

# Native Chicken Production of Indigenous People at Mahadevpur of Naogaon District in Bangladesh: It's Potentiality of Promoting Regular Income Option Commercially

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**Abstract**—Poultry sector in Bangladesh has been playing a vital role to increase its gross domestic product. Indigenous chickens known as Deshi (native) chickens has huge market demand and are the choicest product towards all the consumers. Very few observed the chickens were produced commercially rather than it is widely reared throughout the country by the rural women. Polli Shahajogi Bishawyk Sangstha (ARCO), a NGO of Naogaon district in Northwest Bangladesh has promoted native chicken production (NCP) commercially to establish as a regular income option of indigenous people, who are marginalized and wage labour mostly. The field findings have revealed its significant scopes according to the results of NCP and inclusive market system development by 3 year. It has increased regular income of 25% households, where the women play a significant role in production and input services. Over the periods, the annual production and profits of a producer have been increased to 61 Kg. from 56 Kg. and BDT.8701 from BDT.7144 on average respectively. The producers' incomes and business volume are increased more than previous. A number of factors have contributed to increase the profits. Especially, the inclusive market system development and risk management has fostered its potentiality as regular income option as commercial activity. The study is such an attempt to explore the findings and learning of potentialities of NCP. The paper is prepared using the secondary data, unpublished documents, production cycle analysis, and primary data based on consultation with the relevant stakeholders, practical working experience and field findings.

**Keywords:** Gender, Inclusive Market System, Native Chicken Production, Regular Income, Risk Management.

## 1. INTRODUCTION

Bangladesh is a county of 166,484,467 populations in its 147,570 square kilometer area and one of the predominantly agro-based developing countries in the world. The agriculture sector plays pivotal role to its economic development. It contributes about 17 percent of total Gross Domestic Product (GDP), and employs more than 45% of total labour force [1]. Around 84% rural people depend on agriculture for their livelihood directly or indirectly [2]. The poultry, one of the subsectors, has employed rural people as livelihood strategy, where women are fully contributing to production by selling their labour. It has a private sector investment and thereby employs the rural youths and contributes to their income generation. Village poultry is still popular to millions, eight thousand years after domestication (Alders and Pym, 2009) and play a vital role to poor rural households [3]. Indigenous chickens known as Deshi (native) chickens are regard as huge market demand products and collected from rural community. Native chicken are widely reared by rural women, which plays a vital role to meet protein intake, income source of selling egg and live chicken, etc. in spite of having no its commercial business promoted in large scale.

Naogaon is a Northwest district of Bangladesh, where there are 23,85,900 population of different classes, casts, and communities [4]. According to the 2011 Census, the indigenous population in Bangladesh is approximately 1,586,141, which represent 1.8% of its total population [5]. Approximately 80% of the people live in plan land districts of the North and South-east of the country [6].

They are landless and their poverty is extreme, persistent and inter generational and traditionally depend on agriculture. There are about 180,000 indigenous peoples in its 11 Upazillas of Naogaon, of which 60% households are extreme poor, who earned by agriculture labour [7]. Polli Shahajogi Bishawyk Sangstha (ARCO), NGO working for the development of marginalized people, has been implementing Dalit/ Adibashi's Rights, Empowerment and Access towards Mainstream (DREAM) Project with the support from HEKS/EPER, Switzerland. It has promoted native chicken production (NCP) commercially as a subsector. Its objective is to establish a regular income option of the poor indigenous people. The study is an effort to find out the potentiality of NCP commercially as a means of regular income option of indigenous people in the contexts of market, productivity, profitability, and risk management considering challenges.

## **2. OBJECTIVES**

The objectives of the study are as follows:

- Analysis the magnitude of increasing income, native chicken production (NCP) and profits over the years and the affecting factors herewith
- Examine the results of risks management in productivity and market
- Explore the progress of inclusive market system development in backward and forward market
- Scrutinize the contributing factors and present limitation of commercial business development of native chicken in gender and inclusive market development aspects
- Reveal the scopes of native chicken production as commercial livelihood option of indigenous people

## **3. MATERIAL AND METHODOLOGY**

The study paper is prepared using the secondary data, unpublished documents, production cycle analysis, and primary data based on consultation with the relevant stakeholders, practical working experience and field findings. Its concepts were built review the project documents, meeting with producers and consultation with stakeholders of the existing markets.

### **3.1. Secondary data**

It was reviewed different studies on poultry sectors, news paper, baseline survey, project evaluation report, producers' plans, review the data of Sub-district livestock department, etc.

### **3.2. Primary data**

The primary data were conducted from production cycle management of native chicken producers, consultation with market actors of market chain of productions, especially the service providers, product buyers, consumers, producers and livestock officers.

### **3.3. Scopes of study areas and data**

The study purposively conducted on indigenous people of DRAM project implementation areas. It included 16 producers groups of 15 communities of five villages under (2) unions named Mahadevpur and Cheragpur of Mahadevpur Sub-district in Naogaon district of Northwest Bangladesh. Data are selected and counted the producers from production cycle management data. It has considered all the producers who are engaged in NCP commercially in data analysis.

### **3.4. Data Presentation**

All the data were represented through analyzing findings in the line of whether the inclusive market system development and human rights based approach are addressed or not.

### **3.5. Study limitation**

The data is not segregated in the terms of marginalized, small, medium and large farmers. It is only the attempt to realize the status and situations of NCP commercially as a means of regular income option potential and inclusive market development approach.

#### 4. BRIEF STATUS OF CHICKEN SUB-SECTOR

The poultry sector of Bangladesh has employed around six million people, of whom 40% are women. These people are employed either directly or indirectly. The investment here is above BDT. 300 billion, while it contributed about 2% of its total GDP. According to Bangladesh Poultry Industries Central Council (BPICC) sources, the production of chicken was 675,000 tonnes in 2016, while it was 574,000 tonnes in 2015 and 551,000 tonnes in 2014 [8]. The poultry population in Bangladesh is estimated about 304.17 million, where chicken population is about 255.31 million. There is a deficit condition to be met up. 4.52 MMT chicken meat was produced in 2013 - 14 fiscal years, where the demand was 6.73 MMT [9].

Both government and NGOs are actively promoting poultry development at all levels. The Bangladesh Rural Advancement Commission (BRAC), the largest, shows in its' annual report that more than 70% of rural households are involved in poultry keeping. The sector has been growing an annual rate of around 20 per cent for the last two decades. This sector is contributing to i) Changing livelihood & food habit; ii) Reduction of dependence of meat related to Cow and goat, iii) Ultimately has positive impact on GDP growth rate as well as ensuring food security[10].

#### 5. STUDY FINDINGS AND DATA ANALYSIS

##### 5.1. Increased Income status

Both research-based and practical experiences of working with Indigenous people shows that marginalization in the society take its toll on social exclusion with soaring discrimination, deprivation and poverty. The people are by and large the poorest among the poor. The hardcore poverty among the plan land indigenous people is significantly higher (24.6%) than the hardcore poverty (17.9%) in rural Bangladesh. The people's average monthly income is 7761 Tk., which is 2626 Tk. less from national status (10,387Tk.) [11]. Approximately 80% of the people live in plan land districts of the North and South-east of the country [6]. There are total 864 households at 16 indigenous communities of two unions in the study area. Of whom 60% households are extreme poor, who have no cultivated land and lived on other's land with vulnerable situation earning by agriculture labour (83% households). The monthly income of 37.4% ethnic households is under BDT. 4,000 earning from wage labour and 43% male and 58.5% female never attended the school [7]. The study reveals that the average monthly income per household was 4,990, where 77.3% male and 87.9 female members are wage labours; 4.9% male and 5.3% female are salaried workers and 17.8% male and 6.9% female members are self-employed.

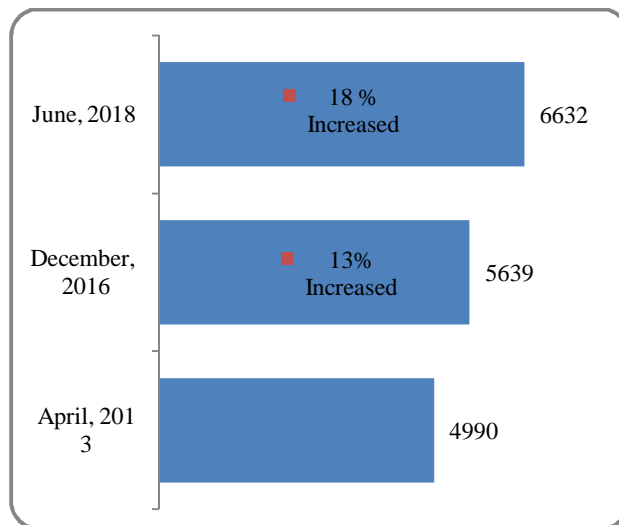


Figure 1: Income Progress

The field findings have revealed that the wage labour is seasonal and they have the jobs only six (6) months during the seasons of paddy cultivation and harvesting, which is three season of a year. As a result, they do not get the opportunities of regular income. The DREAM project interventions made involve 77% indigenous people with different income generating activities such as bull fattening, chicken rearing, tailoring, small business, mechanical works, small business, etc., which has contributed to promote their regular income options. The data revealed that it has increased BDT. 725 monthly income of a producer on

average, which been given in table 1. It covers 25% of 603 households of the study areas that means the native chicken subsector has increased the income of 25% households.

## 5.2. Productivity and profitability

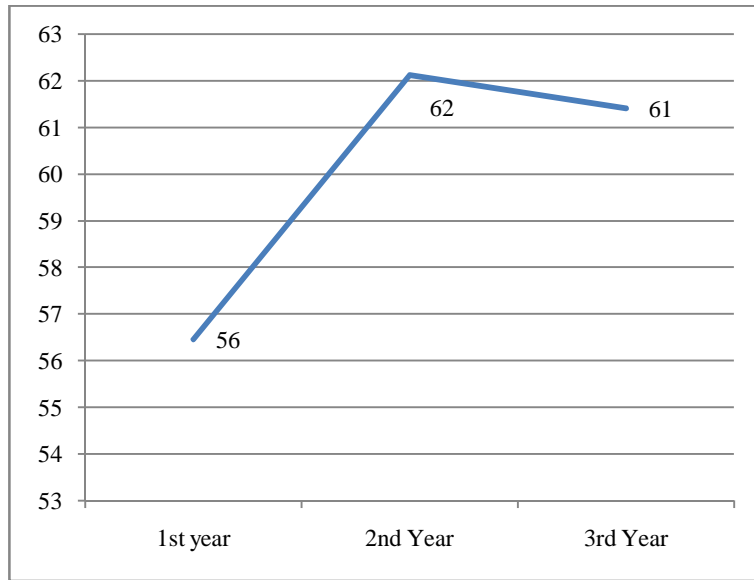
The total households and total producer members of the study areas are 603 and 343 respectively, of whom 151 producers (Male-48 and Female-103) are involved in the native chicken production commercially. It is reported that there are 10 producers who produced more than 300 chickens for meat in the fiscal years. In the study area, NCP was started with 26 producers in first year, 47 new producers in second year and 78 new producers were promoted in third year, which covers 25% of total household in 15 communities of the study areas. The producers have been increased as a result of profit making practically, and they started with a small scale business development taking 20-30 chickens in the first production cycle of 80-120 days. The data revealed that the annual production per producer is reached to 61 Kg. on average, which was 56 Kg. in 2015-2016.

**Demand and Supply of Day Old Chicks (DOCs):** According to the producers business volume, there needs about 128 DOCs of a producer in a year on average but they got supply of only 88 DOCs. The total deficits were 10350 DOCs on average of three years according to demand and supply, which is demonstrated in table 1.

**Table 1: Productivity and Profitability**

Particulars	1 <sup>st</sup> year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	Total
Total Study Households	603	603	603	603
NCP Producers	26	73	151	250
Demand of DOCs	3250	8910	19928	32088
Supply of DOCs	2382	6606	12750	21738
Deficit	868	2304	7178	10350
Average DoCs/Producer	92	90	84	87
Chicken Died	314	663	1011	1988
Live Chicken Sold	2068	5943	11739	19750
Mortality Rate (%)	13.2	10.0	7.9	9
Total production (Kg)	1468	4535	9273	15198
Average weight/Chick	0.71	0.76	0.79	0.77
Average Production/ Producer (Kg)	56	62	61	61
Total Production Cost	218111	689322	1390979	2298412
Total Sale value	403843	1287944	2781958	4473745
Total Net Profits (BDT)	185732	598622	1390979	2175333
Annual Profits/Producer	7144	8200	9212	8701
Monthly Net Profits/ Producer (BDT)	595	683	768	725
N.B: 1 <sup>st</sup> year: July, 2015-June, 2016, 2 <sup>nd</sup> Year: July, 2016-June, 2017, 3 <sup>rd</sup> Year: July, 2017-June, 2018				

**Production:** The producers have been producing native chickens commercially following scavenging system and farm system. These chickens roam in and around the farmer's homestead area which fulfils a major part of their feed requirements. A large segment of rural women has investment in traditional rural backyard or scavenging system of this sector. Chicken farms producing meat and eggs, can be highly specialized operation. In the study it is considered only production of meat. Each producer started to produce meat with minimum 20-30 numbers of day old chicks in a production cycle of 80-120 days. Annually each producer produced 61 Kg live chickens for meat on average of three years. Annually each producer reared 87 chicks and sold 79 chicks on average of three years.

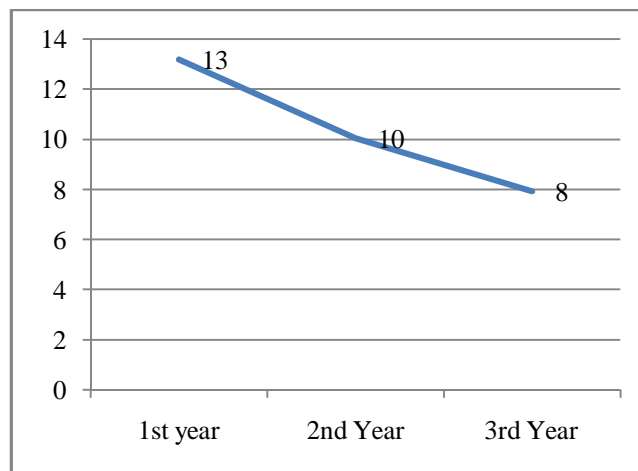


**Figure 2: Annual Average Production/Producer**

The production per producer has been increased to 61 Kg. from 56 Kg. of first year on average of the three years. The annual production per producer is 62 Kg. in second year and 61 in third year on average. It has increased in second year but decreased in third years in spite of increasing more producers in third year. The main cause of decrease production volume is lack of day old chicks' supply and flood in august, 2017, which have severe impact directly and indirectly on about whole areas of the district in fertile egg supply.

**Roles of Women:** Indigenous chicken are free range ‘backyard’ and scavenging poultry that are traditionally reared by the rural women. There are a total of 48 men of 151 producers in the study areas, whose production volume is higher than women in spite of having women in the production. Women have been playing in production, treatment, and vaccination. A total of 12 women vaccinators and 10 women entrepreneurs for fertile eggs production have been developed. The women have been significantly contributing for risks management in native production.

**Mortality Rate:** The mortality rate was 13% in first year (2015-2016), 10% in second year and 8 % in third years, which reflect that it has reduced in the next fiscal years. The main causes of reduced mortality are increased capacity of producers, developed local vaccinators and their efforts for vaccination, and undertaking disaster risks reduction measures. Considering the climate change issues, the risks management trainings were provided to the producers to reduce mortality rate and increased income.



**Figure 3: Mortality Rate**

**The Production cost:** The average production cost is BDT. 151 per Kg in the three years. The production cost per Kg. of first year was BDT. 149, BDT. 152 in second year and it was BDT. 150 in the third year. The production cost has been increased in the second year and decreased in third year more than previous year. The main cause of variance in production cost is reducing mortality in the next years in spite of increased feeding cost (BDT. 2) for the second year comparing to the previous years.

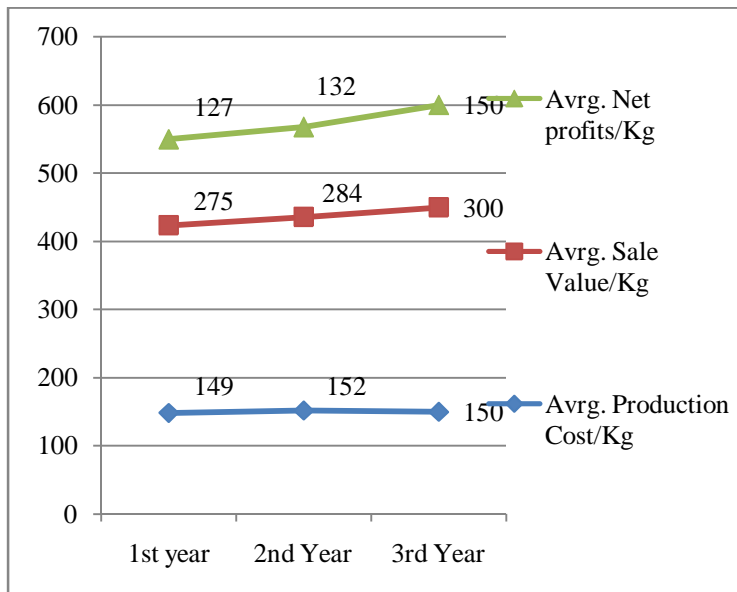


Figure 4: Annual Production Costs and Profits/Kg

**Profits and income increased:** Over the three (3) year, the annual average profit per producer is 8701. The profit per Kg. was BDT. 127 in first year, BDT. 132 in second year and BDT. 150 in third years. The profits have been increased due to mortality was reduced, and rising price to BDT. 450-500/Kg in February, 2018 to June, 2018. The profit is net profit. Besides the direct market linkage of producer contributed to increased more profits than previous years.

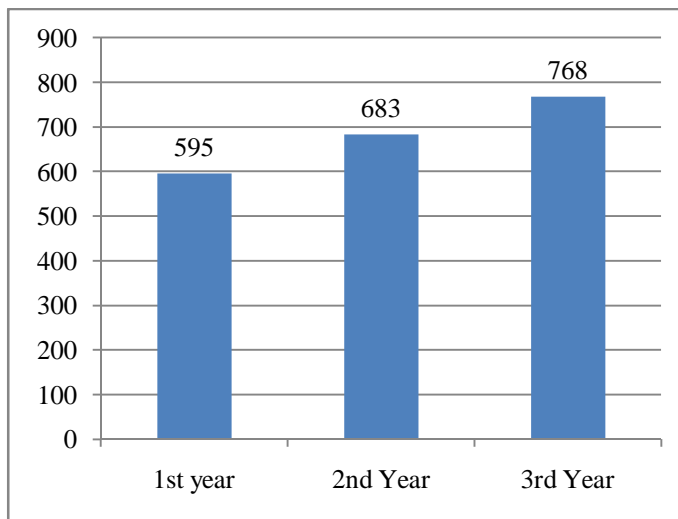


Figure 5: Income increased by NCP

On the three years, the average monthly income per producer has been increased to BDT. 725. It was BDT. 595 in first year, and BDT. 683 in second year. In the third year the monthly income of a producer are reached to BDT. 768. **The risks management of DRR has contributed to reduce mortality, which contributed to reduce production cost and subsequently increase profit making.**

### 5.3. Inclusive Market System Development

Indigenous people known as Adibashi are systematically deprived of enjoying various rights, opportunities and resources. The study findings have revealed that there were lacks of access to services of backward market and obstacles in forward market, which exploitative. The indigenous people reared native chickens in their home as usual and sold to earn cash required for various household expenses by broker in regular basis. They had no thoughts of commercialization of native chicken rearing rather than their poverty, downtrodden and backwardness hindered them to build up commercial business with better market linkage.

**Inclusive Backward Market System:** The driven factors of obstructing backward market linkage here were knowledge on fertile eggs maintenance and conservation, nursing of domestically produced chicks, cycle of vaccination, parents' stock farm and nursing of grandparents chicken to produce fertile eggs, linkage with hatchery, feed suppliers, and medicine and vaccination suppliers of public and private sectors, access to finance, and the access to information and capacity building supporters. The indigenous communities were not linked with the services and actors in commercial native chicken productions, who are mostly mainstreaming people. As a result, they were structurally excluded from the market.

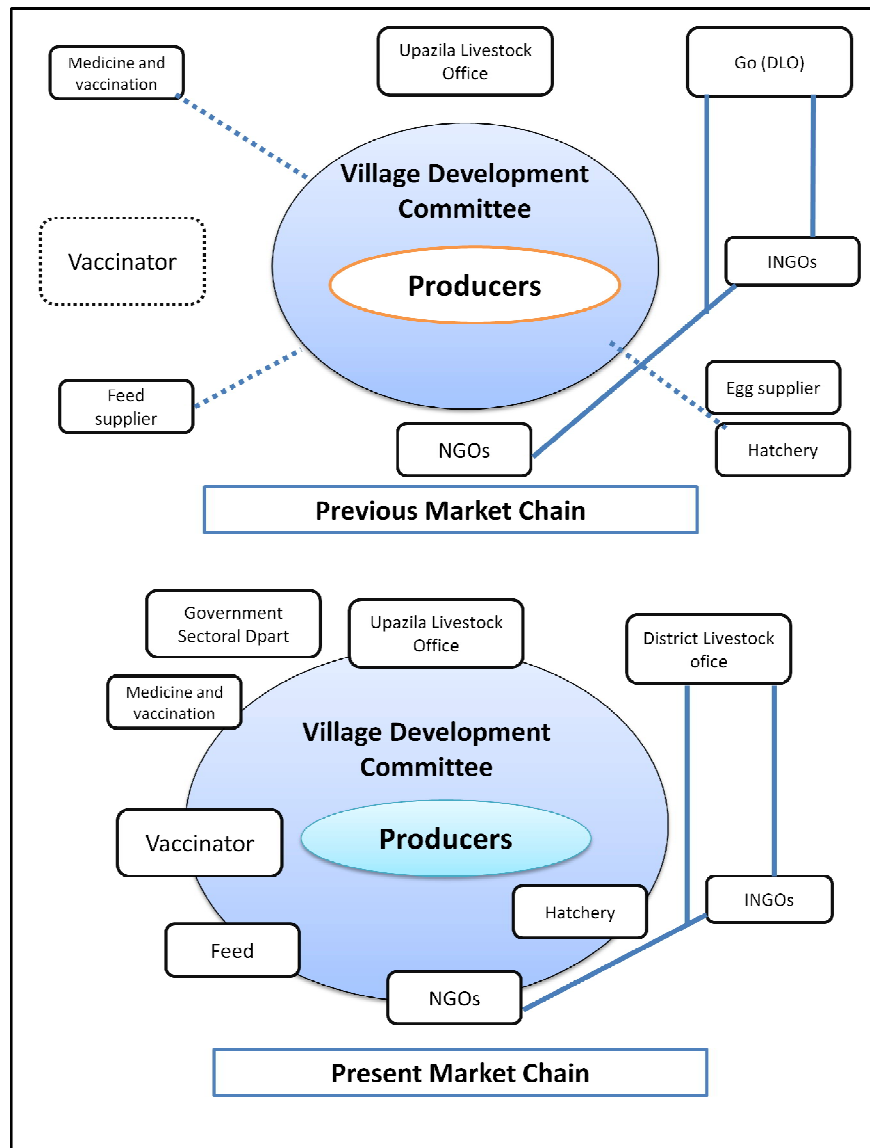


Figure 6: Backward Market Linkage

The DREAM project interventions have developed a system of backward linkage as well as the actors herewith. In July, 2015 of the project durations, ARCO undertook the initiatives of subsector selection, formation of village development committee, formation of producer groups, provide training of knowledge development by Upazila livestock office, business development training by ARCO, development of vaccinators, rural sale and service center (RSSC), eggs and chicks suppliers, service provider association, engagement of private sectors, access to finance from NGOs and Government, etc. It was the intervention of match making with mainstreaming and indigenous people. The 12 women vaccinators of indigenous people have been developed and linked with RSSC and Service Providers' Associations, which are consisted of indigenous and mainstreaming communities' actors for medicine, vaccination and additive feed supplying to reduce production cost.

The demand of chicks is more than 5000 per months for 151 producers to continue their native chicken production business regularly. To meet the demand, 10 entrepreneurs of eggs and chicks production have been developed at this stage but they are not able to meet the huge demands. Only very small micro finance is accessed to develop such business. The access of finance is not met significantly to develop the business commercially.

The figure 5 has indicated that the status of backward market of first two (2) years ago and the present conditions. The system progress has significantly contributed to increase the magnitude and volume of production and profitability. The inclusive market system development indicated that commercial production of native chicken for meat is possible through combating and controlling the drivers of obstacles in backward market.

**Inclusive Forward Market System:** The native chickens have huge market demand as meat due to its test and benefited business due to its supply is lower than demand. The demand for indigenous chicken variety is big enough within the local community. The demand for poultry especially native chicken meat is unmet.

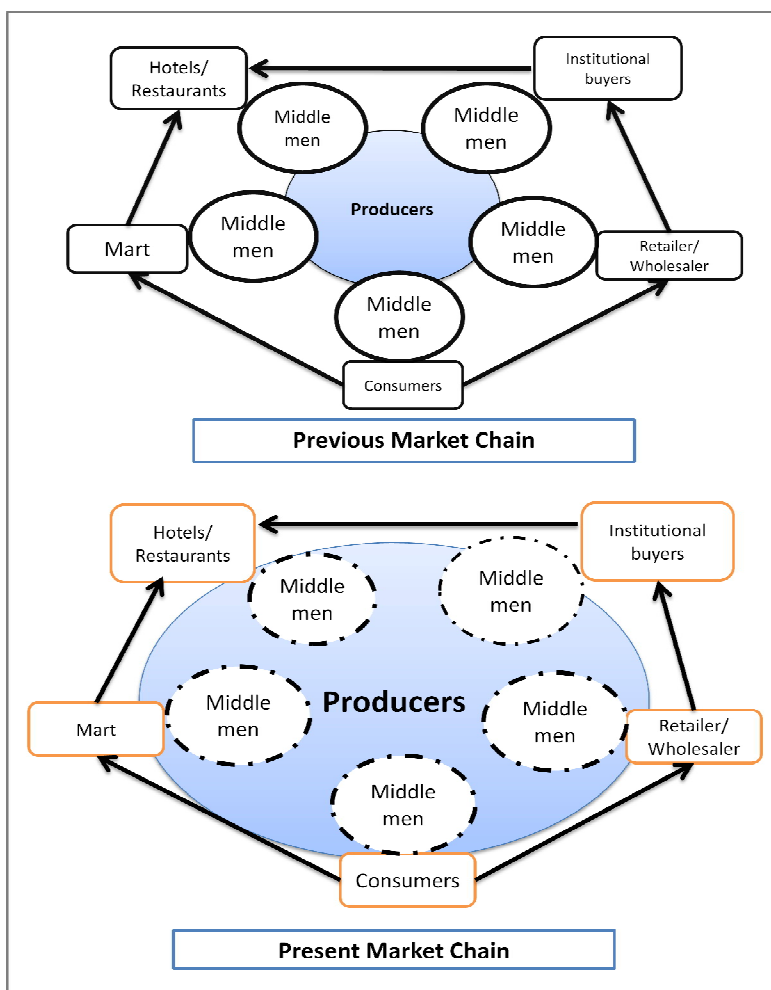


Figure 7: Forward Market Linakge



The average live chicken's supply of a producer is about 78 pieces. The rate of native chicken is about BDT. 150 to 200 higher than broilers. The producers of indigenous community were not used to the formal market system due to the lack of social mobilization.

The output market channel is diversified and exploitative situation was created in the different level with the interfere of middlemen or broker. As a result the downtrodden indigenous producers were excluded to link with larger market to have better profits. The products of producers are supplied to consumers in different ways. The general market channel was in the two (2) year was as follows.

### Marketing Channels

Farm → Consumer

Farm → Broker → Institutional Buyer

Farm → Middleman → Wholesaler → Retailer → Consumer

Farm → Middleman → Wholesaler → Middleman → Consumer

In the marketing channel, the products of producers' farm were supplied to the consumers in the ways. But in the channel, the producer loss BDT. 20-30 per chicken as a result of interfere of broker or middlemen. The project intervention mobilized the producers regarding the output market and conducted match making with wholesalers and learning session by the market actors in their community. Better realization about the profit making and competitive marketing has been grown up in the producers fostered their mobilization with markets. Some led farmers have been developed to play the leading roles to supply their products to wholesaling and retailing markets. The brokers or middlemen's interfere become less and producers' access to market has been increased at the present situations. As a result, the producers have been getting more profits by selling their products. The figure 6 indicated that the producers have been directly linked with the market of mart, hotel or restaurant, wholesalers and retailers. But, in the gender aspects, the female producers are dependent on male producers to supply their products. The challenges of products' marketing to institutional buyers are remained still now due to the so long distances, lack of communication & understanding, and their no outlet of institutions buyers still grownup.

## 6. CONTRIBUTING FACTORS OF COMMERCIAL NCP

Indigenous chickens dominate poultry production in Bangladesh. Low cost materials are used for housing and it is made by women and men domestically. Mainly female member were involved in poultry rearing. About fifty percent farmers got on an average less than 70 eggs per year per bird. There is a growing demand for chicken meat and egg in urban areas due to substantial increase in price of beef and mutton. Therefore, chicken production is likely to play increasing role in supplying animal protein for human consumption in the country. Chicken meat is relatively cheap and affordable source of animal protein (Alemu and Tadelle, 1997) [10]. The share of commercial strain of chicken and family poultry was 50:50 in egg production while for meat production it was 60:40 in Bangladesh (Bhuiyan,2011) [3].

In recent years, the poultry sector in Bangladesh has gained sufficiency against the current market demand (Raha, 2013), but not against the standard nutritional requirement (DLS, 2016). There is a deficit condition to be met up of meat requirement. In 2020, per capita poultry meat consumption expected to be reached is 8.42 kg [12]. There are 29 sales outlet and 17 local traders are engaged, at Naogaon with the subsector. Their annual demands are 201480 Kg meat and each actor sells 6-20 Kg meats of native chicken per day. According to the empirical evidences and field findings, the foremost factors, which contributed to develop the commercial native chicken production, are as follows:

- Development of backward market actors within their communities such as vaccinators, who are women and they played key roles to vaccination, production of fertile eggs and NCP
- Group based services are promoted and reduced production and marketing cost
- Linkage with the public and private sectors, which increased the access to quality services in due time.
- Developed the entrepreneurs for chicks' production and supply to meet the demand of chicks
- Application of disaster risks reduction strategies
- Inclusive market development, which created strong backward and forward market linkages in input and production supply without interfere of middlemen

The following foremost factors can contribute to the expanding the native chicken production commercially in future:

- 
- Development of entrepreneurs of egg production and chicks supply to meet the ongoing demand of chicks
  - Undertaken native chicken production commercially by Governments as priority issue
  - Access to finance and investment for indigenous people, especially women and youths
  - Private sectors engagement to met the demand of inputs and outputs
  - Skill development of the producers and service providers
  - Undertaking regular actions of risks reduction with access to information of weather
  - Ensure the access to update information of market

The market demand and contributing factors have indicated that the native chicken production is very potential as commercial business as regular income option of the marginalized people.

## 7. CHALLENGES

A number of contributing factors of native chicken production have been discussed in the study findings. But to meet the following challenges are very important to uphold the native chicken business of indigenous people commercially:

- Lack of regular DOCs supply created the problems of business continuation and maintain production supply.
- The indigenous people face obstacles to have banking loan meting the provisions of accessing loan in due time such as mortgage of land, granter, etc.
- Lack of participation of women in the market systems due to the lack of security and social safety.
- **Though women have 100% contribution in production, they are yet linked with output market and input service providers directly**
- The people are excluded in the total market structure due to lack of social mobilization, education, hatred, myths, fear, insecurity, etc.
- Lack of roaming place of native chicken for large scale production as the native chicken needs to produce in a large field space.
- Lack of capacity to adopt technology within a short time period, and access to information of backward and forward services, and control mortality anticipating the climatic variability
- Lack of investment and capital support from public and private sectors as a result of yet regarded as priority issues for its development.
- Lacks confidence to choice alternative livelihood promotion and adaptation of new technology.

## 8. CONCLUSION AND RECOMMENDATION

Promoting supply of Day old chicks, risks management, creating the scope of women participation in market and producers' linkage with markets as well as inclusions with the market system are the major pathway for getting the indigenous people out of poverty, solution of their employment crisis, and improving their food security. Production and profitability has been contributing to develop an alternative livelihood option for employment and increasing their regular income. The findings of the market demand, productivity, profitability & its contribution to income rise, increasing capacity in risks management, and progress of market linkage have revealed that, native chicken production commercially as a means of regular income options is a matter of time. Though there have a number of challenges behind these, it is solvable though the strengthening inclusive market system, development of entrepreneurship, and integration of backward and forward market actors and their services. A number of actions have been undertaken to solve the problems of chicks supply. It needs to develop such as business ecosystem where it is observed the indigenous people are playing an active role and women are not only engaged in production system but also linked with forward market system. The risks management of DRR has contributed to reduce mortality, which contributed to reduce production cost and subsequently increase profit making. In addition, it also needs to mitigate the above challenges, especially risks mitigation measures are very essential to make the profitability reducing mortality and production cost.

## 9. ACKNOWLEDGEMENT

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