

Investment for Sustainable Development of Bangladesh Tea Industry - An Empirical Study

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Abstract

The present scenario of Bangladesh tea has made it inevitable for further investment to uplift the industry. The internal consumers of the country are presently consuming about 98% of its produce. Consequently, this abrupt increase in internal consumption causes to decrease exportable surplus with a slow rate of production, which in turn causes to decline in export of tea. The rate of investment in Bangladesh tea is very low, i.e. 3.64% per annum (1979-80 to 2008-2009), which has caused a slow growth of 2.94% per year in the production of tea, while the internal consumption has been increasing at a rate of 14.23% per annum over the last 39 years (1973 to 2011). Massive investment is needed to increase production for meeting domestic demand and retaining export market. New investment will enhance productivity with reduced cost thereby increase profitability, generate employment opportunities, income and standard of living of tea workers. Except sufficient investment the industry will lose its position as a unitary supplier of tea in domestic market and expose to international competitions with inadequate preparations.

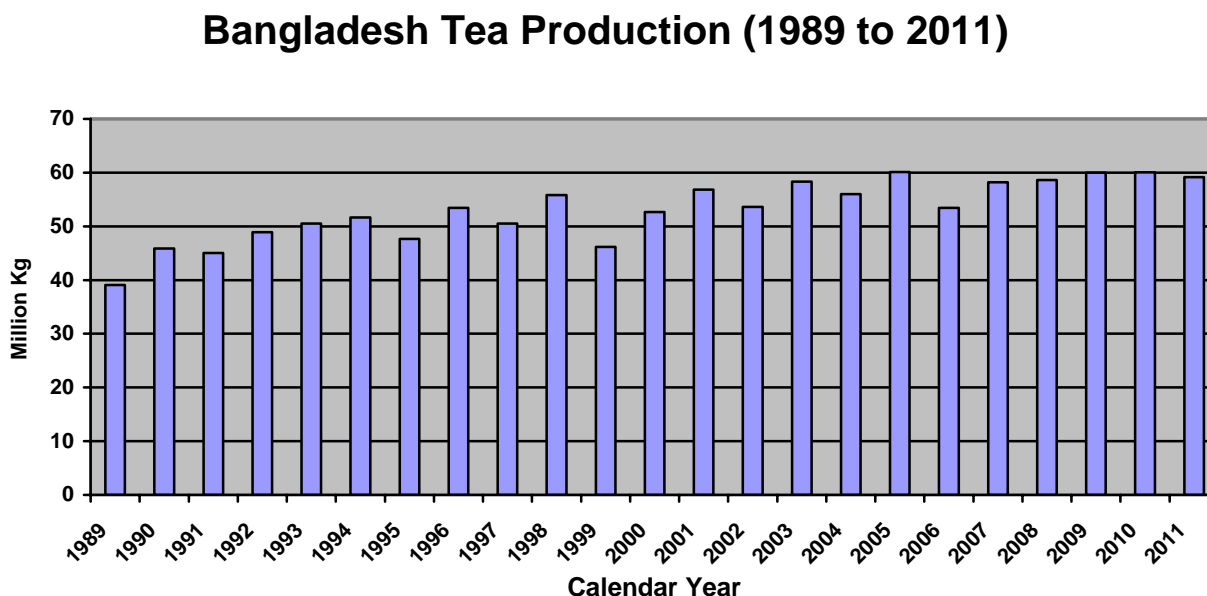
1. Background of the Study:

This article discusses about need, scope and potentials for further investment in Bangladesh tea. Commercial cultivation of tea started in Bangladesh at Malnicherra, Sylhet in 1854. Since then tea has developed itself as an agro-based and labour intensive industry in Bangladesh. The country contributed 1.40% of world tea production and shared 0.10% of global tea export in 2010. Tea sector plays a significant role in the national economy through employment generation; export earnings as well import substitution and poverty reduction in rural areas. At present there are 172 tea estates and 357 small growers/holders have devoted an area of 116,264 ha for tea plantation out of which 56,846 ha been brought under tea cultivation in 2011. It provides direct employment to about one lakh twenty thousand poor people, 50% of whom are women. Tea industry struggling with various adversities has increased per hectare yield from 639 kg/ha in 1970 to 1245 kg/ha in 2011. Bangladesh produced only 59.13 million Kg of tea and consumed 58.50 million Kg of tea (370 grams/per head) in 2011. The scenario of Bangladesh Tea has been changing rapidly in recent years. Tea in Bangladesh was mainly for export oriented in the past. Due to increased tea drinking habit, population growth and rapid urbanization domestic consumption has been increasing at about @ 4.10% per annum. The rate of export has been decreasing @ 8.92% per annum due to lack of exportable surplus caused by a slow rate increase in production, i.e. @ 1.03% per annum, for the last 10 years (from 2002 to 2011). For instance, in the 1980s (1980-1989) Bangladesh exported on an average 68%, in the 1990s (1990-1999) 50%, in the 2000s (from 2000 up to 2009) 19% and in the 2010s (2010-2011) 2% of its produce. If these trends continue, export will soon shrink to standstill and even the country will a net importer of tea to meet local demand by 2016. Total turnover of Bangladesh Tea Industry was about Tk.9232.56 million, internal consumption accounts for about Tk.9134.19 million and export of tea Tk.229.53 million in 2011. The rate of investment in tea is very low, i.e. 3.64% per annum (1979-2008), which has caused a slow growth of tea production. The sharp increase in internal consumption of tea with tight supply has resulted in an extraordinary demand for tea in Bangladesh. At its present rate of increase population will be about 182.31 million and domestic requirement of tea will be about **84.06 million kg (461 grams/per head) and production will be 73.63 million kg by 2025**. Thus production must be increased by investments in field, factory, labour welfare and human resource development to meet internal demand and maintain export share to earn foreign exchange. This article has analyzed systematically for assessing the amounts of investment to be required in different fields for sustainable development of Bangladesh tea industry.

1.1. Bangladesh Tea Production

Tea production in Bangladesh maintained an upward trend with an annual average rate of increase of 1.03% and on an average produced 57.75 million Kg of tea annually during last ten years (2002-2011). It is mentioned that there are 35 countries of the world contributed 4,162.00 million Kg of tea in 2010. Bangladesh ranked 10th highest producer for production of 60.04 million Kg in 2010. In 2005 Bangladesh produced 60.14 million Kg, which was the record production in the country as shown in figure-1. After 2005 Bangladesh tea has experienced low of diminishing return to its production function.

Figure-1



1.2. Productivities of Bangladesh Tea Compared to Other Some Tea Growing Countries

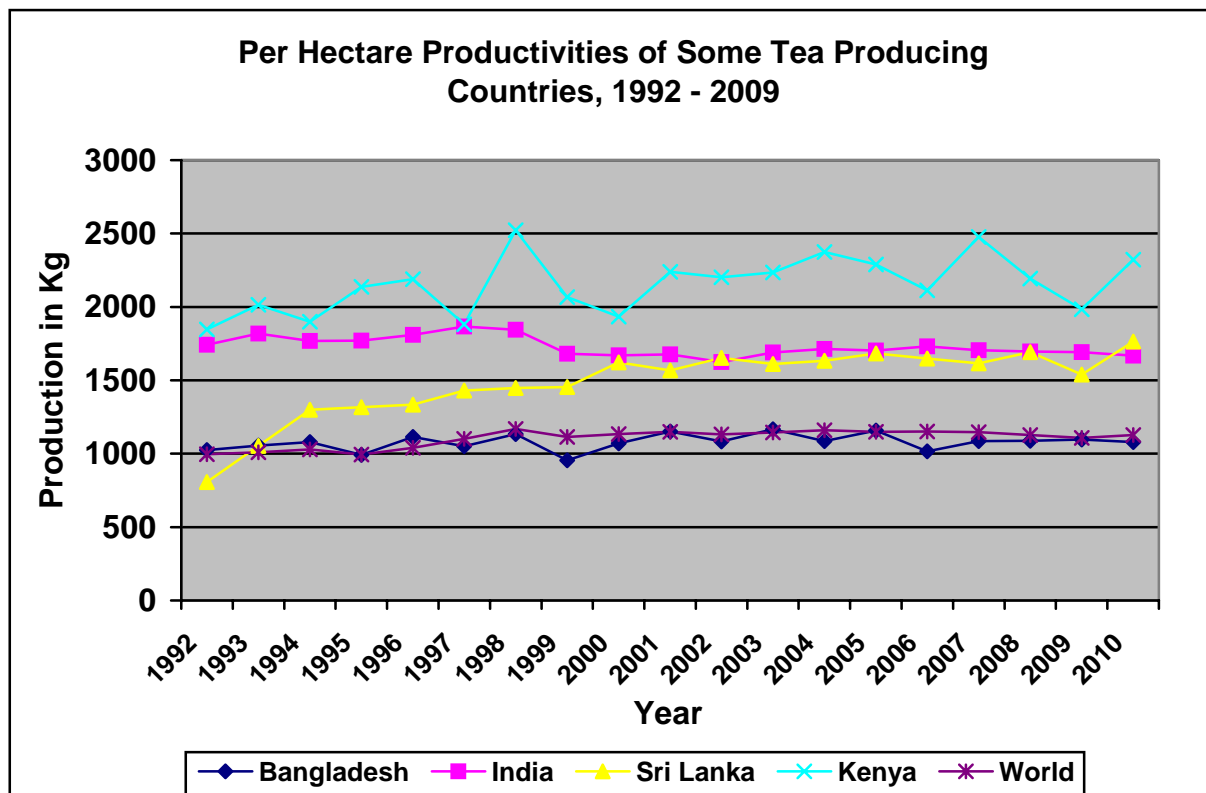
1.2.1. Per Hectare Productivity of Bangladesh Tea

The annual global per ha productivity of tea is 1127 Kg in 2010. Though Bangladesh maintained an upward trend of tea production per year at 1.03 percent during the last ten years (2002-2011) per ha productivity of tea is still very low due to lack of sufficient investment. The annual per ha productivity of tea in Bangladesh is only 1079 Kg, which is very low compared to 1668 Kg in India, 2321 Kg in Kenya and 1763 Kg in Sri Lanka (ITC, 2011: pp. 42,47). For this reason the cost of production in the country is higher compared to these countries. Since there is a comparative advantage in Bangladesh tea and scope for further expansion exists Bangladesh will have to increase quality tea production through infilling, replanting and extension as well as balancing, modernisation, replacement and extension of tea factories and human resource development. To reduce the cost of production, to make the tea production cost effective, profitable and to make the entire industry economically viable and to maintain the exportable surplus at least static, after meeting the increasing domestic consumption Bangladesh needs to go for a massive investment programme for the tea sector.

1.2.2. Per Hectare Productivities of Some Tea Producing Countries

The trend of annual per ha productivities of some tea producing countries along with world average production has been depicted in figure-2. It appears from the figure-2 that since 1992 Kenya has been leading the tea producing countries with respect to productivity. It appears from the trend line that the gap between the countries possessing the higher productivities and Bangladesh has widened during the period. It may be pointed that per hectare productivities of Bangladesh tea have even gone down from world average productivities in 1995, 1997, 1998, 1999, 2000, 2002, 2004, 2006, 2007, 2008, 2009 and 2010.

Figure-2



1.3. Investment Position in Bangladesh Tea

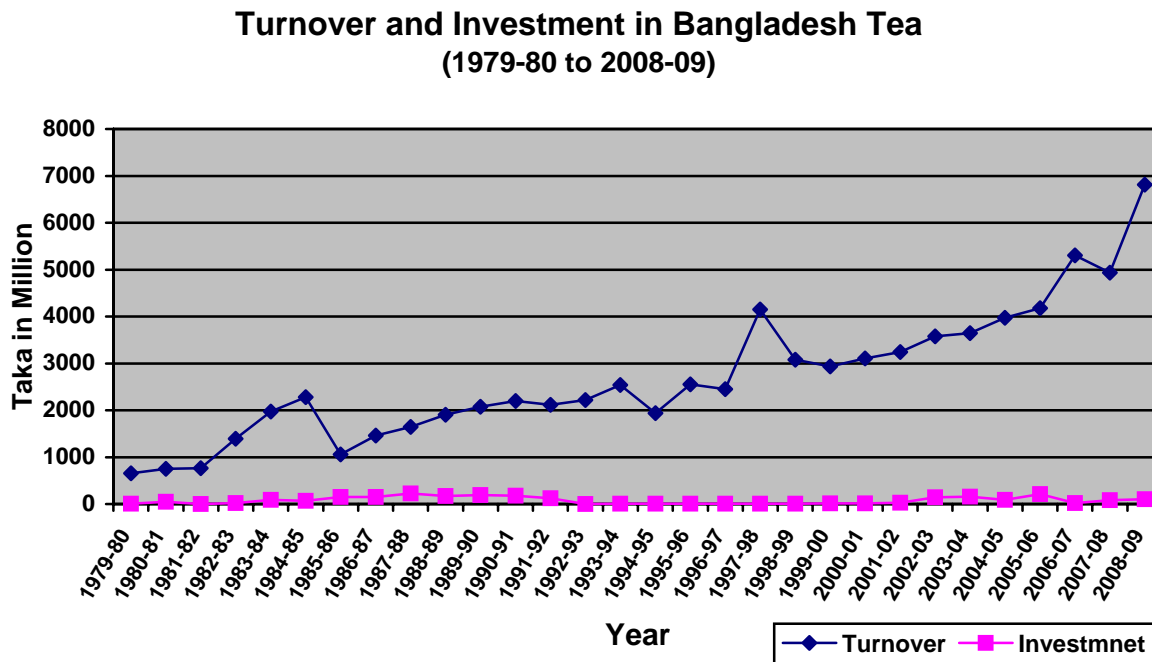
Investment in Bangladesh tea is very low compared to national investment. The growths of turnover and investment in tea have been shown in figure-3. Bangladesh Tea has developed itself as an agro-based, labour intensive and export oriented sector and plays an important role in the national economy through export earnings, trade balancing, import substitution and employment generation. Bangladesh tea dates back to 1854 when the first tea estate was established at Malnicherra in Sylhet. Presently Bangladesh has 172 tea estates with grant area 116,264 hectares of which 56,846 ha. (2011) i.e. 48.89% is under tea cultivation. Tea estates in Bangladesh are predominantly in the private sector. Managements are the only players for investments in tea estates. The private owners possess 97.54 per cent of grant area and Bangladesh Tea Board owns remaining 2.46 percent of land, which is a statutory body under the Ministry of Commerce.

Srimangal in Moulvibazar, called as the tea capital of Bangladesh, is the main center of tea area commonly known as Surma Valley. Greater Sylhet, the tea granary of Bangladesh, has 133 tea estates. Besides

quality tea is also grown 23 tea estates in Chittagong and Chittagong Hill Tracts known as Halda Valley of Country's famous tea growing areas. Tea cultivation has also started in 2000 in 16 tea estates in Panchagarh, the northern district of the country.

Though tea industry suffered a serious setback in 1971 but Bangladesh could succeed in reversing with the help of the government, foreign assistance and hard work of planters. Per ha yield has increased from 500 Kg per ha then to over 1240 Kg per ha today. The country is planning to increase its production to an average of over 1500 Kg per ha in a few years time. Bangladesh Tea Board has undertaken measures to improve the quality of tea by extending the area with new varieties of hybrid clones, modernizing factories and improving infrastructure. The annual production of tea is now 59.13 million Kg of made tea (2011). Investment in Bangladesh tea is very low compared to national investment. The growths of turnover and investment in tea have been shown in figure-3. While the turnover is increasing in tea, the investment is decreasing in Bangladesh tea.

Figure-3



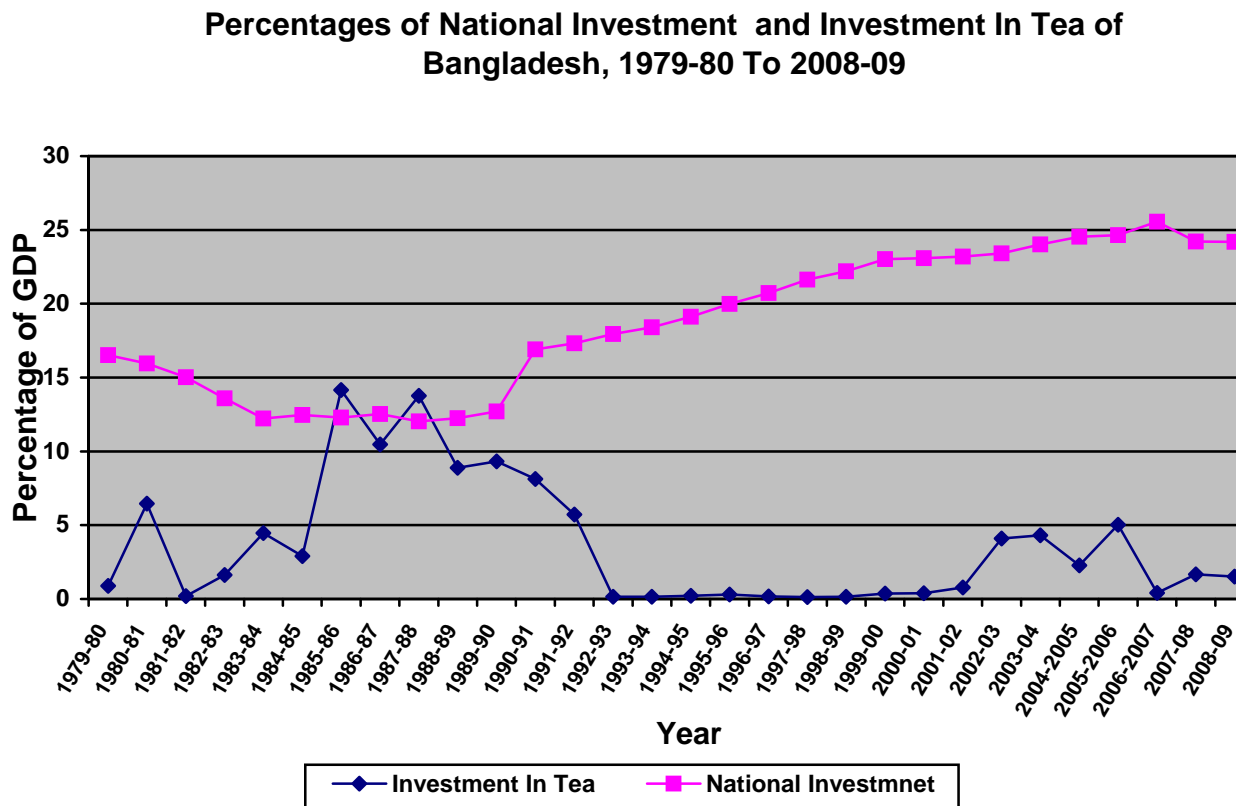
1.4. Investment Scenario at Bangladesh Tea in comparison with overall Investment in Bangladesh

In broad sense, three kinds of investments are made in tea such as field, factory and human resources development activities. In literal sense, there was no significant investment in tea just after the Independence, 1971. Later on massive investment project named Bangladesh Tea Rehabilitation Project (BTRP) with Tk.1424.78 million was implemented during 1980-1981 to 1991-1992. But after the termination of the BTRP there was no significant investment in tea until 1999-2000. In 1999 GOB with the help of EC introduced a Revolving Fund with an amount of Tk.250 million. The fund has been being spent since 1999-2000 to 2003-2004 for the development of field, factory and labour welfare (housing, sanitation and water supply) of tea estates. The GOB also introduced a Special Fund for Tk.450 million for the years 2001-02, 2002-03 and 2003-04. The fund

has been being spent for capital investment in tea. However, the rate of capital absorption by the tea estates is low compared to national investment in Bangladesh. The national investment as percentage of GDP ranges from 12.03 to 25.55 in the country. But the investment as percentage of total revenue earned by tea all estates ranges from 0.12 to 14.15. Further the investment as percentage of GDP is 24.20 in 2008-2009; whereas investment as percentage of total revenue earned by tea estates is 1.51. This implies that the rate of growth of investment in tea sector is very low compared to aggregate investment in Bangladesh Economy.

While the rate of average national investment is around 18.72 percent of GDP per year, the rate of investment in tea is only 3.64 percent of turnover per year for the last 30 years from 1979-80 to 2008-09. Even the present rate of investment in Bangladesh tea is less than 1 percent per year. Percentages of national investment and investment in tea of Bangladesh is shown in figure-4.

Figure-4

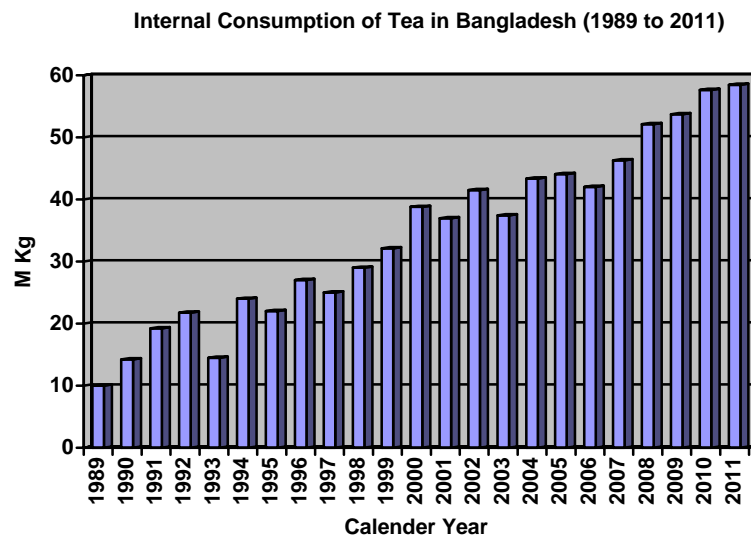


Development of tea industry requires huge long-term investment. The tea estate owners and small growers/holders are not capable enough to invest such huge amount of money. As such government intervention is of prime importance to increase investment in this sub-sector. Bangladesh Tea got financial supports during 1979-80 to 1991-1992, 1999-2000 to 2003-2004 and 2001-02 to 2003-04 from Government of Bangladesh, United Kingdom and European Union. It is seen from the figure-4 that the rates of investment were higher during the period. After 1991-92 investment slowed down until 1999-2000. Rate of investment started to grow from 2000-2001 due to government intervention. Therefore, Bangladesh tea requires requisite finance, with low rate of interest, and easy terms and conditions, from government as well as foreign aid for boosting up its investment.

1.5. Internal Consumption of Tea in Bangladesh

Demand for tea has been increasing in Bangladesh since its independence due to increased tea drinking habit, higher income, population growth and rapid urbanization. Trend of internal consumption has been shown in figure-5. Production of tea has been increasing at a rate of 1.03% per year, while the demand for has been increasing at a rate of 4.10% per annum over the last 10 years (2002 to 2011). Due to low level of production and higher rate of internal consumption for tea supply in the market could not keep pace with the demand. As a result prices of teas have been increasing. Lower level of production reduces exportable surplus of tea.

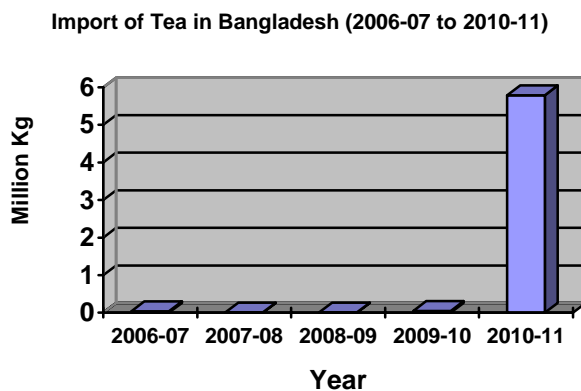
Figure-5



1.6. Import of Tea for Meeting Internal Consumption of Tea in Bangladesh

Though Bangladesh is not a net tea deficit country, it has started import of tea since 2006-07 as shown in figure-6. The tea traders imported record highest quantity, 5.79 million Kg of tea, in 2010-11. Import of low priced tea has already created serious consequences for domestic industry. For example, price of tea for Bangladesh in action fell down and large quantity of tea remained unsold due to withheld of two auctions (nos. 14 & 15) in 2010-2011.

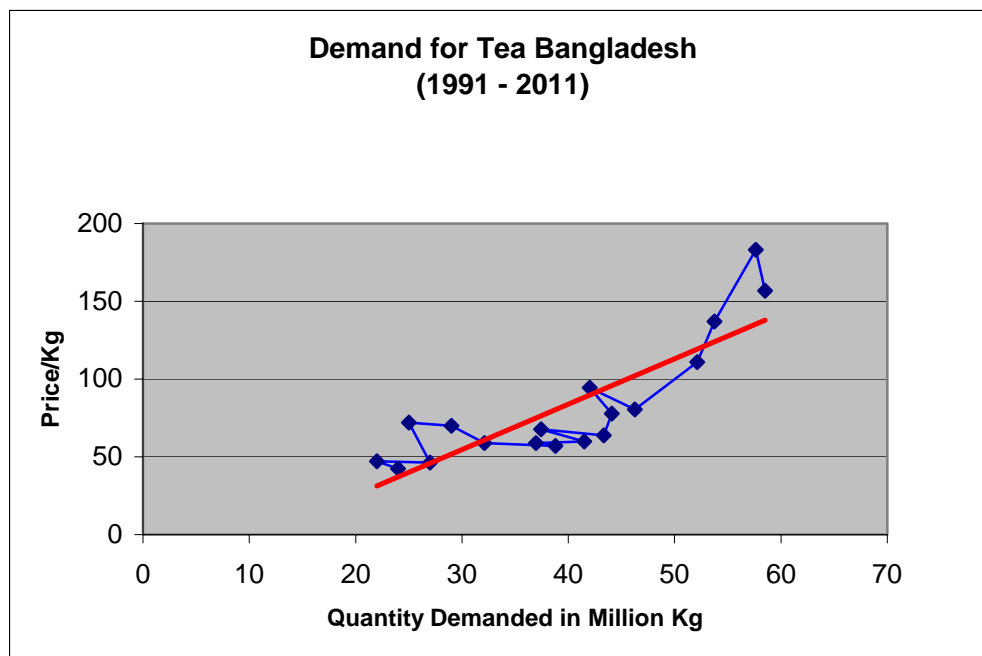
Figure-6



1.7. Extra Ordinary Demand Function for Bangladesh Tea

In the present context if demand for tea during the last 21 years are plotted against prices (1991 - 2011), demands curve will be upward sloping as in figure-7:

Figure-7



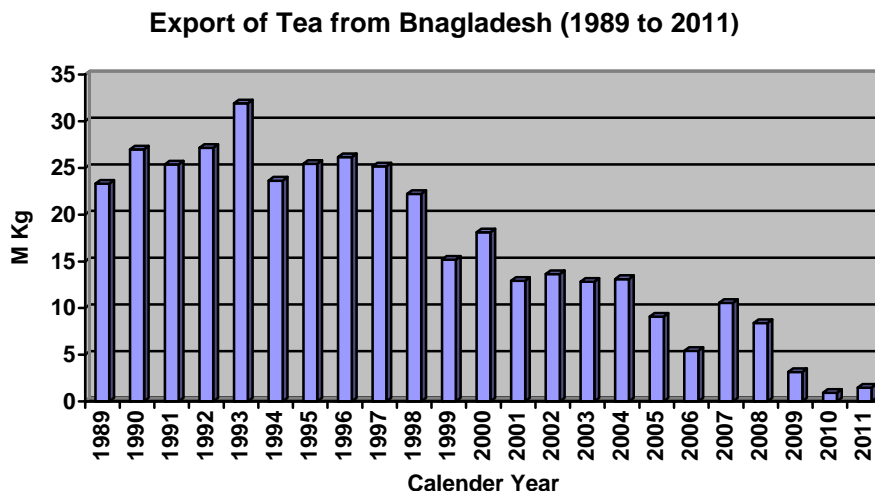
Reasons for having an upward sloping demand curve:

1. Tea sector is unable to supply enough tea for internal consumption as well as for export market due to slow growth.
2. Basic requirement of tea of the consumers has not yet been fulfilled in this country.
3. Only 30% of the people of Bangladesh consume tea, which has been increasing
4. If 50% of the total population consumes tea, huge quantity of tea will have to be imported now.
5. Price of tea in Bangladesh is high due to protection. For example, nominal protection coefficient on tradable output in Bangladesh tea is 1.32 that implies the producers are getting 32 percent more in the internal market than what it would be in the world market. Nominal protection coefficient on tradable inputs in Bangladesh tea is 0.96, which implies that the producers pay for tradable inputs 96 percent of the world prices or opportunity costs of the inputs due to protection. Effective protection coefficient in Bangladesh tea is 1.50, which implies that protection of domestic market helps the traders to get 50 percent more value added in the internal market than what it would be in the world market. However, domestic resource cost ratio in Bangladesh tea is $0.78 > 1$ that implies comparative advantage is available in this sector. Thus interested entrepreneurs can invest to obtain comparative advantage that exists in Bangladesh tea (Ahmed, 1999: pp. 139-141).
6. Finally once basic requirement for tea is met and then demand for tea will be lower than the present rate in this country.

1.8. Export Position of Bangladesh Tea

Export of tea from has been declining @ 8.92% for the last 10 years (2002-2011) due to lack of exportable surplus. Bangladesh exported 31.91 million Kg of tea in 1993 as shown in figure-8. The last year the country only exported only 1.47 million Kg of tea due to lack exportable surplus.

Figure-8



1.9. Need for Development of Bangladesh Tea

Due to increased drinking habit, population growth, higher income, rapid urbanization domestic consumption of tea is rising. At present rate of population growth @ 1.6%, population will be about 182 million and our domestic requirement of tea will be about 80 million Kg and domestic tea production will be 71 million kg by 2025. The tea industry has the potentiality and capability to increase production. At the moment tea sector needs a substantial investment like BTRP making a breakthrough to produce additional tea to the tune of 40 million Kg for meeting internal demand and retaining traditional export market up to 2025.

2.0. Scope for Development of Bangladesh Tea

The tea industry has the potential and capability to increase production. The present national average yield is only 1240 kg/ha and average land use in tea is only 48.89%. The country has vast area suitable for further extension. For example, about 6,106 ha suitable land is available in 172 tea estates for new extension. In Bangladesh, there is a little scope for opening large tea estates as the provision of large grant area has almost come to an end. Neither large holding khas land is available nor is it practically feasible to open large tea estates by purchasing land. So it has become imperative for the policy makers to explore the possibilities of establishing small holding tea plantations in the suitable areas of the country. A comprehensive feasibility study was conducted in 2002 by Bangladesh Tea Board through **PMTC (Bangladesh) Ltd** with financial support of European Commission in Northern Bangladesh (Panchagarh & Thakurgaon), three hill districts (Rangamati, Kagrachari & Bandarban) and the traditional tea growing areas of greater Sylhet and greater Chittagong districts. After examination of all parameters for growing tea, the study suggests that scientifically soil and climatic factors of Panchagarh and all the three hill districts have been found suitable for cultivation of tea. A total of 35,000 hectares in Panchagarh, 46,875 hectares in the three hill districts of CHTs and 3,500 hectares in the traditional tea areas of greater Sylhet and greater Chittagong could be brought under tea cultivation in the form of small holding tea plantation without any legal or administrative problems. Furthermore feasibility study was also conducted in

greater Mymensingh, Thakurgaon, Chittagong and Cox's Bazar districts in January and September 2004. It was mentioned in the study report that 4,067 ha of land in greater Mymensingh, 4455 ha in Thakurgaon and 7822 ha in Chittagong and Cox's Bazar districts are suitable for small holding tea cultivation. A substantial number of populations living below poverty line in these areas could be gainfully self-employed in small holding tea plantation. Bangladesh has 9,704.80 (17.08% of total plantation) ha very old and uneconomic tea that yields only 496 kg/ha. This tea needs to be replanted with improved varieties. If land utilization under tea is raised to at least 50% and yield to 1500 Kg/ha by replanting old & uneconomic teas, extension planting and intensive cultivation through better managements, production can be raised to about 87 million kg of tea in the organized sector by 2025. If 5000 ha of land can be brought under small holding tea cultivation, additional about 13 million kg of tea will be produced. Thus, if this plan is implemented the annual tea production will be about 100 million kg in 2025. The projected additional production to the tune of 40 million Kg of tea will earn Tk.800 crore annually. This additional income can contribute in developing the tea industry and the country as a whole.

3.0. Investment for Internal Consumption of Tea in Bangladesh

Tea consumed per head in Bangladesh is extremely low compared to the UK and neighbouring countries. Per capita tea consumption in Bangladesh is only 0.370 Kg compared to 1.97 Kg in the UK, 1.37 Kg in Sri Lanka, 0.62 Kg in Pakistan and 0.69 Kg in India (ITC, 2011: p 137). Though drinking habit does not have a very long history in Bangladesh, yet tea has become a very important part of Bangladeshi culture. In Bangladesh tea is considered as the cheapest health-drink next only to water. Tea consumption in Bangladesh is rising faster than production. Because the tea habit among the people in Bangladesh is increasing as a consequence of population rise, urbanization and with the improvement in quality of life (National Brokers Limited, 2002: p.8). However, the habit of taking tea is centred largely in the urban and industrial population, little tea being drunk in the village except to markets and trading centres where tea shops have grown up (Rahman et al, 1968, pp. 39-40). Urban population in Bangladesh accounts for 24.52% of the total population in 2001 (Bangladesh Bureau of Statistic, 2001: p.42). The development in urban could not surpass the rise in total population and per head consumption of tea could not increase in spite of quantity rise in internal consumption. The cross elasticity of demand for tea in Bangladesh is high because the extent of tea drinking depends on the prices of the complementary inputs of sugar and milk. However, the potential domestic market for tea is difficult to estimate (CDC, 1973, p.91). According to BTB's record internal tea consumption in Bangladesh rose to 58.50 million Kg in 2011 from 1973's 8.93 million Kg. If per capita tea consumption of the country increases to 60% of India's or 65% of Pakistan's current tea consumption with present rate of increase of production, Bangladesh will not have any exportable surplus even now. Instead of exporting we may have to import tea from outside with adverse impacts on the country's foreign exchange earnings.

3.1. Internal Tea Market: the Prevailing System of Supplying Teas to the Domestic Consumers:

Any teas produced are disposed of either to exporters or internal consumers in the forms of loose teas, packet teas or tea bags. Presently internal consumers are increasingly becoming quality conscious and expecting teas with good liquor. The active participation of internal buyers contributes towards achieving higher average price at Chittagong auctions (National Brokers Ltd., 1994: pp.4-7). The numerous loose tea traders who are registered with the BTB as wholesalers and retailers dominate domestic market. The wholesalers and retailers purchase their requirements from the bidders at the auctions with remuneration agreed between them.

Though there are 205 blenders registered with the BTB, the blending and packaged tea industry is dominated by only ten major blenders and packeteers in domestic and export market. During the Pakistan regime and even in the early days of independence Bangladesh government formulated policy to influence the market

price by equating supply and demand for teas (EWP Associates, 1971: pp.1-2). However, presently there is no control of price of teas. The packet tea industry has a market structure of monopolistic competition dominated by the five multinational companies, for example, Duncan Brothers (Bangladesh) Ltd., Deundee Tea Company Ltd., the Consolidated Tea & Lands Ltd, Unilever (Bangladesh) Ltd., & Tetley and six local companies namely Abul Khair Consumer Product Ltd, HRC Syndicate Ltd., M M Ispahani Ltd., Monir Sha & Sons, Ahmad Trading & National Tea Company (BTB, 2012).

The gradual increase in total consumption may be further accelerated with the rise in total population as well as industrialization and urbanization in the country. Presently some of the multinational and local companies have been advertising through radio, television and newspaper for market promotion of tea. Better quality tea with proper blending and concerted market campaign can render Bangladesh tea as a commodity in the targeted domestic consumers. Foreign buyers can also pick up their teas by choice if the internal market forces are organized and brand names and grades of teas are firmly established. Internal market of tea is becoming important because of increasing domestic consumption of tea. Teas are supplied to the internal market either through the Chittagong auction or through direct sale by the producers in bulk or valued added form i.e. packet tea or tea bags.

3.2. Retailers and Wholesalers:

Internal market deals with retail and wholesale business of tea for domestic consumption. There are 2,810 retailers & wholesalers, 558 bidders, 205 blenders and 8 brokers registered with the BTB. However, the actual numbers of retailers & wholesalers that have been trading tea in internal market may be high. The retailers and wholesalers get their supplies of loose teas through the bidders from the auction as well as from the estates through ex-garden or direct sale of tea. They get these supplies of packet tea or tea bags from the blenders/packers for retailing. The retailers and wholesalers mainly conduct internal tea trade in Bangladesh.

3.3. Blenders and Packers: Value Addition to Tea (Packet or Tea -Bags):

3.3.1. Value Addition at Estate Level:

Sales of packet tea directly from estates have emerged as one of the alternative marketing system to the auction. More recently (since 1992) estates are allowed to add value to their teas by packing up to 15% of output and sell directly from the estates to the internal market. For example, three of the Sterling Companies (James Finlay PLC, Duncan Brothers (BD) Ltd and Deundee Tea Company (BD) Ltd) and three of the local companies (M M Ispahani Ltd., HRC Syndicate Ltd and National Tea Company Ltd) have been packing teas in estates and selling under their teas with own brand names through the retailers and wholesalers as well as directly to the consumers from their showrooms. Apart from these other blenders namely Abul Khair Consumer Products Ltd., Monir Sha & Sons and Unilever (BD) Ltd. have also been engaged in packing tea with the supplies purchased from auction for internal market.

3.3.2. Value Addition (Packet or Tea-Bags) to Tea Purchased from Auction:

Tea blenders in Bangladesh are licensed with the Tea Board. Any blenders must have licenses as wholesaler and retailer as well as bidder before initiating. A blender can buy tea directly from the auctions if the firm is a member of the Tea Traders Association of Bangladesh; otherwise they have to get their supplies from the bidders with agreed remuneration between them.

Loose teas are graded as clone, best-seedling, medium and low quality teas. Other than these there are no particular brand names for selling of loose teas. Blending and packing of tea add value to the finished commodity to be supplied to the consumers who prefer blended and packed tea to loose tea because of correct weight and

consistent quality (Rahman et al, 1968: pp. 74). Likewise packet tea, loose tea also undergoes certain form of manual blending, however, such blending is more in the nature of adulteration (EWP Associates, 1971: p.44-47). Most of the blenders in Bangladesh operate their packaging as a part of their business activities (EWP Associates, 1971: p.3).

3.4. Monopolistic Competition for Tea Market:

Teas are marketed internally with multiplicity of band names in monopolistic competition with slightly differentiated products. Prices of teas in the auctions vary according to the appearance and liquor quality of teas. Tea estates having well equipped factory, sound financial footing and efficient management can produce quality teas at optimum rate of output at lower cost which in turn brings more profits for the owners of the estates. The small estates produce teas at high costs. In addition, the quantity of their products is not good enough to fetch remunerative prices (Alam et al, 1993: pp.10-20, 23). Thus, the efficient producers of tea can minimize the cost of production and earn more profits like as in other monopolistic markets.

3.5. The Issue of Production Differentiation vis-à-vis Establishment of Brand Names:

3.5.1. Brand Name on the Basis of Estate Origin

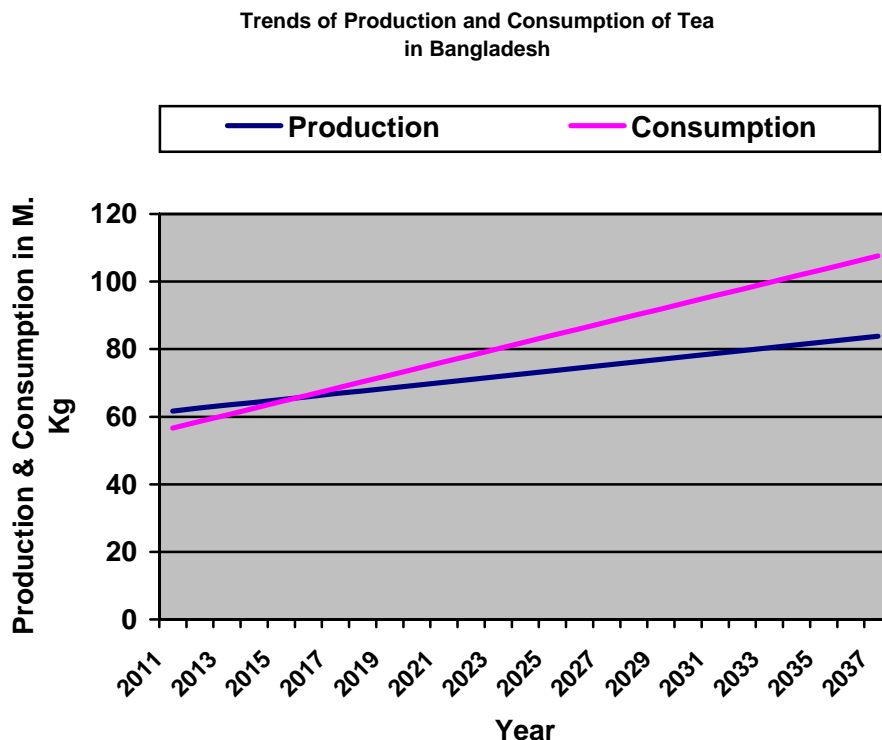
Teas are sold in the auctions under the brand names of each estate. Teas manufactured by tea estates in Bangladesh are packaged in chests with their own brand names, which contain all the necessary marks indicating names of estates, quality and weight. Manufactured teas are classified as clone (vegetative propagated) tea and seedling tea according to origin of products. Teas are also divided into three types on the basis of manufacturing practice such as CTC (Crush Tear Curl, 99.50%), Orthodox (0.00%) and Green Tea (0.5%). CTC teas as produced in Bangladesh are also classified into ten grades on the basis of the sizes of grains. For example, (1) Flowery Pikoie (FP), (2) Flowery Broken Orange Pikoie (FBOP), (3) Broken Orange Pikoie (BOP), (4) Golden Broken Orange Pikoie (GBOP), (5) Orange Fannings (OF), (6) Flowery Orange Fannings (FOF), (7) Pekoie Dust (PD), (8) Red Dust (RD), (9) Dust and (10) Churamani Dust (CD).

3.5.2. Required Level of Investment for Internal Consumption of Tea in Bangladesh

Area, production, internal consumption, per head consumption, surplus of tea for export from Bangladesh, export and export earnings is shown in **Annex-1**. It appears from **Annex-1** that production increased by 2.94% in during 1973 to 2011. However, increasing local consumption @ 14.23% mostly absorbed this growth. Thus the exportable surplus of tea is gradually decreasing over time due to exorbitant rise in internal consumption. It also appears from **Annex-1** that the tea production fallen down from 31.38 million Kg of 1970 to 12.45 million Kg in 1972 due to devastating war of liberation in 1971. However, production recovered up to 1970 level in 1974. Thereafter production has been increasing on an average at 2.94% per year. Internal consumption has been incasing on an average at 14.23% per year from 1973. With most of production now retained locally, there are concerns of not being available for export, unless otherwise production is increased. Bangladesh Tea Board is planning to intensify efforts to make available more tea for both domestic and export markets (ITC, 2002: p. 32). The trends of production and internal consumption as shown in **Annex-1** have been plotted in **figure-7**. It is evident from **figure-7** that all other things remain constant; the country will be a net importer of tea from 2016, when consumption and production will be 66.43 million Kg and 65.96 million Kg respectively. There will be a shortfall of 0.47 million Kg for internal consumption of tea in 2016. In the year of 2025, total production and internal consumption of tea in Bangladesh will be 73.63 million Kg and 84.06 million Kg respectively. Thus, there will be shortfall of 10.43 million Kg in 2025. For producing extra 10.43 million Kg of tea @ 1,500 Kg of tea per ha an area of about 6,953 ha needs to be brought under tea. For extension of 6,953 ha under tea @ Tk.3.00 lakh per ha an amount of Tk.20859 lakh will be needed. The vacancies in the 20% of exiting plantation (11369.20 ha) need to be infilled, which requires Tk.17053.80 lakh (@ total number of plant is 15000 per ha and Tk.10.00

per plant). Further 17.08% of old and uneconomic tea (9,704.80 ha) needs to be replanted, which requires Tk.33190.42 lakh (@ Tk.3.42 lakh per ha).

Figure-9



Hence total investment in the field will be Tk.71103.22 (Tk.20859 + Tk.17053.80 + Tk.33190.42) lakh. The cost of investment may rise with the increase in the cost of inputs and rate of inflation. The capacity of the existing tea factories may be extended or new tea factories needs to be established for manufacturing that quantity of tea. It is found from empirical study that investment in factory is 92% of field investment. Thus for this purpose of manufacturing of extra green leaf Tk.65414.96 lakh will be required for investment. Therefore, an investment of Tk.136518.18 lakh in the next 10-15 years will be needed to meet the internal demand for tea in the country. Otherwise the hard earned foreign exchange to the tune of Tk.20860 lakh will be needed for import of 10.43 million Kg of tea annually. The rate of import will be increased gradually with the increase in the growth of population and urbanization in the country.

4.0. Investment for Retaining Export of Tea from Bangladesh

Tea is one of the major exportable commodities of Bangladesh. There are about 35 tea growing countries in the world of which more than 31 countries exported their teas (ITC, 2011: pp.42, 47, 57). Bangladesh contributed 1.40% of world tea production and shared 0.10% of global tea export in 2010 (ITC, 2011: pp. 48, 58). Tea in Bangladesh was mainly export oriented in the past. But due to increased tea drinking habit, population growth and rapid urbanisation domestic consumption has been rising to a noticeable extent. If it

continues at this rate and production does not keep pace, export will soon shrink to a stand still and even tea may have to be imported in near future.

Bangladesh tea had a captive export market in few countries of the world and the country was quite comfortable by exporting to those countries without many endeavours. The scenario has changed in recent years because of open market economy, emergence of new entrants in world tea market with low priced tea, unfavourable price trend, trade and tariff barriers and inadequate promotional activities. The situation has come to such a stage that if we do not go for right steps at this stage to overcome this situation, we will be simply out of the world tea market in near future.

4.1. Existing Tea Marketing System in Bangladesh

Marketing system of Bangladesh tea is defined as the process of sale of manufactured tea in bulk or in packet from tea estates to the buyers at Chittagong Auction or at estate level from where teas are sold with prior permission of Bangladesh Tea Board either directly to overseas buyers or to internal traders. Tea Auction is held every Tuesday at Chittagong, a major port city with sufficient warehouse and port facilities and well connected by road, railways and air. Tea Traders Association of Bangladesh organizes the weekly tea auction in Chittagong through the appointed tea brokers of BTB. Most of the Bangladesh tea is exported in bulk and in blended form.

4.2. Existing External Market for Tea in Bangladesh

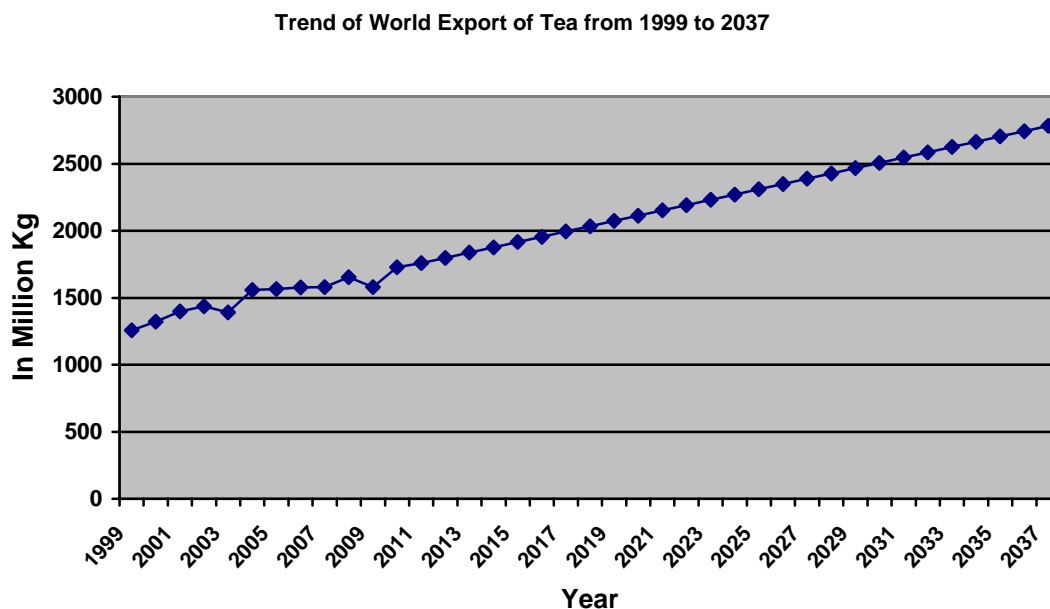
Prior to 1971, Pakistan was the largest consumer of Bangladesh tea. With the emergence of Bangladesh, the captive market of Pakistan was lost. A number of high-powered delegations visited several countries in both traditional and non-traditional markets in an attempt to re-introduce and market in the name 'Bangladesh tea'. Such aggressive export marketing was essential to cater for surplus teas of the country and earn much-needed foreign exchange. Barter trades with Russia, Poland and Egypt during 1973 and afterwards helped the country in gradual opening of new outlets. In 1980s, export of Bangladesh teas to Pakistan boosted up through the signing of Special Trade Agreement (STA). Recently Pakistan Government allowed tariff facilities in importing tea from Bangladesh and as a result export of Bangladesh teas to Pakistan has been increasing. At present the major buyers of Bangladesh teas are China, Japan, Kingdom of Saudi Arabia, Kuwait, Pakistan, Qatar, United Kingdom and United Arab Emirate ([Bangladesh Tea Board \(BTB\), 2012](#)).

Bangladesh plays an insignificant role in global trade and is not capable of influencing either the international price or the terms and conditions in international tea trade. Exports of our teas have been registering a downward trend for some years. This downward trend is noticeable both in volume and in foreign exchange earning. Domestic consumption has shown an upward trend for some years and is likely to remain so. Despite variation in the total volume of tea produced by Bangladesh on year-to-year basis and, a downward trend in export, there has remained small surplus tea to export. Prices both in the local and in the export market have fluctuated widely in recent years.

4.3. World Export of Tea

The world export of tea has been increasing at the rate of 2.86 percent for the last 16 years starting from 1995 to 2010. The regression line for these data, as stated in **Annex-2** is $E_w=1088.80+39.37t$, where t stands for time. The estimated world export of tea as on the regression line of $E_w=1088.80+39.37t$, will be 2309.27 million Kg in 2025. If the trend values are plotted in a graph one will get a curve like in **figure-8**

Figure-10



4.4. Investment for Retaining Export of Tea from Bangladesh

Presently, Bangladesh shares only 0.10 percent of the world export of tea. Bangladesh used to share 1 percent of the world export. The share of Bangladesh in the world export of tea, i.e. 1 percent of the world export of tea should be 23.09 million Kg in 2025. Thus, to produce 23.09 million Kg of extra tea in 2025, @ 1500 Kg/ha, the country will need to bring 12973 ha under tea. The investment cost for bringing 12973 ha under tea will be at least Tk.38919.00 lakh @ Tk.3.00 lakh per ha extension. For manufacturing the green leaf, which will be produced on 12,973 ha at least, Tk.35805.48 lakh (92% of field investment) will be needed. Therefore, the total investment cost will be Tk.74724.48 lakh for the next 10-15 years. The approximate value of export of 23.09 million Kg will be Tk.46180 lakh (@ Tk.200/Kg), i.e., the value of export of two year will be more than the total investment cost. It may be pointed out that there will be no so much land in the organised sector of large tea estates for producing extra tea for export. For this purpose new avenue like small holding tea cultivation will have to be started.

4.5. Investment Strategy for Retaining Export of Bangladeshi Tea in the World Market

This is the age of Open Market Economy. Globalization and liberalization are the distinct features of the present world. The investment strategy should be planned for focusing on the health aspect of drinking tea to safeguard the interest of both the local and international consumers and to compete with other tea exporting countries like India, Kenya and Sri Lanka. The investment strategy should be designed with a view to retain existing market and to expand it. The prospect for export of larger quantity of tea from Bangladesh is likely to be hampered unless the country can raise its tea production to meet the ever-increasing demand for internal consumption. Therefore, the main task of the country is to increase tea production to sustain the present markets. It will require fund for investment in tea cultivation for which active support and assistance from Government of Bangladesh along with donors and co-operation from Bangladeshiyo Cha Sangsad (BCS), Tea Traders Association of Bangladesh (TTAB), i.e., the private sector as a whole are urgently needed.

5.0. a. Hypotheses of the Study:

- (a.1). Exportable Surplus has been decreasing due to abrupt increase in internal consumption.
- (a.2). Export has been decreasing due to decrease in exportable surplus.

Therefore, production should be increased through investment to meet internal demand and to retain the export market of Bangladesh Tea.

5.1. Test of Hypothesis:

Hypothesis-I: Exportable Surplus has been decreasing due to abrupt increase in internal consumption.

The Regression Equation:

$$Y = \alpha - \beta X$$

where Y = Exportable Surplus

X = Internal Consumption

α = Intercept

β = Slope parameter

$$Y = 47.83748 - 0.789443 X$$

The regression analysis with data for the last 7 years (2005-2011, **annex-1**) shows that the t value of the slope is – 6.046. The t value for 97.50% confidence is 2.447 with 6 degrees of freedom (one- tailed test). Thus, 97.50% confidence interval is obtained for β . One can say with 97.50 confidence that there is significant relationship between X and Y variables. Furthermore, P-Value is 0.001784, which implies that 0.1784 percent of the t distribution lies outside an interval of t_c standard deviation from the estimated slope parameter (Pindyck & Rubinfeld, 1991. pp.56-57). The empirical study shows that exportable surplus is negatively related with the internal consumption, which implies that the exportable surplus decreases with the increase in internal consumption. Thus, to increase exportable surplus production must be increased by massive investment.

Hypothesis-II: Export has been decreasing due to decrease in exportable surplus.

The Regression Equation:

$$Y' = \alpha' + \beta' X'$$

where Y' = Export

X' = Exportable Surplus

α' = Intercept

β' = Slope parameter

$$Y' = 1.458511 + 0.634195 X'$$

The regression analysis with data for the last 10 years (2002 to 2011, **annex-1**) shows that the t value of the slope is 3.863392. The t value for 99.995 percent confidence interval is 3.169 with 9 degrees of freedom (one- tailed test). Thus, 99.995 percent confidence interval is obtained for β' . One can say with confidence that there is very highly significant relationship between X' and Y' variables. Moreover, P-Value is 0.004786, which implies that only 0.4786 percent of the t distribution lies outside an interval t_c standard deviation from the estimated slope parameter (Pindyck & Rubinfeld, 1991. pp.56-57). The empirical study shows that export is positively related with the exportable surplus, which implies that export increases with the increase in exportable surplus and vice versa.

The empirical relation as established with the tests of hypotheses between internal consumption, exportable surplus and export shows that abrupt increase in internal consumption causes to decrease exportable surplus with low growth of production, which in turn causes to decline in export of tea. Therefore, production should be increased through investment to meet the internal demand and to retain export of tea.

Annex-1:**Tea Area, Production, Internal Consumption, Per Head Consumption, Exportable Surplus, Export and Export Earnings of Bangladesh Tea.**

Year	Tea Area (in Hectare)	Production (in m Kg)	Internal Consumption (in m Kg)	Total Population (in m)	Per Head Consumption (in gram)	Exportable surplus (in m Kg)	Export (in m Kg)	Export Earnings (in m US \$)
1970	42,637	31.38	5.77	68.12		25.61	-	-
1971	42,928	12.45	-	69.77		-	-	-
1972	42,649	23.48	5.26	71.47	74	18.58	13.19	7.67
1973	42,866	27.55	8.93	73.21	123	18.62	20.31	11.03
1974	42,603	32.16	6.96	74.99	93	25.20	21.17	19.00
1975	42,396	29.01	8.01	78.96	102	21.00	24.10	21.00
1976	42,500	33.27	8.00	80.82	99	25.27	30.73	28.98
1977	43,343	38.04	8.00	82.71	97	30.04	25.97	42.46
1978	43,509	37.99	8.50	84.66	100	29.49	30.85	44.83
1979	43,730	36.13	4.50	86.64	52	27.63	31.86	29.12
1980	43,969	40.04	9.06	88.66	102	30.98	30.98	43.25
1981	44,544	41.32	9.00	90.46	99	32.32	29.19	38.14
1982	44,681	40.94	9.00	92.56	97	31.94	34.42	46.97
1983	45,256	43.73	9.00	94.65	95	34.73	29.99	56.67
1984	45,329	38.21	9.00	96.73	93	29.21	23.10	59.12
1985	46,446	43.29	9.00	98.66	91	34.29	30.31	47.38
1986	46,703	37.59	9.00	100.62	89	28.59	27.67	34.14
1987	46,588	40.61	10.00	102.56	98	30.61	21.61	29.12
1988	47,378	43.58	10.00	104.53	96	33.58	26.19	40.21
1989	47,439	39.08	10.00	106.51	94	29.08	23.43	38.80
1990	47023	45.89	14.21	108.12	131	27.68	26.97	45.29
1991	47284	45.03	19.21	111.50	172	25.82	25.38	38.06
1992	47665	48.94	21.77	113.11	192	27.17	27.16	32.43
1993	47670	50.51	14.50	114.90	126	32.01	31.91	42.63
1994	47751	51.66	24.00	117.70	204	27.66	23.64	29.00
1995	47920	47.67	22.00	119.90	183	25.67	25.43	32.07
1996	48337	53.41	27.00	122.10	221	26.41	26.15	32.28
1997	48616	50.52	25.00	124.20	201	25.52	25.16	40.45
1998	48570	55.83	29.00	124.77	232	26.83	22.22	38.56
1999	48510	46.19	32.11	126.95	253	14.08	15.18	20.17
2000	48678	52.65	38.79	132.42	293	13.86	18.10	23.11
2001	49313	56.82	36.95	134.34	277	19.87	12.92	16.04
2002	50226	53.62	41.50	136.29	307	12.12	13.65	16.31
2003	50896	58.30	37.44	138.27	267	20.86	12.82	15.69
2004	51265	56.00	43.33	140.27	305	12.67	13.11	14.83
2005	52317	60.14	44.08	142.30	307	16.06	9.09	11.26
2006	52407	53.41	42.00	144.36	290	11.41	5.40	9.23
2007	53667	58.19	46.27	146.45	316	11.92	10.56	12.84
2008	54105	58.65	52.12	148.57	350	6.53	8.39	14.28
2009	54804	59.99	53.74	150.72	356	6.25	3.15	6.34
2010	55702	60.04	57.63	152.91	346	2.41	0.91	2.42
2011	56846	59.13	58.50	155.13	370	0.63	1.47	
2012*		62.56	58.59	157.38	372			
2013*		63.41	60.55	159.66	379			
2014*		64.26	62.51	161.98	386			
2015*		65.11	64.47	164.33	392		-	-
2016*		65.96	66.43	166.71	398			
2017*		66.82	68.38	169.13	404			
2018*		67.67	70.34	171.58	410			

Year	Tea Area (in Hectare)	Production (in m Kg)	Internal Consumption (in m Kg)	Total Population (in m)	Per Head Consumption (in gram)	Exportable surplus (in m Kg)	Export (in m Kg)	Export Earnings (in m US \$)
2019*		68.52	72.30	174.07	415			
2020*		69.37	74.26	176.59	421	(-3.64)	-	-
2021*		70.22	76.22	179.15	425			
2022*		71.07	78.18	180.74	433			
2023*		71.93	80.14	181.00	443			
2024*		72.78	82.10	181.50	452			
2025*		73.63	84.06	182.31	461	(-10.43)	-	-
2026*		74.48	86.02	183.17	470			
2027*		75.33	87.98	184.53	477			
2028*		76.18	89.94	185.90	484			
2029*		77.04	91.90	187.28	491			
2030*		77.89	93.86	188.67	497			
2031*		78.74	95.82	190.07	504			
2032*		79.59	97.77	191.48	511			
2033*		80.44	99.74	192.90	517			
2034*		81.30	101.70	194.33	523			
2035*		82.15	103.65	195.77	530			
2036*		83.00	105.62	197.22	536			
2037*		83.85	107.57	198.68	541			

Sources: 1. ITC, 1981: p.85; 1989:p.108; 1991: p.116; 1994: p.114; 2002:p118; 2. World Development Report, 2003, A co-publication of World Bank and Oxford University Press, 198 Madison Avenue, New York NY 10016, USA. 2002: p. 234. 3. World Population Projections, 1994-95 Edition, Eduard Bos et al, A World Bank Book, The John Hopkins University Press, Baltimore Maryland 21211-2190, USA. 1994. pp. 134-135.

* **Estimated**

Annex-2

World Export of Tea vis-à-vis Bangladesh Export of Tea

Year	Number of Years	Actual World Export of Tea (in M. Kg)	Estimated World Export of Tea (in M. Kg)	Actual Bangladesh Export of Tea (in M. Kg)
1995	1	1094.49	-	25.43
1996	2	1127.18	-	26.13
1997	3	1203.79	-	25.17
1998	4	1299.12	-	22.23
1999	5	1257.49	-	15.18
2000	6	1321.94	-	18.10
2001	7	1397.82	-	12.92
2002	8	1436.68	-	13.65
2003	9	1391.80	-	12.18
2004	10	1559.03	-	13.11
2005	11	1566.29	-	9.01
2006	12	1578.56	-	4.79
2007	13	1578.96	-	10.56
2008	14	1653.06	-	8.39
2009	15	1580.12	-	3.15
2010	16	1728.81	-	0.91
2011	17	-	1758.09	1.47
2012	18	-	1797.46	-
2013	19	-	1836.83	-
2014	20	-	1876.20	-
2015	21	-	1915.57	-
2016	22	-	1954.94	-
2017	23	-	1994.31	-
2018	24	-	2033.68	-
2019	25	-	2073.05	-
2020	26	-	2112.42	-
2021	27	-	2151.79	-
2022	28	-	2191.16	-
2023	29	-	2230.53	-
2024	30	-	2269.90	-
2025	31	-	2309.27	-
2026	32	-	2348.64	-
2027	33	-	2388.01	-
2028	34	-	2427.38	-
2029	35	-	2466.75	-
2030	36	-	2506.12	-
2031	37	-	2545.49	-
2032	38	-	2584.48	-
2033	39	-	2624.23	-
2034	40	-	2663.60	-
2035	41	-	2702.97	-
2036	42	-	2742.34	-
2037	42	-	2781.71	-

Source: ITC, 2005: p.45; 2008: p.61 & 2011 p. 57.

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