

Problems and Prospects of Poultry Industry in Bangladesh: An Analysis

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- **Abstract:** The poultry industry has been successfully becoming a leading industry of Bangladesh. The primary objective of the study is to identify the various aspect relating the growth and sustainability of poultry industry in Bangladesh. Authors' argued that strategic management in poultry sector requires complementing to achieve present Govt.'s vision of Digital Bangladesh 2021. This industry can provide various opportunities to increase GDP growth rate plus equitable distribution through arranging food security as well as ensuring self employment, creating purchasing power and reducing poverty at a large scale. Allowing importance of the country's poultry industry in order to ensure the sustainable economic development it is now high time to step forward for the better accumulation of resources available from this industry and to save the small and medium farmers. Authors' observe that to import poultry related products huge amount of valuable foreign exchange will be spent. They proposed for providing subsidy to the local industry and protect safeguard to the local entrepreneurs of the poultry industry. Vaccine, vaccinations services, alternative to vaccine services, antibiotic feed additives and other inputs and services of the poultry sector should be developed locally as suggested by the authors'.

Keywords: Poultry, GDP, Poverty, Bangladesh

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Introduction

Bangladesh is one of the high density countries of the world has a population of 150 million people within the area of 143,000 km². About Eighty percent people of this country still live in villages and are extremely poor. Both the government and a variety of non-governmental organisations (NGO's) 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. But they face serious constraints, as the mortality rate of poultry is said to be as high as 25%, due to a combination of improper feeding practices, ignorance of management needs and poor distribution of vaccines. Poultry sector will create job opportunity for 10m people as claimed by poultry leaders in a roundtable titled "Present Crisis and Prospects of Poultry Industry in Bangladesh "(Source: Financial Express, Bangladesh 23 July,2010).

Small-scale poultry production has developed in a large number of developing countries around the world as an important source of earning for the rural poor. In the last few years, the recognition of small-scale commercial poultry production helps to accelerate the pace of poverty reduction riding in new height in Bangladesh. The poultry industry has been successfully becoming a leading industry of the country. The sector is also growing rapidly for last two decades though it started farming during mid sixties in this country. It has already capable to rise at an annual growth of around 20 per cent during last two decades. This industry has immense potentialities from the point of view of the economic growth of the country as well as fulfillment of basic needs and to keep the price at a minimum level and ensuring food especially animal protein for the human being. The current farming structures of poultry in the country can be generally separated as mentioned below: Conventional countryside backyard or scavenging/semi-scavenging system while another system is a business-related farming system. Conventional poultry production is an essential part of rural farm household activities; a few birds are reared with little or no feed complement to generate eggs and meat for home consumption and any excess is selling. Business related poultry farms are definite for raising birds in restricted environment support on high yielding breeds, for profit feeds and business exercises. But recently declining trend in the poultry industry has been creating a problem for the country.

This industry has immense scope for the country through following points: 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 of the country.

The poultry industry has been making progress despite: i) Avian Influenza/bird flu outbreak; ii)Price rises of raw materials in the international market; iii)Lack of infrastructural support

Research question of the study is to assess the impact f the poultry industry among the people of the country.

Literature Review

Gopalkrishnan and Mohanlal(1994) argue that food costs represents 65 to 75 per cent of total cost of commercial policy production, depending mainly in the relative costs of feed constituents ,labour ,housing., miscellaneous items of costs in a particular situation. Therefore it becomes imperative that economic as well as nutritionally balanced diets are provided during all phases of productive life-in eggers, chickens ,growers and layer stages and in broiler ,starter and finishing

stages. The economics of poultry feeding depends to large extent on the local situation of food availability and competition for the same food staff for use by human beings.

Hunton (2001) in a study argue that, there is no doubt that exciting times lie ahead for the Bangladesh poultry industry. The combination of basic low input-low output, subsistence level growers, and all combinations up to and including large scale commercial production, presents a daunting and stimulating prospect to a government preoccupied with poverty and malnutrition. Nevertheless, the poultry industry represents one way of accomplishing several national goals under a single banner. Employment, poverty alleviation and improved nutrition are all potential benefits from continued support and encouragement of poultry development.

Islam(2003) comments that the poultry sub-sector is crucially important in the context of agricultural growth and improvement of diets of people in Bangladesh. The sub-sector is particularly important in that it is a significant source for the supply of protein and nutrition in a household's nutritional intake. It is an attractive economic activity as well, especially to women and poor population.

Banerjee(2004) observes that in comparison to other livestock ,Poultry requires less investment to start the farming. Persons from low income group may also start the business on a small scale. Poultry farming offer opportunities for fulfillment or part –time employment particularly women, children or elderly person on the farm operation.

Khan , Miah , Bhuiyan , Begum , Hussain and Khanum (2006) observe that Local chickens dominate poultry production in Bangladesh. In Sylhet mainly poor families, who have arrived from outside and are landless rear poultry. Most of the households (58.33%) had 0-15 chicken. Most of the families (75%) reared their chicken in combined house with duck. Materials used for housing were similar to other parts of the country. Mainly female members were involved in poultry rearing. About fifty percent farmers got on an average less than 70 eggs per year per bird. A few farmers (5.56%) informed that they had collected more than 130 eggs from a bird in a year. In most of the cases (47.22%) the length of clutch was less than 20. Interval between two clutches was found in highest percentage (42.22%). Highest egg production was observed in winter season (52.78%) followed by summer, spring and late autumn. Maximum (60%) farmer had vaccinated their birds and 55% farmers got service from Department of Livestock Services.

Jabbar et al.(access on 31 December ,2007) comments that since the early 1990s, contract farming as a market institution in the poultry industry in Bangladesh has evolved along with the expansion of commercial poultry farming. Apart from classical contract farming within vertically integrated enterprises, there are also formal and informal contract arrangements in input marketing and output marketing A high drop-out rate among commercial poultry producers is observed. Results of a survey conducted among farmers who dropped out of the poultry business in recent years are presented, highlighting the causes of dropping out and the possible role of contract farming in addressing them.

Akter and Uddin(2009) argue that as an important sub sector of livestock production, the poultry industry in Bangladesh plays a vital role in economic growth and simultaneously creates

numerous employment opportunities. The poultry industry, as a fundamental part of animal production, is committed to supply the nation with a cheap source of good quality nutritious animal protein in terms of meat and eggs.

Aho (2010) predicts that poultry meat output may be impacted and fall before that of eggs in the world production. The factors that influence the production of poultry meat and eggs, he said, are real income per capita, the distribution of that income, the cost of grain and the size of the human population. "Poultry will do well despite higher grain costs," said Dr Aho. This is because, at around 2:1, feed efficiency is better for poultry meat than pork (3:1) or beef (4:1), largely thanks to the tremendous progress made by broiler genetics companies over the last 50 years or so. Another important factor is the difference in water requirement: 3,000 litres for chicken compared to 6,000 litres for pork and 16,000 litres for beef.

Bangladesh Food Security Investment Forum Report (May 2010) state that, the vibrant fisheries sector in Bangladesh accounts for roughly 20 percent of the agricultural GDP while the growing livestock sector comprises around 12 percent. More than 10 million Bangladeshis directly depend on these sectors for their livelihoods. A large proportion one of these people are smallholders whose production on of milk, meat, and eggs increased significantly between 2002 and 2008 primarily because of improved breed, feed, and fodder; available veterinary health services; and investments led by the private sector. The growth rate in the fisheries sector has also improved—from 2.33 percent in 2002–03 to 4.11 percent in 2007–08. This growth is largely from intensive technological management practices in agriculture. Pond aquaculture has also been improving and now produces about 866,049 metric tons (mt) per year, representing 41.92 percent of total inland fish production on (2,839 kilograms/ hectare).

Shamsuddoha (2010) observes that sustainable development of environment friendly commercial poultry industry in Bangladesh seems to have attracted little attention.

According to <http://www.thepoultrysite.com/articles/943/antibiotic-feed-additives-politics-and-science> Cervantes commented that contrary to public perception, the continued use of antibiotic feed additives is beneficial for both, animal and human health (accessed on 5th November, 2011). He said that there are numerous scientifically documented benefits derived directly from their use, such as the prevention and control of enteric diseases, enhanced food safety, improved animal welfare, preservation and less contamination of the environment, improved efficiency of production and lower cost of production resulting in lower prices for the consumers who can continue to enjoy an abundant supply of safe and nutritious food products of animal origin at an affordable price.

According to http://www.fao.org/ag/againfo/themes/en/infpd/econf_bang.html (accessed on 5th November, 2011) small poultry enterprises with adequate institutional support targeting the poorest rural women and their families can help them take the first step out of poverty. However, for the concept to work as a poverty breaking tool (i) the beneficiaries must come from the poorest segments of the village, (ii) the cost of producing an egg must be lower than in the commercial sector, (iii) an enabling environment must be established to keep a small flock of hens, inter alia, access in the village to feed, vaccine, vaccinations services, micro-finance, marketing and other inputs and services, and (iv) the enabling environment must contain

institutional and political space to provide the people involved the possibilities and opportunities to take the next step out of poverty.

Objectives of the Study

The primary objective of the study is to identify the various aspect relating the growth and sustainability of poultry industry in Bangladesh. We also attempt to seek the factor that making this industry vulnerable in terms of growth potentials. Along with theses we had tried to design recommendations for the developments of our poultry industry. Besides theses primary objectives there are some secondary objectives of the study as follows:

- To identify the various stakeholders and market players in the poultry industry of Bangladesh as well the firm size, growth and market structure.
- To observe the factors that affect competitive advantages, profitability and firm growth potential within the poultry production supply chain.
- To determine the impact of the poultry industry on the food supply chain of Bangladesh.
- To address risks associated with the poultry industry and how to mitigate those risks for the sustainable growth and development of poultry industry.

Methodology of the Study

The study is an explanatory nature. The study is based on mainly secondary sources. Moreover, the study will also try to investigate internal sources of different poultry firms. Time period of the study is January 2011 to April 2011. Exact sources including books, journals, websites, research reports etc. which will be mentioned.

Making Vision 2021 a Reality: Prospects of Poultry Industry

According to OUTLINE PERSPECTIVE PLAN OF BANGLADESH, 2010-2021: MAKING VISION 2021 A REALITY -Poor nutrition represents a major health problem. It is evident that a substantial majority of the population suffer from varying degrees of malnutrition, including protein-energy malnutrition, micro-nutrient deficiencies (such as vitamin A deficiencies, calcium deficiency disorders), iodine deficiency disorder, Iron deficiency and iron deficiency anaemia, and vitamin deficiencies. Poultry sector in this regard has been playing a significant role in providing protein at a lower cost. Most probably it is the only sector that can grow vertically and produce maximum amount of egg and chicken using the minimum land. However below we see list of calories from different types of meat:

List of calories in various meats:

Table:1

Meat Type	Calories	Fat
Bacon Calories (average rashers)	500	45g
Beef Calories (average lean)	275	20g
Lamb breast (roast)	398	30g
Lamb Chops (grilled)	368	28g
Lamb Cutlets (grilled)	375	31g

Lamb Leg (roast)	270	17g
Lamb Shoulder (roast)	320	24g
Pork Belly rashers (grilled)	400	35g
Pork Chops (grilled)	340	24g
Pork Leg (roast)	290	20g
Pork Trotters (boiled)	290	23g
Veal fillet (roast)	240	12g
Chicken Calories (average)	140	12g
Duck (roast)	330	30g
Goose (roast)	350	25g
Partridge (roast)	250	8g
Pheasant (roast)	250	9g
Pigeon (roast)	242	13.5g
Turkey (roast)	165	6g
Hare	155	6g
Rabbit	187	8g
Venison	200	6.5

Values for the calories in meats may vary due to different cooking methods!

<http://www.weightlossforall.com/calories-meat.htm>

Poultry Industry: contribution to rural & national economy

- Livestock is playing an important role in the national economy, contributing significantly to agriculture and the gross national product.
- 44% of human daily intake of animal protein comes from livestock products.
- Furthermore it plays a pivotal role in the rural socio economic system as maximum households directly involved in livestock.
- Investment in poultry sector should be doubled within the next decade and it will enhance the growth of this sector and contribute in the GDP and creates employment opportunity.
- In the nineties total investment in this sector was only BDT 15 hundred crores taka, but now it is more than BDT 15 thousand crores
- It has created job opportunity for more than 60 lakhs people.
- The poultry industry has been engaging supply of quality protein to the Bangladesh population at the lowest price in the world.

Present situation of the Poultry industry has been shown below:

Table:2

	June 2010	December 2010	March 2011
Production of Bird (Million Kg./day)	1.95	1.70	1.6
Egg production (Million /day)	27.5	26	23.5
Numbers of farms of Poultry	1,14,000	98,000	75,000

(Source:Chowdhury,2011)

From the aforesaid table: 2, we are seeing that declining trend of production is prevailing in the poultry industry of Bangladesh.

Moreover, price of the feed of the poultry rises around 30% during last six months. Poultry industry does not count in the SME sector of the country. Maximum commercial banks are not interested to finance this sector as they think it as a risky sector.

http://www.wattagnet.com/Bangladesh_poultry_industry_loses_1_million_jobs_due_to_bird_flu_outbreaks.html reported that (March 24,2011) that Over 1 million people involved in Bangladesh's poultry industry have lost their jobs in recent months due to outbreaks of avian influenza, according to the Bangladesh Poultry Farm Protection National Council.

<http://www.thepoultrysite.com/poultrynews/24379/four-hpai-outbreaks-in-dhaka-and-khulna>(December 22,2011) reported that The World Organisation for Animal Health received follow-up report no. 36 yesterday, 21 December. The causal agent has been identified as H5N1 virus and all four outbreaks took place at commercial poultry farms located in Dhaka and Khulna. According to the report, a total of 14984 birds were found susceptible to the outbreaks, out of which 1257 cases were identified, indicating a 100 per cent apparent case fatality rate (meaning all 1257 affected birds were found dead). A total of 13727 birds were destroyed.

Fisheries and Livestock Minister of Peoples republic of Government of Bangladesh Abdul Latif Biswas recently has said the government is considering the import of essential antibiotics to sustain the growth of poultry industry in the country (Source: http://www.farmingnewsdaily.co.uk/news/220811/cleaning_up_drugs_in_farming_.aspx). Essential antibiotics are needed to protect poultry from diseases. The government is considering lifting the ban on import of antibiotic for poultry as commented by the aforesaid minister. He said: "Since the independence, the country's poultry industry has achieved significant growth both in terms of production and quality." The Daily Star reports that he added now, a 10-million workforce are involved in the poultry industry and there are 150 million consumers.(Source: ibid)

Poultry Industry: Supply of Animal Protein, Food Security

- Rising population, moderate growth of per capita income and higher income elasticity of demand for livestock products are likely to bring a further increase in the demand for livestock products.
- The demand for milk and eggs has increased by 6, 5.2, per cent respectively which is well above national average in the past.

- Bangladesh is a densely populated country. Agricultural land is limited and is reducing at a rate of 1 percent per annum. As such scarcity of production of agricultural product will be felt.
- Fish & cattle production are decreasing. These also require longer time to produce. But poultry production is relatively easier if both public and private sector initiatives go side by side.
- Poor nutrition represents a major health problem. It is evident that a substantial majority of the population suffer from varying degrees of malnutrition, including protein-energy malnutrition, micro-nutrient deficiencies, iodine deficiency disorder, Iron deficiency and iron deficiency anaemia, and vitamin deficiencies.
- Poultry sector in this regard has been playing a significant role in providing protein at a lower cost. Most probably it is the only sector that can grow vertically and produce maximum amount of egg and chicken using the minimum land.
- A report titled 'Climate Change as a Security Risk' said that the probable loss of arable and residential lands through flooding in this part of the world (Bangladesh and its neighbourhood) would result in increase of internal and external environmental migration and strained relations between countries. A solution to the issue of farmland depletion could be formulation of a sensible and realistic land-use policy.
- Moreover, from the poultry sector biogas plant and organic fertilizer can be prepared.

State of protein deficiency & contribution of Poultry Industry

- According to FAO each person should take
 - o 56 Kg. meat per annum while 365 eggs per annum. But in Bangladesh per head use of meat is only 14.57 kg per annum while use of egg is 31 per head per annum only.
 - o As a resultant factor suffers from malnutrition and prevails disparity between poorer and richer section of the society.
- Currently as per UNICEF report total population is 16.40 crore. If population growth rate rises at the rate of 1.40 % per annum, then protein deficiency will rise, which can be mitigate from the poultry sector as this sector has immense potentialities.

Poultry Industry: Creating Huge Job Opportunity

- The sector can create huge job opportunity. The Honorable Finance Minister and the Food Minister also declared that poultry sector can create more job opportunity.
- Poultry farming offer opportunities for fulfillment or part-time employment particularly women, children or elderly person on the farm operations.

Scope of Four Folds Increase in Poultry Production

In a handbook of poultry farming and feed formulation it was commented that the first and foremost reason of poultry farming is a high nutritious food in a reasonable price. There is a scope of four folds increase in poultry production.

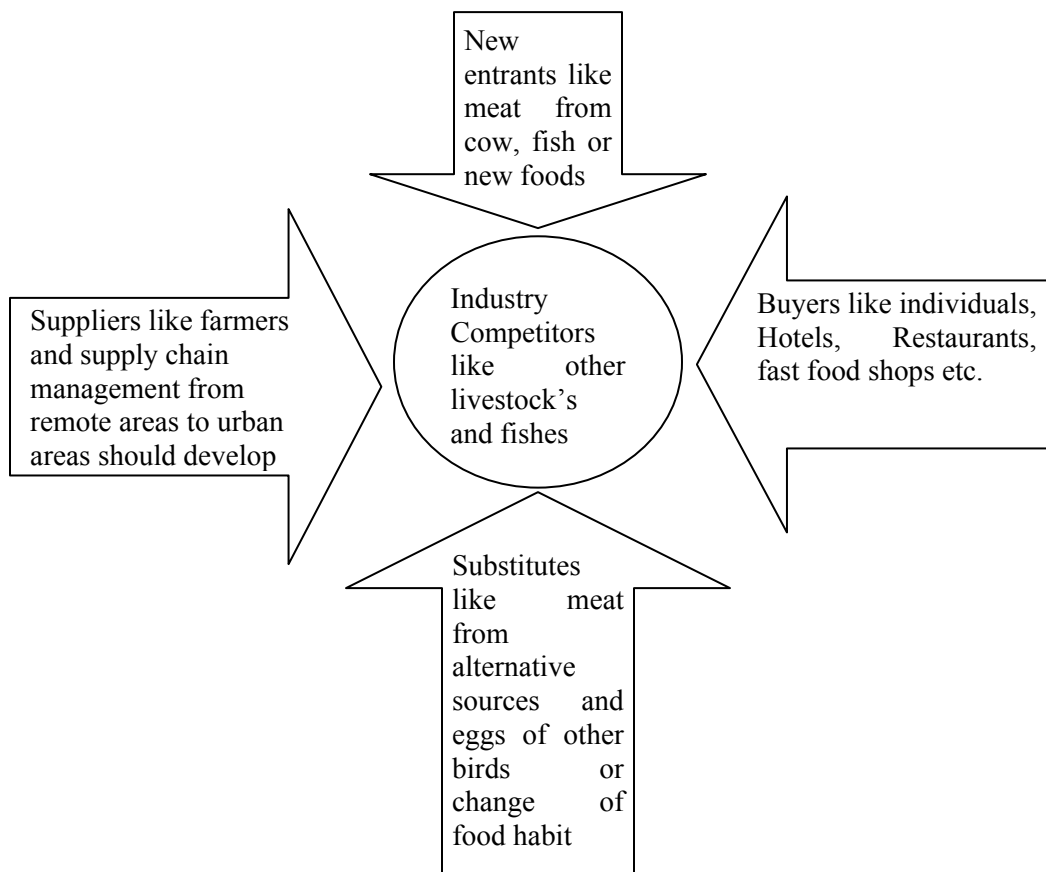
- The milk, which is a traditional protein food for growing children and other vulnerable population, is getting costlier and there is every chance of adulterating in it.

- In future, one can visualize the egg and poultry meat not only as a supplementary protein food but also as a substitute of other meat products and even milk for a healthy purpose.

Major Challenges Facing Poultry Industry

“Yesterday who was a solvent farmer has become a poor guy today”- this is basically true to the poultry farmers. The farmers are severely suffering from security of their farms and investment. Every year thousands of farms are collapsing due to bird flu outbreak and many for their incapability to by high priced poultry ingredients and absorbing losses from market price fall. However the poultry industry of Bangladesh currently facing the following challenges against its growth potentials.

Porter’s Five Forces Model of Poultry Industry is shown below:



(Source: Porter’s Five Forces Framework used for Poultry sector)

General Challenges

- In the country the epidemic of some infections coupled with increase in feed cost sometimes emerge to be the most significant hinders for this industry.
- Recently NBR is trying to impose new taxes on maize import. This has created problem as maize is the key ingredient to prepare poultry feed.

- Moreover, the tax exemption on poultry will also come to an end by June 2011 which increased up to 2013.
- The price of poultry raw materials has hiked up sharply in the international market. Very naturally the production costs have also hiked up.
- The banks interest rate in this sector is very high which is on an average 12-14% per annum and real effective interest rate is around 18-20% per annum. Moreover, lot of hidden charges and costs are associated in this sector to avail the loan from the banking sector. Actually bank interest rate should be 10%. Moreover, NGOs and also Grameen bank should play more active role to lower the interest rate for poultry sector under their social business program so that rural people can be motivated.
- Cost push inflation and demand pull inflation both are presently prevailing in the country. As a result purchasing powers of the people are declining. According to Economic Trends (2011) the annual rate of inflation increased to 9.43 percent at the end of the August 2011 from 7.87 percent at the end of August 2010.
- This sector faces the problem of load shedding.

Avian Influenza outbreak: A threat for poultry growth

- Currently the country has been affected by Avian Influenza and as a resultant factor suffered losses around BDT 700 core taka (as per Breeder's Association of Bangladesh). This is a huge losses for the producers and they did not get any sort of financial help to mitigate this huge losses
- As per FAO report (20 April, 2011), Bangladesh and other five countries India, China, Egypt, Indonesia and Vietnam has been suffering from the H5N1 virus. This is because of 'firmly entrenched' due largely to 'weak producer and service associations' to support farmers. In aforesaid countries avian flu is still endemic due to poor veterinary and livestock production services retard appropriate revealing and managing of infection. Due to bird flu we can not know export chicken in Nepal and also Middle East countries. As such negative impact has been felt.
- In this context, expansion of veterinary services including vaccination is essential.
- Need for country's strategy, long-term planning and its effective implementation to feed the population of the country as well as export in abroad to be added by 2021.

Currently eggs and chickens are distributing through middlemen, as a result:

- The farmers are not getting actual price. Since the last 6-7 months they are counting huge losses, as the production cost is high and selling price is low.
- Therefore the actual producers won't get any benefit of the high price as they are oppressed by the middle men who suck the profit.
- Lack of modern management of poultry farming is also creating negative impact.
- Moreover, the end users i.e. customer has to pay higher price.

Conclusion and Recommendations

Strategic management in poultry sector requires complementing to achieve present Govt.'s vision of Digital Bangladesh 2021. As this sector has immense potentialities, so there are no

other alternative but to give more emphasis in the context of cater the demand of the people of the country. Bangladesh should not be a place of foreign country which will use dumping technique to capture the local market. Hunton (2001) observations that exciting times lie ahead for the Bangladesh poultry industry is also observed in the study. Poultry industry of the country should thrive or it may lose its distinct competencies in the sectors like biscuits or detergent powders which has faced serious problem during early nineties. As such protection and special measures are being required to be taken by the present govt. Price of meat of chicken and egg should be stable so that lower income group and middle income group of people can afford.

Country's persistent poverty may bound the number of people who can afford to consume chicken more than suggested by the simple relationship between per capita GDP and chicken consumption. However, recently present Govt. is trying hard to reduce poverty level and arranging nutrition for the inferior segment of the society in terms of arranging earnings capability. As purchasing power is lower especially for the aforesaid group, employment opportunity will create their redistributionary income effect. However, we should be more cautious to remove bird flu problems for which not only govt. machineries but also local supportive tool are being required.

Acceptance of the most recent technology in poultry sector especially to control environment and process of automation are being required. These require to feed, drink, and other managerial and day to day operational activities and to build capacity. This will add creation of value. Efficiency and effectiveness of production should be brought through cost-cutting technique and reducing heavy dependence on high-cost imported raw materials for this sector. Alternative arrangement should be developed domestically for cheap feeding cost as well as air cleaning mechanism. Technical ability requires being careful in cooperation farmer and extension levels. Locally available craftsmen could be trained to produce tiny equipment, like feeders, drinkers, etc. Vaccine, vaccinations programs, and other inputs and programs of the poultry sector should be available for which research and development program may be taken as well as local pharmaceuticals come with developing vaccines and other related medicine to keep poultry sector disinfected. Environment of the farm area must be cleaned to protect them.

Arrangement for training through lives stock agencies, NGOs and private agencies are necessary for mutually farmers and labours associated in this sector as well as extension level which may include: sickness manage, accommodation and tools, give food to, inherited step up and promotional activities. Essential information in precise kind of poultry grounding and composition are also vital to recognize the foundation of the exceeding matter. Accommodation and organization might be enhanced from side to side through arranging suitable farmer guidance, if possible manner to run the farm smoothly. Akter and Uddin (2009) comment is appropriate as this poultry sector has immense potentialities in the economic development provided public-private partnership with join collaboration and be arranged so that nutrition especially meat and eggs can be available for the poorer section at a cheaper rate. If Bird flu can be removed we can be able to export meat and eggs in foreign countries for which special strategy is being required.

Considering the importance of the country's poultry industry in order to ensure the sustainable economic development it is now high time to step forward for the better accumulation of resources available from this industry. This industry can provide various opportunities to increase GDP growth rate plus equitable distribution through arranging food security as well as ensuring self employment and creating purchasing power at a large scale. Islam(2003) observations about the poultry sub-sector is crucially important in the context of agricultural growth and improvement of diets of people in the country which also reveals from our study. Besides this, the developments of poultry industry in Bangladesh surely help the government to mitigate the problems of food crisis of the country. Price of chicken and egg should keep stable and problem of middlemen can be lowered down through arranging effective and efficient supply chain management by the Govt. as well as Private sector through keeping in mind about the customers' protection and reducing economic disparity and eliminating poverty. Bangladesh Food Security Investment Forum Report (May 2010) should be considered as an important factor to develop the poultry industry of the country and people can get access of protein related food.

Recommendations

Following recommendations may be considered to sustain the poultry industry of the country:

- To mitigate food deficit especially protein related food, the poultry sector needs special attention for which Public and private collaboration is essential.
- To fulfill the dream of present Govt.'s Vision 2021, poultry sector can act as an auxiliary force to arranging food at cheaper rate. As such tax exemption can be extended for the period of 2025.
- Imposition of tax on import of maize ought to be withdrawn urgently as producers of the poultry sector specially small farmers are facing
- Bank loan in the poultry sector should be arranged at a 5-7% simple interest rate per annum considering thrust sector. Conditions of loan providing should be eased. Moreover, Bank should come forward so that new entrepreneurs as well as NRBs can come forward to invest in this sector through opening special window in each bank arranging not only bank loan but also offering special services starting from pure line farms and Hatcheries to Consumers. Banks who won't be interested to invest in the poultry sector may be penalized by the Bangladesh Bank. This industry also treated under SME sector.
- Livestock department should be more effective and efficient. Proper human resource management and staffing as well as extension of the livestock office is required. They should play proactive role. As such livestock institutes at Sylhet and Gaibandhya should be effective and regional research centers should be more active.
- To face the global warming problem, this sector should get more priority so that they can be able to cater the demand of the food deficit.
- The price of chicken and egg, if fixed, should not for only some months but whole year considering the production cost so that producer deficit not occurs.

- Supply chain management should be improved so that the poultry farmers can directly supply to the retail shops and middle men can not suck the profit.
- Avian Influenza affected farms should get subsidy immediately after culling.
- A special fund may be created by the Govt. to help the actual producers.
- Poultry Insurance should be introduced immediately. Insurance companies should come forward with such policies.
- Electrify arrangement is required for the poultry farms. The government may come forward to produce bio-electricity or support the poultry farmers to produce it.
- Govt. Hatcheries should be reactivated and play due role so that they can supply huge deficit of protein related food.
- Transportation costs and facilities for eggs and chicken and chicken related products should be kept minimal so that consumers can purchase at a reasonable price.
- Govt. should come forward to deal with the problem of Avian Influenza as FAO reported that Bangladesh is one of the Sixth worst victim nations. To raise export of chicken related products abroad we need to come out from this worst disease.
- The role of the farmers are laudable and that could export poultry products to foreign market if a capacity building can be developed and growth of strategic alliance among private sector, govt., Bangladeshi embassies and NRB can be developed.
- Poultry industry needs special attention from the Govt. as this sector will not only mitigate huge deficit of protein related food at a cheaper cost but also can create employment of 1 crore people in this sector as projected by this researcher by the year 2021 which will complement present Govt. decisions to create employment.
- Government needs prior planning and preparation for bird flu and should arrange appropriate steps so that farmers can maintain bio-security and keep healthy environment inside and outside the farms.
- Department of Livestock should come forward to holistic approach for developing the poultry sector. Organogram of Livestock may be restructured and it should be set up office at least union level. Efficient and dynamic personalities should be appointed. They must not fix maximum price of one-day chick and it is unjustified.
- To mitigate deficiency of veterinary doctors, four years diploma courses after SSC level may be introduced. Trade courses may also be introduced so that technicians can be available to mitigate immediate shortage of nursing of the poultry industry.
- AIT on maize import should be withdrawn and tax imposed on pelleted feed production.
- Poultry sector faces problem due to lack of insurances. Insurance companies of the country did not come forward with insurances in the Poultry sector.
- Importing live poultry is very much sensitive as it relates not only to financial matters but also to human health.
- Therefore, strong measures should be taken so that the guideline of the World Organization of Animal Health (OIE) is followed strictly while importing One-day old chick, hen or egg.

- Moreover, to import products from outside the country instead of lock chicken and eggs huge amount of valuable foreign exchange will be spent. As such subsidy should be given to the local industry and protect safeguard to the local entrepreneurs of the poultry industry. Vaccine, vaccinations services, alternative to vaccine services, antibiotic feed additives and other inputs and services of the poultry sector should be developed locally.

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