

## **LIVESTOCK REVOLUTIONIZING A COMMUNITY LIVELIHOOD**

### **A STUDY BASED ON PABA UPAZILA IN RAJSHAHI DISTRICT, BANGLADESH**

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#### **Abstract**

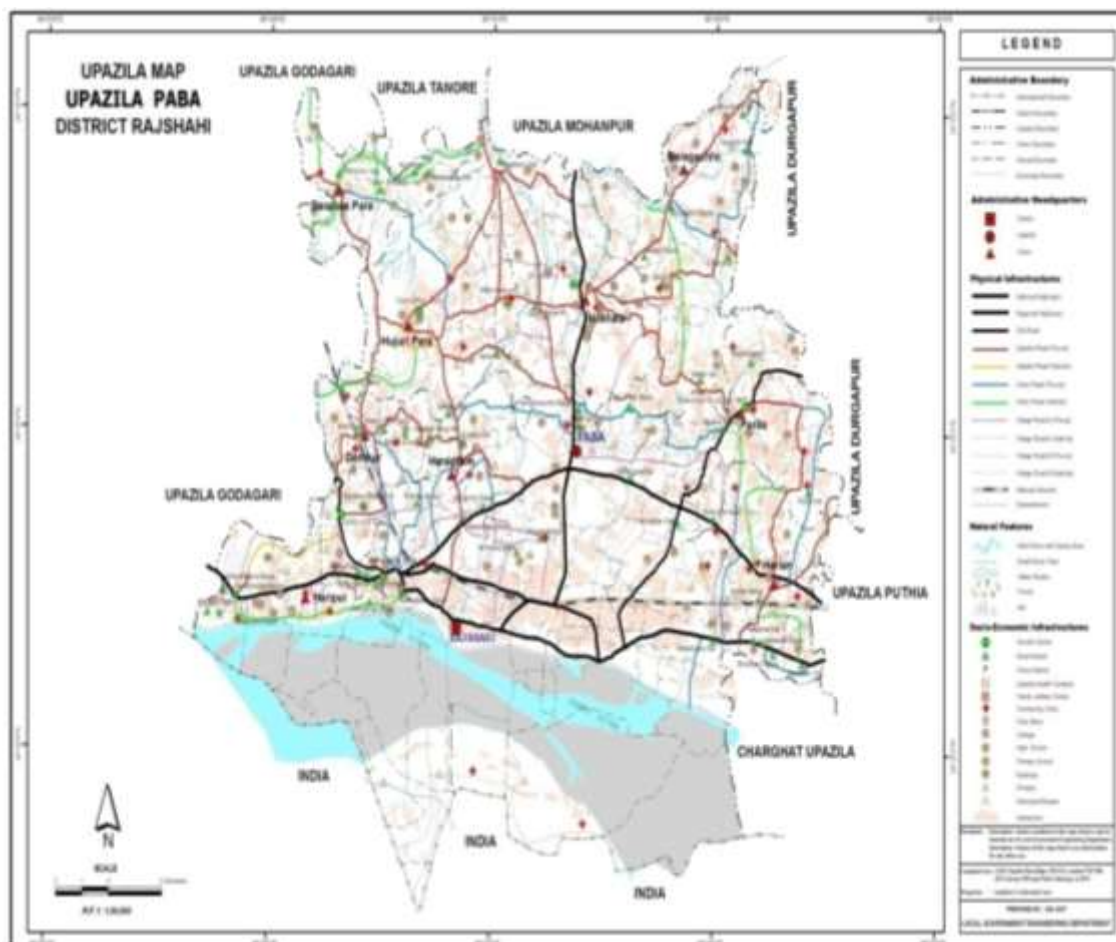
*The study was conducted at Paba upazila under Rajshahi district, Bangladesh to identify the major source of income that can transform the poor livelihood swiftly and smooth way. The value chain analysis conducted in Paba shows that livestock-poultry products activities generates substantially higher profit compared to others. Analysis shows that milking cow rearing using traditional technology yields income amounting Tk. 44 thousand while, rearing cost is Tk. 28 thousand and gross profit as percentage of rearing cost is 60%. Income from rearing scavenging 20 chickens for a cycle of one year is nearly Tk. 13 thousand and rearing cost amounts to Tk. 5,567. The gross profit over cost is 135%. As mentioned earlier, farmers are highly dependent on traditional rearing technology. Government may facilitate introduction of improved product-specific technologies in harmonious coordination and close cooperation with DLS. Value chain promotion is an effective way of development rural-urban linkages.*

*Keywords: Value chain, actor & process mapping, livestock, economic growth, Bangladesh*

#### **INTRODUCTION**

Value chain assessment is envisaged to provide necessary information for selection of appropriate and viable intervention on farm and non- farm practices for target groups. The critical bottlenecks associated with farm and non-farm businesses in Bangladesh represent weak value chain linkages between producers, traders, input service providers as well as processing and quality control. The assessment is also envisioned to assist developing functional network between producer, seller, buyers and other relevant actors. The value chain assessment is expected facilitate increasing household income, productivity, assets and economic resilience for the poor household, by selecting potential appropriate sub sector(s).

Figure 1: Upazila Map Paba, Rajshahi, Bangladesh (study area)



Source: Local Government Engineering Department, Ministry of Local Government, Rural Development & Cooperative, Government of Bangladesh

The average number of persons per household is found to be around 4.0. Approximately, 27% of the households have 3 persons. About one in three households have 4 household members. Around 8% of the households include more than 5 household members. The sex ratio in the households is found to be 97.0. The study yields a sex ratio of 97 indicating higher number of women against men. Nearly two-third (62%) of the people belongs to age below 15-59 years. About 9% of all household members belong to the age under five years, (i.e., 0-59 months of age). Around 4% people have entered in the age 60 years or higher. The mean age is found to be 25 years. A total of 9% people have completed primary level. About one-fourth of all population has incomplete primary level. A few proportion (7%) of total population have completed SSC and above. A higher proportion (30%) of the people has found to be illiterate. A higher proportion (25%) of the population have involved in homemaking (housewife). The occupation business includes shopkeeper, petty trader, business, tailor, cottage industry and timber trader. Around 3% people are involved in business. Nearly 39% of the population is

student and children. The low proportion (3%) of salaried job in Paba. About 8% of the total sample households earn below Tk.3000. About 38% of the households have income amounting between Tk. 3000-5000. Nearly, 20% of the total households earn money ranges between Tk.5001-7000. Around 10% of the households have income above Tk.13000. More than half of the households (67%) have mentioned that they have savings. Approximately half of the households (46%) have savings in different NGOs.

In Paba Upazila, there are around 73 thousand heads of cattle, 34 thousand pigeon and around 267 thousand chicken (BBS, 2011, Census of Agriculture 2008, Rajshahi Zila Series). According to conservative estimates made by DLS local market demand (including local consumption and domestic/in-country trade) in 2014 is around 41 thousand cattle heads, 17 thousand pigeon and 182 thousand pieces of chicken. DLS sources also shared that the local production of Paba Upazila and surrounding areas can supply around 24 thousand cattle heads, 16 thousand pigeon and 134 thousand pieces of chicken.

Table 1: Market supply and demand of selected animals and birds in Paba: 2014

	Total in Upazila (#)	Total Market Supply (#)	Total Market Demand (#)
Cow	73,464	24,488	41,482
Pigeon	33,820	16,910	17,160
Chicken	267,532	133,766	182,300

Source: Departmental Statistics, DLS

### Research Objective

The objective of the study was to conduct a Value Chain Analysis of potential products from among the various products which are practiced in Paba Upazila. The data generated from this study will help the upazila to determine key issues hindering microenterprise growth and raise competitiveness that are essential to attain increased incomes and improve access to markets for poor and extremely poor households in the project areas.

The specific objectives of the study were as follows:

1. To come up a with a value chain analysis indicating the role of relevant private sector actors and their relationship to one another and identify for different sub sectors the major constraints and opportunities in the area, market access, input supply, technology/product development; management and organization, policy, finance and infrastructure;
2. Identify the partners and producers, suppliers, whole-sellers, bulk-purchasers, retailers and consumers to promote Value Chain System;
4. Identify the gaps and development areas to promote Value Chain System among the target people, recommend priority areas of value chain;

## METHODOLOGY

The assessment has been made using qualitative (including FGD, KII and case studies) and quantitative techniques (including household survey and in-depth interview). The sub sector selection has been made by conducting FGDs using PRA tools (listing of products and ranking) in 12 villages involving between 10 and 15 participants in each villages. The FGD sessions have constituted of 2 steps. The participants at the first step have been requested to list of all farm products (both livestock and poultry products) and economic activities produced and/or made in the area according to (i) high, (ii) medium, and (iii) low categories considering market demand, and the same exercise has been performed separately considering the criteria, “helpful in increasing income”. Thus two separate tables were generated in each session.

In the next step, participants have been requested to assign scores for each of the listed items (placed in High-High and High-Medium cells) and according to predefined 17 criteria. The participants assigned scores (*1=very poor, 2=poor, 3=average, 4=good & 5=excellent*) ranging between 1 (lowest) and 5 (highest) against each of the listed items for each of the criterion. The criteria are: (a) market demand, (b) helpful for increasing income, (c) creates employment, (d) inputs easily available, (e) suitable local climatic condition, (f) easy to cultivate/rear/produce, (g) necessary land available/suitable for local land condition, (h) less vulnerable to disease/infection, (i) can be produced using household labor, (j) less amount of capital/investment needed, (k) helps meeting household food demands, (l) profitability depends on using high breed, (m) skills and technology locally available, (n) easy access to expert opinion, (o) easy to learn necessary skills, and (p) relatively short production cycle. In the process of exercise the moderators have explained the inner meaning of each of the criteria, and the participants have assigned the score against the listed products after the inner meaning of the criterion has become clear to them. Thus, the score assigning process went on criterion by criterion separately.

## EMPIRICAL RESULTS AND DISCUSSIONS

### Cow:

Actor mapping exercise has been made for the identified products/economic activities. Actor mapping of cow rearing is presented below. It is revealed that commonly different actors are involved in 5 levels of value addition process: (i) input, (ii) production, (iii) local market, (iv) Upazila market, and in urban Markets.

Figure 2: Cow rearing actor mapping



Input level actors are: (i) capital including asset suppliers, (ii) feed sellers, (iii) veterinary service providers, and (iv) medicine retailers

Production level actors are: (i) farmer, (ii) family and/hired labor

Since the following products are produced in each cow rearing cycles: (i) milk, (ii) heifer, (iii) cow-dung, and (iv) cow (the cow itself can be sold after each rearing cycle).

For milk farmer himself/herself can collect milk or make arrangements with *goala* and market the same in local markets. Moreover, a part of milk is consumed by farmer's household members. In local and urban markets milk from *goala* is realized to consumers and/or sweet-meet shops via *paikers* and *aratders*.

The cowdung is collected by farm household member(s), dried under the sun after giving various shapes, and finally either used by the household or sold to neighbors as cooking fuel.

The heifer after the cow becomes dry is sold along with the cow most commonly in nearby market and in some cases in distant large market by the farmer. In case the farmer sales the heifer or cow and/or the both *paikers* use to by the animals and sale it to *arotder* at larger markets who, in turn, sale the same to butchers (for selling to consumers as meet, and raw hide to *hide-pikers*) or farmers who buy the same for rearing purpose. Some butchers use to by heifer and cow form *paikers* at larger local markets and sale meet to consumers at Upazila level.

### Process mapping of cow

Process mapping analysis of cow rearing (1 cow) shows the cost of rearing per cycle (1 year) is Tk. 27,943 and gross income is Tk. 44,820. Products wise composition of output is milk: 9%, heifer 27%, cow: 58% and cow dung: 7%. The total value addition (VA) is Tk.16,877 (including all levels of VA) i.e., about 60% of rearing cost. It is exposed that the value addition (VA) at production stage is about 86%, 2% at bulk seller and 6% at whole seller level, and 6% at butcher level.

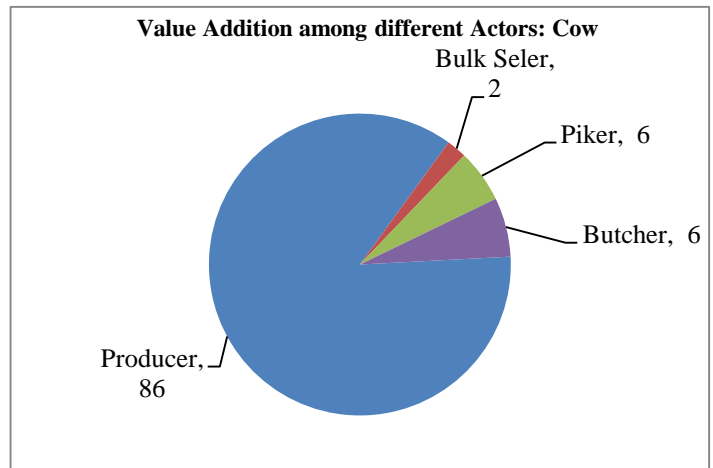
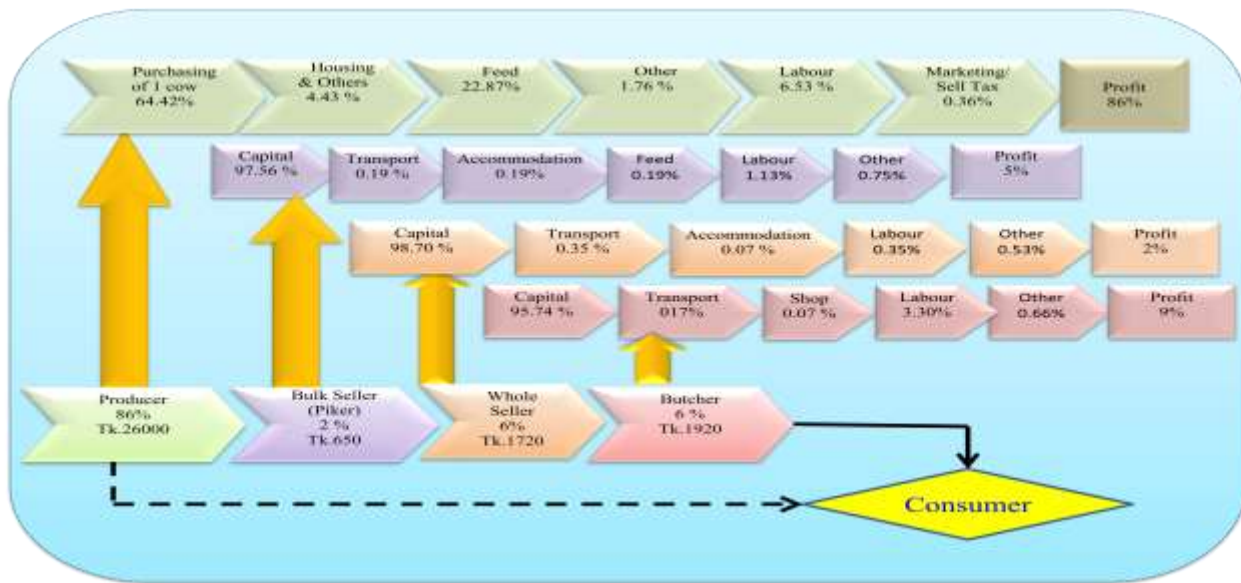


Figure 3: Cow rearing process mapping





Cost of Rearing (1 Cow /Year)	Tk. 27,943
Gross Income	Tk.44,820
Profit	60%

**Chicken:**

Actor mapping of chicken rearing is offered below. It is exposed that normally special actors are involved in 5 levels of value addition process: (i) input, (ii) production, (iii) local market, (iv) Upazila market, and in urban Markets. For egg farmer himself/herself can collect egg or make arrangements with *egg pikar* and market the same in local markets. Moreover, a part of egg is consumed by farmer’s household members. In local and urban markets egg from *pikar* is realized to consumers and/or egg shops via *bepari* and *arotders*.

Figure 4: Actor mapping of chicken rearing



### Process mapping of chicken

Chicken rearing process mapping analysis (20 chicken per year cycle) depicts the cost of rearing is Tk. 5,567 and gross income is Tk. 13,100. The total value addition (VA) is Tk. 7,533 (including all levels of VA) i.e., about 135% of rearing cost. Product-mix of chicken rearing at output level is egg 54%, cockerel/pullet (8%), chicken (37%), and liter & feather (1%). It reveals that the value addition (VA) by different actors: producer: 81%, bulk seller: 5%, and whole seller: 8% and retailer: 6%.

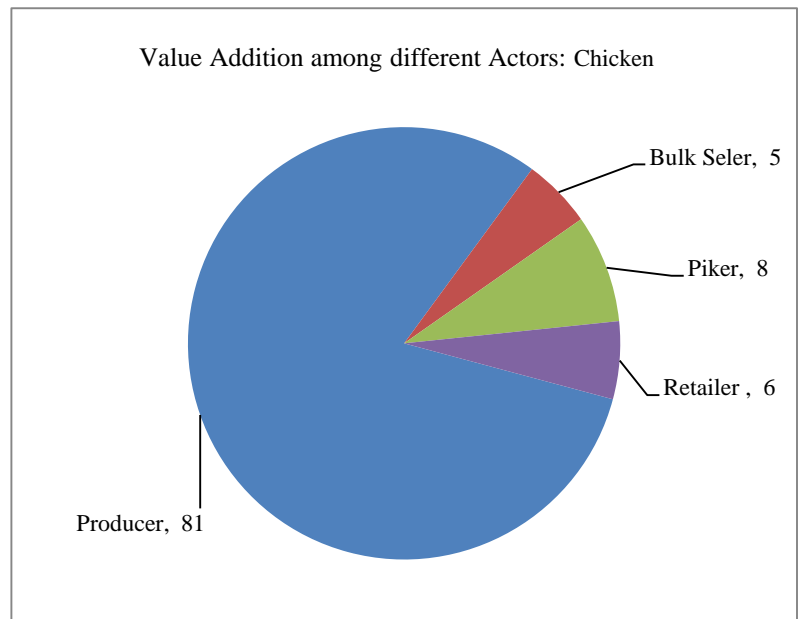
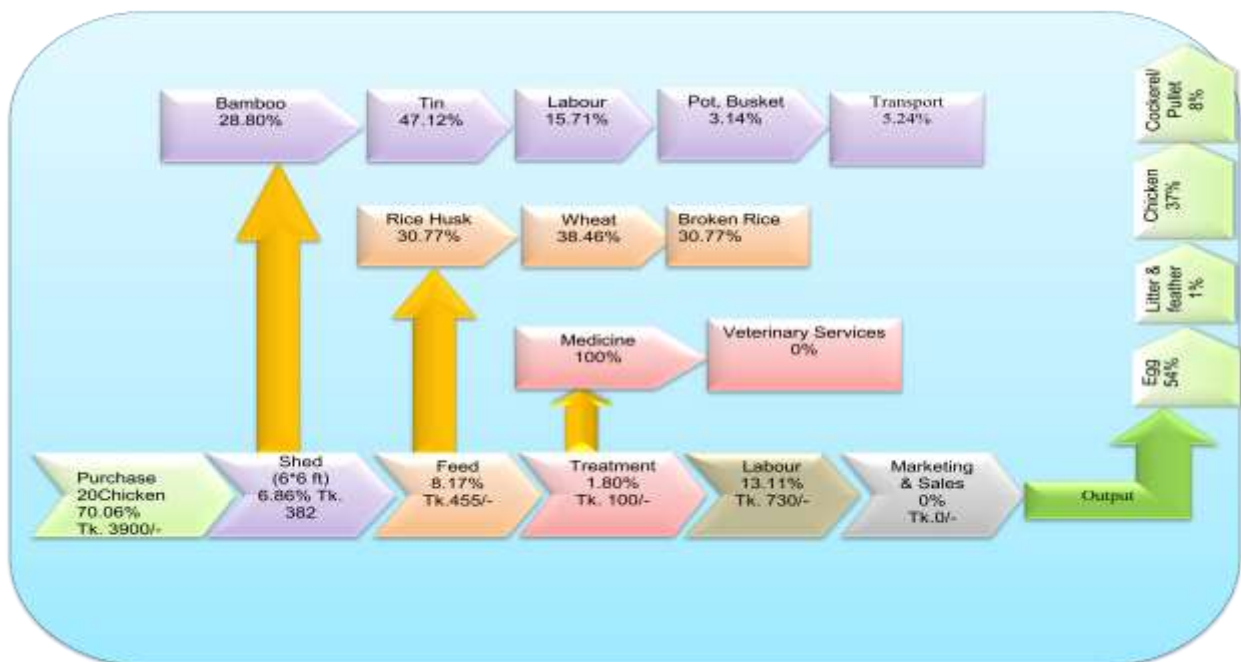
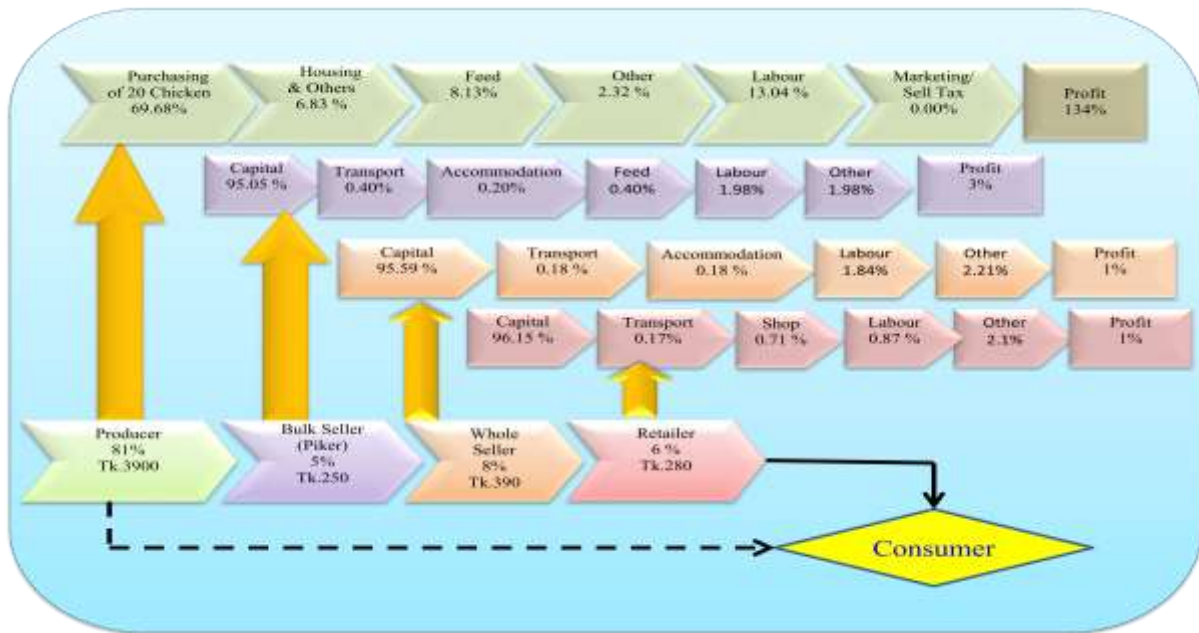


Figure 5: Chicken rearing process mapping







Cost of Rearing (20 Chicken/Year)	Tk. 5,567
Gross Income	Tk. 13,100
Profit	135%

**Producers Knowledge on Technology and Business Development Services**

For livestock-poultry rearing resource farmers, almost all of them use to rear deshi breed, most commonly do not provide supplementary feed that are available in the market, are not much concerned about adequate hygienic maintenance/management of animal/bird shed, reluctant to routine vaccination and prophylactic medication. Most common practice identified with sick poultry is to consume the bird by the household. In case of illness of cow number of farmers call para-vets (artificial inseminators) for treatment. In limited instances the veterinary surgeon is approached.

**Constraints and Opportunities of Value Chain**

Cow and chicken rearing substantially helps generating partial employment for household labor for marginal farm households. It also increases household income of marginal farmers. Nutrition status of household members can be partially improved through consuming part of the products. The products have demand in the local market. Inputs are locally available. Products are easy to rear and suitable in local climate conditions. The major constraints as shared by DLS officials in the division are farmers are habituated to traditional technology and reluctant to adopt contemporary method of livestock-poultry rearing. Livestock and poultry both suffer from various type of diseases and number of them are preventable if vaccination is made to all the animals

and birds in community on due time. Examples of such diseases are FMD for cow, cholera for chicken. Lack of access to capital is a constraint for a substantial section of people. Lack of access to larger markets, especially city based urban market. Lack of access to soft term loans for marginal and small farmers for developing small/mini enterprises producing livestock-poultry products. There are livestock and poultry farms managed by GoB for supplying quality breed in Rajshahi division; the farmers from Paba has practically no access to them.

### **Income Generation in Value Chain**

It is obvious that those are involved the activities for which the value chain analysis is presented above have generated partial and/or full employment and are having some income. DLS experts have suggested facilitating goat rearing because of its suitability in the Barind area. It is also observed by DLS production management experts, and scientists from BAU that income generation will substantially increased if productivity (vertical extension attained) and number of production units (horizontal extension attained) of livestock-poultry rearing can be increased.

### **Employment Generation in Value Chain**

Cow rearing generates yearly full-time equivalent employment for 4,408 persons and chicken rearing for 16,052 persons. However, as shown in earlier section the income from these types of employment is substantially low due to low level of productivity. It is worth noting that livestock-poultry rearing generates more employment opportunity for women. At the same time it should also be noted that women from indigenous ethnic communities living in the area proactively participate in that kind of production.

Considering the above facts stated above, the study inferred that higher number of person's cannot be employed unless, improved technologies are introduced and scale of production is increased. The contribution to household income from stated activities is also dependent on the type of technology and scale of production.

### **Governance and Services**

At Upazila level livestock services are rendered by Upazila Livestock Officer and there is Veterinary Surgeon (VS) running a centre in Paba Upazila. Number of Artificial Inseminators (AI) assists the VS in rendering artificial insemination of cow program implemented by DLS. Hence the AIs are imparted with limited scale training on treating animals they also provide the service on payment to the community. DLS also provides vaccines for major animal diseases. According to BLRI sources, the availability of locally produced vaccine scenario is not up to the mark. The Government has been producing 19 different types of livestock and poultry vaccines

to immune livestock and poultry population from certain diseases. Private sector contribution in this field is also not substantial. It produces 5 poultry vaccine and 2 cattle vaccines. Other vaccine selling companies use to import foreign made vaccines. Moreover, prices of imported vaccines are higher compared to that of Bangladesh made ones. BRAC has fielded number of Artificial Inseminators with limited skills of animal disease management. Department of Youth is providing unemployed youths training on livestock management and number of trained youths are also providing limited animal disease management and prevention services in the community. However, it is to note that resources available for extension and disease management (including prevention) in the context of actual need is in adequate for both agriculture and livestock cultivation/rearing

### **Linkage and Trust in Value Chain**

Value chain promotion is an effective way of fostering rural-urban linkages. Firstly, the concept provides a useful analytical framework for market and sub-sector analysis. Value chains describe productive processes around a product from the provision of inputs to production, transportation, transformation, processing, marketing, trading, and retailing to final consumption. Since production only translates into income once final consumers really demand and buy goods, the value chain approach encourages looking at the production process from the consumer's end.

Secondly, the chain emphasizes the fact that most goods are produced by a sequence of interlinked actors and activities. The approach focuses on the analysis of the institutional arrangements that link the various economic players, which are; trust, vertical and horizontal integration and organization, and contracts.

Thirdly, it highlights the importance of private sector development. For the purpose of fostering agricultural growth and aligning the agricultural sector development with urban and other trends in society, it provides a fairly holistic framework, which can encompass a number of different development activities.

### **Identification and Selection of Facilitation**

Poverty is one of the major problems of Paba Upazila. Reasonably, poverty reduction through enhancing household income and nutrition of target groups is an ongoing activity of Paba Upazila. The value chain assessment is aimed at contributing in reduction of poverty, enhancing income and nutrition of targeted population through increased participation of resource poor households in the value chain process. As suggested by DLS experts the resource poor

households can increase their level of participation contribute adding more value in the value chain of cow and chicken rearing.

Value chain analysis reflect that livestock - poultry products generates high profit, creates more employment and higher income for most of the actors. It also creates linkage between urban and rural areas.

## CONCLUSION

Due to absence of community level frontline workers, Bangladesh suffers from various problems in introducing improved technologies. Access to initial capital and subsequently to other necessary financial services is a major constraint for small and marginal farmers. Government may consider developing such workers in each community in cooperation with private sectors and NGOs working in the field of livestock-poultry. And may be involved in advocacy with banking sector to provide loan easily.

## RECOMMENDATIONS

A moderate country cannot run any system without the help or participation of their government directly or indirectly. Government should take a vital role to obtain the success accurately. All of the actors of the government sector should play parallel to implement this system. The study needs to consider the following issues:

- Mobilize the resource poor livestock-poultry rearing households and form farmers group. Recommended composition of such group is : 75% female and 25% male members
- Organize special motivation sessions by Government or NGOs (including community level informal meetings) using easily understandable IEC materials on how to prevent livestock-poultry from various diseases.
- Organize detail training on upgraded livestock-poultry rearing technology using high productive breeds, supplementary feeding, hygienic shade, prophylactic immunization and treatment of diseases.
- The animal shade should be constructed maintaining a possible safe distance from living structure. Consultation needs to be made with DLS experts in this regard.
- For cow rearing the herd size should be 2 milking cows (*deshi*) and the rearing cycle should be 3 years. Artificial insemination should be made in each occasion for making cows pregnant.

- For chicken rearing the birds procured should be of 13 weeks, flock size should be 20 birds. Sonali or Fayoumi breeds of chicken are suitable for Paba, and the breed is available in nearby GoB poultry farms.
- Provide training to all farm households involved in livestock-poultry rearing, and particularly on marketing skills (including negotiation skills)
- Provide orientation to all farm households involved in livestock-poultry rearing, and on benefits of bulk input buying
- Facilitate access to all farm households involved in livestock-poultry rearing, and also to various service providers including financial survives.
- Facilitate access of all farm households involved in livestock-poultry rearing groups to distant markets so that producers get higher price.

### **LIMITATIONS OF THE STUDY**

Paba upazila in Rajshahi district is north-west side in the Bangladesh And its communication systems are very bad. The people are so poor and illiterate so they are full of activity. For this ground they have not enough time to converse about such as study. So it is so much durable to get the people who respond the proper way. They believe that this is not their job and it is entirely worthless.

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