

Can Commercial Poultry Sector Play the Pivotal Role in Building a Healthy Nation?

ShamsulArefin Khaled

Director

Nourish Poultry & Hatchery Ltd.

Introduction:

Bangladesh is at a historical juncture – the 50th anniversary of our independence (i.e., 2021) is approaching fast, and despite all the socio political melee, the central focus of national economy is now accelerated and unprecedented economic growth in the next 7 years. However, a strategy for accelerated growth without a nutrition-sensitive means is akin to a very tall man with famished and emaciated body – devoid of true physical strength. This paper presents the case for attaining a “balanced” approach to growth which is accelerated but nutrition sensitive and sustainable; an approach which not only ensures robust economy, but also a Healthy Nation with Safe Food. We will also demonstrate how poultry can play a pivotal role in this balanced approach to economic growth.

For the sake of content organization, we will start with (1) where we are at the national level, (2) then lay out where we want to be and (3) finally plan for how we can get there with emphasis on poultry industry. Along the way, we will deliver thought-provoking and sometimes interesting facts and findings to show how we can achieve 2 keystone goals – nutrition-sensitive accelerated growth and food security. We will present how a crucial participant in this journey – the grass-root farmers will be incorporated and how poultry can be the thread that binds everything together.

Where we are at the National Level:

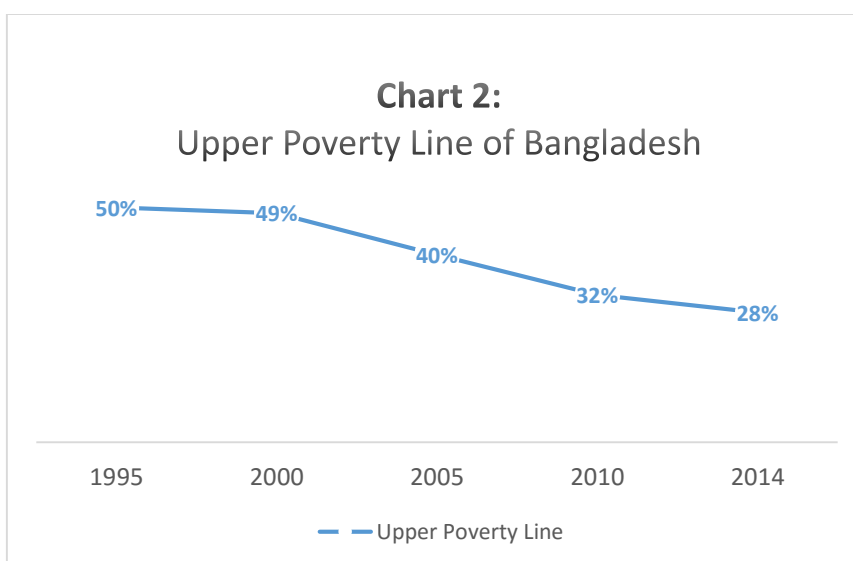
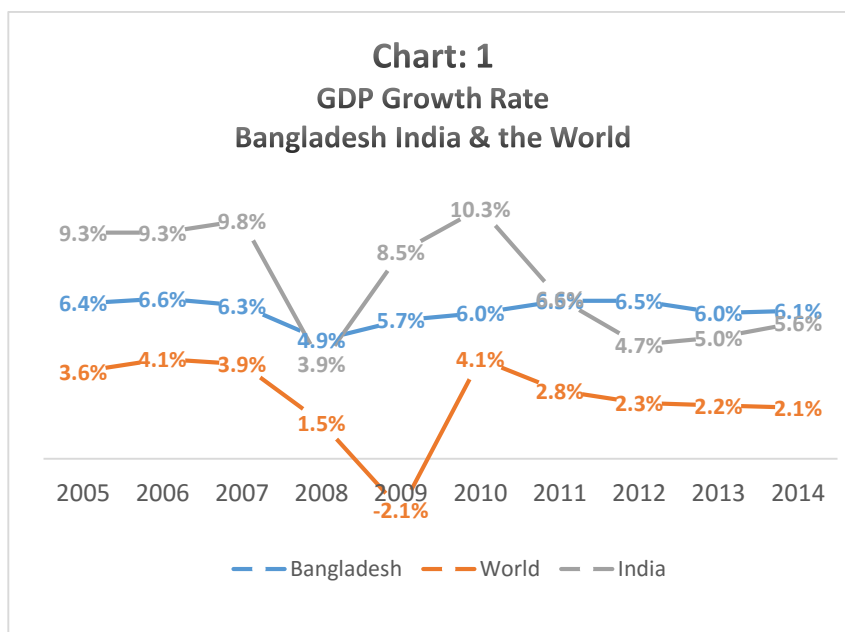
Bangladesh has maintained an impressive track record on growth and development. In the past decade, the economy has grown at nearly 6% per year (**Chart 1**), and human development went hand-in-hand with economic growth. Poverty dropped by nearly a third, coupled with increased life expectancy, literacy, and per capita food intake. More than 17 million Bangladeshis have moved out of poverty since 1992.

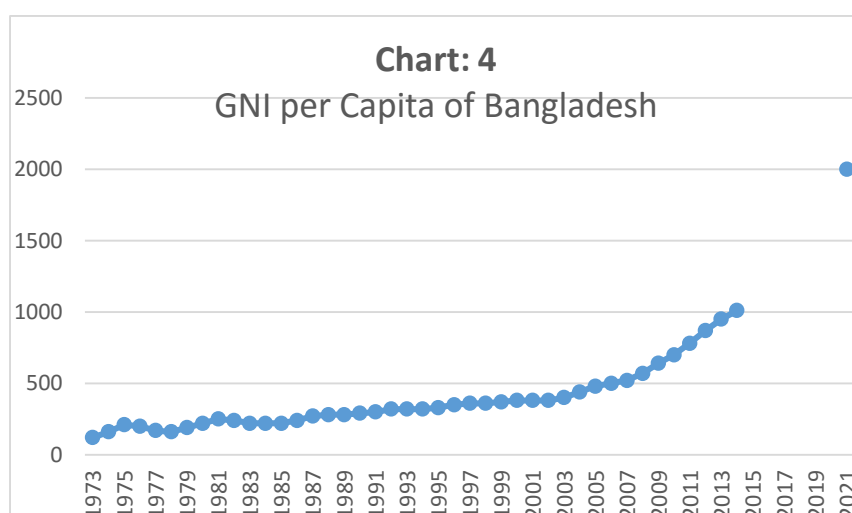
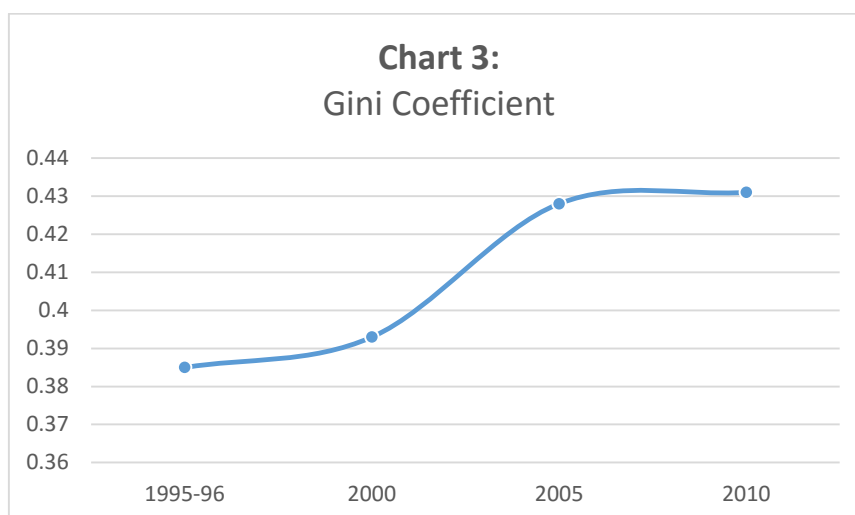
While poverty reduction has been remarkable (**Chart 2**), the absolute number of people living below the poverty line remains significant. Despite the strong track record, around 45 million people are still below the poverty line, and improving access to quality services for this vulnerable group is a priority. Currently, an alarming 43% of children under-five in Bangladesh are stunted due to continuous malnourishment caused by poor feeding habits and lack of access to nutritious foods.

With nearly 165 million inhabitants on a landmass of 147,570 square kilometers, Bangladesh is among the most densely populated countries in the world. There is considerable concern about the growing income inequality (**Chart 3**). The Gini coefficient is a measure of the inequality of a distribution, a value of 0 expressing total equality and a value of 1 maximal inequality (Princeton University). Gini coefficient for Bangladesh has increased from 0.385 in 1995-96 to 0.393 in 2000, which again increased to 0.428 in 2005 and further increased to 0.430 in 2010 at rural area. Inequality emerges from a combination of greatly unequal distribution of

physical assets as well as human capital. Results show that the distribution of income is much more unequal than the distribution of consumption.

A large part of the population still lacks access to sufficient, safe and nutritious food. The average Bangladeshi diet is deficit in energy by about 20% (against 3000 kcal). It is seriously unbalanced with an inadequate intake of fat, oil, fish/animal protein, fruits and vegetables. For people in most developing countries, the daily calorie average is 2,828. In Bangladesh, that average is only 2,318 (HIES 2010). Out of the total energy intake, 70% comes from cereals (Standard 55%), 17% from non-cereal plant sources (Standard 30%), and 5.5% (Standard 15%) from animal sources (BIIDS, HIES 2010).





Where we want to be:

Bangladesh will celebrate its 50th anniversary of independence in the year 2021. Country's vision statement "Bangladesh Vision 2021" envisions Bangladesh by 2021 as a poverty-free middle-income country (**Chart 4**); a nation of healthy citizens; a nation with skilled and creative human resources; environmentally sustainable; and more inclusive and equitable society. Accelerated growth has been suggested as a key development strategy under the National Sustainable Development Strategy (NSDS) for ensuring higher quality of life, faster poverty reduction and employment generation and transforming the economy into middle income status without compromising environmental sustainability. Likewise, the theme "Accelerating Growth: Empowering Every Citizen" has been considered as the cornerstone of the Seventh Five-Year Plan (SFYP).

We propose 2 'keystone' goals to realize "Bangladesh Vision 2021": (1) Nutrition-sensitive Economic Growth & (2) Food Security. Keystone goals are those that help realize multiple other key goals; i.e., by accomplishing those, other goals are automatically accomplished. By prioritizing these 2 goals, we could achieve multiple macroeconomic objectives like employment generation, poverty alleviation, human resources development, income & gender equity, etc.

Nutrition-Sensitive Accelerated Growth:

To become a poverty-free middle-income country, the country requires an accelerating GDP growth of 7.5% to 8% per year based on accelerated export and remittance growth. Both public and private investment will need to increase as well [i]. However, when we are able to translate benefits of this accelerated growth into increased food availability, reductions in poverty, and broader social development, only then we can turn our growth into “nutrition-sensitive.”

“It is necessary because there is no example of a low-income country making significant progress in reducing malnutrition without fairly rapid economic growth, but it is insufficient because there are several instances where rapid economic growth has produced little or no reduction in malnutrition (including India, where around one-third of the world’s malnourished children reside)” [ii].

The poor must participate in the growth process for a “nutrition-sensitive” economic growth to enhance the nutrition of the neediest (i.e. nutrition security). In this regard, 3 things must happen: (1) growth needs to involve and reach the poor; (2) the poor needs to use the additional income for improving the quantity and quality of their diets and improved health services; and (3) government needs to use additional public resources for public goods and services to benefit the poor and hungry.

Food Security for a nation of healthy citizens:

Bangladesh needs to ensure sustainable and equitable food security to have a nation of healthy citizens and to be a more inclusive and equitable society. Health is not just the absence of disease; it is a state of physical, mental, emotional and spiritual wellbeing. Fundamental to everything we do, health enables us to engage with life. Food security is a complex sustainable development issue, linked not only to health through malnutrition, but also to sustainable economic development, environment, and trade.

To most people food security means a stock of cereals that can be used to meet an unforeseen food crisis. Food certainly is not cereal alone, neither its security is just a sufficient amount of cereal stock. Food means balanced diet and its security refers to availability of such diet at a reasonable price.

The Plan of Action of the World Food Summit defines “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”.

Food security encompasses many issues ranging from food production and distribution to food preferences and health status of individuals. The term “Food Security” has gone beyond food supplies to include access, sufficiency, vulnerability and sustainability (Maxwell, 1996).

How we can get there:

Key Strategy - “Accelerating Nutrition Sensitive Agricultural Growth”:

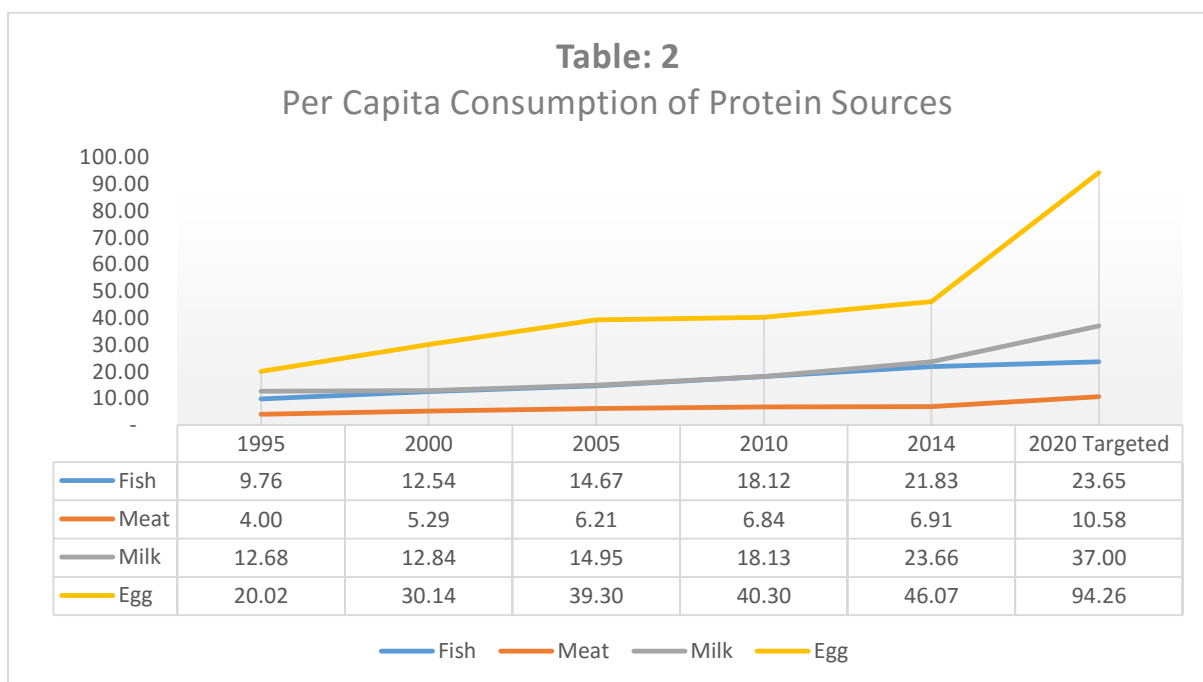
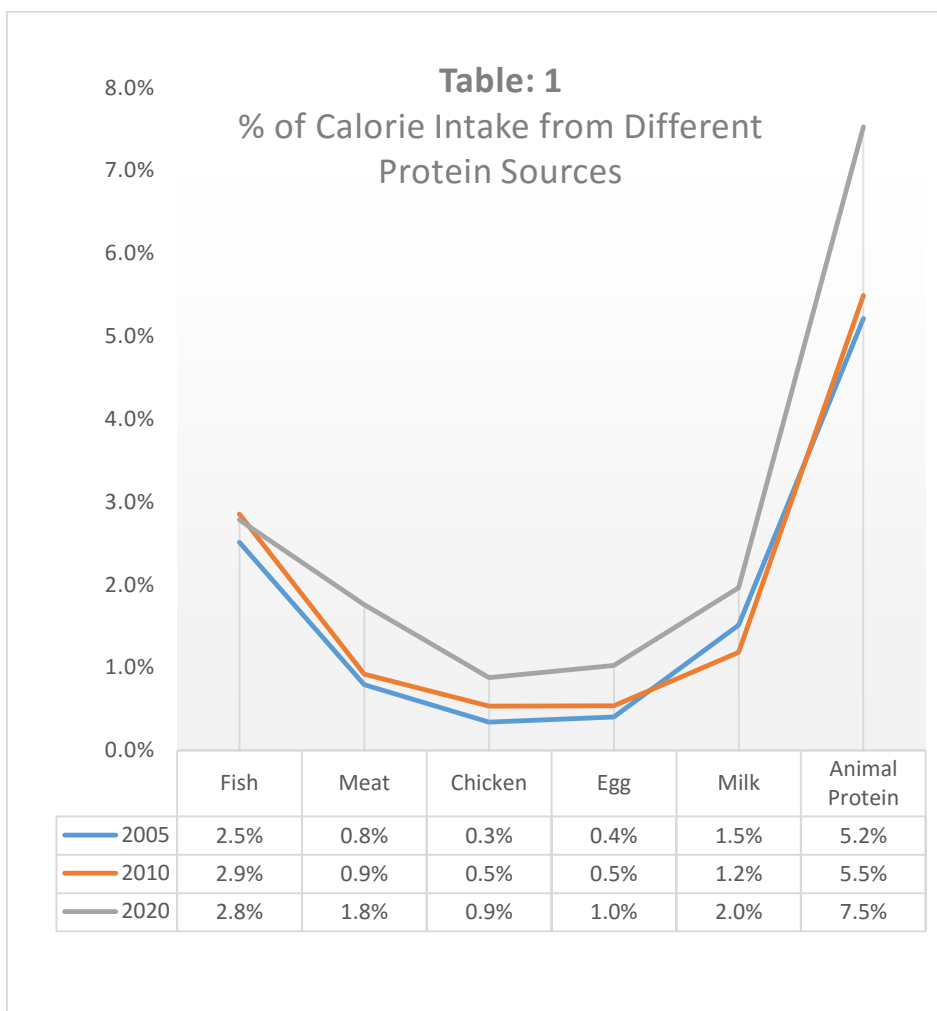
Agricultural growth will often have a larger impact on malnutrition than nonagricultural growth, but this advantage is highly dependent upon the size of the sector. The availability of and access to domestically produced food is the key issue affecting basic survival, nutrition, national security and stability of our country.

In Bangladesh, Agriculture is the single largest producing sector of economy since it comprises about 19.3% of the country's GDP and employing around 47% of the total labor force (BBS). Only 37% of Bangladesh's total area is arable land but natural disasters can affect 30% of this land. Food grain production, particularly rice production has almost doubled during last 15 years with the use of Green Revolution Technology (high yielding varieties, fertilizers, irrigation and pesticides) coupled with growth of institutional infrastructure and a positive shift in public policy and market forces. According to the projected level of requirements and production of important food crops estimated by BARC for the target year 2015 of meeting the millennium development goals, there will be a marginal surplus of 1.20 million tons of food grains[iii].

The average Bangladeshi diet lacks diversification with 75% of calories consumed coming from rice. Therefore, in order to obtain “balanced food basket” & “rural economic emancipation” the process of sustainable agricultural diversification through introduction of new technologies needs to be ensured. Though, the problems with the non-crop agricultural food items (e.g., jute, tobacco, spices, etc.) are related to volatility of returns, adverse climatic conditions & inadequate marketing infrastructures, which hinder the process of extensive diversifications. Bangladeshi people historically prefer fish as their regular diet. Fish production increased from 1.17 million tons in 1994-95 to 3.23 million tons in 2009- 10. According to the study titled “The State of World Fisheries and Aquaculture 2014”, Bangladesh currently produces around 3.49 million tons of fish a year following China, India and Myanmar. Per capita fish production is 21.83 Kg in 2014. However, the main problems of fisheries sub sector are the internal and trans-boundary environmental degradation and manmade hazards. In recent years, complaints surfaced about the degrading quality of fingerlings (not genetically true to types) affecting pond fisheries, and disease infestation in shrimp culture. Destruction of fish breeding grounds is also a major problem restricting production of native fish species.

Expansion of Livestock is another option for the “nutrition sensitive agricultural growth”. Meat, milk and egg production has also increased significantly over the last ten year. Projected per capita meat consumption as 10.9 Kg in 2015 against 8.34 kg in 2010(**Table: 2**). However, to make a minimum impact on the existing food basket, per capita meat consumption needs to be accelerated at any cost (**Table: 1**).Although both Fish & Livestock subsectors provide substitute protein sources, attainment of balanced food basket requires enormous contributions from both. All of these subsectors are in fact not substitute but complementary to each other.

Finally, social sector outcomes are also critical components of nutrition-sensitive development. Cross-country evidence suggests that the most robust nutrition-sensitive elements of social sector development are poverty reduction and health, education, and family planning outcomes [iv].



Poultry in Bangladesh: Key Facts & Figures:

Bangladesh has a long historical record of poultry rearing under traditional backyard farming. At the beginning commercial poultry farming started on small scales and got poor rural women and unemployed youth involved and thus employed. It also involved some semi-urban and urban poultry raisers which helped to meet the growing demand of eggs and meat.

Since the year of 1990, a significant annual average growth rate in the commercial poultry has been achieved. The commercial poultry gained 15-20% annual average growth rate during this period. At present this industry has attained the capacity to fulfill the domestic demand of broiler, edible eggs and import substitute product like Parent Stocks & precooked poultry products.

Commercial Poultry Sector at a Glance:

○ No. of GP Farms in Operation: 6
○ Production of Parent Stock per Week: 60,000-70,000
○ No. of Listed Breeder Farms: 140
○ Production of Broiler DOC: 11 Million/Week
○ No. Registered of Feed Mills: 120
○ Production of Industrial Feeds: 3.05 Million Tons
○ No. of Commercial Farms: 1,00,000-1,20,000
○ Production of Commercial Layer Eggs: 20 Million/Day
○ Per Capita Broiler Meat Consumption is: 3.74 Kg
○ Share of Broiler Meat out of Total Meat Consumption: 54%
○ In 2020 Per Capita Poultry Meat Consumption is expected to be reached: 8.42 Kg
○ In 2020 the Expected Contribution of Poultry Meat could Increase to: 78%
○ In 2020 Total Energy Intake from Animal Sources could improve up to: 7.5%

Currently there are 6 grandparent farms producing about 60 -70 Thousand parent stocks per week and 140 parent stock farms producing 10.1 Million Day Old Chicks (DOC) per week. About 100,000 commercial farms produce over 15,000 MT of broiler meat and 2.4 Million eggs per week. Yet, in comparison to Pakistan, Sri Lanka, Indonesia and Malaysia, where chicken meat consumption is 5.5, 6.5, 9.9, and 39 kg per capita per year, respectively, and chicken egg consumption is 55, 65, 130, and 340 eggs per capita per year, Bangladeshis only consume 3.74 kg broiler meat and 45-50 eggs per capita per year. Last year 120 registered commercial feed mills have collectively produced 3.05 Million commercial feeds.

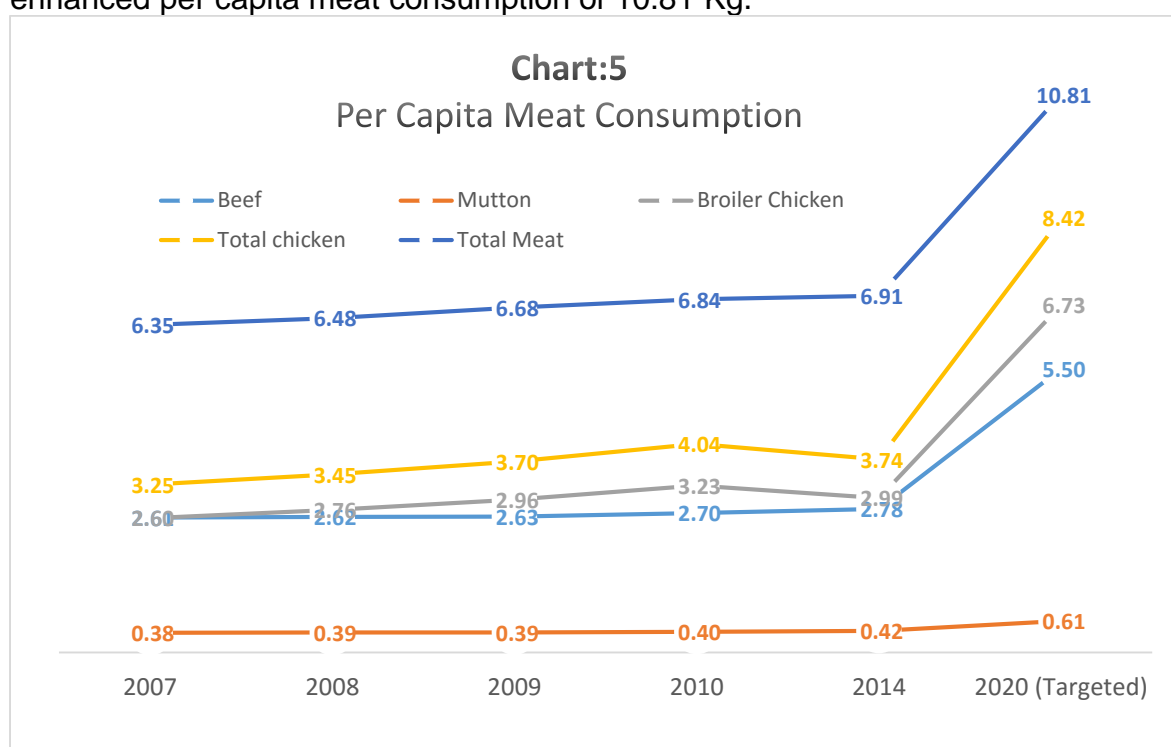
How Poultry can help us attain the Keystone Goals:

Small scale poultry are extremely important in providing income and high-quality protein in the diets of rural people whose traditional foods are typically rich in carbohydrate but low in protein [v]. A major advantage of eggs and poultry meat is that there are no major taboos on their consumption. In addition, a chicken provides a meal for an average family without the need for a refrigerator to store leftovers. Eggs can be purchased relatively cheaply and in small numbers.

Poultry sector has the highest potential to meet both of the keystone goals. It helps diversify incomes and provides quality food, energy, fertilizer and a renewable asset in rural households. It makes formidable contributions in the process of attaining poverty alleviation, nutrition security, enhanced private sector investment, employment generation, human resource development and sustainable development goal by making our country slowly but steadily self-sufficient.

By reducing Poverty & Malnutrition:

In the early 80's animal protein consumption was only 11.8 grams per capita per day (4.31 kg per annum) where as the standard requirement was 36 grams (12.96 kg per annum) as recommended by UNO[vi]. The progress was insignificant until the beginning of the new millennium. The annual per capita consumption of Chicken was 1.5 kg in 1999-00, which increased to 3.74 kg in 2014. However, by 2020 the per capita Chicken consumption is expected to attain 8.42 kg mark leading to an enhanced per capita meat consumption of 10.81 Kg.



It is mentioned in the SFYP, if the planned activities in poultry & livestock are implemented, the requirement of protein will be fulfilled by 87%. The per capita egg consumption is expected to touch three digit marks by 2020. About 44% of animal protein will come from livestock and poultry sector against the current contribution of 33%. It will make a positive impact not only to the total calorie consumption but also to the protein driven energy intake. The anticipated growth of poultry & livestock subsectors will help to improve the energy deficiency by at least 2% against the target calorie intake of 2850 kcal. It will also help to boost the energy intake from animal sources 7.5% as against 5.5% (Table 2).

By means of Enhanced Private Sector Investment & Employment Generation:

This sector has enormous potential to accomplish accelerated growth with income equity by the means of enhanced private sector investment at rural level. In the nineties total investment in the poultry sector was only Taka 15 Billion, but now it is more than Taka 25 Billion. It is expected to reach Taka 50 Billion by the year 2020.

The commercial poultry industry's employment generation capability is much higher than the other livestock. Today, this sector alone employs 2 million underprivileged people along with additional 4.5 people at a tertiary level; which is about 4% of the total population [vii]. It is expected in the SFYP that by the year 2020 about 11.2 Million of people will be employed in the livestock & poultry subsector, leading to average income growth of 3% for rural households until 2020. About 2 Million new households are expected to be involved in poultry business by 2020.

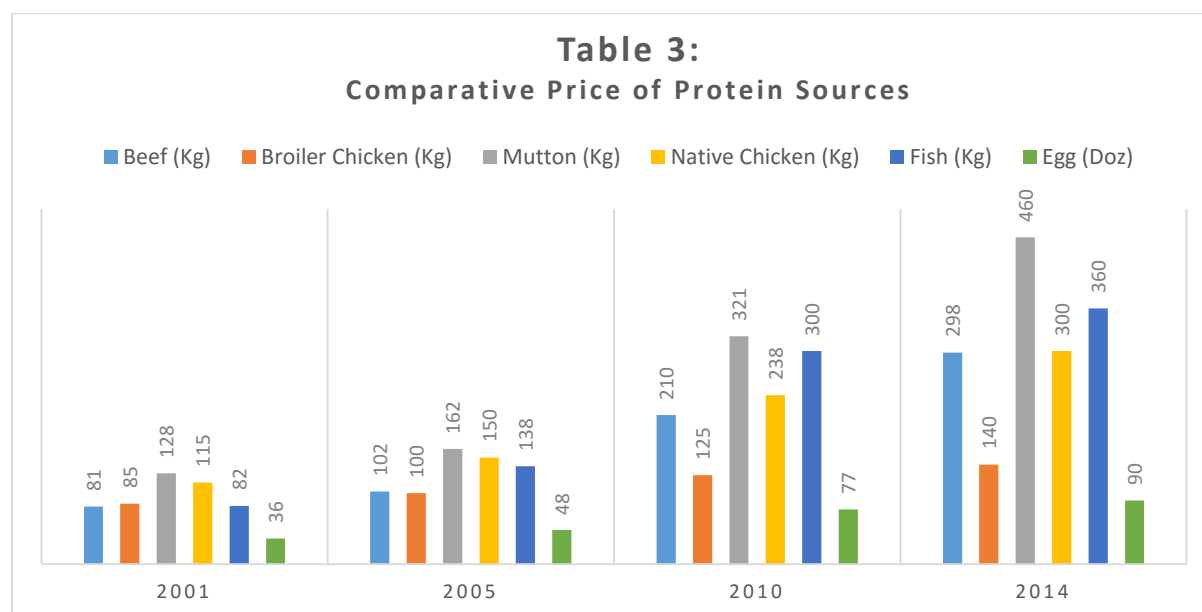
Through Human Resource Development & Women Empowerment:

Poultry makes huge contribution in building a nation with skilled and creative human resources by absorbing most advanced technologies, creating specialized management skills, and by enhancing thinking ability of the micro & macro farmers. It plays immense role in rural economy by spreading small farms throughout the country and restricting urban migrations, especially in the least developed areas.

It has opened up several avenues to rural women to participate in the economic activities without making any obstruction in accomplishing their household & socio-religious responsibilities. Today, this sector alone employs 3 million underprivileged women. It is expected in the SFYP that by the year 2020 additional 6.1 Million of people will be employed in the livestock sector with the help of Poultry sub-sector.

By ensuring Affordability & Sustainability:

With the continuous depletion of supply of red meat, poultry is the cheapest available animal protein for our masses and as such is an effective check upon the spiraling animal protein prices (**Table 3**). It occupies minimum space, but still generates considerable amount of outputs for our highly populated society. To produce 1 kg of meat from a commercial broiler chicken only about 1.6 kg of feed is needed. Poultry production has a less detrimental impact on the environment than other livestock, and uses less water.



By providing Nutritious Food to Build a Healthy Nation:

Major poultry products like chicken meat and eggs not only provides high-quality protein, but also serves as a source of vitamins and minerals. Generally, cereals lack the most important amino acids for humans – lysine, threonine, the sulphur-bearing amino acids (methionine and cysteine) and provide several vitamins and minerals, including retinol (vitamin A), riboflavin(vitamin B2), folic acid (vitamin B9), vitamin B6, vitamin B12, choline, iron, calcium, phosphorus and potassium. One egg yields about 60 gm, corresponding to about 77 kcal of food energy and 6 gm of protein. Eggs are also high in lutein which lowers the risk of cataracts and macular degeneration, particularly among people living in developing countries. One egg is almost a meal in itself and when hard-boiled will last for several weeks. It can be taken to school safely by children for Tiffin.

On the other hand, chicken meat is a great source of protein. One 6 oz. serving of chicken contains 48 g of protein. Chicken is also rich in potassium, calcium and contains no carbohydrates. The nutritional makeup of chicken makes it a healthy, filling food option. Both Eggs and chicken meat are rich in these essential amino acids.

By providing Safe Food to our Countrymen:

By and large, poultry products are safe & highly recommended for human consumption. It is free from contaminated microorganisms, chemical substances or physical substances as long as it maintains all conditions and measures that are necessary during its production, processing, storage, distribution, and preparation. Good Manufacturing Practices & Good Farming Practices are the prerequisite for optimum food quality.

The Govt. of Bangladesh (GOB) is well committed towards food safety and its framework consists of Laws, Regulations & Standards; Administration & Inspection and Laboratory analytical services. The GOB has restricted preventive usage of antibiotics in poultry feeds & thus the growth promoters in poultry feeds are free from harmful antibiotics. The GOB has incorporated successful drives against the spreading of harmful heavy metals (e.g. chromium) by sealing off the plants dealing with tannery wastes. All the imported ingredients have gone through mandatory screening process prior to their distribution & consumption. Almost 100% of the poultry feeds of Bangladesh are now able to maintain the European Food Safety Authority (EFSA) Guideline, 2009 in relation to heavy metal contamination.

Regarding the antibiotic residue allegation in the chicken & eggs, it is important to know that not a single research has been carried out to collect & analyze data of all zoonotic organisms which can cause diseases in human. If each zoonotic organism doesn't have full structured study then the organism's resistance of any antibiotic cannot be related. To consider chicken or eggs hazardous for human consumption due to antibiotic toxicity, residues of similar antibiotics needs to be directly related with the consumption of meat (or egg) on day to day basis with an ample serving quantity. Study of human antibiotic and the pattern of uses in human also has to be studied to separate and identify the resistance pattern. It is also important to know the method and dose of administration of each antibiotic, whether it is Gut acting or it is Systemic as it has serious relationships on the resistance pattern.

The lower generation antibiotics or the advanced antibiotics with a very minimum residual effects could be allowed to be used at preventive levels during the early rearing phases of poultry production thereby leading to minimal usage of higher generation antibiotics for curative purposes. This is eventually reduce the chances of developing cross resistance of antibiotics in humans from poultry consumption.

Not a single comprehensive study has been conducted to draw decisive conclusions about the level of antibiotic residues in chicken. However, the experience from the Indian Poultry Industry (where the disease pattern are very similar to Bangladesh) has suggested that possibility of high degree of antibiotic residues in our chicken or eggs is very unlikely as their chicken has found well compliant with the Maximum Residue Level (MRL) prescribed by the European Union and the USA. The Poultry meat production in Bangladesh is more than 2,200 tons per day, and thus drawing conclusive remarks based on miniscule sample sizes is unprofessional, and cannot be taken as a reflection of the status in the entire industry.

However, there shouldn't be any room for complacency. Food safety assurance is the function of implementation of the Good Manufacturing Practices & Good Farming Practices and its proper monitoring. The good news is, the Government of Bangladesh (GOB) & Bangladesh Poultry Industries Coordination Committee (BPICC) are working closely with each other for better monitoring & control over the industry practices.

Current Government Support & Intervention-In Brief:

Since the year of 1990, a significant annual average growth rate in the commercial poultry has been achieved. Government of Bangladesh (GOB) has declared poultry as a thrust sector and classified it as agro based industry. The GOB has developed a brief policy guidelines for poultry rearing, feed manufacturing & slaughtering units in order to improve productivity, efficiency & food safety. To flourish this sector, government also liberalized its policies by providing tax holiday facilities, quick import of medicine, vaccine and also by offering attractive incentive packages. Development of country's own layer breeds by BLRI has been regarded as a breakthrough in relation to poultry research & development.

As long as the industry challenges go unresolved, all of the prevailing government supports might prove inadequate for its accelerating growth target. Besides, three of the key success parameters need to be conquered/accomplished. These are (1) **Acceptability** (in relation to awareness, taste, nutrition & safety) (2) **Affordability** (In relation to price); and (3) **Availability** (in relation to storage, supply & distribution). None of those parameters are accessible as long as the industry impediment continues.

Challenges to overcome:

The prevailing challenges encountered by the Industry can be fragmented into seven major impediments. These are: Low productivity; High Disease Prevalence; High Production Cost; Lack of proper Marketing Infrastructure; Lack of Stability; Lack of Comprehensive Policy Guidelines & Adequate Data Bank; Inadequate publicity.

Low productivity:

Small-scale producers are, however, constrained by poor access to customer services; they have weak institutions, lack skills, knowledge, disease diagnostic

facilities and appropriate technologies. This results in their production and productivity to stay way below the potential leading to higher losses &wastage.

High Disease Prevalence:

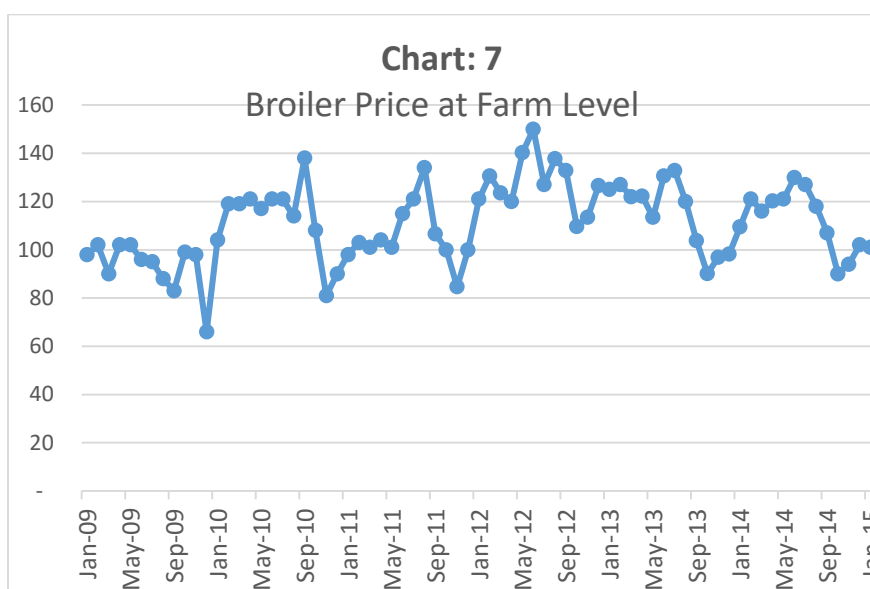
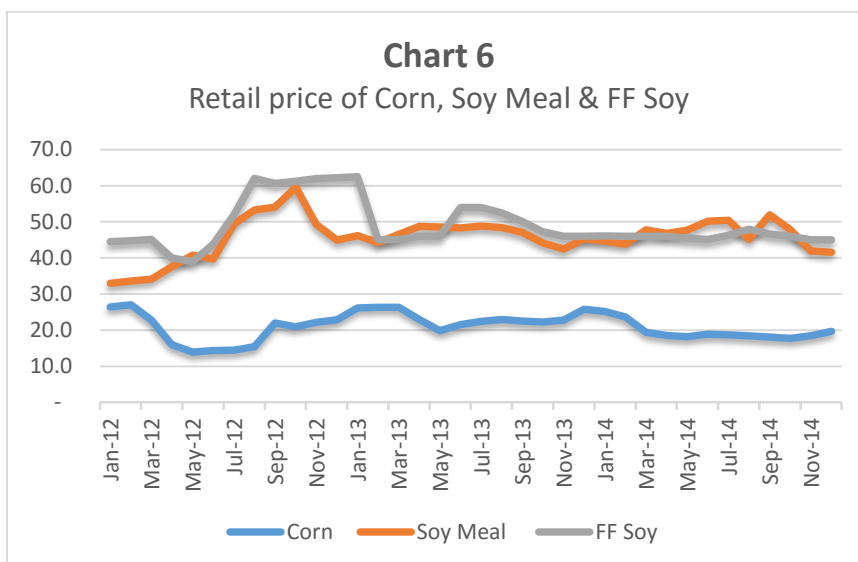
Poultry farms are often affected by variousdiseases. Most of the time, the small farmers take curative measures of various forms, but they are less conscious about prevention and control. Bio-security, the most important factor for running a poultry farm, is often ignored. Most of the common diseases prevailing in the country are New castle diseases (Ranikhet), Gumboro, Fowl Pox, Fowl Cholera, Infectious Coryza, Mycoplasmosis, Streptococcosis, Aflatoxicosis, Ascites, and Avian Influenza etc. Lack of technologies as well as trained people to handle the technology were found to be inadequate regarding rearing, disease handling, productivity, etc. Lack of adequate laboratory testing facility is one of the major impediments.

High Production Cost:

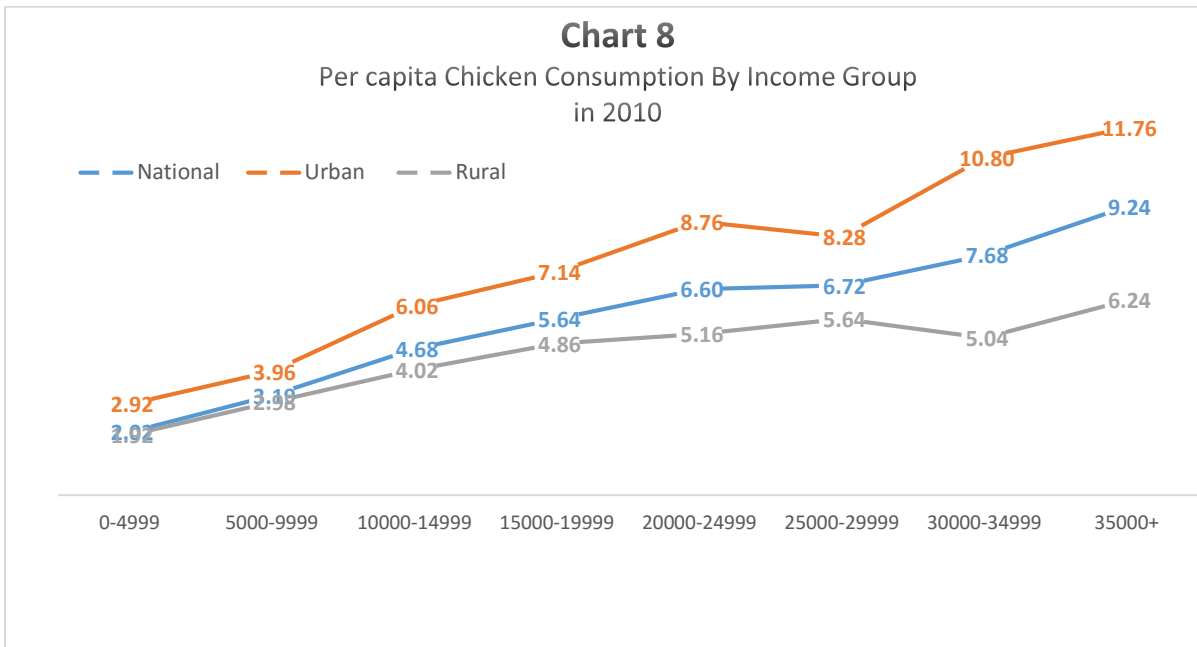
The feed costs represents 65% to 75% of total cost of commercial poultry production and poultry feed is mostly dependent on imported ingredients. Therefore, sudden jump of ingredient prices at international level has a direct implication on the poor farmers. The cost structure is the function of relative cost of feed constituents, labor, housing and costs of miscellaneous items in a particular situation. This sector also suffers greatly due to load shedding& high electricity cost. The bank interest rate in this sector is very high, 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. Both cost push and demand pull inflation are presently prevailing in the country.

Lack of Stability:

Poultry sector often suffers from instability or volatility in its supply chain, price fixation & product quality. The demand supply mismatch is a common phenomenon, which hampers price stability and sometimes lead to artificial crises(**Chart 6 & 7**). Product quality suffers both seasonal & non-seasonal variations because of the poor procurement management, lack of proper storage facilities & Manufacturing Practices in the feed industry. Lack of Good Farming Practices coupled with high disease prevalence adversely affects the chick's quality. Lack of stability during last couple of years lead to high farmer's drop-out & consumer mistrust thereby leading to sluggish growth rate to some extent.



High productivity coupled with low disease prevalence, stable & controlled input cost are the prerequisites for higher affordability of poultry products. According to the Household Income Expenditure Survey (HIES) 2010 poultry consumption has been concentrated around higher income groups (e.g., income of Taka 15,000 & more) (**Chart 8**). Therefore, accelerated per capita poultry meat consumption is the function of the either higher real income or affordable chicken price.



Lack of proper Marketing Infrastructure:

In rural areas, markets are often poorly serviced and almost 100% of the rural poultry market is wet market; most of the farmers are unable to take advantage of market opportunities. Primarily dominated by brokers and traders who enjoy the maximum profitability and minimum risk with no investment (Chart 9-12). When markets are readily accessible, farmers may be subject to price fluctuations or inequitable prices.

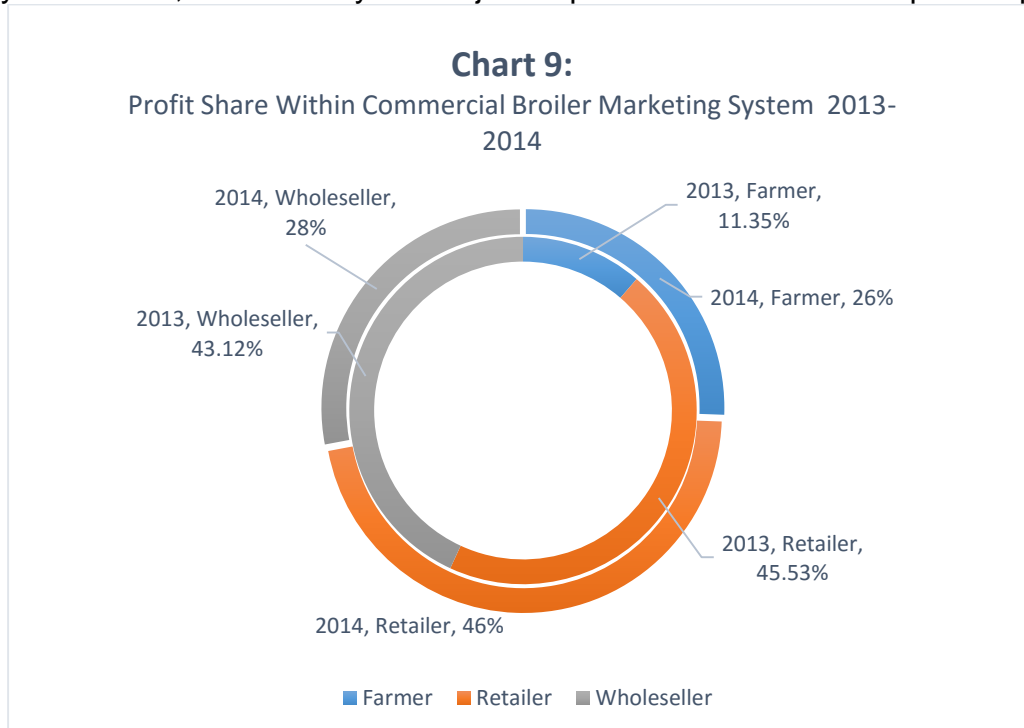


Chart 10:

Farmers Profit per kg of Broiler Productin 2011-2014 (Mawna Region)

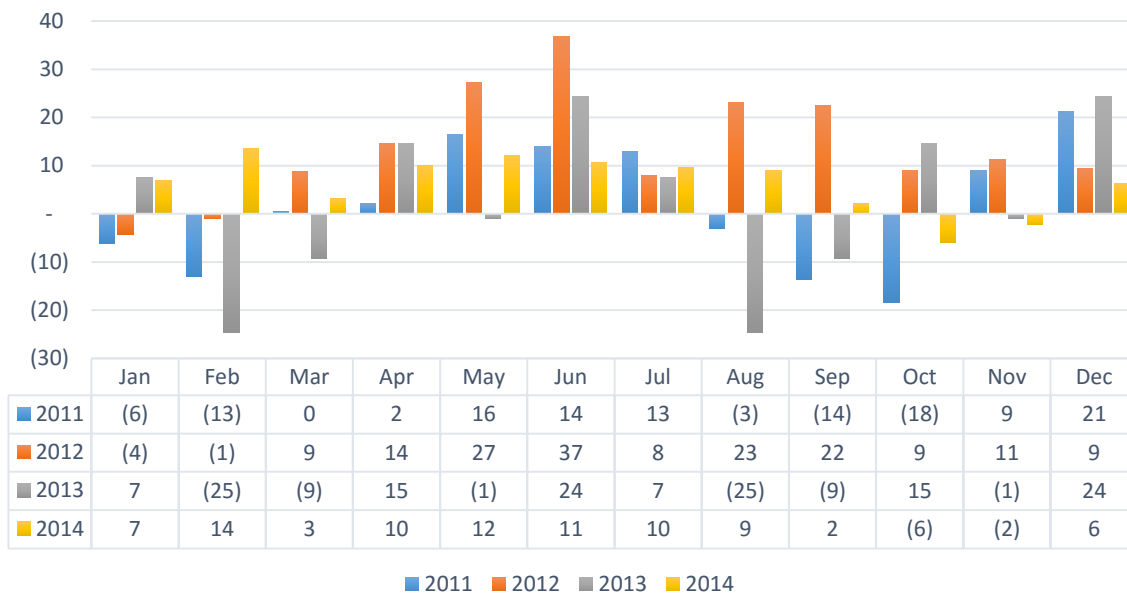
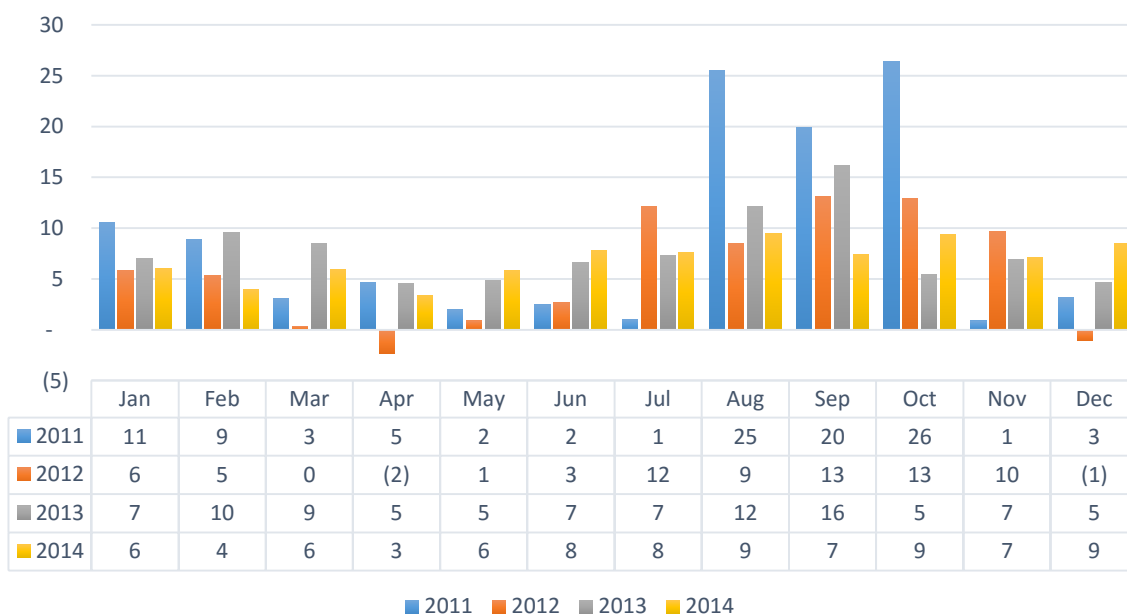
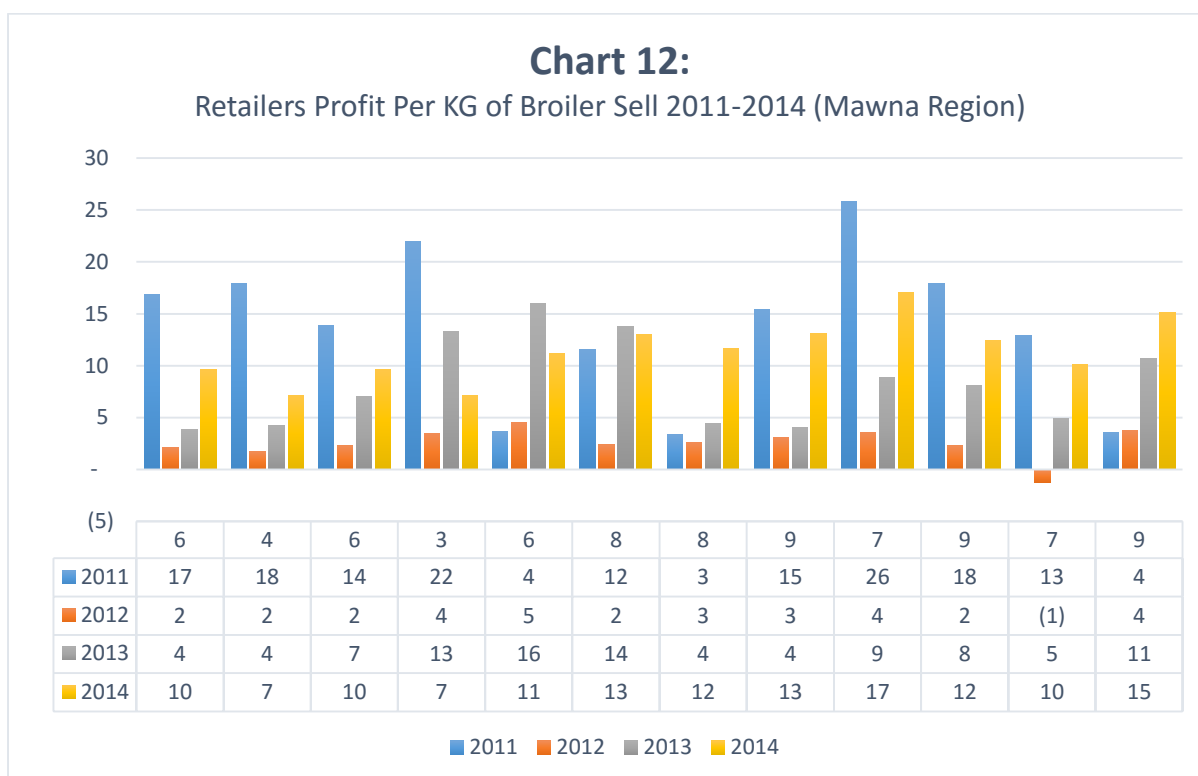


Chart 11:

Wholesalers Profit Per KG of Broiler Trade 2011-2014 (Mawna Region)





Absence of Comprehensive Policy Guidelines, Research & Data Bank:

Lack of comprehensive & stable policy guidelines has been considered as a core obstacle to ensure proper implementation of rules and regulations pertaining to sustenance of the industry. Inadequate research infrastructure, modest financial & human resources create hindrances in the recovery process. Poultry sector does not have any proper database on production and on other key variables. Use of information and communication technology for livestock data generation, information sharing, geospatial mapping of farms, disease mapping, and livestock technology needs to be used extensively.

Inadequate publicity:

Inadequate publicity and negative promotion of the sector by the mass media was considered as an impediment towards growth of the sector and low level of consumer trust. Lack of inadequate & in-depth studies in relation to its safety measures coupled with negative campaigns often spreads doubts & mistrust. It deprives not only the stakeholders but also hold back the consumers to get access to one of their essential dietary needs. Bangladesh Poultry Industries Coordination Committee (BPICC) has taken several programs to foster campaign for poultry products by unveiling much needed facts & figures.

Supports & Strategies Needed to Overcome Industry Challenges:

Solving poultry industry problems will require concerted action by the government, the private sector, NGOs, academicians, lawmakers, media outlets and individual households. These supports or interventions should be part of a broader social protection strategy that is both cost-effective and comprehensive in coverage.

Parent Stock (PS) operators should be capable of absorbing most advanced technologies, creating specialized management skills, and instilling thinking ability to the grass-root level farmers with continuous technical training in scientific poultry management practices. They should deal with breeds, which prove sustainable under the tropical & adverse environmental conditions at the commercial level. At the end, performance of the commercial broilers or layers will be decisive for the faster growth of this sector. It is essential to establish quality disease diagnostics' labs at each district level.

The nutritive value of feed is one of several important factors to be considered while looking at feed quality. By improving feed efficiency through the use of advanced feed additive solutions, levels of methane and other greenhouse gases emitted by livestock can be reduced. Therefore, feed should be balanced, consistent, safe, eco-friendly & viable for its customers.

Large scale cultivation of corn, soya bean need to start under Government supervision. They should establish proper loading & unloading facilities for the bulk corn in Chittagong port along with silo facilities. Government should take initiative to provide a customized, low-interest loan to farmers for managing their cash cycle better and survive in volatile market conditions. Steady electricity supply needs to be ensured at cheaper rate for cost effective operations. Poultry should remain as the tax free sector until 2025.

Traditionally the traders, middleman or brokers provide certain services to the grass root farmers but in the process are siphoning off the major chunk of profit portion while employing the least effort. By establishing strong organized marketing channel and planned guidelines for the farmers, these brokers can be eliminated and to ensure the prosperity of the true contributors. If the market gets stabilized and farmers get higher profit from it, it will enhance the expansion of the industry, because this will increase the purchasing power of the farmers and create new local and regional market opportunity which is still untapped.

To stabilize the ready-bird marketing channel, major stakeholders should urge Government to take initiative to establish live broiler selling hub in all divisional districts, where farmers can directly sell their live birds through whole seller and retailers at a proper price. These selling points should be properly monitored and under close supervision of concerned authority and should readily accessible by the farmers. The total marketing system needs to be decentralized.

Another solution for stabilizing the market can come by giving more emphasis on dressed and processed chicken. It will ensure the buyback from the contract farmers, directly going to the consumer and gradually eliminating the middlemen from the marketing channel. Both Government regulatory body and relevant associations of stakeholders can campaign; create awareness for industry to shift into the processed chicken segment from the unhygienic wet market. This will not only ensure the food safety, but also ensure a proper business environment to all its components. Introduction & implementation of Good Manufacturing & Farming Practices need to be ensured. Halal certification could be crucial to get buyer's confidence & a protocol needs to be developed with the help of leading Islamic scholars.

Government intervention is often required to stabilize demand supply mismatch of the Parent Stock (PS) & the Day Old Chicks (DOC) markets. Temporary import restriction could be an effective strategy for the maintenance of optimum PS & DOC population across the country. Feed safety and palatability are equally crucial and

should not be neglected in the formulation of complete and balanced high quality diets. Every registered breeder farm and feed mill should have compulsory lab facilities. DLS with the help of BPICC could be responsible to prepare test protocols, which are mandatory to check with.

The major poultry operators should be free from price “dumping” allegations. Regional market has their own absorption capacity & the big integrators, especially the foreign giants should comply with the market demand. Excessive supply of chicken & eggs create suffering for the grass root farmers in the way of market price reduction. Therefore, measured expansion should be the prerequisite for the balanced market scenario, where farmers are properly rewarded against the traders.

Government Insurance Companies should initiate poultry insurance policies. Nutritional value of egg and other poultry products and contribution of poultry sector towards socio-economic development need to be addressed by livestock ministry especially through the mass media. Poultry farming can be included in the text book curriculum. BBS should carry out an extensive Livestock & Poultry census within shortest possible time. BPICC should compel related associations to create a Data Bank with the help of its respective members. School egg program needs to be incorporated into the safety net programs.

Conclusion:

Who doesn't remember how our mothers always stressed on eating healthy and nutritious food to make sure of our physical, and intellectual growth? It's just commonsense. In this paper we presented the logic, need, and urgency of incorporating nutrition as a component of accelerated economic growth. We also presented elaborate evidences to show how poultry can be a viable and vital player for a nutrition sensitive accelerated growth.

In our concluding remarks, we want to reiterate the importance of including micro-farmers in the grand scheme of the planned growth. We will not be able to achieve this economic nirvana at the exclusion of the farmers. On that end, we must ensure proper education and training of farmers; facilitate their participation by removing policy and marketing barriers; provide support from the Government policy makers and controlling authorities, academicians, researchers, business associations, media outlets; eliminate negative propoganda; and last, but no least, provide the much-needed protection by enforcing controlled access of multi-national giants. In return, we are confident of eventual payback for all parties involved.

We invite all the readers and the stakeholders in this intense journey of accelerated economic growth for our beloved country through Safe Food and Healthy Nation.

ⁱ<http://www.worldbank.org/en/country/bangladesh/overview>

ⁱⁱDerek Headey and Alice Chiu, **Nutrition Sensitive Economic Growth**, International Food Policy Research Institute (IFPRI)

ⁱⁱⁱM.M Rahman, S.I. Khan, **Food Security in Bangladesh: Food Availability**, Oct 2005

^{iv}Derek Headey, **Turning Economic Growth into Nutrition-Sensitive Growth**, International Food Policy Research Institute (IFPRI)

^vDavid Farrell, **The role of poultry in human nutrition**, School of Land, Crops and Food Sciences, The University of Queensland, St. Lucia 4072, Queensland, Australia

^{vi}Ahmed S and Islam N 1985, **Backyard poultry development project in 100 villages**. Sponsored by Bangladesh Agricultural University and assisted by UNICEF, Bangladesh. Proceedings of the 1st Conference of Bangladesh Animal Husbandry Association, BRAC, Dhaka, Bangladesh, February 23-24, 1985

^{vii}Calculation based on reports of The Daily Ittefaq, March 10, 2011