goalas face challenges in selling their product on the mainland. The data shows that 40% of goalas face problems of milk spoilage. This is closely related the aforementioned lack of hygienic carrying cans.

The profitability of goalas is also hampered by delays in payments made by shop owners on the mainland. Credit-based milk procurement is a common practice of mainland shops, and goalas are often paid late. As there are no formal agreements between goalas and shops on the mainland, mainland shops sometimes suddenly refuse to buy the regular amount of milk from goalas. 18% of goalas identify this as a problem. This seems to be caused by big dairy farms sporadically flooding the market with large supplies of cheap milk. Some mainland-shop owners pay less than the actual market price, a practice reported by 14% of goalas. As found in the Sector Analysis, demand does not seem to be an issue; only 5% of goalas report making losses due to a lack of demand.

Several other market related constraints have also been identified by the survey. Control of the market supply by big dairy farms is a major constraint for char goalas (27%). The recent rise of big private dairy farms are allowing such farms to have substantial control over the dairy market. They are capable of supplying bulk amounts of milk at low prices, which affects small collectors, forcing them to accept lower prices or find alternative customers.

Similarly, 23% of goalas say that cannot run profitable business due to the absence of a specific pricing system for them. 18% could supply more cattle milk to the market, but do not do so due to the absence of large buyers on the mainland. These goalas are confident that if demand rises, they can easily supply the extra milk.

The data shows that 14% char goalas cannot make good profits as they need to cover high transport costs between char and mainland, but they enjoy no price controls at the mainland market. 9% goalas report 'artificial price making' by mainland buyers, claiming that mainland buyers like sweet shop owners jointly decide and fix a common purchase price lower than the actual rate.

In addition, the absence of a proper milk carrying system hampers business returns for char goalas. This suggests that a better knowledge of safe carrying systems and the availability of appropriate milk pots or cans might increase returns for goalas.

C: Cattle Traders (Paikers), Char Input Dealers and Irrigation Services Providers

1. Background

International Development Enterprises (iDE)-Bangladesh is renowned for its market development approach which among others, emphasizes on proper irrigation for the agricultural sectors and has popularized different irrigation technologies (especially micro irrigation technologies). As found during the analysis of fodder and meat sectors study, most of the char households have faced hardships of seasonal flooding, drought or dry spell, and faced the usual constraints of unavailability of livestock inputs, lack of market information and services from the relevant market actors regarding meat and livestock inputs, lack of technical knowhow, etc across the working areas. The Chars Market Development Initiatives (CMDI) project is intended to develop a sustainable network of service providers, i. e. Irrigation service providers (ISPs), Chars inputs dealers (CIDs) and Paikers to solve the aforementioned market constraints of meat and livestock inputs to establish commercially viable fodder and meat production business in the chars.

2. Methodology and Approach

2.1 Tool Development

The MRM team developed questionnaire and checklist with support from CMDI team (Regional and Dhaka office) to structure the interview and gather field information. These questionnaires were finalized in consultation with Chars Livelihoods Programme (CLP) personnel/experts team both at central as well as field levels. Different tools were developed for interviewing the different relevant market actors like –Paiker, chars inputs dealer (CIDs) and Irrigation service providers (ISPs).

2.2 Planning and orientation of field staff

A data collection plan was made to collect data from the field and assign field staff to collect the field data and consequently orient staff on data collection tools with the support of iDE senior personnel. Testing of tools and methodology was done through role-play by the data collectors during the orientation session and needed minor changes were incorporated after the first field visit in Sariakandi chars areas.

2.3 Sampling

Sampling of the respondents was done through interaction with CMDI project officials and M&E team at iDE-Bangladesh Dhaka and field office Bogra. Standard sampling method was employed for designing the sample size. The sample was designed to cover all service providers of the project areas. Thus, for choosing the samples for the study, a stratified random sampling method was used to ensure the representation of all different types of service providers across the working chars, which are as follows;

Table 1: Sample size of the targeted service providers

Service providers	Bogra	Sirajgonj	Rangpur	Kurigram	Total
CIDs	06	06	05	06	23
ISPs	06	06	03	06	22
Paikers	06	06	06	06	24
Total Sample size (~ 26% of Total)					69

2.4 Field visit

The selected and trained staff conducted field surveys at char level which were carried out from December 27, 2012 to January 07, 2013. All the project areas were visited for interview, interaction and observation with the targeted service providers. The field visit was carried out to acquire needed information related to the objectives of study.

2.5 Data Analysis and Reporting

For data analysis, MS-Excel software is employed and findings were prepared on the basis of frequency, average figure.

3. Major Findings

The findings of the study were drawn based on the following areas for targeted service providers: business knowledge, method of selling, linkages with mainland, constraints and any other germane issue

3.1 Irrigation service providers (ISPs)

i) Business knowledge

Most of the ISPs interviewed are experienced and have carried out their irrigation business for a long time. The average experience of the ISPs is 7.5 years; ranged from 2 to 20 years but most of them are used to traditional irrigation systems, i. e. *katcha* canal or sometimes using hose pipe (locally called *Fita* pipe). The average customers (clients) of the ISPs are 18 per year. The char ISPs are mainly involved with different cereals crops, viz. wheat, potato, chili, jute, rice, onion, maize, vegetables, etc. The business knowledge of the ISPs is as follows;

Table 2: Business knowledge of the ISPs

Criteria	Low		Medium		High	
	#	%	#	%	#	%
Linkages with other market actors (mainland dealers, company, etc) {Low= between 1-2 actors; medium= between 3-5 actors; high= >5 actors}	5	23	11	50	6	27
Clients base or average clients numbers {Low= 2-5; medium= 5-11; high= >11 clients}	7	32	8	36	7	32
Service provision and promotional activities {Low= zero to minimum advice on 1 aspect; medium= 2-3 types advices; high= >3 advices}	12	54	6	29	4	17
Gross Income {Low= 5000-8000 BDT per year; medium= 8000-	8	36	7	32	7	32

<i>13000 BDT per year; high= >13000 BDT per year}</i>						
Investment {Low= 2000-5000 BDT per year; medium= 5000-10000 BDT per year; high= >10000 BDT per year}	11	50	8	36	3	14
Training {Low= zero; medium= 1-2; high= >2 training}	22	100	0	0	0	0

Data shows that ISPs are mostly (77%) linked with relevant market actors to boost the irrigation business. The average clients of the ISPs are 18 (lowest 2 and highest 23) and very minimal (32%). Char ISPs has lower service provision and promotional activities and most of the ISPs (54%) provided minimal services, only for credit supports. Most of the ISPs (64%) made income from the irrigation business which ranged from 15000 to 22000 BDT per year and lower investment were observed in this business and only 14% chars ISPs invested more money for the business ranged from 12000 to 18000 BDT per year. The study showed that surveyed chars ISPs have received no training till date to operate their irrigation business but are interested to undergo training be involved in capacity building programs that would introduce them to newer technologies and ultimately increase their business profitability.

ii) Method of selling

It is found that most of the ISPs covered more than 1.5 acre of land (on an average/overall) and they mainly covered the following crops: wheat, rice, vegetables, chili, jute, onion, maize, etc. The area coverage and served crops are;

Table 3: Area (dec.) coverage and served crops of the ISPs

Crops	Area coverage (dec.)	Frequency		Remarks
		Yes (%)	No (%)	
Improve green fodder	0	0	100	Just have knowledge about fodder irrigation
Wheat	318	68	32	Mostly grown in chars and most of the ISPs irrigate wheat
Rice	391	86	14	It is common in all chars
Vegetables	11	27	73	Very low in char areas
Chili	64	45	55	It is a high value crop in the chars
Jute	368	64	36	Most of the ISPs have knowledge on it since it is grown all over the chars
Maize	61	36	64	It is a high valued crop in the chars
Others	87	27	73	Some of the other crops (rather than vegetables)

Almost all of the respondents employed shallow machine as their primary irrigation device and the horse power of the machine varied from 4 to 12. Among the surveyed ISPs, only 5% are aware about improved fodder cultivation and irrigation and rest of them have very limited knowledge on fodder irrigation since these items (fodder) are very new within their operation areas or chars. In char areas, the ISPs are operating their business by different transaction systems. Some of them are only taking cash payment and providing all kinds of costing (machine rent and fuel cost), some of them are only taking machine rent, share cropping, etc (Table-4).

Table 4: Method of water selling

Method of selling	Yes		No	
	#	%	#	%

Only machine rent and fuel cost	2	9	20	91
Irrigation service provider takes rent money and all cost borne by service provider	9	41	13	59
Crop sharing	6	27	16	73
Only machine rent, all other cost borne by service receiver	5	23	17	77

The table shows that 41% ISPs are operating their business by taking rent money (all cost borne by service provider) and 27% of them share crop (60:40; Crop owner : ISPs) which mainly for paddy. There are two systems followed by the ISPs: hour wise and decimal-wise payment; the rent of the irrigation services is 130 taka per hour; ranged from 86 (Saghata, Gaibandha) to 200 taka (Chilmari, Kurigram) and 12 taka per decimal, ranged from 9 (Gangachara, Rangpur) to 15 taka (Bera, Pabna) per decimal.

iii) Linkages with mainland: The collected information shows that char ISPs are highly linked with mainland Irrigation spare parts sellers (55%) and Technicians for well boring (45%). But opposite scenario is also observed in case of linkages with mainland ISPs (only 14%) and company dealers (only 9%) which indicated that modern technology and services, i. e. treadle pump, sprinkler, solar pump, drip set irrigation, etc. are not taken by the surveyed ISPs.

Table 5: Linkages of the ISPs with other market actors

Clients	Yes		No	
	#	%	#	%
Mainland ISPs	3	14	19	86
Company dealer in mainland	2	9	20	91
Irrigation spare parts sellers in mainland	12	55	10	45
Technicians for well boring	10	45	12	55

iv) Constraints and any other issues

The chars ISPs are followed traditional irrigation systems and they have no training on proper irrigation methods and none of them has micro-irrigation technologies, i. e. treadle pump, sprinklers, pressure treadle pump, etc. Lack of proper Communication facilities of the surveyed chars is also a major constraint for the ISPs. The ISPs also faced difficulties for getting spare parts and other necessary tools as their requirements. Moreover, water level in char areas is on a gradual decline, resulting in high cost for irrigation business.

3.2 Chars Inputs Dealers (CIDs)

i) Business knowledge

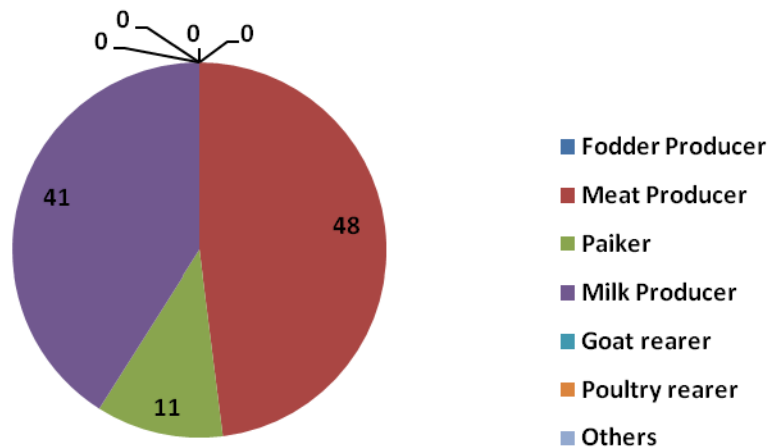
Most of the CIDs (88%) are not experienced about livestock inputs business. The average experience of the CIDs is 1.5 years and all of them used traditional business systems, mainly white goods (rice, flour, pulses, edible oil, spices, soap, etc) with some livestock inputs. The business knowledge of the CIDs is as follows;

Table 6: Business knowledge of the CIDs

Criteria	Low		Medium		High	
	#	%	#	%	#	%
Linkages with other market actors (char dealers, mainland dealers, company, paikers, etc) {Low= between 0-1 actors; medium= between 1-2 actors; high= >2 actors}	18	78	3	13	2	9
Clients base or average clients numbers {Low= 15-22 per month; medium= 22-25 per month; high= >25 clients per month}	21	91	2	9	0	0
Service provision and promotional activities {Low= zero to minimum advice on 1 aspect; medium= 1-2 types advices; high= >3 advices}	22	96	1	4	0	0
Income {Low=2000-5000 BDT per year; medium= 5000-8000 BDT per year; high= >8000 BDT per year}	17	74	5	22	1	4
Investment {Low= 500-1000 BDT per month; medium= 1000-2500 BDT per month; high= >2500 BDT per month}	20	87	3	13	0	0
Training {Low= zero; medium= 1-2; high= >2 training}	23	100	0	0	0	0

Data shows that CIDs are mostly (78%) not linked with relevant market actors. About 91% of the CIDs have lower number of clients (ranging from 15 to 22) and CIDs has lower service provision and promotional activities and most of the CIDs (96%) provide minimal services, only for credit supports; ranged from 200 to 500 BDT. Most of the CIDs (74%) made lower income from the inputs business which ranged from 2000 to 5000 BDT per month and lower investment were observed in this business and only 13% CIDs invested more money for the business ranged from 1500 to 8000 BDT per month. The study showed that surveyed CIDs have no training to operate their business and they are seeking training to get basic operation mode and new technologies which can help them to earn more money.

ii) Method of selling: The graph showed that 48% items of CIDs are bought by the meat producers, 41% by the milk producers and 11% by the paikers. Most of the CIDs operate their



% of clients of the CIDs

business by cash (87%). The CIDs are mostly grocery shop owners (60%) and sometimes livestock service providers (40%).

iii) Linkages with mainland

The collected information shows that CIDs are significantly disconnected with mainland market actors. Very few of them have linkage with mainland inputs dealers (5%) and paikers (12%) and none of them has linkage with company personnel or char inputs dealers.

Table 7: Linkages of CIDs with other market actors

Linkages of the CIDs	Yes		No	
	#	%	#	%
Char input dealer	0	0	23	100
Mainland input dealer	1	5	22	95
Company sales representative	0	0	23	100
Paikers	3	12	20	88

iv) Constraints and any other issues

The CIDs follow traditional business systems and they have no training on proper feeding methods and none of them has linkage with ready feed companies. Communication facilities of the surveyed chars are also major constraints for the CIDs. The CIDs also faced difficulties for getting required feed or seeds and other necessary materials from distance mainland market as their requirements.

3.3 Paikers

i) Business knowledge

Most of the Paikers are experienced and have carried out their cattle business for a long time. The average experience of the Paikers is 11.5 years; ranging from 8 to 25 years but all of them are used traditional systems (no business plan, promotional activities, linkages with distance or big market, etc). The average customers (clients) of the Paikers are 11 per month.

Table 8: Business knowledge of the Paikers

Criteria	Low		Medium		High	
	#	%	#	%	#	%
Linkages with other market actors (mainland paikers, institutional buyers, large buyer agents, char paikers, etc) {Low= between 0-1 actors; medium= between 1-2 actors; high= >2 actors}	15	63	6	25	3	13
Clients base or average clients numbers {Low= 5-7 per month; medium= 7-10 per month; high= >7 clients per month}	16	67	6	25	2	8
Service provision and promotional activities {Low= zero to minimum advice on 1 aspect; medium= 1-2 types advices; high= >3 advices}	22	92	2	8	0	0
Income {Low=300-500 BDT per cattle; medium= 500-1000 BDT per cattle; high= >1000 BDT per cattle}	9	38	11	46	4	17
Investment {Low=15000-20000 BDT per cattle; medium= 20000-250000 BDT per cattle; high= >25000 BDT per cattle}	11	46	8	33	5	21
Training {Low= zero; medium= 1-2; high= >2 training}	24	100	0	0	0	0

Data shows that Paikers are mostly (63%) not linked with relevant market actors to boost the business. Char Paikers has lower service provision and promotional activities and most of them provide minimal services (8%), only for credit supports. Most of the char Paikers (62%) made income from the cattle business which ranged from 500 to 2000 BDT per cattle; generally the char Paikers sold 2-3 cattle per month and lower investment were observed in this business and only 21% chars Paikers invested more money for the business. The study showed that surveyed chars Paikers have no training to operate their business and they are seeking training to get basic operation mode and new technologies which can help them to earn more money.

ii) Method of selling

It is found that most of the char Paikers sold their produces to mainland Paikers and they have no/little knowledge about distant market actors. Sometimes they make a group and sold the cattle to other mainland Paikers by making small amount of profit. Group selling by Paikers happened in case of special cases; if some mainland Paikers demanded for large number of cattle.

iii) Linkages with mainland

The collected information shows that char Paikers are highly linked with char (100%) and mainland Paikers (55%). But opposite scenario is also observed in case of linkages with Institutional buyers (0%) and Agent of institutional buyer (0%) which indicates that modern technologies and services not taken by the surveyed Char Paikers.

Table 9: Linkage of the Paikers with other market actors

Clients	Yes		No	
	#	%	#	%
Char Paiker	24	100	0	0

Mainland Paiker	13	55	11	45
Institutional buyers	0	0	24	100
Agent of institutional buyer	0	0	24	100

iv) Constraints and any other issues

The chars Paikers follow traditional systems and they have no training on proper handling methods for cattle and none of them has modern cattle rearing techniques, i. e. feeding, de-worming, vaccination, transportation, etc. Communication facilities of the surveyed chars are also major constraints for the Paikers. Moreover, working capital and linkages with large buyer also great constraints for char Paikers for operating their business.