

FOR OFFICIAL USE ONLY

56TH ANNUAL REPORT 2009-2010





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ORGANISATIONAL SET-UP & FUNCTIONS

Constitution of the Board

Tea is one of the industries, which by an Act of Parliament comes under the control of the Union Govt. The present Tea Board, set up under section 4 of the Tea Act, 1953, was constituted on 1st April 1954. It had succeeded the Central Tea Board and the Indian Tea Licencing Committee which functioned respectively under the Central Tea Board Act, 1949 and the Indian Tea Control Act, 1938 which were repealed. The activities of the two previous bodies had been confined largely to regulation of tea cultivation and export of tea as required by the International Tea Agreement then in force and promotion of tea consumption. The present Tea Board is charged with the overall development of the tea industry in India.

Organisation of the Board:

The Board consists of a Chairman and 30 members appointed by Government of India representing the different sections interested in the industry. The Board is reconstituted every three years. The list of current members of the Board (2008-09 to 2010-11) is annexed (Annexure-1)

Tea Board- Composition

- 3 members represent Parliament
- 8 members represent owner of tea estates
- 6 members represent govt. of principal tea growing states

- 2 members represent dealers including exporters and internal traders of tea
- 5 members represent labour union
- 2 members represent manufacturers of tea
- 2 members represent consumers
- 2 members represent other interests

The following are the standing committees of the Board:

1. Executive Committee
2. Export Promotion Committee
3. Labour Welfare Committee and
4. Development Committee

Executive Committee

This committee comprising 9 members including Chairman deals with the administrative matters of the Board.

Export Promotion Committee

This committee comprising of 7 members including Chairman advise Board on export promotion issue and monitors implementation of various promotional schemes being implemented by the Board.

Labour Welfare Committee

This committee comprising of 9 members including Chairman advise Board on issues relating to labour welfare measures which are not covered under the Plantation Labour Act, 1951. This committee guides the Board in implementation of various welfare schemes for the benefit of the plantation workers and their wards.

Development Committee

This committee comprising of 7 members including Chairman advise the Board on issues relating to improvement in tea production and productivity and this Committee is responsible for overseeing the various developmental schemes run by the Board.

Functions of Tea Board:

Briefly the primary functions of the Tea Board are as under:

- a) Rendering financial and technical assistance for cultivation, manufacture and marketing of tea.
- b) Export Promotion.



- c) Aiding Research and Development activities for augmentation of tea production and improvement of tea quality.
- d) Extend financial assistance to the plantation workers and their wards through labour welfare schemes.
- e) To encourage and assist both financially and technically the unorganised small growers sector.
- f) Collection and maintenance of Statistical data and publication
- g) Such other activities as are assigned from time to time by the Central Government.

Source of Funds:

Funds for the aforesaid functions are made available to the Board by the Government through Plan and Non-Plan Budgetary allocations.

The Non-Plan funds are being used exclusively for the administrative and establishment charges for which cess levied on tea is the major source. Funds for all other activities mentioned above are met from Plan Budget allocation.

Tea Cess:

Cess is levied on all teas produced in India under Section 25(1) of the Tea Act, 1953. The said Act provides for levying cess upto 50 paise per kilogram of tea

The Regional/Sub-Regional Offices which are under the direct control of Head Office, Executive Directors are located as follows :

Offices under direct control of Head office	Offices under Executive Director, Guwahati	Offices under Executive Director, Coonoor.
New Delhi Mumbai Siliguri Palampur Kurseong Jalpaiguri	Guwahati Silchar Jorhat Dibrugarh Tezpur Agartala	Coonoor Chennai Kochi Kottayam

Tea Board Research Centre.

The Darjeeling Tea Research & Development Centre is located at Kurseong under the charge of a Project Director.

produced in India. Currently, however, the cess is collected at the rate of 30 paise per kg. except Darjeeling teas for which only 12 paise per kg is levied. The Cess at present is collected by the Central Excise Department and credited to the Consolidated Fund of India after deducting the expenses of collection. Funds are released by the Central Government in favour of Tea Board from time to time on the basis of the sanctioned budget after due appropriation by the Parliament.

Administrative Set-up :

The head office of the Board is located in Kolkata, West Bengal and it is headed by Chairman and being assisted by Deputy Chairman based in Kolkata and two Executive Directors who are stationed at Guwahati and Coonoor. The Board has sixteen (16) offices within India and three (3) abroad located in the following places:

Offices within India :

Agartala, Chennai, Kochi, Coonoor, Dibrugarh, Guwahati, Jalpaiguri, Jorhat, Kottayam, Kurseong, Mumbai, New Delhi, Palampur, Silchar, Siliguri and Tezpur.

Overseas offices :

London, Dubai, and Moscow. All these foreign offices of the Board are designed to undertake the various promotional measures to boost up export of Indian tea. These offices also act as a liaison office for interaction between importers of Indian tea of the respective regions

as well as India and Overseas.

Functional activities of the Head Office:

i. Departments:

- a) **The Secretariat** headed by Secretary looks after Establishment / administrative works and co-ordinates



with the various departments of the Board's office.

- b) **The Finance wing** headed by Financial Advisor and Chief Accounts Officer is responsible for the maintenance of accounts, release of financial assistance to tea gardens and internal audit.
- c) **The Development Directorate** headed by the Director of Tea Development is responsible for formulation and implementation of various developmental schemes and rendering assistance to the industry in the procurement, distribution and movement of essential inputs.
- d) **The Promotion Directorate** headed by the Director of Tea Promotion looks after the works relating to Marketing and Promotion of tea in India and abroad.
- e) **The Research Directorate** headed by the Director of Research is responsible for co-ordination of tea research carried out by the different tea research institutions in the country and monitoring the functions of the Tea Board's own Research Station.
- f) **The Licensing Department** headed by the Controller of Licensing is responsible for issue of licenses, to tea producers*, manufacturers, exporters, brokers, auction organisers & monitoring of the movement of "Tea Waste"

*Permission & Registration of Tea Estates /Gardens (Section 12 of the Tea Act, Rule 30,30A,30B,31 of Tea Rule 1954)

Monitoring and regulating Tea Waste and Tea Warehouses (Section 30 of the Tea Act and Tea (Waste) Control Order 1959)

Regulating and Monitoring Tea Manufacturer, Tea Auctioneers and Tea Brokers (Section 30 of the Tea Act read with Tea (Marketing) Control Order 2003.

- g) **The Labour Welfare Department** headed by Welfare Liaison Officer looks after the work relating to implementation of welfare schemes of the Board, which are not covered under the Plantation Labour Act, 1951.
- h) **The Statistics Department** headed by the Statistician is responsible for the collection of statistics relating to tea area, production, export and all other related

data and carrying out techno-economic surveys of various tea growing areas in the country including cost studies.

- i) **Hindi Cell** headed by the Hindi Officer is responsible for the implementation of the provisions of Official Languages Act and various related measures.
- j) **Darjeeling Tea Research and Development Centre:** The Board has its own Tea Research Centre at Kurseong. In this Centre, field as well as laboratory experimentations are carried out on specialised topics of replantation, young tea management, crop physiology, clonal selection, bio-pesticides, residual toxicity, fertility status and nutrition uptake of tea, flavoury components and manufacturing technique of flavoury tea etc. DTR&DC also publishes a number of scientific papers and technical bulletins as part of transfer of technology besides undertaking advisory visits to tea estates.

Salient features of the services being rendered by Tea Board:

The activities undertaken during the year under report by the aforementioned departments are given elsewhere. Brief summary of the services being extended by the Board to the industry is given below:

Tea Development:

In order to bring about overall improvement in tea productivity and production and creation of better tea processing facilities for qualitative improvement of the product, a number of financial assistance schemes are operated by the Board. The interests of all the sectors i.e. large, medium and small plantations are given due consideration.

Like any other industry, some tea units also face sickness from time to time and the affairs of such tea gardens are looked into in terms of the provisions under the Tea Act. Besides financial assistance, fiscal incentives by way of Tax concession (Section 33 AB of Income Tax Act) for better working of the tea gardens are considered by the Board.

One of the thrust areas for development is the small grower sector. Keeping in view the lower productivity of



the small units, the Board has been extending financial assistance towards various developmental measures such as Training and Demonstration on improved methods of tea cultivation, setting up of tea nurseries for supply of planting materials at subsidised costs, study tours for the growers to visit various tea growing areas.

Tea Research:

Research is an essential input for development of tea industry. Traditionally, the research on tea is being carried out by the industry itself. Tocklai Experimental Station of Tea Research Association (TRA) and Tea Research Foundation of UPASI in South are the two important centres of research for tea in the country. Tea Board is maintaining a Research centre at Kurseong to look into specific requirements of Darjeeling tea. Some work is also undertaken by IHBT at Palampur and Himachal Pradesh Krishi Viswa Vidyalyaya (HPKVV) in regard to the problems of Hilly area of Kangra region.

Tea Board provides substantial Grant-in-aid to TRA, UPASI-TRF, HPKVV, and Assam Agricultural University (Jorhat) for carrying out research and extending advisory service to the tea gardens. In addition to grant in aid, both TRA and UPASI TRF are given grant under plan schemes for undertaking various R& D Schemes.

In order to extend the research findings at the door steps of the tea gardens, both TRA and UPASI-TRF have a good network of advisory centers. UPASI is also running a KVK exclusively for supporting the causes of small growers in the South India.

To develop technical manpower in the North Eastern States, financial assistance is being provided by the Board towards imparting training on tea culture by TRA to the persons nominated for training by the state governments. Tea Board also provides grants-in-aid to different universities and technical institutions such as Indian Institute of Packaging, CFTRI for undertaking research on specific projects covering those items which are not included in the programme of research of the TRA and UPASI-TRF.

National Tea Research Foundation (NTRF) has been established with financial contribution from the tea industry and NABARD to strengthen research activities and

to launch schemes on new and diversified fields of research.

In addition to conducting and promoting research, multifarious technical matters relating to alternate tea packaging, ISO/PFA specifications, quality barriers, development of specialised products, bio/eco teas etc are handled by the Research Directorate of the Board. The Board is being represented by the Director of Research in various technical committees on tea research.

Labour Welfare:

Tea Board has been extending support towards certain Labour welfare measures to tea plantation workers and these measures are confined to those which are not covered under the Plantation Labour Act and Rules there under. The welfare measures of the Board are in the form of grant of educational stipend to the wards of the garden workers for pursuing studies above primary stage as well as providing financial assistance for construction/extension of school building, purchase of Ambulance and medical equipments for specialized treatment etc.

Tea Promotion:

Tea Board's promotional work is generally carried out through its foreign offices currently located at London, Dubai and Moscow. While the promotional activities are confined to popularise Indian tea with emphasis on promoting teas in value-added form like packet, tea bags and instant tea, Tea Board also extends support to popularise tea as a beverage through Tea Councils in foreign countries, namely, U.K. and Germany. Besides, Tea Board has successfully launched three distinct logos viz: Darjeeling, Assam and Nilgiris to popularize the teas from these origins.

The activities of the overseas offices include:-

- participation in international fairs and exhibitions, particularly food and beverage events.
- Field sampling at specialty stores /super markets.
- Media publicity.
- Buyer –seller-meets.



- Providing promotional support to Indian exporters/ foreign importers of value added teas in their promotional and marketing efforts.
- P.R. activities to establish closer link between importer and exporter
- Exchange of tea delegations between India and

importing countries.

Man-Power of Tea Board

The total man-power of the Board as on 31.03.2010, in all categories/groups in India and abroad including deputationists was 645. The breakup of existing strength of the Officers and Staff Members under different categories in offices of the Board in India and abroad

Table 1 as shown in the Table - 1.
Groupwise man power of the Board in India and abroad as on 31/3/2010 :

Sl. No		Group A	Group B	Group C	Total
01	Head Office*	28	108	215	351
02	Regional/Sub-Regional Offices	17	77	186	280
03.	Officers on deputation to Tea Board	09	-	-	09
04.	Officers on deputation to other organization	-	-	02	02
	Total	54	185	403	642

* including deputationists to Tea Board

Number of India-based Officials in Board's Offices abroad under different cadres (as on 31.03.2010)

	London	Dubai	Moscow	Total
Group – A 1. Director of Tea Promotion(Gr.I)	01	01	01	03

Scheduled Castes, Scheduled Tribes and Other Backward Class

	SC	ST	OBC	Total
Group 'A'	08	02	03	13
Group 'B'	34	07	07	48
Group 'C'	63	18	16	97
Total	105	27	26	158

Recruitment Drive

During the year recruitment was made to fill up the following positions:

- Group 'A' - 1, Group-'B' - 1,
Group 'C' - 22 (including five stenographers)



Changes in administration during the year under review:

1. Shri Rajeev Roy, IP&T(AFS) joined as F.A. & C.A.O. on 18.05.2009.
2. Shri M. M. Bhattacharjee retired as Assistant Secretary on 31.05.2009.
3. Shri S. K. Das took over the charge of Assistant Secretary w.e.f. 08.06.2009.
4. Shri Gagnesh Sharma joined as DDTD(Plant) w.e.f. 15.07.2009
5. Shri T. K. Dey was promoted as Sr. Accounts Officer on 31.07.2009.
6. Shri Chinmoy Bandopadhyay was promoted as Controller of Licensing on 20.08.2009
7. Shri A. Rajan was promoted as Statistician on 31.08.2009.
8. Shri Chandrachur Dasgupta was promoted as R.O.(Econ.) on 01.09.2009.
9. Shri J. K. Das was promoted as Joint Controller of Licensing on 07.10.2009.
10. Shri S. C. Biswas promoted as DTP Gr-II w.e.f. 05.11.2009
11. Shri H. Gurumurthy promoted as W.L.O.(S) w.e.f. 05.11.2009.
12. Shri P. K. Lahiri, Ex-Secretary repatriated to his parent department w.e.f. 16.11.2009.
13. Shri Kaushik Halder, WBCS(Executive) joined Tea Board as Secretary on 07.12.2009 on deputation from Govt of West Bengal
14. Shri S. K. Das retired as Assistant Secretary on 31.12.2009.
15. Shri S.S. Namboori was promoted as Assistant Secretary on 01.01.2010.
16. Smt. Nandini Dutta promoted as DDTP w.e.f. 01.01.2010.
17. Shri Biman Gogoi promoted as Accounts Officer at Board's Guwahati Office w.e.f. 24.02.2010

18. Shri D. Halder retired as Dy. Director of Tea Development on 28.02.2010.

Deaths:

The following officers have passed away during the year under report:

1. Shri M. Paramanantham, Controller of Licensing, expired on 09.07.2009
2. Smt. Anindita Ray, DTP Gr-II expired on 16.03.2010.



BROAD OVER VIEW OF THE GLOBAL AND INDIAN TEA SCENARIOS

Global Tea Scenario

Tea is one of the most popular and widely consumed hot beverages the world over. Today cultivation of tea is spread over all the continents except North America with wide range of agro-climatic conditions between 42°N (Georgia) and 35°S latitude (Argentina). More than 30 countries grow tea. The estimated global production is 3800 million kg of which 43% is exported. With the world consumption around 3700 million kg the global production and absorption remain finely balanced with production little ahead of demand. Being an agricultural commodity whose production is bound to fluctuate due to vagaries of nature, the prevailing difference between production and demand is well below any reasonable limits.

Amongst tea producing countries, the principal producers are India, China, Sri Lanka, Kenya and Indonesia. These five countries account for 77% of world production and 80% of global exports.

During the course of last five decades, many new entrants have joined the tea family, notable among them are African countries like Kenya, Malawi and Turkey etc. During the last decade the Vietnam and China have made rapid strides and emerged as the prominent forces to reckon with in the international market.

The average per head consumption of tea varies

widely from country to country. While it is more than 2 kg in Ireland and the U.K. and around 1 kg in Sri Lanka and Pakistan, it is only 800 grams in India. Despite per head consumption being one of the lowest in the world, the total consumption in India, due to its population size, is the largest. This distinct position is in sharp contrast with other producing countries, which hardly have any strong domestic demand.

Over the last 10 years, there has been a relative decline in production of black teas and green tea production has more than doubled from 692 m.kgs in 1998 to 1490 m.kg in 2007, mainly due to a huge expansion in China. While the black tea production remained static around 2300 million over the last decade, the entire increase in global production over the past ten years is accounted for by the Green Tea. This could be attributed to the scientific studies linking green tea drinking with reduced cancer risk.

The latest studies have established that black teas too have the same healthy properties as that of green tea.

Since 2001 China's production has grown by 464 m.kgs i.e 8.8% cumulative annual growth. Because of this steady growth, India's position has been pushed to 2nd place since 2006 when China's production exceeded India's for the first time in the last 110 years.

Indian Tea Scenario

Tea cultivation on commercial scale was first started in Assam in 1839. Thereafter, it was extended to other parts of the country between 50's and 60's of the 19th century. However, owing to certain specific soil and climatic requirements its cultivation was confined to only certain parts of the country.

In most regions, a good proportion of the land within the grant area of the estates supports jungle which provides fire wood, bamboo and thatch and also space for the grazing of cattle and other amenities needed by rural communities. In the planting regions the gardens or estates with their large resident labour population do constitute such rural communities.



Major tea areas of the country are concentrated in Assam, West Bengal, Tamil Nadu and Kerala. The other areas where tea is grown to a small extent are Tripura, Himachal Pradesh, Uttar Pradesh, Bihar and Karnataka. Of late, some of the non-traditional states like Arunachal Pradesh, Manipur, Nagaland, Orissa and Sikkim have taken up tea growing. Other areas where efforts are underway to take up tea cultivation are Mizoram, Meghalaya, Kumaon Hills in Uttarakhand, North Cachar Hills and Karbi Aunglong in Assam, Chamba and Mandi districts in Himachal Pradesh. **Assam and West Bengal together account for 75% of the total tea produced in India. India produces some of the world's finest tea. The low temperature in the hills of Darjeeling aids production of the famous Darjeeling tea. Assam teas are well known for their strong, brisk and full bodied liquor and the Nilgiri teas are famous for their delicate flavour, strength and brightness.** Other areas, with their diverse agro climatic conditions produce medley of tea suited to many different tastes. The characteristics of each region are distinct, which sets them apart from one another in many different ways.

Today, tea industry is one of the oldest agro-based well organized industries in India. **The tea industry provides direct employment to more than a million workers of whom a sizable number are women.** Temporary workers are also engaged in large numbers during the plucking season.

The tea plantations are not just economic production units, but rather social institutions, which control the lives of their resident work force to a large extent. The plantations do not just offer employment; they are also responsible for providing housing, water, welfare and many other facilities that affect the daily lives of workers. **The labour cost, therefore, is the largest cost overhead accounting for about 60% of the total cost of production of Indian tea.** Most of the employees come from socially and economically weaker sections of the society and majority of the employees are women who work and reside in an ideal

industrial community. Their livelihood is directly linked with the prosperity of the tea industry. It is, therefore, of the utmost importance that the tea industry must grow not only to fulfil its primary function of producing a wholesome beverage for the domestic and overseas consumer, but also to fulfil its social obligations in sustaining and improving the well being of all those who are dependent on its fortunes.

India has played a dominant role in the global tea trade. Even today, despite a fluctuating share in world exports, India is a key source for tea as well as the largest market.

The difficult situation faced by the industry due to steep decline in prices during seven year period from 1999 to 2006 clearly brought out the vulnerable areas of the industry which needs to be addressed for guarding against recurrence of such eventualities and also achieve sustainable global competitiveness and sustainable livelihood to millions of people employed in tea plantations. During the recession as many as 130 gardens were closed or abandoned or suspended their operations for some time. With the gradual improvement in tea prices from 2008 onwards, majority of closed tea gardens have been reopened. As on 1st April 2007 there were 33 closed tea gardens in India and two more were closed down subsequently taking the total to 35. Out of these twenty-one have been reopened and fourteen remain closed as of 31st March 2010. Nine of these were in West Bengal, the other five in Kerala.

Due to agricultural nature of the operations, long gestation period and unstable prices of tea; the industry has rather fluctuating trends. The situation is not likely to undergo any sea change in the future. The movement of tea prices in the past has shown brief periods of boom followed by longer periods of depression. Because of this cyclical nature of production and profitability it is important for the industry to set aside a portion of the profit earned in during the boom period for meeting the needs during the rainy days.



Experts who have been engaged to study the root causes for the closure of tea gardens in several parts of the country during the recession have reported that those gardens were inherently weak and suffer from low productivity and lack of investment on developmental activities. It is, therefore, of importance that suitable packages for raising the productivity with cost effectiveness suiting to the conditions of under / less developed sectors are devised and put in place quickly.

A major problem for the Indian tea industry is the problem of ageing and senile bushes.

At present more than 2.12 lakh hectares constituting a substantial chunk of Indian tea gardens are in the 'end of economic life' age category because of which the industry is gradually running down in vitality and productivity and is faced with a high cost of production. Unless effectively countered now, the situation can endanger the prospects of keeping the plantations in a state of maximum vigour.

Success in meeting the challenges of future will not only depend upon renovation of the field assets but also upon putting the **R&D** on a sound footing - financially, organizationally and managerially. The primary expectation of the industry from the research institutes is to continuously develop appropriate technology suiting to the demands of the industry and disseminate the same. Research, therefore, requires backing from well spread, fine tuned, efficient extension services, covering different regions and all segments of the industry. Presently the small and the medium size producers are not getting adequate technical support. It would, therefore, be necessary for the research institutes to set up a dedicated extension service exclusively for the benefit of small and medium producers.

The emergence of the small sector over the past 10-15 years had assumed a form of a socio-economic movement and served as vehicle for social transformation in the N.E region as well as in North Bengal and Bihar state. It has also opened up avenues

for setting up of new tea factories in the Small scale Industry sector leading to generation of employment in the tea industry. Today, this tiny sector is accounting for 26% of the total production of India. The major strength of this sector lies in the young and most productive age of the plantations of reasonably high clonal composition, low cost of production and the youth segment of the entrepreneurs with receptiveness to new and improved agro-techniques. Much of the success of the tea industry in both Kenya and Sri Lanka is linked to the growth of the small holder sector over past few decades. Interestingly the size of the production from the small sector in Kenya and Sri Lanka are at par with the volume of tea produced by the small growers in India. One of the major problems faced by the small growers in India is the inadequacy of the technical guidance because of the scattered nature of the holdings.

2009-10 in perspective:

The Global Tea Situation

The year under review witnessed international tea prices bouncing back even surpassing the highs attained in 2008. (Table-1) The hike in tea prices during the year was primarily driven by almost unprecedented drop in production due to unfavorable weather in world's big three tea producing countries (Table-2), proving once again that climate-related swings in production are the key determinants of the global supply-demand balance. However, return of normal weather patterns in the most tea producing regions towards the last quarter eased the tight global tea market situation, alleviating pressure of world tea prices. The fact that demand for tea has remained relatively robust despite economic downturn, has strengthened the belief that prices will remain firm-even when production returns to more normal levels. With the stock depleted in the major importing countries and consumption growth in China and India, it was optimistically expected that prices will not sink back to its previously depressed levels.

**Table-1 Increase in tea prices during 2009 in respective currencies per kg**

Auction Center		2008	2009
Kolkata	`	103.11	122.90
Guwahati	`	93.02	108.14
Siliguri	`	85.28	104.77
Kochi	`	71.45	88.69
Coimbatore	`	63.74	79.29
Coonor	`	63.49	75.38
Chittagong	Taka	110.99	136.93
Colombo	Rs	306.55	362.76
Jakarta	US \$ c	150.85	182.49
Mombasa	US \$ c	218.00	229.00
Limbe	US \$ c	137.19	158.32

Source; ITC annual Bulletin of Statistics 2010

Table-2. Decline in tea production in major black tea producing countries (in Million Kgs.)

Country	2008	2009	Decrease over 2008
India	980.82	979.00	-1.82
Sri Lanka	318.70	289.78	-28.92
Kenya	345.82	314.19	-31.63

Source; ITC annual Bulletin of Statistics 2010

While the global tea production increased by 71 million Kgs (Table-3), the entire production was on account of surge in production of green tea in China (Table-3). During 2009, 61% of global production was black tea and 31% was green tea with the balance consisting of other types of teas. Of

the total crop, 38% was CTC and 23% Orthodox. The overall production of green tea recorded an increase of 6%. Since 2005, global production had gone up by 14% with the main thrust coming from China (an increase of 45%).

Table-3: World's Total Product mix (in Million Kgs.)

	2008	2009	Increase/decrease over 2008
Green Tea	1162.29	1235.86	73.57
Black Tea	2702.66	2700.23	-2.43
Total	3864.95	3936.09	71.14

Source; ITC annual Bulletin of Statistics 2010

Exports:

The exported share of global crop plummeted to 39.5% during 2009 (Table-4) primarily as a result of significant decline in production in Kenya and Sri Lanka owing to unfavorable weather conditions concurrently. Total exports were plummeted by approximately 99 million Kgs compared to

2008. Total global imports for consumption recorded a decline of 5.3% during the year reflecting reduced share of global crop that was exported in 2009, coupled with cash flow issues of some buyers brought about by the increased prices. However, green tea imports have remained stable over the past 3 years.

**Table-4 Global Exports and imports for consumption (in Million Kgs.)**

	2008	2009
Exports	1653.06	1554.43
% of Global production	42.8 %	39.5 %
Imports	1551.80	1461.10

Source; ITC annual Bulletin of Statistics 2010

2009-10 in perspective: The Indian Tea Situation**Production**

During the calendar year 2009 the production declined marginally by 1.83 m.kg over the previous year mainly due

to drought in south India in the first quarter of the year. However, in the financial year, with improved weather conditions, the production had increased by 18.41 m.kg when compared to previous year. The details of production of tea in India during the last three years are given in Table-5

Table-5. Production of Tea in India during the last 3 years(in Million Kgs)

Calendar Year	North India	South India	All India	Financial Year	North India	South India	All India
2007	764.74	221.69	986.43	2007-08	758.27	228.75	987.02
2008	733.92	246.90	980.82	2008-09	734.03	238.74	972.77
2009 (E)	734.87	244.13	979.00	2009-10 (E)	734.38	256.80	991.18

(E) – Estimated and subject to revision,

Exports:

The export volume of tea from India during the calendar year 2009 was down by 5.22 m.kg over 2008 but was up by 22.79 m.kg in the financial year 2009-10

when compared to previous year. However, in value terms the export earnings and the unit price per kg of tea exported have registered significant increase over previous year. The details of exports during the last three years are given in Table-6

Table-6. Exports of Tea from India during the last 3 years

Calendar Year	Qty. (M.Kgs.)	Value (` Crs)	U.P. (` /Kg)	Financial Year	Qty. (M.Kgs)	Value (` Crs)	U.P. (` /Kg)
2007	178.75	1810.11	101.26	2007-08	185.32	1888.68	101.91
2008	203.12	2392.91	117.81	2008-09	190.64	2381.79	124.94
2009	197.90	2785.85	140.77	2009-10	213.43	3038.69	142.37

The improvement in exports during 2009-10 was due to increase in export to Russian Federation, Iraq, Kazakhstan, USA, Afghanistan, Poland, Pakistan and UAE as compared

to last year. The details of exports over the last three years in different forms are given in Tables 7 to 10.

Table-7. Exports of Bulk Tea from India during the last 3 years

Year	Quantity (M.Kgs.)	Value (` Crs.)	Unit Price (` /Kg)
2007-08	163.48	1467.08	89.74
2008-09	168.93	1876.03	111.05
2009-10	183.27	2328.73	127.07

**Table-8. Exports of Packet Tea from India during the last 3 years**

Year	Quantity (M.Kgs.)	Value (` Crs.)	Unit Price (` /Kg)
2007-08	10.14	131.91	130.05
2008-09	10.26	162.18	158.12
2009-10	17.72	297.11	167.65

Table-9 Exports of Tea Bags from India during the last 3 years

Year	Quantity (M.Kgs.)	Value (` Crs.)	Unit Price (` /Kg)
2007-08	8.66	195.24	225.46
2008-09	8.64	248.44	287.67
2009-10	9.50	295.10	310.50

Table-10 Exports of Instant Tea from India during the last 3 years

Year	Quantity (M.Kgs.)	Value (` Crs.)	Unit Price (` /Kg)
2007-08	3.04	94.45	311.10
2008-09	2.81	95.14	338.57
2009-10	2.94	117.75	400.09

Primary Marketing:

During 2009 out of the total tea produced, 53% of was sold through public auctions, 4% was directly exported through forward contract and the remaining 43% was sold through ex-garden private sale. While the

sale through forward contract hovered around 4%, the sale through ex-garden private sale in 2009 was up by 3% when compared to 2008 with corresponding decline in auction sales. The mode of disposal of tea over the last three years and the average price fetched in public auctions are shown in Table-11 & 12 .

Table -11 Mode of disposal of Tea produced India

Year	Qty. of tea sold through Auction	Ex-garden export under forward contract	Ex-garden private sale
2007	514 (52.13)	51 (5.17)	421 (42.70)
2008	546 (55.66)	45 (4.59)	390 (39.75)
2009(E)	518* (52.91)	42 (4.29)	419 (42.80)

(Volume in Million Kgs. Figures in brackets denote % to the total production)

E-estimated.

* Electronic Auction system was introduced in all the auction centers in India and 194 million kgs of teas were sold through this system during the year 2009-10.



Table-12 Average price ' per kg of tea sold through Auctions

Domestic Consumption :

The internal consumption of tea for the year 2009 was around 819 M.Kgs. as against 802 M.Kgs in 2008 - an increase of 17 M.Kgs over 2008.

Taxes & Duties:

Excise Duty :16% ad-valorem on Instant Tea falling under heading 2101.20

Export Duty: Nil on tea exported from India at present

Import Duty: Nil on teas imported for the purpose of re-export by Export Oriented Units (EOU) and Special Economic Zone (SEZ) units.

Teas imported for domestic markets would attract Basic import duty of 100% plus 10% surcharge plus special additional duty of 4% on basic duty and surcharge (w. e. f. 1st March, 2002).

Concessionary rate of 7.5% basic duty plus other normal surcharges apply to imports from Sri Lanka up to a volume of 15 M Kgs per calendar year.

Calendar Year	North India	South India	All India	Financial Year
2007	73.37	49.70	67.27	2007-08
2008	95.27	66.27	86.99	2008-09
2009	114.86	81.03	105.60	2009-10 (P)
P.Provisional				



FINANCE

Introduction :

As per Sections 25 and 26 of Tea Act the proceeds of tea cess levied and collected by Central Exercise Department on all teas made in the country get credited to the Consolidated Fund of India and the Central Government as deemed necessary provide non-plan funds to the Board under Annual Budget of Ministry of Commerce & Industry. The rate of cess has been enhanced with effect from 1st April, 1997 and at present is charged on Darjeeling and other than Darjeeling varieties of made teas @ ` 0.12 per kg and ` 0.30 per kg respectively in terms of the enabling provision contained in Section 25 of the Tea Act.

The other major sources of income of the Board are grants, subsidy and loan released to it by the Government of India under Section 26 A of the said Act. The Board also has some other minor sources of revenue such as fees on licenses, interest on loans and advances and miscellaneous receipts such as sales of liquid tea, sales of green leaves, sale of application forms and other publications etc.

Thus, all funds available to the Board under Sections 26 and 26 A of the Tea Act are routed through the medium of the Annual Union Budget. Such funds are then applied to the functions of the Board as enshrined in Section 10 of the Tea Act subject to the delegation of financial powers of the Government and/or under the provision of the Act and subordinate legislation thereto.

As indicated above the Budget of the Board comprises of two constituent elements Viz. Non-Plan and Plan.

CESS PROCEEDS

The estimated collection of cess during the year under review was 2954 lakhs. During the year 2009-2010, an amount of 2500 lakh was released by the Government towards proceeds of cess under Section 26 of the Tea Act, 1953 as non-plan contribution to the Tea Board.

RESEARCH & DEVELOPMENT GRANTS

During the year 2009-2010, a sum of 2800 lakh was received from Government towards Research and Development Grants for old and ongoing schemes and new schemes under Section 26A of the Tea Act.

SPECIAL FUND (ASIDE)

During the year an amount of 50.00 lakh was received from the Govt. towards Grant-in-aid under Special Fund-ASIDE for setting up of Quality Control Laboratory with the objectives of testing pesticide residue, bio-fertiliser and bio-pesticides etc.

SPECIAL FUND (MAI)

During the year an amount of 6.35 lakh was received from the Govt. towards Grant-in-aid under Special Fund-MAI for opening of Tea Marketing Centre at Cairo, Egypt.

SPECIAL FUND (A.E.D)

During the year an amount of 406.00 lakh was received from the Govt. towards Grant-in-aid under Special Fund-A.E.D for providing fund to both TRA and UPASI for certain identified items.

SUBSIDY

A sum of 9000 lakhs was received from Government towards subsidy during the year under Section 26A of the Tea Act.

LOAN CORPUS FUND

During the year under review no amount was released by the Government under Section 26A of the Tea Act towards Loan Schemes.

SPECIAL PURPOSE TEA FUND

During the year, an amount of 1500.00 lakh was received from Govt. towards SPTF Capital Fund.



TEA DEVELOPMENT

Introduction :

The focus of the Development wing of the Tea Board is in the sphere of production and productivity improvement, quality upgradation, value addition, change of product mix, quality assurance certification, capacity building of small growers to move up in the value chain, improving skills at all levels from workers to managers etc. Towards this end, financial support by way of long term loan, subsidy and grant in aid is provided by the Tea Board to all the stake holders of the industry through following development schemes which have been approved by the Planning Commission and Government of India for implementation during the Eleventh Five Year Plan period.

DEVELOPMENT COMMITTEE :

During the year under report, the Development Committee of the Board comprising of following members closely monitored and guided the implementation of the various developmental programmes:

1. Chairman, Tea Board, Ex-officio, Chairman of the Committee.
2. Shri. Rajen Gohain, Member of Parliament (MP), Lok Sabha
3. Shri. Aditya Khaitan, Chairman, Indian Tea Association (ITA),
4. Shri. T.V.Alexander, President, United Planters' Association of Southern India
5. Shri. Vijay Jagannath, M/s. Mcleod Russel India Ltd., Kolkata,
6. Shri. Rajib Chandra Barooah, M/s Hollonghabi Tea Estate Pvt.Ltd.
7. Shri. P.V. Balachandran, Chandra Estate, Ambalavayal, Wayanad.

Sl. No	Name of the Scheme	Approved outlay for XI Plan period (crores)
8.	Shri. Peter Mathias, Chairman, Tea Committee (Special invitee)	15.00
During the year under report four meetings of the Development Committee were held at the following places:		
1.	Tea Plantation Development (Special invitee)	316.00
	(Meeting No. 1)	
	(Date of Meeting)	
	(Place)	
2.	Quality Upgradation and Product Diversification Scheme	230.00
	(Meeting No. 2)	
	(Date of Meeting)	
	(Place)	
3.	Development of small growers sector, received under R&D head)	4.00
	(Meeting No. 3)	
	(Date of Meeting)	
	(Place)	
4.	Human Resource Development Scheme	50.00
	(Meeting No. 4)	
	(Date of Meeting)	
	(Place)	
Total Budgetary support for 1st Plan Period		610.00

2009-10 was the 3rd year of the XI plan period. The physical and financial achievement during the year as well as the cumulative achievement during the first three years of the XI plan period under each scheme are enumerated below:



1. PLANTATION DEVELOPMENT SCHEME :

The main objective of the Scheme is to encourage the tea plantations in undertaking various field oriented developmental measures aimed at increasing field productivity and decreasing cost of production. Specific areas of support given under this scheme include Productivity improvement through replanting, rejuvenation pruning & consolidation through infilling of

vacancies in hilly areas, creation of irrigation and drainage facilities, enhancing productivity of small holdings, extension planting in small holdings in hilly areas and encouraging small growers to organize themselves into self help groups / tea producers societies etc

The activities supported under the scheme during the year under report were as under:

i) For all the growers regardless of the size of their holdings :

1	Replantation /Replacement planting and Rejuvenation of old tea areas .	For these activities financial assistance by way of loan @50% of the unit cost and subsidy @25% of the unit cost was provided through Special Purpose Tea Fund set up for the purpose.
2	Creation of Irrigation facilities	The subsidy for these three activities was provided @25% of the actual cost subject to a combined ceiling limit of ` 10,000 per ha
3	Creation of Drainage facilities.	
4	Creation of Transportation facilities	

ii) For individual Small growers holding up to 4.00 ha under tea

New planting in the hilly areas above 2500' MSL. The rates of subsidy are as under:

Sl. No.	Activity	Location
	New Planting	(i) Hilly regions
		(ii) South India
		(iii) N.E India
		(iv) H.P / Uttaranchal

iii) For Small Grower Self Help Groups

The basic criteria to form the SHG are as follows:

- All the members of the group must be small growers (Holding less than 10.12 Ha)
- Minimum members in a group should be 50
- Minimum area covered under tea is 20 Ha.
- Group must be registered under Societies Act

If the above conditions are fulfilled the group is eligible to get grant & subsidy for

- a. Setting up Leaf collection Centers/Input Storage

godowns -100% grant

- b. Purchase of weighing Scales/ Leaf carry bags-100% grant
- c. Purchase of Transport vehicles -50% subsidy
- d. Purchase of field inputs -fertilizers & plant protection chemicals and implements – pruning machines, sprayers etc. –Interest free revolving corpus @ ` 10000 per ha

Two members from each Self Help groups are eligible for undergoing comprehensive training on tea



cultivation for which the entire cost of training including boarding and lodging of the trainees is borne by Tea Board. On completion of the training, the trained members are expected to impart training to the remaining members of the group and also help in

managing day to day management of field operations in the entire tea area owned by the group. For this service, the members are provided with an honorarium @ 500/month for a period of first six months. The revolving corpus fund would be released to those groups, whose members

have undergone training.

THE PHYSICAL AND FINANCIAL ACHIEVEMENTS DURING 2009-10

* In addition to subsidy, ` 12.72 Crores was sanctioned as loan for 840.57 ha

CUMULATIVE ACHIEVEMENTS DURING THE FIRST THREE YEARS OF XI PLAN

SI No	Activities	Targets 2007-10		Achievements 2007-10		Targets 2009-10
		Financial Crores	Physical	Financial Crores	Physical	
1	New Planting Irrigation & Drainage SHGs of small growers	18.00	3250 ha			
			01.	17.08.09	Silchar, Assam	19.71 ha
			02.	26.08.09	Agartala, Tripura	8.32 ha
			03.	31.08.09	Coimbatore, Tamil Nadu	2000 ha
			04.	26.11.09	Dibrugarh, Assam	132 ha
05.	27.11.09	Jorhat, Assam	1500 ha			
			The target set for the XI Plan period was 40992 ha comprising 8163 ha of small growers and rejuvenation in 8432 ha of rejuvenation pursuing West Bengal only in hilly areas and in the littah areas of Cachar and Tripura.			
			During the year under report, seminars and workshops were held at the following locations for popularizing the scheme:			

iv) SPECIAL PURPOSE TEA FUND SCHEME :

This Scheme was launched in 2007-08 for encouraging tea gardens to take up large scale uprooting and replanting of old tea bushes for improving production and productivity for competitive sustenance..

During the year under report, seminars and workshops were held at the following locations for popularizing the scheme:



For improving the performance of the scheme the following steps have been taken:

- Simplification of procedural aspects
- Sorting out Banking issues

- Putting in place definite time frame for each stage of processing of applications
- Nomination of Panel inspectors from Producer Associations for conducting post uprooting inspections

THE PHYSICAL AND FINANCIAL ACHIEVEMENTS DURING 2009-10

SI No	Activities	Targets 2009-10		Achievements 2009-10	
		Financial Crores	Physical	Financial crores	Physical
1	Replanting		5102ha		5125.00 ha
2	Rejuvenation	22.00	2632 ha	19.16*	1121.00 ha

* In addition to subsidy, 12.72 Crores was sanctioned as loan for 840.57 ha

THE CUMULATIVE ACHIEVEMENTS DURING THE FIRST THREE YEARS OF XI PLAN

*Includes a sum of 45 Crores used towards default reserve fund.

2. Quality Upgradation and Product Diversification Scheme :

The main objective of Scheme is to encourage tea factories/blending/packaging units to modernize so as to fetch higher realizations through the production of better quality/value added teas. Specific areas of support given under this scheme include replacement of old and worn out machineries, augmenting the processing capacity, creation of new facilities for product

SI No	Activities	Targets 2007-10	
		Financial Crores	Physical
1	Replanting		1450
2	Rejuvenation	60.00	502

diversification into orthodox / green tea and other specialty teas, setting up of modern blending/ packaging units, installation of electronic control devices for quality processing, obtaining ISO/HACCP/Organic tea certification and imparting training to small growers and Bought Leaf factory owners in quality awareness.

The activities supported under the scheme during the year under report were as under:



- Note : **Machinery** : The subsidy is limited to 25% of the total cost (basic cost of the machinery items, admissible taxes, freight, insurance and cost of commissioning) subject to a ceiling limit of 25 lakhs per factory/ blending packaging unit.

THE PHYSICAL AND FINANCIAL ACHIEVEMENTS DURING 2009-10

S.No	Activities supported	Targets 2009-10	
		Financial	Physical
I	1.Modernisation of the processing factories by replacement of old and worn out machinery : Factory Modernization	20,00	80 units
1	2. Procurement of processing machinery for Value Addition 100% CTC factories	20,00	Subsidy 32 units
•	Certification : The subsidy for obtaining an ISO/HACCP and organic certification is limited to 50% of the cost of certification with a stipulated ceiling of 11.50 Lakhs per factory/ blending packaging unit.	50%	24 units
2	3. Setting up of new factories for production of orthodox tea and specialty teas etc (product diversification) with a stipulated ceiling of 25 Lakhs per factory/ blending packaging unit.	11.50	75 m.kg
II	1. Value addition by way of creating additional infrastructure for sorting, blending, colour sorting, packaging etc. 2. In case of machinery for orthodox tea in 100% CTC factories.		(Subsidy to a ceiling of 25 Lakhs per unit) For item 25 Lakhs per unit
III	Quality assurance certification for ISO/HACCP and Organic Tea		(Subsidy ceiling per annum)
IV	Setting up of new factories for production of green tea, orthodox tea and specialty teas etc (product diversification) –		(Subsidy 25 Lakhs per unit)
V	Incentive for orthodox tea production –		Subsidy and incentive as per previous years



The cumulative achievements during the first three years of XI plan

Major policy decisions / initiatives taken during the year under review :

(A) QUPDS:

- Green leaf harvesting machine was allowed for subsidy under the QU&PD scheme for tea estates without any factory and SHGs in south India only. The minimum limit of investment of 4 lakh was also relaxed in such cases.
- Tea Warehouses were included for subsidy with a maximum ceiling limit of 25 lakhs in a year under the scheme.
- Fuel Efficient Natural Gas Burner was included in the list of eligible items for subsidy under the scheme.
- The list of approved suppliers of machineries was

reviewed and updated.

B) Orthodox Subsidy Scheme :

During the year under review, as per the directives of the Govt. a Mid-term evaluation was carried out by engaging an independent consultancy firm viz. M/s A.C. Nielsen, The evaluation report and the recommendations thereof were discussed with the industry and the views emerged have been forwarded to the Government for consideration.

3. HRD Scheme :

Sl No.	Agency	Activities	Activities undertaken	Targets 2007-10	Financial Crores	Planned
ITA		welfare measures for the tea garden workers and their wards, particularly in health and education				
IIPM		Field and factory training programmes for small tea plantations				
UPASI		Value Addition and factory training programmes for small tea plantations				
AAU		plantation management courses of tea Board				
TRA		Quality Certification				
CSK		improving skills in government of all levels from workers to managers through extensive training. The				

particulars of activities carried out during the year were as under :

Training programmes conducted during 2009-10 through different agencies with financial support from HRD Scheme



The physical and financial achievements during 2009-10 were as under :

Sl. No.	Activity	Date	Target 2009-10	
			Financial Crores	Physical
01.		21.08.09	Workshop on Tea Area Development and Sensing and GIS	
1	i) Health Care			
02.	Drinking water Sanitation	28.08.09	Seminar on Awareness Programme in Energy	
03.	Capital Grant to Hospitals/Clinics	21.08.09	One day Training Programme on Organic Products – c2000 units	
204.	ii) Education:		Workshop on Kangra Tea Educational stipend uniforms / book grants	
	Capital grant to schools & hostels-Assistance for organizing Bharat Scouts and Guides & sports activities in plantation Districts			1000 students 9 units 1100 students
3	iii. Training		Training of small growers+workers- Training of garden managers- Training of Extension service providers to SHGs- Planters Productivity councils	2000 500 85 trainers 3 nos
	Total			4.00

*Includes Rehabilitation Package (` 0.50 Cr.) for closed tea gardens and operating tea gardens

Details of Seminars / Workshop / Trainings conducted by HO (other than SPTI) during the Year under Report



The cumulative achievements during the first three years of the plan period were as under :

Sl.No.	Activity	XI Plan Target		Achievements (2009-10)
		Physical	Financial Crores	Physical
1	i) Health Care Drinking water Sanitation Capital Grant to Hospitals/Clinics	5000 units 10,000 units 45 units	25.00	-- 1000 22
2	ii. Education: Educational stipend uniforms / book grants Capital grant to schools & hostels- Assistance for organizing Bharat Scouts and Guides & sports activities in plantation Districts	25000 students+ 25000 students 45 units 5500 students	12.50 0.16 Cr.	38308 30 units 1962 students
273	iii. Training Training of small growers+workers- Training of garden managers- Training of Extension services	10,000 workers 2500 persons	12.50	36691 941 169

*Includes Rehabilitation Package (` 0.50 Cr.) for closed tea gardens and operating



Training programmes conducted during three years (2007-10) through different agencies with financial support from HRD Scheme

4. Development Grant :

Developmental activities supported under Development grant component of the R& D Scheme include extending advisory services for benefit of small growers, opening of new development offices of the Board for closer interface with small growers in non-traditional areas, strengthening of existing Board's offices,

setting up of nurseries for supply of good quality planting materials for small growers, study tours and workshops for small growers etc

During the year under report a sum of ₹ 446.42 lakhs was disbursed as per the breakup of particulars as noted below :

Development Grant disbursed during 2009-10

Sl. No.	Particulars
1	Advisory services - grant in aid provided to TRA/UPA/AAU/
ITA	Training of workers
2	Study tours and workshops
IIPM	Strengthening of short & long term Executive programmes for
3	Strengthening of short & long term Executive programmes for
UPASL/K/R	Strengthening of short & long term Executive programmes for
4	Training of small tea growers and trainers
AAU	Nursery + Demonstration training in small holdings in
5	Demonstration training in small holdings in
UNB	Others (Miscellaneous including ISG, CFC, e-auction
6	Others (Miscellaneous including ISG, CFC, e-auction
TRA	Training of small tea growers and trainers
Total	
CSKHPKV- Palampur	Training to small tea growers
IHBT Palampur	Training to small tea growers

Total assistance extended during the three years of the XI Plan period (2007-10) was as under :



OTHER ONGOING PROJECTS AND MAJOR INITIATIVES TAKEN DURING THE YEAR

A. Mapping of tea areas through GIS and Remote Sensing:

This project was launched during 2007-08. The regional center of ISRO at Kharagpur has been associated with this project. Mapping of the tea areas in Assam, West Bengal and generation of MIS as to the profile of tea gardens and physical progress made with regard to replantation / rejuvenation etc under SPTF Scheme of the Board were the main deliverables of the project. The development of software has been completed during the year. The tea gardens have been advised to submit the cadastral maps and the basic data relating to the profile of each garden. In order to establish the correctness of the GIS information, DGPS based GCP Collection work has been initiated. In addition a web portal for ISRO-Project has been linked to the official website of Tea Board for facilitating the tea gardens to have direct access to the project details and submission of garden particulars. Two workshops have been held – one each at Siliguri and Jorhat to explain to the stakeholders the project activities and the modalities for online submission of garden details.

B. Energy conservation in small tea processing units in South India :

Since March 2008, the Tea Board has been executing the captioned project, which is supported by the United Nations Development Programme – Global Environment Facility. M/s TIDE- a technically competent, non-profit society working for propagating technological interventions for social change has been associated with the project, as the project implementing agency .

The project strategy is identification and elimination of barriers that inhibit the adoption of energy use reform. The project team identified lack of awareness about energy issues, poor confidence level in energy efficient equipment, lack of access to technical competency, absence of an enabling mechanism for reform and financing as the major barriers.

In the past two years it has carried out the following

activities

- About 25 awareness meetings were held about specific issues like energy audits, renewable energy interventions, energy plantations in south India and also in Kolkata and Jorhat. It also publishes a quarterly newsletter.
- Preliminary energy audits were conducted in 266 tea factories to establish the baseline energy consumption data and detailed energy audits in 72 factories. These audits have established that orthodox factories use 0.6 – 0.8 KWH and CTC factories 1.0 – 1.2 KWH of electrical energy and 4000 kcals / kg (Orthodox) and 6000 kcals / kg (CTC) of thermal energy per kg of made tea. The south Indian tea industry consumes 240 million KWH of electricity and 336,600 tons of firewood annually. It is possible to save 20% of both electricity and fuel through implementation of the 12 recommendations made by the energy audits.
- Creation of the UPASI energy service facility. This comprises the energy lab and the energy demonstration centre where facilities for testing the fuel and equipment have been created.
- Creation of model tea factories where all the electrical energy recommendations have been demonstrated. At the Kaikatty INDCO factory the electrical energy consumption has been reduced to 0.48 KWH / kg of made tea.
- Setting up of fuel labs in 4 tea factories located in different tea clusters in south India. This would enable tea factories to take informed decisions about fuel purchase, storage etc.
- Announcement of financial incentives for demo dedicated briquetting units for the tea industry.
- The steering committee has approved financial incentives of 5 lakhs per briquetting unit for 3 demo units Financial incentives of 5 lakhs each for demonstration of hot water generators in two bought leaf factories

Data collected so far, shows that project interventions have resulted in 70 factories adopting at



least one energy efficient recommendation. At the present rate of adoption, the energy efficient equipment is saving 5.187 million KWH of electrical energy and 8326 tons of firewood / annum with a carbon emission mitigation of 17,200 tons of CO₂ / yr.

C. Organic Tea Development Project :

This project supported by the FAO-IGG, CFC and IFOAM was launched in September 2008. It aims at establishing scientific package of practices for organic tea, harmonization of certification parameters and identification of market potential for organic tea and development of marketing strategies for organic tea in the world market. Three Model farms one each of 100 ha size have since been established in Assam, Darjeeling and In Kerala. Three R & D institutions in the respective regions are also associated with the Model farms for conducting experiments on all aspects of organic tea production. Field developmental activities as envisaged in the project like new planting, replanting, rejuvenation and simple conversion from conventional to organic have been initiated in all the three Model farms. A market survey has been undertaken by IFOAM on behalf of project to study the demand for organic tea in the United States and a report has been submitted. Steps have also been initiated for establishment of Capacity Building centre for conducting training as well as act as information centre. Training programmes have also been organized for the benefit of workers, supervisor and managerial staff engaged for the project areas. The funds received from CFC (Common Fund for Commodities) so far adds up to USD 9,65,888 as loan and USD 1,74,827 as grant. The entire loan component has been released to the owners of three model farms. The grant portion has been used towards R&D, Market survey and O&M expenses. The in kind contribution made to the project by Tea Board & owners of Model Farms so far adds up to USD 4,46,339.

D. Revolving Corpus for Loan Schemes :

During the year there was a good response to the restructuring package offered by the Board and the

default position decreased significantly with the recovery of 13.35 crore during 2009-10 as against 7.14 Crore and 10.14 Crore recovered during 2007-08 and 2008-09 respectively.

E. Closed Tea gardens :

The improved economic conditions due to steady tea prices in 2009-10 had led to reopening of more number of closed tea gardens. With the reopening of six tea gardens during the year, the total number of gardens reopened by the close of the year add upto 21 and 14 remain closed of which nine were in West Bengal and five in Kerala.

One tea garden in Kerala had availed the rehabilitation package offered by the Central Government. A sum of 73.18 lakhs was released on account of bank dues as 1/3rd contribution from GOI as per the rehabilitation package.

The Board had also written off a sum of 84.07 lakhs on account of outstanding loan availed by the closed tea estates under the erstwhile loan schemes of the Board.

The following relaxations have been approved by the Board for facilitating the reopened tea gardens to avail the benefit of the ongoing development schemes of Tea Board :

1. Recording change of ownership with Tea Board on the basis of registration deed between the erstwhile owners and the present owners who have reopened the estate.
2. Waiving off the past membership subscription dues of TRA and UPASI - TRI so that the reopened tea gardens can avail the technical assistance from the research institutions.
3. Admission of the application from the reopened tea gardens for financial assistance provided they have obtained the consent of PF Authorities for settlement of the outstanding PF dues in easy installments,
4. Relaxation of contribution to NTRF for the reopened tea gardens.



TEA RESEARCH

Tea Research :

As per the provision of Tea Act, 1953 Tea Board of India has been continuing to support and promote tea research for the development of Indian tea Industry. The Research Directorate of Tea Board has been entrusted to conduct, coordinate and evaluate tea research nationally through three tea research institutes, namely Darjeeling Tea Research and Development Centre (DTR&DC), Kurseong, Darjeeling, West Bengal, Tea Research Association (TRA), Jorhat, Assam and United Planters' Association of Southern India – Tea Research Foundation (UPASI-TRF). The DTR&DC is engaged in the R&D activities to cater to the need of the tea industry of Darjeeling, while TRA and UPASI are involved to look after the requirement of North East India and South India respectively. TRA and UPASI are, each having seven advisory centers scattered throughout different tea plantation areas in their respective zones. Both these Institutes are being granted financial support to the tune of 80% (Grant-in-aid: 49% and AED : 31%) on certain identified items to smoothly carry out effective tea research useful for the Industry. DTR&DC has comparatively small infrastructural facility and manpower strength which is being fully financed by Tea Board, Govt. of India.

Tea research covers basic, applied and regulatory aspects and apart from the above mentioned three tea

research institutes, research projects are being given/ awarded to other national R&D Institutes and Universities to conduct research for the benefit of Indian tea industry. Among various aspects of tea research, the main subject includes plant improvement (breeding and biotechnology), plant production (agronomy and soil science), plant protection (mycology and entomology) and tea quality covering biochemistry, tea tasting and tea processing, electronics and engineering.

Grant-in-aid :

During 11th plan period financial support has been increased to all the three research institutes and number of research projects were increased to 20 as against 11 in the previous plan(10th) schemes. These institutes are providing both basic and applied research information on tea cultivation, plant protection and package of practices required from time to time for the management of tea plantation, increase of productivity and enhancement of quality. The activities and progress of each of the ongoing research projects are reported in the following sections separately.

The fund allocation on account of R&D for the year 2009-10 was 27.33 Crores. The financial support given to TRA on account of Grant in aid was 4.91 Crores and AED 3.11 Crores during 2009-2010. Similarly, UPASI was granted Rs 1.14 Crores as Grant-in-aid and 0.72 Crores as AED. Tea Board also granted

2 lakhs as recurring expenditure to Assam Agricultural University, Jorhat for their tea technology course at the graduate level and 3.50 lakhs to Himachal Pradesh Krishi Viswa Vidyalaya (HPKVV), Himachal Pradesh during 2009-10. Under ASIDE scheme 50 lakhs was released to DTR&DC, Kurseong, Darjeeling for initiating building infrastructure. An amount of 5.60 Crores was released to TRA for building infrastructure under a Special Tea Centenary project. For the upgradation of DTR&DC an amount of

1.18 Crores was released for infrastructural development and procurement of equipments etc.

Plan Schemes :

During 11th plan period, there are total seventeen



research projects awarded to three tea research institutes (TRA-11, UPASI-4 and DTR&DC-2) and three other projects given each to Indian institute of Technology(IIT), Kharagpur, CDAC, Kolkata and Calcutta University. Applied research schemes are given priority while basic and regulatory aspects of tea research are also included for long term benefit and to promote export of Indian tea in the international market. Region specific research is being undertaken by different tea research institutes considering the need/requirement of the respective region.

UPASI Projects

1. DEVELOPMENT OF INTEGRATED PEST AND DISEASE MANAGEMENT (IPDM) STRATEGIES FOR TEA WITH SPECIAL REFERENCE TO NON-CHEMICAL CONTROL METHODS

Entomology :

Identification of entomopathogens was completed and the taxonomic determination was done as *Pseudomonas fluorencens*, *Trichoderma harzianum* and *Lecanicillium lecanii*. Predators collected from the fields were brought to the laboratory and identified as *Amblyseius longispinosus*, *Chrysoperla carnea*, *Mallada boninensis* and *Euagoras plagiatus* and are being cultured for further studies to evaluate their predatory potential against their respective host insects.

Red spider mite, thrips and tea mosquito bug were collected from different tea gardens of South India and maintained in the laboratory for further studies for determination of level of resistance (if any) in field population. While studying the resistance status of red spider mite, the LD50 values were calculated for field collected mites and laboratory reared mites against the commonly used pesticides such as propargite, fenpyroximate, dicofol, ethion and fenprothrin. Mites showed some degree of resistance for all chemicals except fenpyroximate and propargite. The efficacy of *Pseudomonas fluorencens* as a potential biocontrol agent of red spider mite, *Oligonychus coffeae* was investigated in the laboratory. The *Pseudomonas*

fluorencens has been found to secrete chitinase into surrounding medium in response to chitin induction which was also tested.

Chrysoperla carnea and *Mallada boninensis* were collected from tea ecosystem in the Anamallais has been identified as new predators of Red Spider Mite (RSM). The biological parameters as well as predatory efficiency were studied under laboratory condition and were found to be potential predators of RSM.

Pathology :

Standardization of suitable media for growth of *Hypoxyton* sp. was completed *in vitro* using various solid and liquid media. Ideal growth of wood rot pathogen, *Hypoxyton* was noticed in Potato Dextrose Yeast extract Agar (PYDA) medium.

The isolated bacterial and fungal strains were screened for their antagonistic potential against *Pestalotiopsis theae* following dual culture technique. Antagonistic potential of bacterial strains has been confirmed based on the inhibition zone formed around the bacterial colonies by inhibiting the pathogen's growth. The antagonistic potential of the bacterial colonies was graded according to the diameter of the inhibition zones formed around the bacterial colonies. In the case of *Trichoderma*, *in vitro* screening was done by placing a mycelial plug of 4 days old culture between the antagonist and the pathogen, and the advancement of the antagonist on the pathogen colony was noted and the efficient strains were short listed.

Among the 350 bacterial isolates, 106 strains were antagonistic to grey blight pathogen. In general, *Pseudomonas* sp. were more inhibitory when compared to *Bacillus* sp. Among the 35 *Trichoderma* isolates, 15 were antagonistic towards *Pestalotiopsis theae*. Three native strains of wood rot pathogen (*Hypoxyton* sp.) were isolated from Anamallais zone. *In-vitro* studies on antagonistic properties of the biocontrol agents against grey blight pathogen (*Pestalotiopsis* sp.) were carried



out. Pathogenicity of *Pestalotiopsis* sp. was studied in *in vitro* level, nursery, and in mature tea. The growth characterization of *Hypoxyton* in different culture media and both under static and shaking conditions were studied.

2. CONSTRUCTION OF HI-TECH TEA FACTORY AT UPASI-TRF, COONOOR

Progress of work in connection with construction of Factory covers identification of site, appointment of architect, finalization of the machinery, approval for construction etc which are in progress. In the mean time other relevant work for standardization etc have been undertaken and reported here.

Determination of optimum fermentation time (OFT) using E-Nose

The optimum fermentation times (OFT) of 5 clones were studied using E-Nose system. The OFT of the same clones, while comparing with the conventional spectrophotometric method, it was observed that five to ten minutes difference in optimum fermentation time was there between E-Nose and spectrophotometric methods.

Development of fermentation colour palette

The fermentation colour palette of clones TRI-2025 and UPASI-8 were developed using E-Vision system. Difference in number of colour palette was noticed between the clones studied.

Changes in the enzyme activities and their substrates during black tea processing.

From harvesting to withering, the activity of PPO showed a linear increase followed by reduction in its activity immediately after cutting. During fermentation, PPO activity dipped down further and after drying made tea contained only residual quantum of PPO. PO activity increased rapidly till withering and decreased during cutting and further declined on firing.

Unlike other two oxidative enzymes (PPO and PO) PAL activity declined rapidly. The decreased PAL activity

during withering is probably due to the break down of proteins resulting in the accumulation of free amino acids which tends to decrease the pH of the cell sap. Polyphenol and catechin contents declined rapidly during processing.

Changes in the peptidase and amino acids during processing

The activity of peptidase and percentage of Amino Acid have gradually increased from plucked leaves to end of withering, thereafter it decreased during fermentation and drying due to temperature inactivation. Losses in its activity were higher during drying where temperature was more than 100 degree C.

3. ANALYSIS OF GENE EXPRESSION DURING PHYTO-PATHOGENIC STRESS IN TEA USING TRANSCRIPTOMIC APPROACH.

Study on grey blight disease

Preparation of plant material and disease induction

Grey blight infection is caused by the pathogenic fungi, *Pestalotiopsis* sp. According to earlier available literature, tea cultivar UPASI-10 is tolerant against grey blight pathogen, which is selected for the study. The mature leaves were inoculated with *Pestalotiopsis theae* culture and tagged. Pathogen inoculated tea leaves were collected from zero hour to 10 days with different time intervals. Un-inoculated tea leaf samples have also been collected as control.

Isolation of RNA

RNA was isolated from the healthy and infected leaves corresponding to the different time interval of inoculation, using the RNeasy Plant Mini Prep Kit-Qiagen and stored in deep freezer (-80 degree C) until further downstream processing.

Construction of suppressive subtractive hybridization (SSH) library

About 1002 clones from forward SSH library and 1811 clones from reverse SSH library were obtained. Among them 377 and 720 clones with higher insert were



confirmed through colony PCR and sequenced. Differential subtraction of the genes from forward and reverse SSH library was confirmed through DIG High Prime DNA labeling and Detection and Starter kit I.

Analysis of the ESTs

BLAST analysis of the sequences was completed. Genes from forward and reverse SSH library were functionally annotated. Several stress and pathogenesis related genes were identified from the analysis.

Study on blister blight disease

Selection of plant material

Blister blight infection is caused by pathogenic fungi, *Exobasidium vexans*, which is an obligate parasite. Hence the healthy and infected leaves of a naturally infected blister-tolerant clone, SA 6 was selected as the best material.

Isolation of RNA

RNA was isolated from the healthy and infected leaves corresponding to the four different stages of infection, using RNeasy Plant Mini Prep Kit-Qiagen and stored in deep freezer (-80 degree C) until further downstream processing.

Construction of suppressive subtractive hybridization(SSH) library

Double stranded cDNA was constructed from the RNA samples of both healthy and infected leaves. cDNA from the healthy leaves was treated as driver and that from the infected leaves was taken as the tester for the construction of forward SSH library.

Biochemical and molecular studies on pathogenesis related (PR) proteins

Chitinase, a major PR protein produced during fungal infections in plants has been characterized in the blister tolerant cultivar, SA-6. Purification and biochemical characterization of the enzyme for its optimal activity (pH, temperature, substrate concentration, effect of meta ions and detergents), SDS and native PAGE analyses have been completed. An expression study on *chitinase* during different stages of blister infestation was completed using semi-

quantitative RT-PCR, RACE (Rapid Amplification of cDNA Ends) reactions have been performed for the PCR-amplified genomic and cDNA fragments of the *chitinase* gene and sequenced.

4. STUDIES ON RESIDUES OF PESTICIDES AND HEAVY METALS IN TEA.

The residue level of abamectin in black tea when the formulation abamectin 1.8 EC was applied @800 and 1600 ml/ha during dry season exponentially dissipated after spraying and reached below the detection limit of 1 mg/kg, on 1st day after application at the recommended dosage of 800 ml/ha.

The residue level of bifentazate in black tea when the formulation bifentazate 50 WP was applied @200 and 400 g/ha during dry season exponentially dissipated after spraying and reached below the detection limit of 1 mg/kg, on 10th day after application at the recommended dosage of 200 g/ha.

Field trial was conducted in dry season at Valparai and Coonoor to determine the residue of dimethoate at different harvest interval and the pesticide was sprayed @400 & 800 ml/ha. From the results it was found that the residue content of dimethoate in both black tea and tea brew after 7th day of application were less than 2 mg/kg and was reduced to LOQ on 14th day after application.

Field trail was conducted in dry season at Valparai and Wayanad to determine the residues of Thiacloprid at different harvest interval. The treatments included untreated control, Thiacloprid 21.7 % SC @100 & 200 ml/ha. From the results it was found that the residue content of thiacloprid were less than 3 mg/kg in black tea and less than 1 mg/kg in tea brew after 7th day of application and it reduced to less than LOQ on 14th day after application.

TRA PROJECTS

5. ESTABLISHMENT OF CHAIN OF QUALITY TESTING LABORATORIES AND STRENGTHENING OF EXISTING ANALYTICAL FACILITIES AT REGIONAL CENTRES AND AT TOCKLAI



Dry weight of Caffeine was estimated following the standard method. Total polyphenol content of tea samples was determined by spectrophotometric assay using Folin & Ciocalteu's phenol reagent which is applicable to both green and black tea products. Estimation of theaflavins (TF) and thearubigins (TR) and crude fiber were done according to the methods standardized earlier.

Dryer mouth black tea samples were collected from N. E. India namely, Upper Assam, South Bank, North Bank, Barak valley, Nagrakata, Terai and Darjeeling region.

All together 250 nos. of samples were analyzed in seven different centers to see the variation of biochemical parameters mentioned above. A significant variation for all the biochemical parameters among the commercial samples was observed. Significant variations of different biochemical parameters among the regions were also observed. Estimation of theaflavin, thearubigin and its fractions, total soluble solids and crude fibre contents have been completed. Analysis of theaflavin profile by HPLC is under progress. The non volatiles i.e. theaflavin (TF), thearubigin (TR), TR(I), TR(II), total soluble solid (TSS), total polyphenol (TPP), caffeine, crude fibre content (CFC) and theaflavin profile Darjeeling orthodox black tea have been documented by HPLC.

6. DEVELOPMENT OF ALTERNATIVE STRATEGIES FOR MANAGEMENT OF TEA MOSQUITO BUG AND BLISTER BLIGHT DISEASE IN TEA PLANTATION OF NORTH EAST INDIA

Survey was made and 18 herbal species were collected and identified growing in and around tea plantation areas of N.E. India having pesticidal properties. Laboratory study has been initiated to study the insecticidal/fungicidal properties of these herbal extracts in water, hexane and methanol. Microbial estimation was made for both fresh leaves and samples collected from *Helopeltis* and blister blight infested areas. Mass cultures of *Helopeltis theivora* are being maintained under laboratory condition for future experimentation. Two suspected entomopathogens namely *Fusarium* and *Penicillium* species were isolated

from dead *Helopeltis* collected from Darjeeling areas and pathogenecity was studied in the laboratory. However, no positive effect was obtained in case of both the fungi. Study of the biology of *Oxyopes* sp. a potent natural predator of *Helopeltis theivora* is under progress under laboratory conditions. Mating and Oviposition was recorded. Feeding rate of *Oxyopes* spider recorded consumption of 2-3 adult *Helopeltis* in six hours by a single adult *Oxyopes*.

Population density of *Oxyopes* in relation to the infestation of *Helopeltis theivora* is being studied in the tea sections around the Tocklai campus. The average mean infestation of *Helopeltis* was recorded as 24.02 and 45.95 for the month of April and May respectively. Whereas the average mean density of *Oxyopes* per bush was recorded as 0.68 and 0.90 for the month April and May respectively. Population of *Chrysoperla* sp., a potent natural predator of tea pest, in the tea sections around the Tocklai campus was recorded. The biology was studied under laboratory conditions. However, no mating and Oviposition of females were recorded.

Feeding rate of *Chrysoperla* sp. was studied in laboratory condition against 1st instar nymph of *Helopeltis theivora*. Consumption of 10-11 1st instar nymph/hr. and the time taken to consume a single nymph varies from 3-10 mins, were recorded.

7. SUSTAINING SOIL PRODUCTIVITY – SOME STRATEGIES

Regarding improvement in soil compaction, a field trial has been initiated at Ghiladhari tea estate (South Bank). Method for development of quality organic manure (vermicompost/ enriched vermicompost) has been standardized. Work is in progress to develop microbial enriched vermicompost and to see its effect on soil properties and growth of young tea under field conditions. Suitable biowaste for quality compost has been evaluated.

To explore the possibility of alternate methods of rehabilitation to shorten/eliminate the waiting period between uprooting and planting, a field trial was laid out at Borbheta experimental area where an old tea section was uprooted and planted with tea (i.e., direct planting, without grass rehabilitation) in some of the



plots. After planting, soil was mulched with Guatemala grass. The planting material used in the experiment was S3A/3. For initial benchmark information on physical, chemical and microbiological status, soil samples were collected and analysed for the required parameters.

New planting in properly rehabilitated plot at Bokahola tea Estate (South Bank) with 9 different planting materials (Clones) viz., TV 1, TV 17, TV 20, TV 26, TV 23, S3A3, T3E3, TV 30, TV 31 was completed and plants were allowed to establish freely. Initial girth measurements of the plants were taken. Both laboratory and pot culture experiment are going on to see the effect of phosphate solubilising materials (organic acids and microbes) on solubilisation of fixed and native phosphate in soil. A field experiment on "Integrated Nutrient Management in Tea", has been initiated in a commercial tea estate (South Bank) during this cropping period and pre treatment yield has been recorded this year and final treatments will be imposed next year after seeing the variation in the plots through statistical evaluation based on pre treatment yield.

8. STUDIES ON HEAVY METALS – PHASE II

Certified reference standards :

Certified reference standards for chromium, arsenic and other toxic heavy metals have been procured during this period.

Method standardisation :

The analytical method for determination of chromium has been standardised. The method involves digestion of the made tea samples with diacid (nitric and perchloric acid) mixture and estimation of the chromium contents in the extracts by Flame-Atomic absorption spectrophotometry or by Graphite furnace – AAS after calibration with reference standards.

Sample collection and analysis:

A total of 108 made tea samples were collected from different regions of Northeast India and analysed for chromium contents. The results indicated that the average content of chromium in made tea samples was 9.04 mg/kg and the range varied from a minimum

of 0.3 mg/kg to a maximum content of 35.3 mg/kg. The maximum frequency of occurrence of samples were in 5 to 10 mg/kg range. The data represents total chromium contents in made tea samples.

Water samples :

Samples of water used in field and factory in different gardens have also been collected from tea gardens in the south Bank. So far about 36 samples collected from 18 gardens have been analysed for arsenic content using a field test kit (Merckoquant). The estates were located in the South and North Banks as well as Upper Assam. In most cases (27 samples) the levels of As were below detection limit, while in the remainder of the samples the arsenic level varied between 0.005 and 0.1 ppm.

Uptake studies

A pot culture experiment is in progress to study the uptake of arsenic and chromium by tea plants. After treatment periodic sampling of leaf will be taken for analysis of the metals by AAS.

9. DEVELOPMENT OF METHODOLOGIES FOR THE EXTRACTION OF FOOD GRADE SECONDARY METABOLITES FROM TEA AND UPSCALING THE METHODS FOR COMMERCIAL PURPOSE

The choice of appropriate micro encapsulation technique depends upon the end use of the product and the processing conditions involved in the manufacturing product. It is common practice to encapsulate food or flavour ingredients within solid matrix of materials such as food approved carbohydrates and its derivatives, gums, proteins, lipids and some combination of these. The process of retention or encapsulation was carried out by spray drying, spray cooling, freeze-drying, fluidized bed drying etc. Present study is mainly focused on to select the binding material for retention of flavour and to standardize various parameters of processing for the same.

Instant tea produced in the pilot scale spray drying plant is further value added by entrapping flavour with modified carbohydrate materials. The results obtained for the retention of flavour during spray drying are shown in the following Table. Binder A was found to be better for the flavour retention than the binder B. As the process is due for patenting the details of the process parameter will be presented separately. The retention of aroma compounds can be influenced by molecular weight, stereo chemical nature, chemical functionality of the



Flavour encapsulation trial (with different binders)

FC: Control, FA: with Binder A, FB: with Binder B and FA+B: mixture of A+B.

Quality assessment of the product, study on antioxidant property, assay of free radical scavenging activity and assay on lipid peroxidation are in progress.

From the results a significant variation of free

scavenging property was observed in relation to

Treatment	Brightness	Brightness	Strength
FC ₁	Fair	Only fair	Fair
FA ₁	Fairly good	Fairly good	Fairly good
FB ₁	Fairly good	Fairly good	Fairly good
FA ₁ + B ₁	Fairly good	Fairly good	Fairly good
FC ₂	Only fair	Only fair	Only fair
FA ₂	Fairly good	Fairly good	Fairly good
FB ₂	Fair	Fairly good	Fair
FA ₂ + B ₂	Fair	Fairly good	Fair
FC ₃	Fair	Fair	Fairly good
FA ₃	Fairly good	Fairly good	Fairly good
FB ₃	Fair	Fairly good	Fairly good
FA ₃ + B ₃	Fair	Fairly good	Fairly good
		27.6	
		17.9	
		22.2	

Study on antioxidant and free

Sample No	Free radical scavenging property in %	Lipid peroxidation property in %	Total Polyphenol in %
1	86.5	82.4	28.0
2	89.4	86.3	31.1
3	88.5	84.6	29.1
4	76.3	69.4	18.4
5	72.4	66.2	16.5
6	77.2	71.3	19.4
7	89.8	86.4	30.3
8	82.3	81.2	27.6
9	71.5	68.3	17.9
10	78.6	78.4	22.2



Work on tea tablet :

Manufacturing of the different types of tea tablets are in progress using the tableting machine. Preparation of milk tablets and other types of tablets were done by using different ingredients. More than thousand tea tablets were prepared for commercial trials among the various entrepreneurs. Black instant tea and few numbers of effervescent tablets were supplied to Department of Biotechnology and B. C. Guha Center for Genetic Engineering and Biotechnology, Kolkata to feed different animals and study their medical property.

Flavour could be retained to some extent using different binders. Experiment is under progress to enhance the retention of flavour by changing the binder composition, incubation period, temperature of processing etc. Free radical scavenging and inhibition of lipid peroxidation property of tea was studied.

10. BIOTIC & ABIOTIC STRESS ANALYSIS FOR DEVELOPMENT OF STABLE QUALITY GENOTYPES

ABIOTIC STRESS (WATERLOGGED)

Establishment of control trial condition

Six different germplasms namely COHBHR (Coochbihar), BTGR (Baintgoorie), TVI (Tocklai Vegetative Clone 1), MNPR (Monmohinipur), DFLGR (Duflaghur), DJN (Dinjan) in replica were taken for studying the variability under abiotic stress (waterlogging). Waterlog stress was induced for 45 days, data on water potential were taken for 15 days interval and plant materials were selected as tolerant (BTGR) and susceptible (TV1).

Generation of subtractive libraries

Total RNA was isolated from frozen leaf tissue of both waterlogged stressed 3rd and 4th leaves (15days) of BTGR and TV1 clones of tea using Trizol (Invitrogen) according to the manufacturer's instructions. Briefly tissue was ground to a fine powder in liquid N₂ and homogenized in Trizol (1ml reagent/0.1g fresh weight tissue), then allowed to stand at room temperature for 5-10 minutes. Chloroform: isoamyl alcohol (24:1) was added using 0.2ml/ml Trizol. Samples were mixed by vortexing and allowed to stand at room temperature for 2-5 minutes more, then centrifuged for 15 minutes at 10,000g. The upper aqueous layer was removed to a clean tube and

RNA was precipitated with an equal volume of isopropanol. After 10 minutes at room temperature, samples were centrifuged for 15 minutes at 10,000g to pellet the RNA. The pellet was washed with 75% ethanol and resuspended in RNase-free water.

Preparation of mRNA and Suppression Subtraction Hybridization library construction

After RNA extraction the polyadenylated mRNA was isolated with the PolyAtract mRNA Isolation System (Promega France). Using the Clontech PCR-select™ cDNA Subtraction kit, second-strand cDNAs was prepared from the two mRNA populations under comparison. To enrich the cDNA library with clones specifically, the cDNA from BTGR-15 days was used as tester and the cDNA from TV1-15 days was used as driver. After subtraction, the PCR-amplified cDNA was cloned into pGemT-easy vector and transformed into *E. coli* JM 109 strain (Promega France).

Transformed recombinant white colonies were selected for plasmid extraction. Plasmid extraction was done using Himedia plasmid extraction kit and also manually by Alkalinelysis method.

Subtractive cDNA library from root was prepared from waterlogged stressed leaves (15days) of BTGR and TV1 by suppressive subtractive hybridization. Sequencing is in progress.

DNA sequencing

The plasmids were then amplified in PCR using Big Dye Terminator Cycle Sequencing Kit from ABI. The PCR products were then purified using EDTA, acetic acid and 70% ethanol. Sequencing was done in 3130xl Genetic Analyser.

Sequence analysis

Sequences with low quality bases (Phred score less than 20) and short sequences (< 100 nucleotides) was removed from further analysis. The vector and polylinker sequences were manually trimmed. Then sequences were assembled and arranged into unisequences using the CAP3 program. Similarity searches were done using the BlastX program against current version of NCBI "nr" non-redundant amino acid database. Sequencing of subtractive cDNA library of 300 clones has already been done, blasted for homology analysis and is in progress.



Subtractive cDNA library from root was prepared from waterlogged stressed leaves (15 days) of BTGR and TV1 by suppressive subtractive hybridization. Sequencing is in progress.

BIOTIC STRESS (HELOPELTIS INFESTATION)

Establishment of control trial condition

Infested and non-infested T3E3 clone of tea was taken for studying the variability under biotic stress (Helopeltis).

Generation of subtractive libraries

Total RNA was isolated from frozen leaf tissue of both infested and noninfested tea plants using Trizol (Invitrogen) according to the manufacturer's instructions. Briefly tissue was ground to a fine powder in liquid N₂ and homogenized in Trizol (1ml reagent/0.1g fresh weight tissue), then allowed to stand at room temperature for 5-10 minutes. Chloroform: isoamyl alcohol (24:1) was added using 0.2ml/ml Trizol. Samples were mixed by vortexing and allowed to stand at room temperature for 2-5 minutes more, then centrifuged for 15 minutes at 10,000g. The upper aqueous layer was removed to a clean tube and RNA was precipitated with an equal volume of isopropanol. After 10 minutes at room temperature, samples were centrifuged for 15 minutes at 10,000g to pellet the RNA. The pellet was washed with 75% ethanol and resuspended in RNase-free water.

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After RNA extraction the polyadenylated mRNA was isolated with the PolyAtract mRNA Isolation System (Promega France). Using the Clontech PCR-select™ cDNA Subtraction kit, second-strand cDNAs was prepared from the two mRNA populations under comparison. To enrich the cDNA library with clones specifically, the cDNA from infected plants was used as tester and the cDNA from non infected plants was used as driver. After subtraction, the PCR-amplified cDNA was cloned into pGemT-easy vector and transformed into *E. coli* JM 109 strain (Promega France).

Transformed recombinant white colonies were

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DNA sequencing

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Sequence analysis

Sequences with low quality bases (Phred score less than 20) and short sequences (< 100 nucleotides) was removed from further analysis. The vector and polylinker sequences were manually trimmed. Then sequences were assembled and arranged into unisequences using the CAP3 program. Similarity searches were done using the BlastX program against current version of NCBI "nr" non-redundant amino acid database.

11. MOLECULAR BASIS OF STRESS LINKED BIOCHEMICAL CHANGES DURING PROCESSING OF TEA SHOOTS AND THEIR RELATION TO THE QUALITY OF MADE TEA

In this study three different range of temperature for the above study were taken into consideration i.e. (T₁ (25±1), T₂ (30±1) and T₃ (35±1)). Six cultivars for the withering i.e. TV-1, TV-9, TV-23, S3A/3, Betjan and Tingamira were taken. Four different cultivars for fermentation study, TV-1, TV-23, TV26, T3E/3 were taken. Enzyme activity of polyphenol oxidase (PPO) and peroxidase (PO) were studied at different hours during withering under moisture and temperature stress. Biochemical parameter of the made tea processed under different withering and fermentation conditions were assessed. Two types of withering condition were maintained at three different temperature as follows :

W₁ – 5 hrs to 6 hrs chemical withering and 6 hrs to 7 hrs physical withering.

W₂ – 12 hrs chemical and physical withering.

Catechin degradation in relation to enzyme (PPO, PO) activity and pigment formation was studied during fermentation at different temperature as well as different



time interval.

Enzyme assay :

The activities of the oxidative enzymes such as polyphenol oxidase (PPO) and peroxidase (PO) of different cultivars were estimated.

Assay for Polyphenol oxidase (PPO) Activity :

PPO activity was measured as the rate of increase of absorbance colorimetrically at 410 nm with pyrogallol as a substrate. Enzyme activity was finally expressed as unit/mg protein. Unit of enzyme was equivalent to the change in absorbance as per minute.

Assay of Peroxidase (PO) Activity :

Peroxidase activity was measured by using guaiacol as a substrate. The activity of the enzyme was measured similarly from the rate of increase in absorbance at 430nm and expressed as unit/mg protein.

In tea processing, tea shoots are subjected to different types of stress such as moisture stress, temperature stress, mechanical stress etc. Our objective during tea processing were focused to regulate various stresses by monitoring overall processing conditions. It is known that different biochemical regulatory mechanism primarily function to cope up with various stresses which tea shoots come across during processing. As a part of our objective we have concentrated our study to see the variation of some oxidative enzymes during processing under different temperature and moisture stress and their effect on quality.

From the study it was observed that increase in withering temperature and rate of loss of moisture influence the enzyme activity to greater extent. Increase in moisture as well as temperature stress results in decline of PPO activity at the end of withering while contrary to that there was an increase in the level of peroxidase activity. The variation of enzyme activity at different temperature was found to effect the formation of the theaflavins specially gallated derivatives of the TF with the reduction of brightness and briskness. It is due to degradation of EGCG along with other catechins during withering. The detrimental affect of temperature could be reduced by restricting the moisture loss in the first

half of withering. The formation of TR1 was also reduced at higher temperature. Rise of withering temperature was found to influence the optimum fermentation time of each cultivars. It was found to reduce by 10 – 20 minutes depending upon cultivars.

Increase in fermentation temperature increased degradation of catechin in early part of the fermentation. Rate of EGCG and EGC degradation were found to be more significant in comparison to other catechins. The variation of degradation pattern is found to influence significantly in the formation of Gallated theaflavin along with TRI (low molecular wt). From the study it was observed the TV-1 and T3E/3 produced best cup at low temperature i.e. T_1 while TV-23 and TV-26 produces best at the temperature around T_2 .

Thus cultivar having the fast fermenting character produces better cup at low temperature such as TV-1, T3E3. However, slower fermenting cultivar produces better cup at slightly higher temperature e.g. TV-26. Enzyme activity may be one of the factor for the same.

High temperature withering is detrimental to quality. Brightness, briskness and overall cup character is effected. Degradation of galocatechin is found to be significantly higher in initial part of fermentation in comparison to other catechins. Formation of theaflavin mono and digallate decreased considerably with increase in temperature i.e. at T_3 . Optimum temperature during fermentation is found to be cultivar specific.

12. ESTABLISHING A PESTICIDE RESIDUE TESTING LABORATORY

The project was initiated at the premises of Tea Research Association, Kolkata, w.e.f., 1st May 2009 and during this one year of the project the progress made is given below under different heads:

Site selection

During the period under report, the laboratory site has been selected and the laboratory is proposed to be housed in a floor area of approximately 763.56 Sq ft in a building adjacent to the TRA Kolkata office at 9th Floor, 113 Park street.

Manpower position : Three sanctioned posts have been



filled up .

Procurement of equipment

Tenders were floated for equipments and necessary procedures followed for procuring equipment sanctioned in the project.

Renovation work

The site of the laboratory is under renovation at 113 Park Street which will be ready by October 2010 as per the layout. The floor tiles have been fixed and concealed electrical and plumbing lines have been put in place. By October-November 2010, the major equipment are also expected to be installed in this site.

TRA-NAGRAKATA PROJECTS

13. CURRENT PEST PROBLEM IN TEA OF NORTH BENGAL AND THEIR POSSIBLE MANAGEMENT STUDIES

The Jr. Entomologist has been appointed. One Jr. Research Fellow and one Field Assistant have been selected.

BOD Incubator and UPS have been purchased. Purchase of other equipment is also in progress.

Different insecticides were evaluated against looper caterpillar complex and other tea pests.

Studies on natural enemies has been started to exploit natural mortality factors.

A series of workshops on looper caterpillar management have been conducted for the grass root level workers and the executives.

A special bulletin has been published on looper caterpillar management.

14. STUDIES ON DROUGHT IN TEA AREAS OF DOOARS AND TERAI IN RESPECT OF SOIL PROPERTIES, PHYSIOLOGY AND YIELD WITH A VIEW TO SCHEDULE IRRIGATION IN A COST EFFECTIVE WAY

Recruitment of Jr. Research Fellow and Field Assistant is yet to be done as there were no candidates in first advertisement. The process has been repeated.

Tensiometer has been purchased. The process to purchase the other equipments is on.

One experiment on irrigation has been laid out and

treatments have been imposed.

15. STUDY THE BIOCHEMICAL ASPECTS OF TEA PROCESSING IN RESPECT OF CTC AS WELL AS GREEN TEA MANUFACTURE

One Jr. Research Fellow has been appointed.

Green tea samples have been manufactured from different planting material in the existing miniature factory and bio-chemical analysis of made tea sample was initiated.

Purchase of machinery in the manufacturing unit is on to improve the existing miniature factory at Nagrakata including one ECM (Environmentally Controlled Manufacture) Unit.

B.C.GUHA CENTRE (CALCUTTA UNIVERSITY) PROJECT

16. Evaluation of the health beneficiary effects of tea products and modulatory role of tea flavonoids on emphysematous lung damage for the formulation of a high potency tea tablet.

The project was initiated after receiving the funds on and from December 1, 2009. The first three to four months involved appointment of a Research Scholar, procurement of instruments and chemicals for the project and thereafter some basic standardizing experiments to study the modulatory role of tea extracts on the cigarette smoke-treated guinea pigs with respect to emphysematous lung damage and apoptosis.

Experiments Conducted:

Guinea pigs as animal model procured and treatment initiated as per proposed protocol:

- i. Male short hair guinea pigs weighing 350-450 g were used for all experiments. All animal treatment procedures met the NIH guidelines (NIH Guidelines for Care and use of Laboratory animals, 1985) and Institutional Animal Ethics committee guidelines).
- ii. **Exposure of Guinea Pigs to Cigarette Smoke (CS)** - The guinea pigs were fed vitamin C-free diet for 7 days to minimize the vitamin C level of tissues (*Chatterjee, 1961, 1973 and Panda, 2000*). This is because vitamin C is a potential inhibitor of CS induced protein modification (*Panda et al., 1999*,



2000, 2001), which would otherwise counteract the damaging effect of CS.

- iii. **Preparation of Tea Infusion** – 0.5 grams of black tea were added to 10 ml of boiling water, brewed for 5 min, cooled to room temperature and filtered. The filtrate has been designated as BT.
- iv. **Treatment of Animals** : The guinea pigs were divided into the following experimental groups ($n = 4/\text{group}$). Air: exposed to air and given water to drink; CS: exposed to CS and given water to drink; CS + BT (*black tea*) infusion: exposed to CS and given the BT infusion (0.5 g/10 ml) to drink instead of water; BT: exposed to air and given the BT infusion to drink. The tea infusion was freshly prepared and replaced every morning and evening. The amount of tea infusion (5% solution) consumed per guinea pig per day was approximately 10 ml. After feeding vitamin C-free diet for 7 days following exposure to air / only CS/ CS+BT / only BT up to 60 days, all sham controls and the experimental guinea pigs were deprived of food overnight and sacrificed next day by diethyl ether inhalation. The lungs were then excised immediately and processed for analysis. Such data was collected at 0, 7, 15, 30, 45 and 60 days of treatment.

The preliminary standardization experiments started during January 2010 – March 2010 using guinea pig models on cigarette smoke induced emphysematous lung damage and apoptosis and the modulatory role of black tea (BT) infusion on such damage were completed and the data collected and processed. The validation of HPLC-based analysis protocols for the assessment of the level of important tea antioxidants like catechins, theaflavins in black tea infusions and animal tissue extracts and blood were also initiated. Most importantly, a visit was made to the Tea Research Association (TRA), Tocklai Experimental Station and the modalities of collaboration with TRA discussed and finalized. Instant tea tablets as well as an instant tea powder (apparently three times concentrated compared to black tea infusion) were provided to

us by our collaborators which are being presently assessed for their biological/antioxidant efficacy compared to black tea infusion.

Analytical HPLC Analysis of Black Tea Infusion and Tea Antioxidants-

The optimal mobile phase for the separation of tea component and determine the concentration of these in black tea preparation was a gradient system consisting of solvent A (degassed & deionized water) and solvent B (100% acetonitrile) These components were eluted from the column at 25 °C with a linear gradient of solvent B starting from 5% to 95% in 60min and also at 5% to 65% in 60 min at a flow rate of 1.0 ml/min. The peaks were monitored by a photodiode array UV detector at 270 nm. The peaks were confirmed by the retention times of authentic samples and mass.

Assessment of emphysematous lung damage in guinea pigs exposed to CS and its prevention by black tea

Histopathology profiles show that when the guinea pigs are exposed to CS for 15, 30 and 60 days at an exposure rate of 5 cigarettes (2 puffs/cigarette)/guinea pig/day and given water as the drink, there is marked damage in lung cells, as evidenced by morphometric change and enlargement of airspaces as compared to guinea pigs exposed to air and given water as the drink. When the guinea pigs are exposed to 30 and 60 days CS and given BT infusion as the drink such change is markedly reduced. No significant lung cell damage is observed in the guinea pigs exposed to air and given BT as the drink. The results confirm that compared to CS exposure alone, the increase in alveolar air space is significantly prevented when the CS expose to guinea pigs are given BT infusion along with smoke exposure.

Assessment of apoptosis of lung cells exposed to CS and its prevention by tea:

The paraffin embedded tissue sections (5 μm) were deparaffinized, washed and permeabilised. The tunnel reaction was carried out using "In situ cell death detection kit, fluorescein" (Roche) according to manufacture's instruction. After reaction, the slides were washed with PBS and DNA fragmentation was detected



by labeling with fluorescein labelled dUTP using terminal deoxynucleotidyl transferase. The cells were examined using a fluorescence microscope (Olympus Bx40) at excitation wavelength of 488 nm. Digital images were captured with CCD camera (Olympus; magnification, $\times 10$). The nuclei were counted by counter staining with 4', 6'-diamidino-2-phenylindole (DAPI) at excitation wavelength, 350 nm. Two fields per section of four independent sections in each group were evaluated.

IIT-KHARAGPUR PROJECT :

17. STANDARDIZATION OF PROCESS PARAMETERS FOR MACHINERY DEVELOPMENT IN WITHERING, MACERATION, ROLLING, FERMENTATION AND DRYING OF TEA.

A new infrastructure facility comprising of tea processing unit, tea analytical laboratory, workshop and an office complex is in the process of development. A building with floor area of about 432.4 m² (4654.3 sq ft) is under construction at the farm complex of Agricultural and Food Engineering Department. The building, when completed will house a biochemical lab (63 m² i.e. 678 sq ft), a workshop (229 m² i.e. 2465 sq ft) and an office space (38 m² i.e. 409 sq ft). The civil construction, plumbing and electrical works are in progress.

Development of Withering Trough

To study the effect of operating parameters of withering on quality of made tea, a withering trough has been designed. The withering trough will be made up of stainless steel. Length of the trough is 15.25 m and the cross-section of the inner space 0.6 m \times 0.6 m.

Development of Leaf Pre-Cutter and Single Cut Maceration Device

Leaf pre-cutting unit: Before feeding tea leaf to the single cut maceration device, it was required to be cut to a small size. The leaf pre-cutting unit had a screw conveyor of 8 cm diameter and 13 cm length. The pitch of the screw was 65 mm at the feed and 28 mm at the discharge end.

Single cut maceration device: A bench scale single cut device for the maceration of leaves was

developed. The device consists of a bench scale macerator unit having rotors for cutting the leaves and a 10 hp motor to rotate the vertical shaft of the rotor. Macerated tea leaves along with high velocity air were discharged from the outlet of the unit.

Development of Continuous Rolling Devices

Three types of continuous rolling devices are under development. They are: (i) Screw type rolling device, (ii) Flat belt tea roller and (iii) Rotocone tea roller. The working of the devices is described below.

Controlled Environmental Set Up for Withering, Fermentation and Drying

For manufacturing of black tea, cellular integrity of tea shoots is disrupted. The substrates (polyphenols) and enzymes (polyphenoloxidase and peroxidase) that are present within the cells are mixed up. This results in initiation of a series of biochemical and chemical reactions with the uptake of atmospheric oxygen and formation of oxidized polyphenolic compounds, which characterizes tea with typical aroma and taste. Since most of the biochemical reactions occurring in this stage are oxidative in nature, consumption of oxygen by the macerated tea leaf is a critical parameter to determine the extent of oxidation. Oxidation and polymerization of catechins leads to formation of theaflavins, thearubigin and other highly polymerized substances. These compounds contribute to strength, colour, and astringency of tea liquor.

Measuring O₂ uptake and CO₂ production during oxidation: Preliminary experiments on oxygen consumption and carbon-dioxide production during oxidation of withered and macerated tea leaves was conducted inside an air tight chamber made of Perspex sheet.

Drying of tea in through flow dryer: Experiments were conducted on drying of CTC tea in a laboratory fluid bed dryer. Fresh leaves were withered for 14 – 16 h in ambient condition and then macerated using a colloidal mill. Macerated tea leaves were manually pressed through square mesh sieve having hole size of 2.73 mm square to obtain tea granules, which resembled like CTC tea. Granulated tea was spread to



2.5 cm thickness on a tray and was allowed to oxidize for 100 to 110 min at ambient condition. A through flow drying set up was used for the drying of oxidized CTC tea.

Vacuum drying : Quality of made tea is largely dependent on the final step of processing, i.e., drying. Drying at lower temperatures helps in better retention of aroma and flavour of several food products. Vacuum dryer can be used for the drying of tea at low temperature. Effect of absolute pressure inside the dryer on the quality of final product was studied.

Preliminary experiments on vacuum drying and atmospheric hot air drying of tea leaves were carried out using a laboratory vacuum oven and a tray dryer. Direction of air flow in the tray dryer was parallel to the tray surface. Fresh tea shoots were plucked from the tea garden of the department and kept overnight for 14 – 16 h for withering. Withered tea leaf was macerated using a colloidal mill. Macerated leaf was then passed through a sieve with square holes to form CTC tea granules. These tea granules were kept on a tray for 70 – 100 min for oxidation. Oxidized tea granules were dried in vacuum oven and tray dryer at 85 °C and 65 °C temperatures. An absolute pressure of 13.55 kPa (which corresponds to 26 inches Hg vacuum) was used in vacuum dryer. Moisture content of tea samples at 10 min interval was calculated from its weight and initial moisture content of the sample.

C-DAC PROJECT

18. CORPUS CREATION OF MEASUREABLE PHYSICAL PARAMETERS OF INDIAN TEA

Corpus Specification:

The corpus specification design requires the following issues to be studied:

Specify Geographical regions/ Tea gardens from where data to be collected : For ease of research and operational convenience four specific tea growing regions were selected based on different agro climatic conditions, i.e. northeast, east, north and south India. More precisely, in north east, region of north Assam, south Assam have been earmarked ; in east, gardens in Terai and Dooars have been identified; In north India

one garden in Kangra Hill was identified; and in south India, the ENV system will be set up at two or more gardens/ TRI advisory centers at Annamalai hills and Nilgiri hills.

The data-list : The design of the list of items to be collected constitutes one of the most important steps in the data collection exercise. Due to the variability of agro-climatic zones, leaf quality/ plucking styles, different tea clone type, tea processing practices, consumer requirements, all variations in the range of data to be captured, the data-list should be large enough to incorporate not only all of the varieties in the tea clone/ grades but any important “co-related taster score” also.

Number of trials : Collecting multiple instances of each data-item per clone /season /sample / Taster is important for several reasons. First, electronic tea tasting by E-Nose or E-Vision requires training and testing on different samples of wide variation (full scoring range i.e. best to worst) by the same tea taster. Second, the collection of multiple trials serves as an insurance against taster errors/ biased ness, and accidental loss of data. Again, a balance is needed between collection of additional trials and validation time and effort per tea taster.

Selection of Tea Taster : One of the major involvements for creation of tea corpus will be Tea Taster. Data for the tea corpus will contain basically electronic evaluation of Tea Tasting by e-Nose and e-Vision system. The working principle of the ENV system lies on the training the known tea samples by the tea taster score and testing the unknown samples using the trained data set. If tea taster is consistent and reliable, the accuracy of the system and performance will be increased.

Data validation methodology (Screening of raw data): Raw data collected in different gardens/ tea tasting lab/ research centers, need to be validated / authenticated either manually or automatically using software before storing into the actual database (corpus) located at centralized server. It will check the data integrity, completeness and eliminate incomplete testing result/ data set, repetition etc.



Identification of data Collection centers

After consultation with Tea Board/TRA/TRF (UPASI), following tea gardens/ institutes/ research organizations have been identified for pilot level data collection for creation of tea quality corpus.

Name of the institutes are as follows :

1. Tea Research Association, Tocklai at Jorhat, Assam to cover North East Upper Assam Tea Standard.
2. IHBT, Palampur to cover Kangra Valley Standard.
3. Tea Research Foundation, TRF, UPASI, Valparai to cover wide range of varieties of South Indian Tea
4. Tripura Govt. Tea Factory, Tripura to cover lower Assam range.
5. Tezpur University, Tezpur Assam.
6. Darjeeling Tea Research Foundation, DTR & DC, Darjeeling to cover Darjeeling Tea varieties.

Hardware development : 6 (Six) Nos of ENV Systems have already been fabricated & tested in our laboratory.

System Installation : We have already installed our system for initial data collection in the following gardens/ research organizations.

Tea Research Association, Tocklai, IHBT, Palampur , Tea Research Foundation, TRF, UPASI, Valparai , Tripura Govt. Tea Factory, Tripura, Tezpur University, Tezpur Assam, Darjeeling Tea Research Foundation, DTR & DC, Indian Institute of Technology, IIT, Kharagpur may be considered.

Software development : Remote client ENV Software has been developed for transmitting of tea tasting data from the client PC to the centralized server PC through Internet. This software is responsible for automatic data transfer from remote PC to the centralized server PC in a regular interval. This software accumulates all the tea testing data & put in a folder in the remote PC. Then folder data is compressed using 7zip loss less data compression technique. This compressed data is sent to the server using FTP data transfer technique. We have already deployed this software to the user premises. Data has been successfully transferred from IHBT, Palampur, Tezpur University, TRA Jorhat to C-DAC Kolkata centralized data

server. Another software has been developed for importing server data to the database. MySQL database is using for data storing. Above software is already tested in our laboratory. For presenting the corpus data we are developing a web portal with flexibility to searching tea quality data, down load etc.

Evaluating quality of Finished Tea using ENV system and co-relating with tea taster:

A pilot level experiment has been initiated in C-DAC, Kolkata for evaluating tea quality using existing ENV System as well as manual evaluation has been performed by a professional tea taster. For the above purpose, one visiting tea taster has been recruited as consultant. Total 162 number of CTC tea samples have been tested in our laboratory and the testing data collected by the ENV system has been stored in the corpus database. This process is helpful for initial trail with corpus software before final deployment in the filed.

DTR & DC PROJECTS

19. NITROGEN MINERALIZATION OF ORGANIC MATTER IN ACID SOILS OF TEA (*Camellia sinensis* L.) IN NORTHERN DISTRICTS OF WEST BENGAL

Analysis of organic matters viz. vermicompost (VC), raw cow dung (RCD), farm yard manure (FYM), poultry manure (PM), fish meal (FM), tannery waste (TW) and mustard cake (MC) were done for total organic carbon (TOC), $\text{NH}_4\text{-N}$, $\text{NO}_3\text{-N}$, total nitrogen (TN), total organic nitrogen (TON), total-P, total-K, water soluble carbon (WSC), hot water soluble carbon(HWSC), ash etc.

Aerobic carbon mineralization of organics was investigated for 35 days. Anaerobic nitrogen mineralization of organic matters was also studied for 7, 14 and 21 days.

A new set of 15 (fifteen) organic matters i.e. Poultry manure, Vermi-Compost, Fish Meal, Farm Yard manure MBM-2, Organomax, Copra Cake, Karanja Cake, Neem Cake, Mustard deoiled Cake, Ground nut deoiled cake, Rice Bran deoiled cake, Til cake, Mahua Cake, Soya Deoiled cake were included for the study.

Nutrient content and quality of organic matters were assayed. The quality parameters include moisture percentage, ash content, ammonium-N, nitrate/ nitrite-



N, total nitrogen, mineral nitrogen, organic nitrogen, total phosphorus, total potassium, total organic carbon, total sulphur, C/N, C/S ratio, micronutrients (copper, zinc, iron and manganese), heavy metal (nickel, chromium and cadmium) content.

Anaerobic nitrogen mineralization from all the 15 organic matters for 2, 4 and 7 days of incubation at 40°C have been completed including the analysis of Ammonium-N, Nitrate/Nitrite-N at each interval. C-mineralization of 15 organics has been completed and the same has been done for three months.

20. DEVELOPMENT OF PHOSPHATE SOLUBILIZING BIOFERTILIZER FOR TEA (*CAMELLIA SINENSIS L.*) IN ACID SOILS OF NORTH BENGAL

Eighty one (81) soil samples were collected from tea gardens of different elevations. Totally 300 cultures were isolated from 81 soil samples. Out of 300 cultures, approximately 27 bacteria and 21 fungi have been selected as potential phosphate solubilizer based on clearing zone on tri-calcium phosphate containing solid media.

Sixteen (16) bacteria and eighteen (18) fungi have been evaluated on the basis of on tri-calcium phosphate solubilization in liquid culture. Further isolation of phosphate solubilizing microorganisms has been completed for another 50 soil samples collected from Darjeeling tea gardens. Totally, 155 bacteria were isolated from 50 soils. Out of 155 cultures, approximately 58 bacteria have been selected as potential phosphate solubilizer based on clearing zone on tri-calcium phosphate containing solid media.

Screening programme based on the Solubilization of tri-calcium phosphate Solubilization, Rock phosphate, Aluminium Phosphate and Ferric Phosphate in liquid culture have been completed for 49 bacterial cultures under laboratory condition. The screening programme was based on the solubilizing capacity after 5, 10 and 15 days of incubation.

All the cultures (PSB) have been tested for their ability to produce IAA but none of the cultures produce IAA in tryptophan amended media. On the basis of the insoluble phosphate solubilizing capacity eleven (11)

bacterial isolates (T-1, T-5, T-8, T-20, T-30, T-33, T-38, T-40, T-52, T-56 and T-57) have been identified as potential solubilizer. Utilization of various carbohydrates by selected phosphate solubilizing bacteria has been completed. Growth performance of phosphate solubilizing microorganisms at low pH (4.0) has been completed for 9 isolates.

Regulatory Issues and Technological Support :

Research directorate of Tea Board has been pursuing regulatory issues of tea including fixation of MRL, addressing pesticide residue problem, iron filling, nature identical flavor and fixation of standards of instant tea etc. Essential technical support is being provided in the form of circular/notice etc. to the tea producers association, tea export association and tea merchant association obtaining technical information from different international organization and collecting/collating data from the tea research laboratories. Tea Board attended various national (PFA, BIS, Shadow Committee etc) and international (Codex, ISO etc) meetings and participated in the deliberation for updating latest information/regulation and represents the concern of both the industry and government.

Participation in the Council of Management/Board of Trustees/Scientific Advisory Committees:

Research directorate of Tea Board attended/represented various research/scientific advisory committee, management council and planters committee of tea research institutes in the country for formulating, coordinating and evaluating tea research for the interest of the Indian tea industry.

Also Directors / Scientists of tea research institutes and Project Investigators of the all the 11th plan research schemes were invited to Tea Board for attending / presenting the progress report in the Tea Research Liaison Committee (TRLIC) meeting. One such meeting was held in Tea Board in September, 2009 for the evaluation of the projects wherein representatives of the Industry and expert scientists were also invited.



TEA PROMOTION

Introduction

Exports of Tea increased in 2009-2010 in physical terms compared to the previous year, to the extent of 22.79 m. kgs. The value realization also registered an increase during 2009-2010 as compared to 2008-2009 to the extent of US\$.119.76 million on account of the higher unit price realization during 2009-2010 of US\$.2.99 per kg. as compared to US\$.2.72 per kg. during the previous year.

A major factor contributing to the increase in export of tea from India during 2009-2010 was largely the increased off take by countries like Iraq, Russia and Kazakhstan. Improvements were also noticed in the countries like Japan, Canada, Poland, USA, UAE, Pakistan, Sri Lanka, Kenya and Afghanistan during 2009-2010 as compared to the corresponding period of 2008-09. A decline in exports was seen in respect of UK, Germany, and A.R.E. (Egypt) as compared to the corresponding period of 2008-09.

Markets such as Russia/CIS, UK, A.R.E. (Egypt), UAE and Pakistan continued to be of vital importance. In keeping with the requirements of the export and domestic markets there was a focus on quality in a sustained manner. Quality control projects continued to be actively pursued along with implementation of ISO 3720 Standards and HACCP (Hazard Analysis & Critical Control Points). Efforts continued to persuade producers to increase production of exportable quality good teas of

orthodox variety.

The Tea Board is organizing several promotional activities for domestic consumption of tea. They were mainly aimed at the youth, projecting tea as a lifestyle beverage and at housewives, propagating the health benefits of tea. However, the domestic generic effort was on a low key during 2009-2010 due to paucity of funds. For projecting the quality image of Indian tea, the Tea Board's outlet at Mumbai, the "Tea Centre" was revamped.

As part of tea promotion activities the transport subsidy scheme was continued. ` 1.50 per kg teas was reimbursed to tea exporters towards meeting additional transport and handling charges incurred for teas exported through I.C.D. Amingaon. In keeping with Ministry's MDA guidelines some nominal promotional assistance was provided to exporters. Regular promotional activities of the Board were also carried out including through participation in various trade and consumer Fairs and Exhibitions internationally.

The table below gives position of Indian tea exports over the last 3 years.

Year	Qty (in M Kgs)	Value (in M US\$)	Unit Price (US\$/kg)
2007-08	185.32	469.59	2.53
2008-09	190.64	518.04	2.72
2009-10	227.90	681.57	2.99

The Board's export promotion work is carried out from Head Office and through its foreign offices located at London, Moscow & Dubai.

The present jurisdiction of the Board's Foreign offices is as under:

LONDON	UK, Ireland, Norway, Sweden, Denmark & Finland. Since the closure of Hamburg Office from July 2002, the following countries have come under the jurisdiction of London Office:- Belgium, Luxemburg, Netherlands, France, Germany, Italy, Spain, Portugal, Greece, Austria, Switzerland, Malta, Cyprus, Poland and the breakaway Republics of former Yugoslavia such as Bosnia Herzegovina, Croatia, Slovenia, Serbia, Montenegro and Macedonia
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Moscow	Russia and CIS countries
Dubai	West Asia and North Africa comprising Kuwait, Iran, Iraq, Bahrain, UAE, Saudi Arabia, Oman, Qatar, Yemen, Jordan, Syria, ARE , Libya, Sudan, Tunisia, Algeria, Morocco, Turkey and also South Africa. Afghanistan and Pakistan were new additions.

Promotional activities in countries other than those covered by the Overseas Offices are undertaken from the Board's Head Office in Kolkata with the help and co-operation of respective Indian Missions abroad.

The work of promotion is carried out at various levels :-

- a) Generic promotion through Tea Councils to increase overall consumption of tea including activities to communicate the health aspect of tea. India withdrew from the Tea Council of Canada from 01.04.2009, but continued as member of the Tea Councils of UK, Germany and USA.
- b) Promotional programmes for Indian tea are carried out by the Board's foreign offices to enhance demand for Indian tea and increase market share. Activities geared towards facilitating trade through these offices include participation in Fairs and Exhibitions, trade facilitation by way of arranging Buyer-Seller meets and visits by trade delegation, etc.
- c) Market development activities include market Surveys, market analysis and tracking of consumer behaviour. This also includes making all relevant information available to exporters/importers and through an information dissemination plan.
- d) In order to enhance the equity of Indian Tea and its various sub-brands, efforts are on to register the Board's logos in various markets as well as to popularise the usage of these logos and to prevent misuse by unauthorized users.

6.1 Activities from India.

The Directorate of Tea Promotion in the Board's Headquarters co-ordinated the activities of the Board's overseas offices to ensure proper monitoring of their

promotional programmes and smooth functioning. Activities during the year 2009-2010 included the following:

- a) Organising the Board's participation in Trade Fairs and Exhibitions not covered by the Overseas Offices.
- b) Arranging the visit of the Board's representatives, tea delegations to foreign countries to participate in International Meetings, Fairs/Exhibitions and Buyer-Seller Meets.
- c) Organising the visits to India of tea delegations/buyers and media representatives from abroad, including arranging their meetings with tea trade, visits to tea areas etc.
- d) Maintaining liaison work with the tea trade, attending to trade enquiries, shipping and warehousing difficulties, keeping the tea trade informed of developments related to exports, as well as, dissemination of market and trade information.
- e) Registration of producers, exporters, traders of Darjeeling tea under Darjeeling CTM Protection Process.
- f) Issuance of Certificate of Origin for all exports of Darjeeling tea based on invoice-wise tracking of garden tea production.
- g) Processing and disbursement of various assistance to trade/industry under Market Promotion Scheme of Tea Board.
- h) Maintenance of accounts and budgeting on various allocations against activities under Market promotion Scheme.

Information Dissemination

As part of information dissemination, the trade enquiries received at various fairs and exhibition as well as those received from time to time from various sources, were passed on to the industry members through the revamped website.

Market consolidation and Diversification of export market portfolio.

Efforts are on to consolidate position in markets where India has a significant share of the tea market, and also to enter new markets. The Geographic market portfolio



needs to be diversified in order to reduce the dependence on the few major importing countries and create a more balanced basket. Efforts are now being focused on tapping the potentials in the far east and ASEAN region as well as Egypt and Pakistan. Tea Board's participation in events in China are now showing results.

NICHE SEGMENT OPPORTUNITIES

Value-addition and targeting niche segments in specific markets has been a priority area. Efforts were on to increase orthodox production. 40% of the world's consumers drink orthodox teas whereas 91% of Indian tea produced is CTC. Industry has taken initiatives to increase orthodox production, as well as quality improvement and cost reduction. Speciality teas like Darjeeling have been branded as top end products and protected in terms of Intellectual Property Rights.

Intellectual Property Rights Protection for Indian Tea-Achievements 2009-10.

The Tea Board has continued its objectives to protect and preserve its various tea names/ logos as India's treasured Geographical Indication and icons of India's cultural collective heritage. This is in addition to Darjeeling tea being the first Geographical Indication to be registered in India. Darjeeling is registered in over 20 overseas jurisdictions.

1- Registrations obtained during 2009-2010.

No	Country	Nature and subject matter of registration
1.	Russia	Trademark for INDIA TEA LOGO
2.	EU member countries	Community Collective Mark for DARJEELING logo
3.	India	Registration of the logo and word mark of ASSAM ORTHODOX as GI
4.	India	Registration of the logo and word mark of NILGIRI ORTHODOX as GI
5.	India	India Tea Logo as Certification Trade Mark

2. Oppositions in India - Board is constantly watching and opposing every effort to register the mark as well as logo as trade mark in India which is similar or deceptively similar to that of the registered logo mark of the Board. Total 23 oppositions were filed

by the Tea Board in India during the period 2009-2010 to prevent attempted registrations and misuse of DARJEELING, ASSAM, NILGIRI tea names and logos as well as the INDIA TEA Logo. In recognition of the Tea Board's rights and to settle the matter, 3 applicants have removed the objectionable name/logo from their labels. Other oppositions are pending.

3. Oppositions/Cancellation Actions outside India - List of oppositions/cancellations filed by the Board outside India with brief details - 6 oppositions/cancellation actions were filed by the Tea Board in foreign jurisdictions i.e. in Chile (1), Sweden (2), China (1), France (1) and Vietnam (1) during the period 2009-2010. All of these pertain to use of DARJEELING word/logo marks by the applicants. The oppositions in Sweden against MONTESSORISKOLAN VILLA DARJEELING EKONOMISK were decided in favour of the Tea Board as the applicant withdrew its applications in recognition of Tea Board's rights in the DARJEELING word marks.

No	Country	Nature of pending application subject matter of registration	Application No.	Status
1.	Japan	Regional Collective mark for DARJEELING word	No.2007-103568	Under examination
2.	EU	PGI for DARJEELING word under Regulation 510/06	028913	Advertised.



Participation in International Fairs/Exhibitions from Head Office.

During the period under review, participation in the following Fairs and Exhibitions was organized from Head office:

1. Shanghai International Tea Culture Festival Shanghai, China.	16 th to 19 th April 2009
2. World Tea Expo, Las Vegas, USA	2 nd to 4 th June 2009
3. Asian Countries Commodity Fair, Kunming, China,	6 th to 10 th June, 2009
4. Africa's Big Seven, Johanesburg, South Africa	19 th to 21 st July, 2009
5. Fine Food Australia, Sydney, Australia	7 th to 10 th September, 2009
6. Fancy Food Show, San Francisco	17 th to 19 th January, 2010
7. Foodex, Tokyo, Japan	2 nd to 5 th March, 2010

Generic promotion of tea in India

As part of the generic promotion of teas in India, Tea Board participated in the following events during the year

Under review:	
Major Tea Fest. May 2009 UPASI, Coonoor, Tamil Nadu	May 2009
Chhalojai Tourism Fair 2009 Kolkata	June 2009
National Expo 2009 Kolkata	September 2009
UPASI Annual Conference at Coonoor 2009	September 2009
Krishi 2009 Nasik	November 2009
Science and Technology Fair 2009 Central Park, Salt Lake, 24 Pgs. (North), West Bengal	November 2009
Kolkata Film Festival 2009	November 2009
International Food & Agriculture Expo 2009 at Cochin in Cochin	November 2009
Konark Dance Festival 2009 Konark, Orissa.	December 2009
Jatiya Sanhti Utsav-O - Bharat Mela 2009 at Govindanagar, Canning, 24 Pgs (South), West Bengal	December 2009
North Bengal Industrial Fair-2009 Jalpaiguri, West Bengal	December 2009
Agrimack- New Delhi, New Delhi	December 2009
Gaithata Block Puspha-O- Krishi Mela 2010	January 2010
W.B. Tourism Fair at Nalban, Salt Lake, 24 Pgs. (North)	January 2010
97 th Indian Science Congress Thiruvananthapuram, Kerala	January 2010
North East Business Summit Fair-2010	January- 2010
4th Asom International Trade Fair	March 2010



Tea Board also sponsored BANNER and GATE at the following events :

2nd International Trade Festival 2009 at Guwahati.	January 2010
Ganga Sagar Mela	January 2010
Sunderban Gramin Mela 2010.	February 2010

Indian tea advertisements, with articles in some cases, were released in a number of national and other magazines, newspapers, supplements etc, highlighting tea as health and lifestyle beverage.

Iced Tea Campaign

In the year 2009-10 a small burst of iced Tea campaign had been undertaken using the electronic media covering select IPL matches and elections from April to June'09. Set Max was chosen for IPL and Times Now, CNN IBN, Aaj Tak and Colors selected for election coverage. In addition to the normal iced Tea advertisement, 10 special animated strips were produced with various election related slogans for use during the election coverage. The contract for use of the sound track 'ek mai our ek tu' was also renewed.

6.2 Production of Publicity Materials and Gift Items.

The Directorate continued its regular functions of production and printing of promotional literature/items , catering to the request for publicity materials, tea caddies, etc., from the Board's foreign offices and Indian Missions abroad, interacting with the general public, domestic and foreign press and other VIPs/ Government Officials, prospective tea buyers, etc.

6.3 Tea Promotion in India.

With the slowdown in the rate of domestic consumption of tea, increasing competition from other beverages and developments in the global arena, such as, the liberalized regime of imports under WTO obligations, there has been a revised focus of the Board on tea promotion in India.

The Board continued to maintain four Tea Bar/ Buffets at Parliament House, Yojana Bhawan, Udyog Bhawan and North Block in New Delhi, a Tea Nook in Tirumala and Tea Room at Tamil Nadu Secretariat, Chennai, which presently function mainly as public relations

platforms and serve high quality Indian teas at such venues, frequented by VIPs, foreign visitors and other guests. The Tea Centre opened at Chennai Mofussil Bus Terminus (CMBT) has been functioning since April, 2004.

For running Board's Tea Center in Mumbai, M/s. Sai Food who was appointed as Management Consultant from 1st October 2008 continued managing the Tea Centre on Tea Board's behalf.

6.4 Delegations/Visitors from abroad.

The Board endeavors to maintain and improve trade relations between exporters and importers by direct contact and discussions. Inbound delegations have been encouraged. During the year 2009-10 the Board received and organized the visit of the following delegations:-

A 13 member delegation from Turkey visited India during July, 2009. They had wide interaction with Tea Board as well as the Indian tea trade/industry. The delegation also visited the electronic auction Centre at Kolkata.

Mr. M. Jahangirov, Director General and owner of Lankaran Tea Company in Azerbaijan visited India from 7th – 11th December 2009 to buy tea and explore joint venture possibility of setting up a packaging unit in India.

On account of global recession and limited travel by overseas buyers Tea Board did not host any other official delegation. However, meetings were held with visiting overseas buyers during their visits to India for the purpose of tea buying.

6.5 Delegations/Deputations from India

1. Mr. J. Biswas, DDTP was deputed to Almaty, Kazakhstan to jointly with DTP, Moscow to organise Tea Board's participation in Food Expo Kazakhstan, Almaty, and BSM/Focused Assam tea promotion from 15th to 18th April 2009.



2. Ms. R. Sen, Deputy Chairman Tea Board led a trade delegation for a Buyer-Seller Meet coinciding with Shanghai International Tea Culture Festival, Shanghai China from 16th to 19th April, 2009. Mrs. R. Datta, DTP was deputed to organize Tea Board's participation;
3. Mr. A.K. Kala Special Officer (NWI), Tea Board was deputed to Iran to organize jointly with DTP, Dubai Tea Board's participation in Iran Food & Beverage Exhibition, Tehran, Iran from 24th to 27th May, 2009;
4. Mr. P. Lahiri, Secretary and Mr. S.K. Mitra, DDTP were deputed to Las Vegas to organize Tea Board's participation in World Tea Expo, Las Vegas and a Tea Tasting session from 2nd to 4th May, 2009;
5. Mrs. R. Datta, DTP and Mr. S.C. Biswas, DDTP were deputed to Kunming, China to organize Tea Board's participation in Asian Countries Commodity Fair, from 6th to 10th June, 2009;
6. Mr. B. Banerjee, Chairman, Tea Board was deputed to Dubai to preside over the India Tea Festival organized by ITA from 26th to 28th June, 2009;
7. Mr. S.C. Biswas, DDTP Tea Board was deputed to Damascus, Syria to organise jointly with DTP Dubai Tea Board's participation in Damascus Intl. Fair, Damascus from 14th to 22nd July, 2009;
8. Mr. B. Banerjee, Chairman, led a trade delegation to Johannesburg and Durban, South Africa for Buyer-Seller-Meets coinciding with Africa's Big Seven exhibition from 19th to 21st July, 2009. Mrs. R. Datta, DTP was deputed to organize Tea Board's participation;
9. Mrs. N. Datta, DDTP, and by Mr. R. D. Nazeem, Executive Director, (Coonoor) were deputed to Australia for organizing Tea Board's participation in Fine Food Australia, Sydney from 7th to 10th September 2009;
10. Mr. A. Roy Chowdhuri, DTD was deputed to Moscow, Russia to organize jointly with DTP, Moscow Tea Board's participation in World Food, Moscow from 15th to 18th September 2009;
11. Ms. R. Sen, Dy. Chairman was deputed to St. Petersburg, Russia to organize jointly with DTP, Moscow Tea Board's participation in India Show, St. Petersburg from 30th September to 3rd October 2009;
12. Mr. B. Banerjee, Chairman, Tea Board was deputed to Hanoi, Vietnam for attending a Tea Trade and Promotion Conference on 14th -15th October, 2009;
13. Ms. R. Sen, Deputy Chairman and Mr. M.R. Sharma, Director, MoC were deputed to San Francisco, USA to participate in Fancy Food Show from 17th to 19th January, 2010. Mr. S. Mitra DDTP was deputed to organise the exhibition;
14. Mr. B. Banerjee, Chairman, Tea Board was deputed to Cairo, Egypt from 19th to 20th January, 2010 for the formal inauguration of Cairo Tea Centre.
15. Mr. R. Roy, FA & CAO, Tea Board was deputed to Dubai to organize jointly with D.T.P Dubai. Tea Board's participation in Gulf Food 2010, Dubai from 21st to 24th February 2010.
16. Mr. Kuldip Kumar, Section Officer, MOC was deputed to Moscow to participate in Prodexpo, Moscow from 8th to 12th February 2010 jointly with DTP, Moscow.
17. Mr. B. Banerjee, Chairman, Tea Board was deputed to Nuremburg, Germany as leader of a trade delegation for Buyer-Seller-Meet coinciding with Bio Fach from 15th to 20th February 2010;
18. Ms. N. Datta, DDTP and Mr. K. K. Phull, Under Secretary, MOC were deputed to Japan for organizing Tea Board's participation in Foodex, Tokyo, Japan from 2nd to 5th March 2010;
19. Mr. K. Halder, Secretary, Tea Board was deputed to Egypt for organizing jointly with DTP, Dubai Tea Board's participation in Cairo International Fair, Cairo from 11th to 22nd March 2010;
20. Ms. R. Sen, Dy. Chairman was deputed to Barcelona, Spain for organising jointly with DTP, London Tea Board's participation in Alimentaria, Barcelona, from 22nd to 26th March, 2010;
21. Mr. B. Banerjee, Chairman, Tea Board was deputed to Dubai to participate at Global Tea Forum, Dubai from 9th & 10th March 2010.



Export of tea from India to some major destinations :

Name of the Countries	2009-2010				
	Qty (M.Kgs.)	Value (` Crs.)	UP (` /Kg.)	Value (M US \$)	UP (\$/Kg)
Russian Federation	48.35	616.76	127.56	129.45	2.68
Kazakhstan	11.10	170.21	153.41	35.73	3.22
Ukraine	1.78	21.25	119.52	4.46	2.51
Uzbekistan	-	-	-	-	-
Other CIS	0.50	8.08	159.71	1.70	3.35
Total CIS	61.73	816.30	132.24	171.34	2.77
United Kingdom	17.79	242.31	136.20	50.86	2.80
Netherlands	2.73	65.90	241.31	13.83	5.00
Germany	3.89	92.41	237.85	19.40	4.99
Ireland	1.51	48.39	319.61	10.16	6.77
Poland	3.42	51.52	150.72	10.81	3.16
U.S.A.	9.81	187.46	191.06	39.35	4.01
Canada	2.35	40.04	170.09	8.40	3.51
U.A.E.	21.87	323.16	147.88	67.83	3.09
Iran	13.28	209.61	157.90	44.00	3.31
Iraq	17.36	225.19	129.73	47.27	2.72
Saudi Arabia	2.82	39.44	139.81	8.28	2.91
A.R.E.	5.76	55.78	96.87	11.71	2.03
Turkey	0.01	0.43	394.82	0.09	8.22
Afghanistan	13.33	98.16	73.61	20.60	1.54
Singapore	0.36	7.54	209.01	1.58	4.39

Board's overseas Offices play a strategic role in developing markets and promoting Indian tea in these countries. The aim is to increase sales, exports and market share of Indian teas by building long-term and mutually beneficial relationships between Indian exporters and overseas buyers for a commercial advantage to the Indian tea industry.



LONDON OFFICE

Major Activities & Initiatives

Tea Board's London Office organised and participated in a series of Market Promotion events directed at different sections of the consumers and business interest. For purposes of a sustained approach as well as variations in consumer demands, the broader European market was segmented into 3 major focus areas – the relatively settled UK / German market; and the potentially high growth markets of Poland, Hungary,

Czech Republic and France and the small emerging markets of Spain and Italy. Such segmentation was also necessitated in view of limited financial resources at the disposal of the office.

Fairs & Exhibitions

Participation in Food & Beverages exhibition continued to be one of the major promotional activities. Accordingly the London Office organised exporters participation in the following events:-

1.	Gardening Scotland 2009	29 th to 31 st May 2009.
2.	BBC Good Food Show at Glasgow	30 th Oct to 1 st Nov, 2009.
3.	Bio Fach, Nurenberg, Germany	17 th to 20 th February, 2010.
4.	Salima fair at Brno, Czech Republic	2 nd to 5 th March, 2010
5.	Alimentaria fair at Barcelona, Spain	22 nd to 26 th March, 2010

Consumer Awareness and Logo Promotion

1. Apart from participation in Fairs & Exhibitions which were targeted more at business, London Office also organised and participated in events which focused on consumer awareness, logo promotion and protection of brands & origins of Indian teas. With the above objective in mind a number of events were organised at The Nehru Centre in London under the title "Magic of the Leaves". The events targeted invitees from London based foreign missions, the tea trade, UK government organisations & business bodies, the academics and others. Jane Pettigrew, a tea writer, historian and consultant was invited as the lead speaker for the events. The talks ended with blind sampling of some of the Indian teas – with the audience invited to identify the teas being served to them.
2. As part of the second leg of "The Magic of the Leaves" programme, the Tea Board of India sponsored tea events in junior schools linked to Amber McCarroll's wonderful stories called 'Fairy Teatime Tales' and with inputs from Jane Pettigrew, tea specialist and writer. Fairy Teatime Tales are written as letters and are colourful stories told over cups of tea, but also include information about our

environment and give children a sense of their positive role in the natural world. The events sought to achieve the following:

- to introduce the fun of tea-time and tea drinking through Amber's stories
- to raise the children's awareness of the world of Indian teas
- to share the joy of tea time with the children. Jane talked to the children for 10-15 minutes about what tea is and about tea from India, with images and stories of the life of children who live on tea plantations in India, etc.

Consumer Fairs

As part of the consumer awareness drive, the Tea Board London Office also participated in the following 3 events:

- i. Festival of World Cultures at Dublin, Ireland on 29th & 30th August'09
- ii. Musical evening organised by Brahmin Association of Luton on 29th August'09
- iii. Seven small events by nature of consumer education & logo promotion were held at the weekly food market at Covent Garden, London -



two in November and five in December. Liquid tea was sampled at these events.

The office also continued to support efforts by our missions in holding events to showcase Indian food and culture of which tea is an integral part.

Logo Promotion through Gift Packs

Tea Board London Office also initiated steps to have various Indian Missions situated in the EU zone accept the idea of gifting Indian made tea as part of their regular PR activities and more specifically during the Christmas & New year season. One of the exporters of packaged tea, namely M/s Premiers' Tea, Kolkata was commissioned to produce special gift boxes containing 50 gms each of Darjeeling, Assam & Nilgiri teas. Approximately 1000 boxes were imported and consigned to various Missions.

Pesticide Residues

Europe, specially the EU, is a major export destination for high value Indian tea. The Pesticide Residue Regulations in the EU have been made stringent. The Tea Board continued to engage the stakeholders through German Tea Council and the International Tea Committee in order to ensure that the interests of Indian exporters are protected. Efforts are also on to build consensus on the permissible levels of the residues & the methods of measuring the same.

Certification Trade Mark (CTM Scheme)

The Tea Board of India has introduced the Certification Trade Mark Scheme for the purposes of ensuring that the value & cache that is attached to Darjeeling tea is protected. This scheme also aims to ensure that the tea which is claimed to be Darjeeling is authentic anywhere in the world, whether offered in bulk or retail packs. Building on the registration of "Darjeeling logo" & also the word "Darjeeling" as a CTM under the Trade Marks Act 1999; and the registration of the logo as well as the word "Darjeeling" under the Geographical Indications of Goods (Registration & Protection) Act, 1999 the Tea Board is now pushing for international acceptance of Darjeeling tea as a GI. As part of this, efforts are on to implement a Darjeeling CTM programme with the UK buyers. London Office of the

Tea Board continues to facilitate negotiations through the UK Tea Council.

Tea Board, London office also continued to represent the organisation at the ITC, UKTC and the German Tea Council. The office also participated in the ISO Convention at BSI, Chiswick, London Following were the main decisions taken at the meeting:

- i. Definition of Black Tea was agreed upon; a minimal level of 9% total polyphenols was added as part of the specification.
- ii. Definition of Green Tea was agreed upon; a minimal level of 11% total polyphenols, 7% total catechins & 0.5 minimal ratio for TC/TPP (total catechins / total polyphenols) were added as part of the specification
- iii. Based on the preliminary works done by Mr. Luo Shao – Jun & Dr. P.Jose David on special teas & hot & cold soluble instant tea respectively, working groups were constituted to develop international standards & specifications related to these products. The working group on special teas was mandated to work on White Tea & Oolong Tea to begin with.

Based on India's interjections & persuasions the gap in the minimal polyphenol content between the Black & Green tea could be kept at 2%. Though India had opposed the introduction of 0.5 minimal ratios for TC/TPP for Green tea at the last convention held in China in April'08; the delegation found no support from other producing members on this issue. In addition the data supplied by TRA as well as UPASI through the Tea Board to the ISO Secretariat (Tea Committee) supported the contention that most Indian teas will be able to meet the minimal ratio specified.

Market Conditions & Export Performance

UK and Ireland remain the only countries in the developed world with higher per capita consumption of tea than coffee. In U.K the per capita tea consumption is 2.11 kg per year and in Ireland it is 2.17 kg per year.

As one would expect, the European Market is not monolithic – with countries having distinct tastes &



preferences. For instance the UK market continues to be dominated by black tea with a fair appreciation of Assam teas. In contrast the German market continues to show a marked shift towards green teas.

As far as the Indian exports are concerned the German market has a much larger appreciation for teas from Darjeeling than any other country in the EU. Countries like France, Spain & Italy are evolving towards greater use of tea based infusions – cold as well as hot – and use of green & white teas. The erstwhile Soviet block countries like Poland, Hungary and Czech Republic are poised to move from a predominant choice of low priced CTC products to a more varied basket of teas. Of the three, Poland continues to be the largest importer of tea, with total imports being close to the combined imports of Germany & France.

Within the overall tea market, the top performances (*albeit* from much smaller bases) have for the past 2 years consistently come from green tea, fruit & herbal teas. In UK for instance retail figures indicate that green tea grew by almost 30% & fruit/ herbal tea by 36% during 2009.

UK

UK is the 2nd largest importer of tea and accounts for 9% of world imports. Kenya alone accounts for around 49% of imports into U.K, while India, Indonesia, Sri Lanka and China account for another 16%. In value terms, these 6 countries account for 74% of imports. India realises the highest unit price per kg vis-à-vis Africa and Indonesia. Tea has the highest per capita consumption (3 units/head), compared to other beverages. 69% of the population over age 10 drinks tea daily. UK imports an average of 157 mn kgs tea in 2008 valued at USD 367 mn. India exported 17.79 m. kgs of tea to UK in 2009-10.

Product quality, as defined by the end consumer, is tea colour and liquor strength. Compared to other suppliers, Kenya supplies the best quality teas at the least cost. Hence Importers prefer Kenyan teas in blends. However, the end consumer perceives higher brand equity in Indian (Assam, Nilgiris and Darjeeling) and Ceylon teas. Teas of African origin have low consumer mind share, as they go into blends, not stand-alone

brands. Indian tea, because of seasonal availability, increases working capital costs of blender importers.

Germany

Tea imports into Germany in the last few years had increased gradually and the import figure in 2009 stood at 44.28 m. kgs. Germany is one of India's top five markets. It is a quality conscious premium market. India derives a substantial premium compared to other origins. Germany consumes about 55% of imports and re-exports the remaining 45%. Within hot drinks, tea accounts for 11%. Coffee and new tea forms like herbal & fruit tea are the major threats to tea. However, tea is perceived to be a premium product, and consumer tastes are sophisticated.

Black tea accounts for 76% of Germany's imports. Most of the tea is orthodox / leaf variety. Indian tea enjoys high brand equity.

Unlike the rest of Germany, tea continues to be the beverage of choice in East Friesland (located in North Germany). Per capita consumption of tea in East Friesland is about 3 kg. This is substantially higher than the German average of 300 gm. Consumers drink a minimum of 3 cups of tea, on each occasion. This region has the highest per capita consumption of Assam Tea.

France

France imports around 18 m kgs of tea. Tea import is growing. The main supplier countries are China, Sri Lanka and UK and Benelux countries, the last two being non-producing re-exporting countries. This indicates that there is scope to develop direct exports especially in the value added format. Even though export from India is less than 1m. kg, Indian tea enjoys high unit price realization. The French are inclined towards consumption of healthy food and drinks. While tea bags and convenience products are the most favoured forms amongst consumers, tea drinking is expected to grow.

U.K. Tea Council

DTP participated actively in all the meetings of the U.K. Tea Council to further the interests of Indian tea and safeguard Darjeeling CTM as well as on various issues relating to tea trade and market promotion.



German Tea Association / Tea Council

DTP participated actively in the meetings of the German Tea Council. On the pesticide residue issue India's views were stressed.

MOSCOW OFFICE

Tea Board Moscow Office looks after the publicity and promotion of Indian Tea in the Region of the Russian Federation, CIS countries that include Ukraine, Belarus, Kazakhstan, Armenia, Azerbaijan, Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, Georgia and Moldova and the Baltic countries of Latvia, Estonia and Lithuania. The activities during the year were centered on the more important markets of Russia, Kazakhstan, Ukraine, and Uzbekistan.

Fairs & Exhibitions

During the year under review, Board's Moscow office participated in the following prominent exhibitions:-

1. Food Expo, Almaty, Kazakhstan (15 – 18 April 2009) with a BSM focussed on Assam origin teas
2. India Expo, Almaty, Kazakhstan (21 – 23 May 2009)
3. World Food, Moscow (15 -18 September, 2009)
4. India Show, St. Petersburg, Russia (29 September – 3 October 2009)
5. Prodexpo, Moscow, Russia (8 -12 February 2010)

Other Activities :

Other activities organized with the active assistance of the respective Indian Embassies include the following:-

1. Indian tea festival, Ashgabad, Turkmenistan (21 – 23 May, 2009);
2. Summer Bazaar held at Embassy of India, Moscow (6th June, 2009);
3. Extensive sampling of Indian tea during Moscow International Film Festival, (19-28 June, 2009);
4. Indian Show, Tashkent, Uzbekistan (25 – 27 March, 2010).

Tea sampling with the help of local Tea companies dealing with exclusive Indian blends was organized during the participations.

Director, Tea Promotion, Tea Board, Moscow visited Baku and Lankaran in Azerbaijan during November 15-

20, 2009 in response to the Ambassador of India aimed at facilitating trade exchanges in tea between India and Azerbaijan.

In an effort towards cementing Indo-Russian ties further and resolving various bilateral issues, the 15-th Session of Indo-Russian Inter-Governmental Commission on Trade, Economic, Scientific, Technological and Cultural Cooperation was held on September 28, 2009 in Moscow, Russia. Director, Tea Promotion, (Moscow) attended the deliberations, which covered various issues pertaining to duty differential, protecting Indian-origin teas in the Russian market etc.

Russia

Russian Federation, with a market size of about 182 Million Kg is one of the biggest markets for Indian tea exports (in volume terms). Assam orthodox teas are competing with the Sri Lankan orthodox teas on the quality front. Assam CTC teas are also doing equally well with the growth of the tea bag segment. Russia has been enjoying unprecedented economic prosperity for the last decade, driven by their political stability and booming oil, gas and metal sectors. The affluence at least in the urban centers has translated into high purchasing power of the Russians. The Russian consumer is now becoming more quality conscious, demanding and is ready to pay a higher price for the product of choice. This has meant an increase in the demand for better quality Indian tea in attractive packets. There is a gradual shift from the modest quality South Indian teas (Nilgiris) to the better quality North Indian tea (Assam and Darjeeling).

Challenges that Indian tea faces in Russian market differ from segment to segment. In the orthodox teas-premium segment, Indian teas are constantly being compared with Sri Lanka on the physical appearance and image front and the average Russian consumer still perceives the Sri Lankan teas to be of better quality than the Indian teas. In the orthodox teas- economy segment, Indian teas both North and South Indian have not been able to match the cheaper prices offered by Indonesia and Vietnam where teas are plucked and processed in a non plantation nature of industry and thus there are cheaper labour wages against the high social overheads which plantations have to cope up



within India. In the CTC tea segment (used in tea bags), Kenyan teas are competitively priced and of good quality due to their lower labour wages younger tea bushes and round the year availability.

Indian tea export to Russia increased to 48.35 million kilograms valued at ` 616.76 Crores in 2009-2010 from 36.75 Million Kilograms in volume valued at 392.65 Crores in 2008-2009.

Kazakhstan:

After Russia, Kazakhstan is the next largest of the former Soviet republics, with strong tradition of tea consumption and high per capita consumption. Tea accounts for the greatest proportion of hot drinks sales in Kazakhstan, being a traditional drink consumed on all occasions. While black standard tea accounts for the greatest share, there is evidence of increasing interest in products with a healthy positioning like green tea. There are growing sales of green and black specialty teas.

Kazakhstan is the only CTC market in CIS with import registering 25.8 m. kgs in 2009. Even though the Indian brands are very popular, Kenyan Tea is fast gaining ground owing to its distinct characteristics. Kenyan teas are competitively priced and of good quality due to their younger tea bushes.

Ukraine :

Ukraine which is a traditional tea consuming country is the third important market in terms of volume and value. The annual volume of the Ukrainian tea market is approximately 19 m. kgs. with per capita consumption of approx. 400 - 600 grams. Black tea accounts for 80% of the total tea sales while green tea share is approximately 20 % .The demand for green tea is increasing in large cities.

DUBAI OFFICE

The Dubai office of Tea Board looks after the promotion of Indian tea in the West Asia and the North African region. The region covers the countries of UAE, Saudi Arabia, Iraq, Iran, Syria, Jordan, Morocco, Algeria, Tunisia, Libya, Sudan, Kuwait, Qatar, Bahrain, Oman, ARE, Lebanon and Yemen. Pakistan and Afghanistan have been recently added to the responsibility of the Dubai

Office. This office also handles trade enquiries from Turkey and South Africa.

Field promotion activities include participation in Fairs & Exhibitions, organizing buyer-seller-meets, market survey including collection of tea prices & statistical data for the benefit of exporters & respective Govt. agencies, regular interaction with tea importers, keeping constant touch with Indian Missions in different countries for logistic support, analyzing the customers' choice of tea and its price, etc.

Board's Advertisements

On the occasion of India's Independence on 15th August 2009 Dubai office released advertisements in Khaleej Times, the leading news publication of the UAE and also in Gulf News, UAE, Saudi Gazette, KSA and Bahrain Tribune. Advertisement was also released in the Middle East Food Magazine.

Fairs & Exhibitions

During the year under review, the following fairs were held in the countries under Dubai office jurisdiction.

- Iran Agro Food 2008, Teheran, Iran 24th -27th May 2009
- Damascus International Fair, Damascus, Syria 14th - 22nd July,2009
- Gulf Food 2009, Dubai, UAE 21st -24th February 2010
- Global Dubai Tea Forum in Dubai, UAE 9th &10th March, 2010
- Cairo International Fair in Cairo, Egypt 11th -22nd March, 2010.

Market overview :

Middle East market is very competitive in terms of price and quality. Tea is drunk largely without milk and the appearance and colour of tea is the yardstick of first choice. Being a major tea consuming area, stiff competition is faced from Sri Lankan teas besides increasing popularity of Kenyan teas. African teas are finding their way into the market due to their price competitiveness and quality, besides the year round availability of supply. It has however, been noticed that in some countries preferring Orthodox teas like Iran, Syria, Saudi Arabia, there is a growing segment for CTC teas which India can target if we overcome the challenges of cost and quality. It has, however, been noticed that in some countries preferring Orthodox teas like Iran, Syria, Saudi Arabia, there is a growing segment for CTC teas which India can target if challenges of cost and quality can be overcome.



Export of Indian tea for last three years in WANA countries are as under :

Qty. in m. kgs. Value: in million US\$

Type of teas imported by WANA countries :

- (a) Middle East: Largely orthodox but now CTC is also gaining acceptance in countries like Saudi Arabia and Iran. In UAE, domestically CTC is popular due to the large expatriate population from India and Pakistan.
- (b) Egypt: CTC Dust and Broken
- (c) Libya: Black Tea-Orthodox and Green Tea
- (d) Tunisia: Orthodox –Black & Green Tea
- (e) Morocco: Green Tea

UAE

The food and beverage industry in UAE has been one of the fastest growing worldwide, particularly since over 90% of the Gulf's food is imported. Dubai is the hub of tea trade in UAE. Large volumes of tea are currently transacted through Dubai, both physically cleared into Dubai and re-exported as well as trans-shipped through Dubai ports. Tea is re-exported to markets like Iran, Iraq and Saudi Arabia, besides other Middle East and CIS countries.

According to Dubai Port & Customs' figures, in 2009, in Dubai, 109 million kgs of tea were imported, of which Indian tea accounted for 25 million kgs. The Jebel Ali Free Zone is treated as a separate country/entity by the Customs Authorities while compiling their figures and therefore the teas cleared from Jebel Ali into Dubai are reflected as imports of tea into Dubai. Of the total imports of tea cleared into Dubai, 1.5 million kgs was green tea while 107.5 million kgs was black tea. There has been considerable increase in imports of green tea from 0.38 million kgs in 2004. Many of the big tea companies/packing units, including Lipton are located in the Jebel Ali Free Zone, and source their tea there for packing. Besides, some Indian tea companies have also become members of the Dubai Tea Trading Centre

(DTTC) and are stocking and re-exporting their teas from the DTTC warehouses in Jebel Ali.

The UAE market is largely dominated by Lipton, which has nearly 70% of the market share. More than 20 brands vie for the remaining share of the market. While the UAE domestic market for tea is not very large due to the small population, the market as a centre for tea re-exports is very large. This market is largely a CTC market preferring mainly the Assam CTCs among Indian teas. However, while in packet tea, pure Assam CTCs are available, the tea bag market comprises largely blends of Indian and Kenyan teas or pure Sri Lankan tea. The main problems facing Indian tea in this region is the quality of tea and the inconsistency of supply through the year due to seasonality of production. This has enabled other origins like Kenya and Sri Lanka, to find increasing acceptance in this market.

Year	2009-10		2008-09	
	Qty	Value	Qty	Value
	98.39	1981.81	63.63	1638.71
Dubai Tea Trading Centre:				

Dubai Tea Trading Centre: The Dubai Tea Trading Centre (DTTC), a subsidiary of the Dubai Multi Commodities Centre (DMCC), located in Jebel Ali, has created an international hub in the region for trading in tea. The 23,731 square metre facilities in Jebel Ali Free Zone also include office space for regional and international tea companies.

DTTC's new facility offers services across the entire value chain of the tea industry ranging from storage, tea tasting, blending, packaging as well as networking opportunities leading to increased trade. This new facility – a one-stop solution for the tea industry - will further boost tea traded through the emirate, contributing to the ongoing diversification of the emirate's dynamic economy. As Dubai is neither a producer nor a significant consumer of tea, it is well positioned to offer integrated services across the tea industry.

Finance through the services of the Global Multi



Commodity Receipt (GMR).

The DTTC presently stocks teas from 13 producing countries, including Kenya, India, Sri Lanka, Indonesia, Malawi, Rwanda, Tanzania, Zimbabwe, Ethiopia, Vietnam, Nepal, China and Iran. In keeping with its mandate to further increase the tea trade in and through Dubai, the DTTC also facilitates sales with buyers in the GCC countries, Iran, Iraq, Jordan, Morocco, Pakistan, Afghanistan and the CIS countries and has plans to expand its services to other Middle East and European markets. The Centre, continues to remain a major tea trading platform.

Arab Republic of Egypt

The Arab Republic of Egypt has traditionally been one of India's most important trading partners in the African continent. It is also one of the major tea consuming countries in the WANA region. The import figure stood at 77.6 m. kgs. in 2009.

The per capita tea consumption in Egypt is nearly 1 kg per annum. CTC teas are preferred in this market, mainly the Dust grades. The country has been a big market for Indian teas in the past, with exports of Indian tea crossing 18 million kgs in the 1980s. However, with Egypt becoming a member of COMESA in 1998-99, the duty structure of 30% for Indian and other origin teas vis-à-vis free import of Kenyan and African teas, led to a substantial decline in the quantity of Indian teas exported to this market.

Import duty on tea in Egypt was reduced to 5% in 2004 and Indian tea started re-entering the market with 367,000 kgs being exported in 2005. Dubai office made persistent efforts by participating in fairs, organizing buyer-seller meets, renewing contacts with major importers, meeting Government authorities, arranging media publicity, in an attempt to reestablish the presence of Indian tea in this market. In February 2007, import duty on tea was further reduced to 2%.

In order to increase Indian tea exports to Egypt and consumption of Indian tea by local consumers, Tea Board opened India Tea Centre in Cairo. This is basically a trade facilitation unit where Indian teas will be displayed and prospective buyers will be put in touch

with the supplier in India. This India Tea Centre was formally inaugurated by Mr. B. Banerjee, Chairman, Tea Board in January 2010.

Public Sector imports account for a substantial share of the total tea imports into Egypt. Nearly 24,000 MT are imported annually by the Government of Egypt for public distribution purposes. The General Authority for Supply Commodity (GASC) is the body responsible for deciding the quantity of tea required by the Govt. and the same is procured through two public sector organizations viz. M/s El Nasr Export & Import Co. and M/s Misr Export & Import Co. These companies import about 2000 MT each month. Due to the COMESA arrangement, Govt. of Egypt had specified public sector buying of tea only from Kenya and other African countries. This restriction was lifted in March 2007 and Indian tea is also now permitted for Govt. procurement.

Iran

Iran is a major consumer of tea, consuming more than 100 million kgs annually. It is also a tea producing country having about 34,000 hectares under tea plantation. While approximately 60 million kgs of tea is produced per annum, the production has been declining in recent years and is expected to come down to about 10-15 million kgs with some tea factories shutting down.

As per ITC statistics, legal imports of tea into Iran stood at 50.5 million kgs. in 2009. This however, does not include the substantial amounts of tea which are smuggled into the country. While import of packet teas less than 10 kg in weight is banned, an import duty of 30% is levied on bulk tea imports. A concessional duty of 4% is charged for imports of tea against purchase of domestic tea. Sri Lanka is the main supplier of tea to this market. India exported about 11 million kgs. to Iran in 2009. Iran prefers orthodox tea, specially the Assam Second Flush teas, however, there is also a growing segment of CTC tea consumers. Kenyan tea packets are becoming visible in the market and some importers feel that the Kenyan CTC is better than the Indian CTC in colour and strength and also because it is available throughout the year. They also feel that Kenyan tea



retains its flavour even after two years while Indian tea loses it within months.

Recent developments in the import policy with regard to tea have been of concern to the Indian tea industry. A new quality requirement, viz. the Plant Master File Requirement, which is basically GMP/HACCP, has been imposed by Iran which requires each supplier of tea to register with the Health Authorities after filling in the designated form and paying a one time registration fee of US\$ 7000. This requirement imposed by the Iranian Govt. in Nov 2006 continued to be valid.

Tunisia

Republic of Tunisia is a small country situated between Algeria and Libya with a total population of about 11 million people. Tea drinking along with coffee is a popular pastime. Tea is drunk without milk but with plenty of sugar and with a hint of mint.

It is consumed both in green and black varieties. The Tunisians prefer strong teas with flavour which are medium grown. Sometimes they brew tea more than once from the same leaf. While the Tunisian population is small, this is supplemented by the tourist arrivals which were estimated at 8 million during 2009. Tunisia imported 7.8 million kgs in 2009, with 3.2 mkg from Sri Lanka, 2 mkg from China and small quantity from other sources. Of the 9 mkg from tea imported, about 6 million being black tea and 3 million being green tea. Office du Commerce de La Tunisie (OCT) is the sole tea importing agency in the country. They import in bulk and have their own packaging plant where tea is packeted in their brand for local consumption. Some tea is also packeted by private companies for the local market. However, the tea used in these packets is imported by OCT for the local companies when there is a requirement. These are largely fannings for tea bags.

Morocco

Morocco is an important tea consuming country in the region, being one of the main consumers of green tea, with little consumption of black tea. The country imports an average of 50 million kgs of tea, of which more than 93% is green tea. India too has exported

some small amounts of tea to Morocco in the past. Until 1993, the import of tea into Morocco was totally in the hands of the Government through Office Nationale du The et du Sucre (ONTS). ONTS was importing tea from China, Indonesia, Sri Lanka and India. Since liberalization in 1993, ONTS has ceased to import tea from India and Indonesia. At present the primary source of tea import is from China. 48 million kgs of tea was imported from China in 2009. Best grades of green tea are gunpowder followed by chunmee and then soumee variety of tea. Revival of Indian tea exports to Morocco has been taken up with the DG of SOMATHES (previously ONTS) through the Indian Embassy in Morocco. It is learnt that though China has a monopoly in tea export to Morocco, SOMATHES is keen to find alternative sources of supply. The Govt. is also in the process of privatizing SOMATHES, and M/s Tata Tea is one of the companies which have shown interest in taking over SOMATHES.

Yemen

Yemen was a coffee exporting country for many years, but due to qat (a narcotic substance) cultivation in rural areas, the export and the popularity of Yemeni coffee dwindled and drinking of tea has become very popular. Yemen is another big tea consuming country in this region. Yemen imported about 18 million kgs of tea in 2009 with Kenya accounting for 15.68 million kgs. A large quantity of tea is re-exported from UAE too. The tea consumed is mostly the dust grades. There is no restriction on import of tea into Yemen. The customs tariff on tea includes customs duty of 5%, sales tax 5%, consumption tax 3%, profit tax 1%:- total rate 14%. With about 22 million population growing at the rate of 3.7%, this market has potential.

Sudan

Sudan is the largest country in Africa, and a big tea consuming country, as well. The total population of the country is about 35 million, and it is importing about 20-23 million kgs of tea annually. The morning and evening cups are usually taken with milk and sugar, while during the day, the Suleimani Tea is drunk, without milk, but lots of sugar. Due to the civil war situation in the country, between the Arab North and the Christian South,



India has recently opened a consulate in Juba, Capital of South Sudan. The market is dominated by Kenyan CTC teas. 90% of the imports are in bulk.

The Sudan remains a key market for pushing exports.

MARKET ANALYSIS

Most of the important markets like Iran, Libya, Egypt, Iraq and Morocco are undergoing a process of economic liberalization and the role of their respective Government buying & distributing agencies are getting marginalized. Private importers and distributors have started playing progressively bigger roles. Private trade in tea is now possible even in countries like Libya and Iraq which were earlier totally dependent on Government buying. Even countries like Iran which otherwise do not allow import of packet teas into the country, allow the same in their Free Zone for re-export. Opportunities offered in Free Zones in Turkey, Iran, Kuwait, UAE etc. provide a possibility of joint ventures which Indian tea companies may like to explore.

The Major players of tea in the Middle East want a very different product from what is the norm in Europe and the West. Teas in demand in different markets of the WANA region range from cheaper CTC dust grades and broken to higher quality Assam Orthodox tea. The market however, remains very price sensitive and it is price, quality and appearance which determine demand rather than origin.

The Retail loose tea sale in the WANA region is gradually coming down. Packet teas and Tea bags are becoming popular. CTC segments are emerging even in those countries like Iran and Syria, which traditionally preferred orthodox teas.

Most of the countries in this region are becoming progressively brand conscious. In the supermarkets and the departmental stores and in the perception of consumers the competition is more among different tea brands rather than in terms of different countries of origin. However, in some countries like Syria, Saudi Arabia, Turkey, etc. origin still matters.

Setting up of free trade zones like the Jebel Ali Free Zone has encouraged value addition and large tea companies are setting up operations in the Middle East.

In UAE, tea bags that were once sourced entirely from the UK are now being produced in the Jebel Ali Free Zone (JAFZA). UAE has in fact even started exporting it in the region and has become one of the big producers of teabags in the world. Platforms like the Dubai Tea Trading Centre (DTTC) which has upgraded its facilities to include centralized tea storage, blending and packing facility, facilitates multi-origin teas being available in one place and are also encouraging packing operations to be centralized in Dubai.

Private entrepreneurs in countries like Egypt, Saudi Arabia, Jordan, Oman & Syria are also setting up their own blending and packaging facilities to produce their own brands of tea. Even in Iran, Lipton has set up a packaging factory while brands like Alokozay too are reported to be setting up packaging facility in the country. Such developments encourage blending of teas of different origins. It also affects consumer tastes as the range of products increases and value added products like tea bags, flavoured teas etc. gain acceptance.

Green Tea is also becoming popular due to increasing health consciousness of the consumers.

USA and Canada

The jurisdiction of the Board's erstwhile New York Office covered USA, Canada and South America. With the closure of Board's New York Office in July, 2004, promotional activities have been handled from Head Office. During 2009-10 Tea Board participated in the following events in USA:-

1. World Tea Expo, Las Vegas, (2-4 June 2009)
2. Fancy Food Show, San Francisco (17-19 January 2010)

A low budget T.V. campaign through CNN was also undertaken in November/December 2009.

TEA CONSUMPTION PATTERN

The tea consumption pattern in the USA is mostly in the form of ice tea. However, in the recent years, there has been some changes towards the consumption of hot tea also. Trend of overall consumption of tea in USA has also improved because of the health benefits,



associated with tea. The import figure stood at 116 m. kgs. in 2008. Tea consumption in Canada has declined a little. India's share of the tea market in the USA is small but is increasing gradually.

Assam and Darjeeling teas as speciality teas are becoming popular in this market where flavoured teas play a vital role. Export of teas from South India is also registering a gradual increase. Canada is a hot tea market. About 60% of the population in Canada consumes hot tea unlike USA. The volume of Indian tea export to Canada though low has registered a small increase. However, the silver lining is that even though the volume of export was low, the unit value realization was high thereby indicating that speciality teas are becoming popular and is poised for growth.

US Tea Council & Association

India being a founding member of this Council took part in all the deliberations of different meets.

Tea Council of Canada

India has played an active role in the Council's meetings in promoting tea as a health beverage. India has withdrawn from the Canadian Tea Council from January 2010.

Australia

Tea promotion in Australia is handled from Head Office. Though Australia is primarily a coffee drinking

nation, the British habit of tea drinking also prevails. Australia's total import of tea from all sources is around 13 m. kgs. A small quantity of around 1550 m. tons is produced in the country. The country re-exports approx. 0.3 m. kgs tea. This market, is now being viewed more positively as the new destination that has great potentials for penetration and expansion. Tea Board's promotional efforts over the last several years are now showing good results. Exports from India to Australia have registered an increase of more than 200% from 1.41 m. kgs. in 2002-03 to 4.56 m. kgs. in 2009-10. The growth has been in volume and value realization. Indian tea exports have been in the form of Instant Tea, Tea Bags & Packet teas.

Participation in Fine Food Exhibition in Australia has become one of the regular features of Tea Board's activities in Australia.

Japan

Japan produces 92-93 m. kgs. of green tea per annum which is consumed mainly within the country. Japan also imports black tea. Japan is a market for quality Darjeeling teas. Apart from the high quality leaf grade teas, the market has gradually cultivated the use of Assam CTC teas, used either in Tea Bags or for the production of canned milk teas, a favourite of the younger generation.

The promotional work for 'India tea' in Japan is carried out mainly through the Embassy of India in Tokyo with the assistance of Japan Tea Association.

The duty structure for tea imports to Japan are as under :

Types of tea	Developing countries	Less Developing Countries	Others
Black tea in bulk	2.5%	Nil	3.0%
Black tea in packets	12.0%	Nil	12.0%
Instant tea	8.0%	Nil	10.0%
Green tea	17.0%	17.0%	17.0%

Embassy participated in 'Food' Japan, 2010 from 02-05 Nov. with the active assistance of the Indian tea Board.



LICENSING

Introduction

The Licensing Branch is a vital wing of the Tea Board for implementation of various statutory and regulatory orders issued by the Government from time to time. In addition, Licensing Branch provides necessary clarification and guidance to the Tea Industry and trade in relation to fiscal policies and different legislation concerning tea. The tea related issues under different Bi-lateral and Regional/Multilateral Agreement and its implementation on Tea Industry are being examined by the Board from time to time in order to formulate policy decision by the Govt. of India. The different statutory activities performed by the branch during 2009-2010 are enumerated below:

7.2 Exporter's Licence:

In accordance with the provisions of the Tea (Distribution & Export) Control Order, 2005 any person desiring to carry on trading in tea as an exporter, needs an Exporter's Licence. The period of validity of Exporter's Licence has been made effective for 3 (three) years from the date of its issue and every business licence once renewed shall also remain valid for a further period of three years from the date of its renewal unless the business licence is suspended or cancelled during the validity period. Every licensee being an exporter, desiring to convert his business licence into a permanent business licence, shall make an application, in

duplicate, to the Licensing Authority in Form B before 3 (three) months of the expiry of the validity of the business licence. The Licensing Authority shall on receipt of such application convert the Licence into Permanent Licence if:

- a) The business licensee is an exporter,
- b) Such licensee has not violated any of the provisions of the Tea Act, 1953 or Tea Rules, 1954 or Tea Board Bye-laws 1955 or any other rules made under the Act and
- c) The volume of export of tea by the exporter holding the valid business licence during the last three years was not less than 1,00,000 kgs annually.

Such permanent license is granted in Form G. A fee of ` 2500/- is to be paid by the applicant for conversion of Exporter's Licence to Permanent licence.

The total number of tea exporters registered with Tea Board under the Tea (Distribution & Export) Control Order with valid exporter's licence stood at about 1246 as on 31.3.2010 as against 1070 as on 31.03.2009. The total amount collected during the year 2009-2010 was

Rs 1,76,000/- against issue of 176 fresh/temporary exporter's licence compared to issue of 162 fresh/temporary exporter's licence during the year 2008-09 amounting to Rs 1,62,000/-.

During the period from 01.04.2009 to 31.3.2010, one Exporters licence was converted to Permanent licence. The total number of Permanent Exporter's licence granted by the Tea Board till 31.3.2010 is 473 against 472 till 31.03.2009. The amount collected during the year 2009-10 was Rs 2,500/- for issuance of 1 (one) Permanent license compared to 2 (two) Permanent license issued during 2008-09 amounting to Rs 5,000/-.

7.3 Distributor Licence :

Under the Tea (Distribution & Export) Control Order, 2005 Govt. of India has introduced Tea Distributors' Licence with effect from 1.4.2005. It is issued to all the tea exporters who hold valid exporter's licence for



importing tea for re-export or internal sale. Fees for distributor's Licence is 2,500/-. Number of Distributor Licence issued during the year 2009-2010 is 8 (eight) and the fees collected against the licenses amount to 20,000/-.

7.4 Tea Waste Licence

The granting of Tea Waste Licence and renewal thereof are considered in accordance with the provisions of the Tea Waste (Control) Order, 1959. The main objectives of the Tea Waste (Control) Order, 1959 are to check any misuse of tea waste as also to regulate disposal of tea waste for certain gainful purposes. Accordingly, licenses are granted only to bonafide persons including buyers and sellers of the tea waste after proper investigation and scrutiny of the application. Under this Order, no person shall purchase, hold in stock, sell or offer for sale any tea waste except under and in accordance with the terms and conditions of a licence granted by Tea Board in this regard. Tea Waste is generally used by the caffeine and instant tea manufacturers.

For caffeine manufacturers, tea waste is used in denatured form, while for instant tea manufacturers tea waste is used in un-denatured form. Un-denatured tea waste is also being used by the manufacturers of Bio-nutrient and Bio-fertilizer. Tea Waste Licence remains valid up to 31st December of the year of issue, unless suspended or cancelled earlier and is renewable every year. During the year 2009-10 total amount of 5,700/- was collected against issuance of 57 fresh Tea Waste Licence and renewal of 1138 licenses amounts collected was 56,900/- as against 52 fresh Tea Waste Licence and 1016 renewed during the year 2008-09.

In order to fulfill the objectives of promulgation of the Tea Waste (Control) Order, 1959 by the Government of India, it is necessary to keep an eye over the availability and disposal of tea waste so that misuse is checked and disposal is regulated. For this, a limited number of Inspectors of the Board are posted in important tea growing regions and tea trading centers. The activities of Tea Board in this direction are supplemental in nature. In fact, checking adulteration

of tea, as one of the food items, comes under the purview of the Prevention of Food Adulteration Act 1954 (PFA), implemented by the respective State Government having bigger machinery at their disposal. Nevertheless, Tea Board with its limited strength of Inspectors, detected some cases of contravention of the provisions of Tea Waste (Control) Order, and actions were also launched against such offending persons.

In accordance with the amendment made on 31.08.2001, Tea Board's regional office located in Coonoor and Guwahati are also issuing Tea Waste Licenses and renewing Tea Waste Licence on the basis of receipt of applications by the respective office after observing norms. As per the amendment effected from 05.03.2002, there should be a minimum volume of tea waste and made tea at the ratio of 2:100 Kgs. when processed out of the tea leaves, buds and tender stems of plant *Camellia Sinensis* (L) O Kuntze in a factory.

7.5 Registration- Cum- Membership Certificate (RCMC)

Every registered exporter of bulk tea, packet tea, tea bags and instant tea is required to be registered with Tea Board for obtaining Registration-cum-Membership Certificate under the Export Import Policy of the Government of India with a view to availing import/export entitlement benefits. The issue of such Registration cum Membership Certificate to the registered exporters is done free of charge. The number of such registered exporters who have obtained Registration-cum-Membership-Certificate from the Tea Board during the period from 01.04.2009 to 31.03.2010 was 31 out of the total number of 915.

7.6 Tea (Marketing) Control Order :

In accordance with the provisions of the Tea (Marketing) Control Order, 1984, no person shall carry on the activities of manufacturing tea except under valid registration granted by Tea Board in respect of tea manufacturing unit owned or controlled by him.

Under the provision of the Tea (Marketing) Control Order, 1984, stakeholders like manufacturers, auction organizers and brokers were required to obtain



registration/licence from the Tea Board before manufacturing tea and/or participating / conducting auctions. But the major stakeholder namely buyers who were one of the important players in the primary marketing channel were not within the purview of registration under the said Order. Therefore, there was no statutory provision for obtaining any information on purchase of tea from the buyers who are buying tea from auctions or directly from the gardens. In order to establish transparency in the total transaction (tea auction and direct purchase) at the primary level, it has been felt necessary to get the buyers registered with the Tea Board.

There was no provision in the TMCO 1984 in relation to quality adherence for tea as well as sharing of sale proceeds between the manufacturers and the tea leaf suppliers. So, aiming at above benefits, promulgation of TMCO 2003 in supersession of TMCO 1984 was made on 1st January, 2003 containing the following main features:

- a) Registration of buyers and manufacturers of bulk tea with existing provision for registration of manufacturers of loose tea and licensing of brokers and auction organizers.
- b) Cancellation/suspension of registration of buyers with existing provision for cancellation of registration of manufacturers;
- c) Adherence to quality standards of tea as laid down under PFA Act 1954 by manufacturers / buyers and brokers.
- d) Fixation of price sharing formula for sharing of sale proceeds between the manufacturers and the tea leaf suppliers based on sale proceeds of made tea.
- e) Provision for sale of made tea outside public auctions by registered manufacturers to registered buyers (including consignee or commission agent) except sale through own retail outlet or brokers directly to consumers.
- f) Provision for drawing of sample from suspected tea to ensure its conformity to the PFA standard.

Clause 13 of TMCO enables Licensing Authority to issue direction to auction organizers / brokers for

improving efficiency of the public auction system. The Tea Board following discussions at the level of Secretary, Ministry of Commerce and Industries, Government of India appointed consultant to undertake a study on primary marketing of tea to suggest the following :

- a) Need to preserve the auction system as the main vehicle for primary marketing of tea;
- b) Need for auction reform and implementation priorities,
- c) Creating variety in auction (including promoting electronic auction).
- d) Post reforms issues.

Based on the recommendations of the consultant, Tea Board has issued directives on 06.01.2003 to all the public tea auction organizers under the provisions of clause 13 of Tea (Marketing) Control Order, 2003 for implementation of following auction rule to improve the efficiency of the auction system.

- a) Catalogue closing time,
- b) Introduction of ex-estate sale,
- c) Rate of advancement of bidding,
- d) Reprinting of bids,
- e) Prompt Date,
- f) Drawing of sample quantity per lot,
- g) Reprinting of unsold lots as well as sample quantity for reprinted lots,
- h) Division of lots,
- i) Proxy bidding,
- j) Withdrawal of lots,
- k) Sale of unsold lots,
- l) Payment of warehouse charges,

The directive issued by the Tea Board on :

- (a) Catalogue closing time,
- (b) Introduction of ex-estate sale,
- (c) Rate of advancement of bidding,
- (d) Reprinting of bids,
- (e) Prompt Date,
- (f) Drawing of sample quantity per lot,



- (g) Reprinting of unsold lots as well as sample quantity for reprinted lots are for reduction in transaction time and cost and for enhancing the speed of auction.

The norms for :

- (h) Division of lots,
 (i) Proxy bidding are aimed at ensuring competition in the auction system and also to encourage participation of maximum number of sellers and buyers particularly small and medium sellers and buyers.

Norms relating to :

- (j) withdrawal of lots is aimed at encouraging buyer's participation in the auction, as it will prevent sellers to withdraw their lots from the auction after cataloguing. Withdrawal of lots acts as a disadvantage to the buyers to buy their required tea from the auction as it permitted seller to withdraw the lots before sale.

Norms relating to

- (k) sale of unsold lots was acting as a deterrent to the market price discovery as it aimed at one to one sale and was not open for competition from buyer members.

Norms relating to

- (l) Payment of warehouse rent is aimed at ensuring the receipt of warehouse charges payable to warehouse owner by the manufacturer (seller) with the service of the brokers attached to auction. It is no way adversely affecting the buyers, as the buyer's payments as per auction sale to seller shall be paid by the brokers deducting the warehouse charges. The system was prevailing 4/5 years ago and re-introduction of the same system will benefit the warehouse owners without affecting the buyers' interest.

Subsequently Govt. of India has amended the Tea (Marketing) Control Order 2003 vide notification no. S.O. 247(E) dated 28.02.2003 and no. S.O. 430(E) dated 10.4.2003 for the following purposes :

1. To register manufacturer and buyer within 90 days

from 01.01.2003 instead of sixty days stipulated earlier.

2. To reduce the licence fee / registration fee by 50%.
3. To change the periodicity for submission of returns by buyers from monthly to quarterly. Government of India has further amended the Tea (Marketing) Control Order 2003 vide notification no. S.O. 270(E) dated 27.02.2004 specifying the procedure relating to search and seizure and modifying the para 30 Of TMCO towards fixation of price sharing formula and its compliance.

7.7 Registration of Tea Manufacturers Unit :

While under the provision of TMCO 1984 there was no registration fee to be paid by the intending applicant, TMCO 2003 stipulates a provision of submission of registration fee (@ 2,500/-) by the tea manufacturing units for the purpose of obtaining registration from Tea Board. During the year under review, Tea Board granted 15 such registrations in favour of tea manufacturing units. The total amount collected during the period i.e. 2009-10 from registration of tea manufacturing unit is 37,500/-. The total number of Tea Manufacturing units registered is 1909 as on 31.03.2010.

7.8 Registration of Auction Organiser/ Auction Brokers:

Clause 9 of the TMCO 2003 stipulates that no organizer of tea auction shall carry on the business of organizing, holding or conducting public tea auction under its control /auspicious except under a licence obtained from the Tea Board. Such license is renewable every year and is valid up to 31st December of each year. During the year under review, Tea Board renewed licence in respect of 9 Auction Organizers and issued 1 (one) fresh licence in favour of a new auction organizer. The total amount collected during the period under review was 7,000/- for renewal (@ 500/-) of 9 Auction Organizer and of 1 new Auction Organizer (@ 2,500/-).

Clause 10 of the TMCO 2003 stipulates that no person shall carry on the business of a broker of any public tea auction except under a license obtained from the Tea Board. Such license is also valid up to 31st December of each year and is renewable every year.



During the year 2009-10, Tea Board renewed licence in favour of 22 brokers and no fresh licence was issued. Total amount collected during the period was 11,000/-

7.9 Status on E - Auction :

Electronic auction for tea, **for the first time**, has been introduced **only in India**. Sale of teas through auctions are continued to be held **through manual "outcry" system** in **other tea producing countries**.

Benefit of e-auction for tea are:

- Broad basing the participation of buyers since it is a web-based auction.
- E-auction provides facility for participation of large number of bidders/buyers against the limited number in manual auction system due to limitation of space in any auction hall.
- E-auction helps in ensuring Fair Price since E-auction provides facility to the buyer/bidder to buy required quantity at desired level of price in view of the quality of the commodity, overall Demand-Supply status of the said commodity and the level of quantum requirement of buyer for such commodity against the quantum available for buying at any time
- Improvement in dissemination of auction sale information.
- Reduction in transaction time and cost for pre-auction, auction process and post-auction activities.
- Planning tool in the hands of buyers and other stakeholders as bid history and its analysis is easily available.

Before introducing "live" e-auction, the final mock sessions were again conducted under the guidance of technical team of NSEIT during **March to June, 2009 in six auction centres**.

Live e-auction started as mentioned below:

- Based on the requirement of the auction stakeholders, different functionalities of the e-auction system have been enhanced / modified from time to time.
- Since April 2009, the numbers of Functionalities (enhanced/modified till 31st March 2010) were 169 while the total numbers of Functionalities enhanced/modified during 06.11.2008 to 11.06.2010 are 267.
- The major enhancement like Parallel Session for Leaf & Dust teas for Guwahati and Kolkata tea auction centres, Proxy bidding, etc have already been designed & developed and incorporated in the e-auction system and such facilities are being used by auction stakeholders.
- Since settlement banking system has been introduced at Coonoor, Kolkata, Guwahati, Coimbatore and Siliguri auction followed up throughout 2009.
- In order to design and develop the new requirements on electronic platform, draft mechanism in respect of the following six requirements separately have

Auction Centre	been prepared and the views of concerned stakeholders are being obtained & compiled for finalization on the basis of consensus as far as possible.	Live (Partial)
Kolkata	20-05-2009 (100% for all dust)	
Guwahati	Instant Auction 2009 (5% leaf, 5% dust) & Silliguri auction, Live e-auction for both Leaf & Dust	
Siliguri	Auction for tea discontinued since 29 th August, 2009. Partial live e-auction for 10% for Package Tea through non-auction route. Sale of Package Tea through non-auction route. Sale of tea in Bulk Packages introduced since 1 st September 2009.	
Coonoor	Settlement System (10% leaf, 10% dust)	
Coimbatore	Warehouse Inventory Management System' in respect of e-auction for tea.	
Chennai	08-04-2009 (5% leaf, 5% dust)	

- **In order to standardize the grades of CTC & Orthodox tea (other than Darjeeling tea) for sale through e-auction system, the draft standard has been prepared and views of auction stakeholders are being obtained for finalization and implementation.**
- **130.99 million kgs of tea was sold through electronic auction system in India during April 2009 to December 2009. Further, 62.82 million kgs of tea was sold through e-auction system during January 2010 to 31st March, 2010.**



Current Status of Live e-auction

Auction centre	Status on live e-auction
Kolkata	100% live e-auction started for dust category teas since 17 th June, 2009. 100% e-auction for CTC Leaf teas since 3 rd April 2010 (Since sale no 14 of 2010)
Guwahati	100% live e-auction started for dust category teas since 20 th May, 2009. 100% e-auction for Leaf teas since first week of January 2010. Fully electronic auction.
Siliguri	Live e-auction with 1000 Lots for CTC Leaf & 50% of the total lots of Dust teas since 16 th April 2010. Live e-auction with 1500 Lots for CTC Leaf since first week of July 2010
Coonoor	Fully electronic auction for both leaf and dust category teas since 7 th May, 2009
Coimbatore	Fully electronic auction for both leaf and dust category teas since 8 th May, 2009
Cochin	100% live e-auction started for both leaf and dust category teas since 14 th July, 2009.

7.10 Registration of Buyers :

Clause 4 (1) of TMCO 2003 stipulates that no buyer (with a place of business in tea in India) shall carry on the activity of buying tea from any public tea auction licensed by the Tea Board or directly from the manufacturer of tea except under a valid registration obtained from Tea Board.

This registration certificate once granted by the Tea Board remains valid unless cancelled. During the year 2009-10 under review, 211 buyers obtained registration from the Tea Board. The total amount collected was ₹ 5,27,500/-. The total number of buyers registered with Tea Board under TMCO 2003 as on 31.3.2010 comes to 5,912.

7.11 Certificates of Origin issued towards export of Darjeeling tea :

The total number of certificates of origin issued by Tea Board towards export of Darjeeling tea was 1866 during 2009-10 as against 1708 issued in the same period of 2008-09.

7.12 Registration of Manufacturers of tea with Added Flavour :

The sales of flavoured tea in the domestic market remained banned for a long time. Following a directive from the Supreme Court in the case of Nilgiris Tea Emporium -vs- Union of India & Others, the Government of India examined the matter relating to sale of flavoured tea in the domestic market in consultation with the experts of Central Committee for Food Standards for allowing additional flavour in tea for

domestic market.

Consequently, Government of India, Ministry of Health and Family Welfare, issued notification no. GSR 847(E) dated 7th December, 1994 amending the PFA Rules 1955. As per the provisions of these amendments, the condition for sale of flavoured tea has been notified as follows :

i) Flavoured tea shall be sold or offered for sale only by those manufacturers who are registered with Tea Board.

Flavour	% by weight (Max)
Vanilla	8.5
Gardamom	2.8
Ginger	1.0
Bergamot	2.0
Lemon	1.0
Cinnamon	2.0
Mixture of above	The level of individual shall not exceed the quantity indicated above

Subsequently, Government of India vide notification no. GSR698 (E) dated 26/10/1995 allowed few more flavours in addition to Vanillin flavour and their respective percentage in flavoured tea are as follows :



Ministry of Health and Family Welfare, Government of India amended further the PFA Rules by notification No. GSR 694(E) dated 11/10/1999 which has been effective from 11/4/2000. The said notification was aimed at allowing all natural flavours and natural flavouring substances singly or in combination. The definition of "Natural flavour and Natural Flavouring Substance" is indicated in sub-rule (A) or rule 63 of PFA Rule. The other condition which has been stipulated in the said notification is that "Flavoured Tea manufacturers shall register themselves with the Tea Board before marketing Flavoured Tea".

In addition to the above condition laid down in notification dated 11.10.1999. Directorate General of Health Services, Govt. of India vide letter No. P-1501/5/97PH-(Food) dated 18/2/2000 stipulates the following conditions.

- Methodology for estimation of flavours in tea shall be supplied by the manufacturer to Tea Board.
- The methodology supplied by manufacturer will be tried in Central Food Laboratories for verification.
- The manufacturers will be registered thereafter only.

The amendment dated 11.10.1999, in fact, sought to enlarge the scope for use of flavours in tea by linking it to an existing and unaltered definition as mentioned

in rule 63 of PFA Rules which was applicable to all food items including tea. While the definition as mentioned in rule 63 of PFA Rules may lead to confusion of using flavours of animal origin in any food item, it is not possible to use flavour of animal origin in flavoured tea because of the condition of registration by Tea Board and Tea Board's reservation of allowing such flavour.

However, to avoid any such confusion Ministry of Health and Family Welfare, Govt. of India further amended the PFA Rule by issuing notification No. GSR 770(E) dated 4/10/2000. It aims at using only those "Natural flavours and Natural Flavouring Substances" which are obtained exclusively by physical process from materials of plant origin in their natural state or after processing for human consumption.

Till 31st March, 2010, the Licensing Branch granted registration in favour of 103 Manufacturers of tea with added flavour. During 2009-10, 10 manufacturers of flavoured tea registered with Tea Board.

7.13 Extension / Replacement Planting Permit .			
Region	Extension permit		Re
	Number	Area in Hect.	Num
Permit for Extension and Replacement planting of tea are issued to the existing tea estate by the licensing Branch. Permit for planting tea to new comer are also issued. Such permits are issued within the framework of the Tea Act and Tea Rules.			
North India	3	139.42	4
South India	1	18.00	12
Total All India	4	157.42	58

The Position of Permits issued during 2009-10

Permission for Planting tea :

Licensing Branch is granting permission for planting tea in favour of tea estates as New Comer along with recording of the change of ownership of the tea estates. The position during the year 2009-10 (till 31.3.10) is as follows :



	North India		South India		Total	
1. Change of ownership	31		1		32	
	North India		South India		Total	
	No	Area in Ha	No	Area in Ha	No	Area in Ha
a) In Non-Traditional tea growing areas (upto 10.12 ha)	Nil	Nil	Nil	Nil	Nil	Nil
b) In non traditional tea growing areas (above 10.12 ha)	1	43.08	Nil	Nil	1	43.08
c) In other than non traditional tea growing areas (upto 10.12 ha)	68	115.971	2531	2035.946	2599	2151.917
d) In other than non traditional tea growing areas (above 10.12 ha)	21	1161.675	Nil	Nil	21	1161.675

7.14 Tea Warehouse License:

Licensing Branch looks after the issuance of Tea Warehouse Licence under the Tea Warehouses (Licensing) Order, 1989. Position of issuance/renewal of Tea Warehouse License during the year 2009-10 is indicated below:

Region	Fresh License issued @ ` 1,000/-		Licence @ ` 2
	Number	Amount (`)	
North India	12	12,000	96
South India	11	11,000	11
All India	23	23,000	107



STATISTICS

8. Introduction :

Functions of Statistics Branch of Tea Board are to design and develop Management Information System which could provide required information relating to Production, Export, Import, Prices, Labour etc., in respect of Indian Tea Industry as well as in the perspective of its International Scenario. It provides necessary inputs in decision making process of the policy matters of the Board, the Government and the Industry. The matters like Central Excise, State Sales Tax, Central Sales Tax, Export Incentives, Export-Import Policy, Foreign Direct Investment, Tea (Marketing) Control Order, 2003 etc; are also examined in the Statistics Branch.

8.1 Publication :

Statistics Branch publishes Tea Board's Publication viz., "**Tea Statistics**" which provides a data base on tea industry, both National and International. In addition, the Statistics Branch publishes another Annual Publication viz., "**Tea Digest**" incorporating up-to-date statistical data on tea.

8.2 Techno-Economic Survey :

The Techno-Economic Cell was established in 1972 in the Statistics Branch of the Tea Board on the very recommendations of the Estimate Committee of Parliament, with the objective to undertake techno-economic study into the problems of Tea Industry in different tea growing regions and also to suggest suitable

remedial measures for the overall growth of the industry. Till date, eighteen techno-economic surveys were conducted in different tea growing States/ regions of India.

Lastly, the Cell was involved for an in-house study on the economic health of different tea companies covered under the compulsory cost audit by the Government of India.

8.3 Monitoring of Tea Prices :

The Branch is monitoring and providing the information on weekly auction prices to Ministry of Commerce and Ministry of Consumer Affairs, Food & Public Distribution on a regular basis in connection with the meeting of the High Powered Price Monitoring Board on Prices. The work relating to monitoring of retail prices of tea at different cities/towns is also been monitored. The Branch is also providing the weekly auction prices to Ministry of Agriculture and Ministry of Industry on regular basis in connection with the computation of Wholesale Price Indices of Plantation Crops etc.



LABOUR WELFARE

Introduction :

The Welfare Branch of the Tea Board undertakes some welfare programmes and schemes for the benefit of tea plantation workers and their dependants. The labour welfare activities undertaken by the Board are supplemental and cover such areas which are not specifically addressed by the Plantation Labour Act and the rules framed thereunder.

9.1. Objectives :

The labour welfare activities of the Board are funded through the Human Resource Development Scheme. The HRD Scheme aims at achieving improvements in the living conditions of the Tea Plantation labourers and their dependants. The activities are categorized in three broad heads, as Health, Education and Training Schemes. While the Health related activities/schemes aim to improve the general health of the tea plantation workers and their dependants, the Education related schemes and activities aim at encouraging wards/dependants of tea garden workers to achieve not only basic education but also higher education. Assistance is also given even for undertaking professional qualifications. Under the training schemes the workers labourers, office and managerial staff, managers etc., are given training with a view to improve their skill and ultimately the productivity. There is a provision to give vocational training to wards and dependants of tea garden labourers with a view to equip them for alternate

employment outside the tea areas. A sum of ` 2,16,82,778/- was disbursed for Labour Welfare measures during the year 2009-10 under the HRD scheme.

9.2. HEALTH :

Under the Health related activities, financial assistance is given by the Board to Hospitals located in tea gardens and also General Hospitals, Clinics in areas contiguous to tea gardens. Assistance is also given to Health Clinics, Charitable Institutions and NGOs like Indian Red Cross Society, St. John Ambulance, Bharat Sevashram Sangha etc. for extension of health centres, hospital etc. For transportation of patients belonging to tea garden population especially in non-traditional tea areas assistance is provided for purchase of Ambulance with accessories. Financial assistance is also provided to plantation workers and their dependants for undergoing treatment on critical diseases like cancer, cardio-vascular diseases, kidney ailments etc. A sum of ` 20,000/- has been disbursed on this scheme during the year under review.

The Board also provides capital grant to the institutions that are running rehabilitation and therapy center for the physically challenged persons amongst tea garden population towards expenditure for construction of building, purchase of equipments and accessories. No application was received under this scheme during the year.

A scheme of financial assistance for disabled plantation workers and their dependants for purchasing crutch (wooden) calipers, shoes, artificial limb (wooden), hearing aids, wheel chairs and tri-cycle with hand pedalling system is also in operation. However, maximum pay out under this scheme is restricted to 2500/- per person. Total amount of ` 65,462/- for 80 persons was disbursed under this scheme during the year.

Financial assistance is also provided to different Tea Associations and others for the purpose of family welfare education programme.

The details of assistance provided to various institutions during the year are as under:-

(i) S.B. Dey Sanatorium :



The Board reserved 5 beds at S.B. Dey Sanatorium, Kurseong, Darjeeling for treatment of tea plantation workers and their dependants suffering from T.B.. The beds were allotted in favour of Tea Producers' Associations in North Bengal who share 1/3rd part of maintenance charges. The balance 2/3rd share is being borne by the Board.

(ii) Ramalingam T.B. Sanatorium :

In the year 1956-57, the Board reserved 15 free beds in the Ramalingam T.B. Sanatorium, Perundurai, Tamil Nadu permanently for the benefit of tea garden workers and their dependents suffering from T.B. against a capital grant of 92,124/-. Since 15 free beds reserved by the Board at the Sanatorium were found to be inadequate to cope with the demand, from 1962 the Board has been maintaining 17 additional beds at the sanatorium on payment of hospital stoppages at the rate of 16/- per patient per day against the actual occupation of bed. This stoppage charge was revised to 30/- by the Board at its meeting held at Bangalore on 24-5-88, and subsequently to 50/- at its meeting held in Kolkata on 29-9-1993. Thereafter, Board at its meeting held at Bangalore on 29-12-1999 enhanced the rate of hospital stoppages to 75/- per patient per day against actual occupation w.e.f. 01-01-2000. No payment was made during the year under review.

(iii) Kalimpong Sub-divisional Hospital :

The Board continued to reserve 3 beds in the leprosy wing of Kalimpong Sub-Divisional Hospital for the treatment of leprosy patients of tea garden workers and their dependants on payment of 12,000/- per bed per annum.

iv) Family Welfare Programme :

The Board continued to provide financial assistance to different tea associations for the purpose of development of Family Welfare Educational Programme amongst the tea plantation workers and their dependants since 1984. For this purpose a sum of 1,75,000/- was disbursed in favour of the "Institute for Plantation Agricultural and Rural Workers, Jalpaiguri" and a sum of 7,87,103/- was disbursed in favour of "Indian

Tea Association, Kolkata" during the year under review.

v) Programme for construction of sanitary latrines :

A pilot project for construction of 1000 UNICEF type double pit sanitary latrines in tea garden labour lines in Dibrugarh and Tinsukia areas of Assam was approved by the Board at its meeting held at Palampur on 26-03-2010.

Execution of this pilot project will be in collaboration with Indian Tea Association, Kolkata. A sum of 50.00 lakhs being the Tea Board's own contribution has been released during the year under review. The project cost is 81.10 lakhs. The balance amount will be shared by the participating gardens.

v) Siliguri Greater Lions Eye Hospital, Siliguri, West Bengal :

The Board in its meeting held in Kolkata on 08-11-2008 sanctioned capital grant of 8,00,000/- in favour of Siliguri Greater Lions Eye Hospital, Siliguri, West Bengal for purchase of medical equipments/accessories. A sum of 8,00,000/- being the full and final payment of the capital grant was released during the year under review.

9.3. EDUCATION :

Under the educational stipend schemes, the wards of tea garden workers are given grant for pursuing studies from primary level in schools, colleges, universities and also in professional institutions. Actual tuition fees restricted upto 20,000/- per annum and 2/3rd of hostel charges restricted upto 20,000/- per annum are paid to children of persons directly employed in registered tea estates provided the monthly wage and income of parents do not exceed 10,000/- per month. This benefit is provided to only 2(two) children per worker. The Board also provide lump-sum grant in the name of "Nehru Award" @ 2,000/- and 2,500/- as prize money to a few selected wards of tea plantation workers (on merit basis) who secured at least 75% marks in the Class X (Madhyamik or equivalent) and Class XII (Higher Secondary or equivalent) examination and thereafter undergoing studies for Class XI (Higher Secondary) and Degree/professional courses. This is applicable to wards of tea plantation workers whose annual income does not exceed 1,20,000/-. A sum of 71,12,761/- was disbursed under this scheme in respect of educational stipend and "Nehru Award" during the year 2009-10.



The details of the beneficiaries are as under :

Financial assistance is also given to schools/ colleges for construction and extension of school/ college buildings in the tea garden areas with a view to provide additional seats to tea garden community.

9.3.1. The following institutions were provided with financial assistance during the year:

i) Chappanalla H.S. School, Nagaon, Assam:

The Board in its meeting held in Kolkata on 29-03-2003 sanctioned capital grant of ` 4,29,100/- for construction of the said school building. A sum of 1,07,275/- being the 3rd installment of grant was released during the year under review.

ii) Nakachari College, Jorhat, Assam :

The Board in its meeting held in New Delhi on 18-09-2004 sanctioned capital grant of ` 7,25,410/- for construction of the said college building. A sum of 1,81,353/- being the 3rd installment of grant was released during the year under review.

iii) Moran Mahila Mahavidyalaya, Sivasagar, Assam :

The Board in its meeting held at Darjeeling on 17-12-2007 sanctioned capital grant of ` 11,90,000/- for construction of the said college building. A sum of 5,95,000/- being the 1st installment of grant was released during the year under review.

iv) Dr. Birinchi Kr. Barooah College, Puranigudam, Assam :

The Board in its meeting held at Kochi on 27-09-2007 sanctioned capital grant of ` 8,75,000/- for construction of the said college building. A sum of 4,37,500/- being the 1st installment of the grant was released during the year under review.

v) Golaghat Commerce College, Golaghat, Assam :

The Board in its meeting held at Jorhat on 23-06-2007 sanctioned capital grant of ` 8,00,000/- for construction of the said college building. A sum of 2,00,000/- being the 3rd installment of grant was released during the year under review.

vi) Hemoprova Borbora Girls' College, Golaghat, Assam:

The Board in its meeting held in Kolkata on 29-03-2006 sanctioned capital grant of ` 8,00,000/- for construction of the said college building. A sum of 2,00,000/- being the 3rd installment of grant was released during the year under review.

vii) Machkhowa Degree College, Machkhowa, Assam :

The Board in its meeting held at Jorhat on

State	Total	Male	Female
Assam	115	69	46
Tripura	1	1	-
West Bengal	115	69	46
Himachal Pradesh	1	1	-
Kerala	254	94	160
Karnataka	60	30	30
Tamil Nadu	129	84	45
Total	568	267	301

ix) Demow College, Sivasagar, Assam :

The Board in its meeting held at Darjeeling on 17-12-2007 sanctioned capital grant of ` 12,00,000/- for construction of the said college building. A sum of 6,00,000/- being the 1st installment of grant was released during the year under review.

x) Siksha Sangh High School, Darjeeling, West Bengal :

The Board in its meeting held in Kolkata on 20-09-2006 sanctioned capital grant of ` 12,00,000/- for



construction of the said school building. A sum of 6,00,000/- being the 1st installment of grant was released during the year under review.

xi) St. Mathews L.P. School, Vandeperiyar, Kerala :

The Board in its meeting held in Kolkata on 08-11-2008 sanctioned capital grant of 4,20,000/- for construction of the said school building. A sum of 4,20,000/- being the 1st, 2nd & 3rd installments of grant were released during the year under review.

xii) Simkuna Sai Jr. High School, Darjeeling, West Bengal :

The Board in its meeting held in Kolkata on 08-11-2008 sanctioned capital grant of 7,68,100/- for construction of the said school building. A sum of 3,84,050/- being the 1st installment of grant was released during the year under review.

xiii) Chandra Kamal Bezbaruah College, Jorhat, Assam :

The Board in its meeting held in Kolkata on 26-03-2008 sanctioned capital grant of 6,71,300/- for construction of the said college building. A sum of 6,71,300/- being the 1st, 2nd & 3rd installments of grant were released during the year under review.

xiv) Ghoom Girls' H.S. School, Darjeeling, West Bengal :

The Board in its meeting held in Kolkata on 08-11-2008 sanctioned capital grant of 12,00,000/- for construction of the said school building. A sum of 6,00,000/- being the 1st installment of grant was released during the year under review.

xv) P.C. Barjalenga High School, Cachar, Assam :

The Board in its meeting held in Kolkata on 19-09-2003 sanctioned capital grant of 6,30,000/- for construction of the said school building. A sum of 1,57,500/- being the 3rd installment of grant was released during the year under review.

xvi) Griffith Higher Secondary School, Darjeeling, West Bengal :

The Board in its meeting held at Kochi on 27-09-

2007 sanctioned capital grant of 12,00,000/- for construction of the said school building. A sum of 3,00,000/- being the 3rd installment of grant was released during the year under review.

xvii) Borhat B.P.B. Memorial College, Sivasagar, Assam :

The Board in its meeting held at Jorhat on 23-06-2007 sanctioned capital grant of 7,45,500/- for construction of the said college building. A sum of 1,86,375/- being the 2nd installment of grant was released during the year under review.

xviii) St. Mary's Girls Higher Secondary School, Coonoor, Nilgiris :

The Board in its meeting held at Agartala on 30-06-2009 sanctioned capital grant of 10,78,351/- for construction of the said school building. A sum of 10,78,351/- being the 1st, 2nd & 3rd installments of grant were released during the year under review.

9.3.2. Admission in Jalpaiguri Polytechnic Institution:

Since 1979-80, the Board has been maintaining three reserved seats in the Jalpaiguri Polytechnic Institute, Jalpaiguri, West Bengal for the wards of tea garden employees for admission during each academic year in diploma courses. During the period under review, three wards of tea garden employees were selected against these reserved seats on merit basis.

9.3.3. Scouting and Guiding :

The Board has been granting financial assistance to the State Association of Bharat Scouts & Guides, in West Bengal, Kerala, Tamil Nadu Tripura, and Assam for the last 45 years. The purpose of this scheme is to inculcate a sense of discipline, self-reliance, self-respect, freedom from fear and development of scouting and guiding activities amongst the tea plantation workers. The financial assistance includes (i) salary and conveyance allowance for district Scouts/Guides Organizers in tea plantation area, (ii) charges for holding various training camps; (iii) uniform grant for the tea garden scouts/guides/cubs and bullbuls and (iv) financial assistance for holding rallies, rally-cum-



camps, camporee, jamboree etc. The scheme of granting financial assistance towards scouting and guiding in the tea plantation area is renewed on a year to year basis. During the year under review the Board has disbursed a sum of 5,37,662/- for scouting and guiding activities.

9.3.4. Sports :

In order to improve physical fitness and mental upliftment amongst the tea plantation workers, the Board has a scheme for rewarding the District level /State level/ National level sports personalities from amongst the tea plantation workers or their wards and provide assistance as provided to in the Board's scheme.

9.4. Training :

The details of expenses incurred on training of tea garden workers/staff/managers are provided under the chapter "Tea Development".



HINDI CELL

10. Introduction :

With the enforcement of the constitution on 26 January, 1950, Hindi became the Official Language of the Union of India according to Article 343(1) of the constitution of India. Government of India was entrusted with the duty to promote the propagation and development of the Official Language Hindi, so that it may serve as a medium of expression of all the elements of the composite culture of India. It was natural to make continuous efforts for the use of Hindi Language. Right from its inception, Hindi Cell of the Board has been looking after the Implementation of Constitutional provision pertaining to Official Language Act 1963 and Rules 1976 made there under.

10.1 Compliance of Sec.3(3)of O.L.ACT 1963 :

All relevant documents etc as mentioned in sec.3(3) of O.L. Act 1963, were issued bilingually, i.e. in Hindi & English simultaneously in the year under review.

10.2 Purchase of Hindi Books :

In order to create a favourable atmosphere for implementation of official language and to make reference literature for Hindi teaching available, a Hindi Library is being maintained by the Hindi Cell. Books worth Rs. 30,000/- were bought for the Head Office as well as its Regional Offices. Among these reference materials and Glossaries/Dictionaries are included.

10.3 Correspondence in Hindi :

All letters received in Hindi were invariably replied to in Hindi itself during the year under review. Vigorous efforts were made for achievement of programme and target laid therein.

10.4 Report in Hindi :

Various reports like Annual Administrative Report, Annual Accounts, and Annual Audit Report of the Board were prepared in Hindi for submission to the parliament. Apart from this, Quarterly progress Report and Annual Assessment Report regarding progressive use of Hindi, were prepared in Hindi and sent regularly to Ministry of Commerce, New Delhi.

10.5 Organising Hindi Workshop :

During the year the officer/employees who have got working knowledge or proficiency in Hindi were nominated for attending Hindi Workshop. Faculties from different Government Offices conducted the classes. This resulted in a favourable orientation and inclination amongst personnel towards functional Hindi.

10.6 Hindi Training :

With a view to achieving the prescribed target for imparting training to the untrained staff of the Board, some of the employees were nominated for PRAVEEN & PRAGYA course.

10.7 Organising Hindi Week :

With a view to create awareness regarding Official Language and accelerate its use in Official work, Hindi week was organized in the month of March, 2010. During the course of the week, several competitions were held and there was active participation whole heartedly from amongst all. Similar programmes were organized in regional offices of the Board in India.

10.8 Publication of In-House Journal :

Since 1987, two issues of Hindi in-house journal "CHAI AUR BHARAT" are being published every year. This year also, Tea Board continued its publication in Hindi related to in the direction of tea labour welfare, Special article related to tea in addition to the regular reports in Hindi were published. As a consequence there was



considerable literary inclination in the office. The copies of this journal were sent to the regional offices in India as well as abroad offices of Tea Board.

10.9 Annual Programme for Transacting The Official Work of The Union in Hindi :

In pursuance of Official Language Resolution, 1967, Department of Official Language issues programme every year to speed up propagation and development of Official Language Hindi and also to accelerate its progressive use for Official purpose. The Annual programme of the year 2009-2010 is a continuation of this, whereby considerable progress has been made in the use of Hindi in the Official transactions. The prescribed target has been achieved to some extent. However English continues to be in use in the Board.

10.10 Meeting of OLIC of The Board :

The meeting of Official Language Implementation Committee (OLIC) were held in each quarters wherein useful decisions were taken.

10.11 Provision for Bilingual Computer :

During the year bilingual software were made available to all the computers of the Board's office.

10.12 Incentive Scheme For Use of Hindi in Official Work :

Tea Board promoted and propagated the incentive scheme in Head Office as well as regional offices in India in order to accelerate the use of Hindi. The Official and the employees were benefited by these Schemes. 18 employees participated and 11 employees were awarded with cash prize.

10.13 Quarterly Progress Report :

All regional/sub-regional offices controlled by Tea Board, Head office, submitted quarterly progress reports regarding progressive use of Hindi in the prescribed proforma . All reports were reviewed and action were taken to remove the deficiencies.

10.14 Inspection of Regional Offices :

During the year 2009-10 some of the departments of Tea Board's, Head Office were inspected.

10.15 Inspection of Parliamentary Committee on O.L.

Efforts to comply with the assurances given to the Parliamentary Committee on O.L. were taken up.

10.16 Special Achievements :

The process of creating bilingual website is continuing and all the computers are being made available with the bilingual softwares.



HUMAN RESOURCE DEVELOPMENT

Human Resource Development Cell of Tea Board Head Office at Kolkata and other departments arrange various types of training programmes, workshop, seminar etc. from time to time for the employees, officers &

different stakeholders of Tea Industry.

During 2009-10 the under-noted activities were undertaken by Tea Board relating to HRD:

Details of Training Programme conducted for Tea Board Officials :

A/c Year	Institute	No. of Programmes	Duration
2009-10	TRA	01	12 Days
2009	TRA	01	04 Days
2009	ISRO	01	02 Days
2009	SPC	01	02 Days
2009	TOTAL	04	20 Days

TRA : Tea Research Association.

ISRO : Indian Space Research Organization.

SPC : State Productivity Council, West Bengal.

Apart from the above, Language Cell of Tea Board at Head Quarter organizes training & workshop every year for development of skill and proficiency of staff in Hindi.



SUPPLY

The main functions of the Supply Branch, Tea Board, Kolkata is to render assistance to the Tea Industry in the matter of procurement, movement and distribution of various inputs, viz., Fertilizers (especially Urea, Purulia Phos and Rock Phosphate) etc.

12.1 FERTILIZER :

Fertilizer for the Tea Industry is allocated by the Ministry of Agriculture, Government of India under the Essential Commodities Act on the basis of the requirements indicated by the Board, through the respective State Government. Allocation of Fertilizer to Tea Gardens is done on half-yearly basis – one for Kharif Season (i.e., from April to September) and the other for

Rabi Season (i.e., from October to March).

As per the information available with the Board, the controlled fertilizer (i.e. Urea) which is used in Tea Gardens as one of the important fertilizers was supplied to Tea Gardens of Assam and other States (i.e., under North Eastern Zone) and West Bengal (i.e., under East Zone)

Name of the Manufacturer/ supplier	QUANTITY OF UREA	
	ASSAM	West Bengal
Brahmaputra Valley Fertilizer Corporation Limited (BVFCI)	41,894.55	19,271.36
Nagarjuna Fertilizers and Chemicals Limited (NFCL)		
TOTAL	41,894.55	19,271.36

(Figures in M.T.)

Another important Fertilizer which is commonly known as Purulia Phos is also used in Tea Gardens. Purulia Phos is supplied by M/s West Bengal Mineral Development & Trading Corporation Ltd., (W.B.M.D.T.C.L.). The supply of

Purulia Phos to the tea garden in Assam (under North Eastern Zone) and tea garden in North Bengal (under East Zone) is given below :



(Figures in M.T.)

Assam		West Bengal		Total	
Fertilizer	Nutrient	Fertilizer	Nutrient	Fertilizer	Nutrient
--	--	2,914.05	582.78	2,914.05	582.78

Besides the controlled Fertilizer, Supply Branch is also looking after problems of short supply of de-controlled Fertilizer viz., MOP , DAP etc., which are used in the Tea Garden in Assam and other States (under North Eastern Zone) and West Bengal (under East Zone).

12.2 OTHERS

Supply Branch is also looking after and shorting the matters relating to Coal, Food Grain, LPG Cylinder / Natural Gas , HSD Oil etc., required by the tea estates in case of any problems being faced by the Tea Industry due to disruption of supply of the same to Tea Garden.



VIGILANCE CELL

The Deputy Chairman of Tea Board was appointed as Chief Vigilance Officer by the Central Vigilance Commission. The overall activities of the Vigilance Cell are being done under the supervision of Chief Vigilance Officer. The total strength of Vigilance Cell is four apart from Deputy Chairman. The main function of the Vigilance Cell is to implement the directives of the Government/Central Vigilance Commission. The Vigilance Cell also attends to various queries as and when required and submits monthly and quarterly report to the Government. As per the advice of Chief Vigilance Officer the directives of CVC in respect of tender and preventive vigilance are being followed in the Board in

every respect. The Law Officer is also working as Vigilance Officer who is mainly responsible for maintaining liaison work. This Cell is also functioning on overall Vigilance Surveillance activities of the Board. Another important activity of vigilance cell is observance of Vigilance Awareness Week every year as per directive of the Central Vigilance Commission whereupon all the employees of Tea Board are administered oath in the form of message of efficiency and transparency to the activities of Tea Board for highlighting the basic mission of the awareness. No Vigilance case is pending with this cell as on 31-03-2010.



REPORT ON LEGAL CELL RTI ACT, 2005

Tea Board's Legal Cell is being looked after by the Law Officer. He is being assisted by other staff members. The Legal Cell of Tea Board is attending to all legal matters of the Board as and when referred by the officers of Tea Board in Head office/Regional Office. The Cell is also maintaining liaison with the Board's Solicitors/Law Firms viz. M/S Fox & Mandal, Rajesh Khaitan & Co., K&S Partners and other legal consultants on behalf of the Board. The Cell is also looking after all matters relating to Intellectual Property Rights including Administration of various logo mark/word mark registered by the Board under different statutes in India and abroad. This cell is

also responsible for performing the job relating to the disposal of applications and appeals made under the Right to Information Act, 2005 and sending monthly as well as yearly return to the Ministry. During the year under review, Board has not lost any court case of major importance.



List of the Board Members for the Period from 26.08.2008 to 31.03.2011

1. Shri Basudeb Banerjee, IAS,
Chairman, Tea Board.
2. The Principal Secretary,
Commerce & Industries Department,
Govt. of Assam,
Dispur, Guwahati - 6
3. The Secretary,
Industries (Investment promotion), Govt. of Kerala
Secretariat,
Thiruvananthapuram,
Kerala-695 001
4. The Commissioner and Secretary,
Department of Industries & Commerce,
Govt. Of Tripura,
Agartala-799 001
5. The Secretary,
Small Industries Department,
Govt. of Tamil Nadu,
Chennai-600 009
6. The Principal Secretary,
Commerce & Industries Department,
4, Camac Street,
Kolkata-700 017.
7. The Principal Secretary,
Department of Agriculture,
Govt. of Himachal Pradesh,
Simla-171 002
Himachal Pradesh.
8. Shri Adhir Ranjan Chowdhury,
Hon'ble Member of Parliament, Lok Sabha,
82, South Avenue, New Delhi- 110 011.
9. Shri Rajen Gohain,
Hon'ble Member of Parliament, Lok Sabha.
185, South Avenue,
New Delhi – 110 001.
10. Shri Saman Pathak,
Hon'ble member of Parliament, Rajya Sabha,
Suites 207,523, V.P. House, Rafi Marg,
New Delhi – 100 001
11. The Chairman,
Indian Tea Association,
"Royal Exchange", 6, N.S. Road,
Kolkata – 700 001
12. The Chairman,
United Planters' Association of South India,
"Glenview", Coonoor – 643 101,
Nilgiris, Tamil Nadu.
13. Shri Kapil Kapoor,
6, Alipore Avenue,
Kolkata – 700 027
14. Shri J. L. Butail,
Kangra Valley Small Tea Planters' Association,
Kangra Valley Tea Estate, Gopalpur,
Dist: Kangra, Pin – 176 059, Himachal Pradesh.
15. Shri Rajib Chandra Barooah,
Hollonghabi Tea Estate, P.O. Mohanaghat,
Dibrugarh Town, Pin – 786 008, Assam.
16. Shri P.V. Balachandran,
President : Dist. Congress Committee,
P.O. Kalpetta North, Wynaad,
Pin – 673 122, Kerala.
17. Shri Koshy Baby,
Gudalur Bazaar, Nilgiris – Distt.,
Pin – 643 212, Tamil Nadu.
18. Shri Rajinder Singh Thakur,
P.O. Khalet, Teh.: Palampur,
Distt.- Kangra, Pin – 176 061,
Himachal Pradesh.
19. Shri Subrata Mukherjee,
President, Indian National Trade Union Congress
(INTUC),
West Bengal, 15/1A, Gariahat Road,
Kolkata – 700 019.



20. Shri Shankar Malakar,
President, Darjeeling District Congress Committee,
Babupara, Siliguri,
Dist – Darjeeling, Pin- 734 001,
West Bengal.
21. Shri A.K. Moni,
Ex-MLA, Top Station Road,
Munnar, P.O. Idukki,
Pin – 685 612, Kerala.
22. Shri Mani Kr. Darnal,
General Secretary,
Indian National Plantation Workers Federation,
Birpara, Pin – 735 101.
Jalpaiguri, West Bengal.
23. Shri Alope Chakraborty,
Secretary, INTUC, West Bengal Branch,
"Putul Ghar" Durgapuri, Siliguri,
P.O. Pradhan Nagar,
Pin – 734 001, West Bengal.
24. Shri Vijay Jagannath,
McLeod Russel (India) Ltd.,
Tea Marketing Deptt. (9th Floor), 4, Mangoe Lane,
Kolkata – 700 001.
25. Shri Rajiv Krishan Puri,
C/o. Parcon (India) Pvt. Ltd.,
207, A.J.C. Bose Road, 2nd Floor,
Kolkata – 700 020.
26. Shri Karan Paul,
Chairman, Apeejay Surendra Group,
15, Park Street,
Kolkata – 700 016.
27. Shri Shiv Kumar Saria,
Soongachi Tea Industries Pvt. Ltd.
Arjun Enclave, C & E Block, 1st Floor,
Green Park Colony, Tea Acution Rord, Siliguri- 734
003
28. Shri Nivedith Thomas Alva,
No.253, 2nd Block, 5th Cross,
Rajmahal Vilas II, Bangalore - 560 097.
- Karnataka.
29. Ms. Bobbeeta Sharma,
Office: Sangeeta Advertising,
Anuradha Complex, Bamuni Maidan,
Guwahati – 781 021.
30. Smt. Deepa Dasmunsi,
6-A, Rani Bhavani Road,
Kolkata – 700 026, West Bengal.
31. Shri D. P. Roy,
Member, West Bengal Legislative Assembly,
Natun Para, Jalpaiguri – 785 101, West Bengal.

Special Invitees of the Board

- (1) Representative to the Govt. of India,
Ministry of Commerce & Industry,
Deptt. Of Commerce, Udyog Bhawan
New Delhi.
- (2) The Chairman & Managing Director,
North Eastern Development Finance Corporation Ltd.
(NEDFI),
Basundhara Enclave,
B.K. Kakati Road, Ulubari,
Guwahati – 781 007.
- (3) The President,
Tea Association of India,
6, N.S. Road,
Kolkata – 700 001.
- (4) The Chairman,
Confederation of Indian Small Tea Growers'
Association (CISTA),
6th Lane, "MANIK BHAWAN", Ganapatti,
Dist.- Sibsagar, Pin – 785 640, Assam.
- (5) The Chairman,
United Planters' Associations of Southern India
(UPASI – Tea Committee),
"Glenview", Coonoor – 643 101, Nilgiris,
Tamil Nadu.
- (6) The Chairman,
Darjeeling Tea Associations (DTA),
6, N. S. Road, Kolkata.



**Composition of the Standing Committees for the year 2008–2011
(upto 31st March, 2011)**

Executive Committee

1. Chairman, Tea Board
(Ex-Officio Chairman of the Committee).
2. Shri J.L. Butail, Vice-Chairman,
Tea Board & Chairman, Kangra Tea Planters
Association,
Kangra Valley Tea Estate, Gopalpur, Dist.- Kangra,
Pin – 176 059, H. P.
3. Shri Adhir Ranjan Chowdhury,
Hon'ble Member of parliament, Lok Sabha,
82, South Avenue, New Delhi- 110 011.
4. Shri Saman Pathak,
Hon'ble member of Parliament, (Rajya Sabha),
Suites 207, 523, V.P. House, Rafi Marg,
New Delhi – 100 001.
5. Shri D. P. Roy,
Member, West Bengal Legislative Assembly,
Jalpaiguri – 785 101,
West Bengal.
6. Shri Kapil Kapoor,
6, Alipore Avenue,
Kolkata – 700 027.
7. Shri Rajiv Krishan Puri,
C/o. Parcon (India) Pvt. Ltd.,
207, A.J.C. Bose Road, 2nd Floor,
Kolkata – 700 020.
8. Shri Rajinder Singh Thakur,
P.O. Khalet, Teh.: Palampur,
Distt.- Kangra, Pin – 176 061,
Himachal Pradesh.
9. Shri Shiv Kumar Saria,
Soongachi Tea Industries Pvt. Ltd.
Siliguri.

Four Meetings were held during 2009-10

**i.e. on 30.06.09, 11.09.09, 30.12.09 and
26.03.10)**

II. Labour Welfare Committee

1. Chairman, Tea Board
(Ex-Officio Chairman of the Committee).
2. The Chairman,
Indian Tea Association,
"Royal Exchange", 6, N.S. Road,
Kolkata – 700 001
3. The President,
United Planters' Association of South India,
"Glenview", Coonoor – 643 101,
Nilgiris, Tamil Nadu.
4. Shri Subrata Mukherjee,
President, Indian National Trade Union Congress
(INTUC),
West Bengal, 15/1A, Gariahat Road,
Kolkata – 700 019.
5. Shri Shankar Malakar,
President, Darjeeling District Congress Committee,
Babupara, Siliguri,
Dist – Darjeeling, Pin- 734 001,
West Bengal.
6. Shri A.K. Moni,
Ex-MLA, Top Station Road,
Munnar, P.O. Idukki,
Pin – 685 612, Kerala.
7. Shri Alope Chakraborty,
Secretary, INTUC, West Bengal Branch,
"Putul Ghar" Durgapuri, Siliguri,
P.O. Pradhan Nagar,
Pin – 734 001, West Bengal.



8. Shri Mani Kr. Darnal,
General Secretary,
Indian National Plantation Workers Federation,
Birpara, Pin – 735 101.
Jalpaiguri, West Bengal.

9. Shri Koshy Baby,
Gudalur Bazzar, Nilgiris – Distt.,
Pin – 643 212, Tamil Nadu.

**Four Meetings were held during 2009-10
i.e. on 30.06.09, 11.09.09,
30.12.09 and 26.03.10)**

III. **Development Committee**

1. Chairman, Tea Board
(Ex-Officio Chairman of the Committee).
2. Shri Rajen Gohain,
Member of Parliament,
Tilak Deka Road, Itachali,
P.O. Dist. Nagaon – 782 001
Assam.
3. Chairman,
Indian Tea Association, Kolkata.
4. President, United Planters' Association of
Southern India, (UPASI), "Glenview",
Coonoor – 643 101,
Nilgiris, Tamil Nadu.
5. Shri Vijay Jagannath,,
McLeod Russels (I) Ltd.,Kolkata.
6. Shri Rajib Chandra Barooah,
Hollonghabi Tea Estate Pvt. Ltd.,
P.O. Mohanaghat,
Dibrugarh – 786 008, Assam.
7. Shri P. V. Balachandran,
Chandra Estate, P.O. Narikundu,
Ambalavayal – 673 593,
Wayanad.

**Four Meetings were held during 2009-10
i.e. on 30.06.09, 11.09.09, 30.12.09
and 26.03.10)**

IV. **Export Promotion Committee**

1. Chairman, Tea Board
(Ex-Officio Chairman of the Committee).
2. Shri Saman Pathak,
Hon'ble member of Parliament,(Rajya Sabha),
Suites 207,523, V.P. House, Rafi Marg,
New Delhi – 100 001
3. The Chairman,
Indian Tea Association,
"Royal Exchange", 6, N.S. Road,
Kolkata – 700 001
4. Ms. Bobbeeta Sharma,
Office: Sangeeta Advertising,
Anuradha Complex, Bamuni Maidan,
Guwahati – 781 021.
5. Shri Vijay Jagannath,
McLeod Russel (India) Ltd.,
Tea Marketing Deptt. (9th Floor),
4, Mangoe Lane,
Kolkata – 700 001.
6. Shri Kapil Kapoor,
6, Alipore Avenue,
Kolkata – 700 027
7. Shri Rajiv Krishan Puri,
C/o. Parcon (India) Pvt. Ltd.,
207, A.J.C. Bose Road, 2nd Floor,
Kolkata – 700 020.

**Four Meetings were held during 2009-10
i.e. on 30.06.09, 11.09.09, 30.12.09 and 26.03.10)**



Addresses of Tea Board Offices in India and Abroad :

OFFICES IN INDIA

KOLKATA

Tea Board
14, BTM Sarani,
Kolkata - 700 001.
Tel. :033-22351411/Fax:033-22215715
E-mail : secyteaboard@vsnl.net
Website :www.teaboard.gov.in

DELHI

Tea Board
13/2 Jam Nagar House, Shahjahan Road,
New Delhi - 110 011
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Mob. : 09811100236, 23543513-R
E-mail :asitkala50@indiatimes.com

COONOR

Executive Director, Tea Board,
Shelwood, Coonoor Club Road,
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Coonoor - 643 101, Nilgiri, South India
Tel. : 0423-2231638/2230316*[D]
Fax : 0423-2232332, 2231484-Res.
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KOCHI

Joint Controller of Licensing
Tea Board
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Kochi - 682 003, Kerala.
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Chennai - 600018.
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Tea Board, Tea Research Association Complex,
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DIBRUGARH

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Tea Board, West Chowkidingee
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**SILCHAR**

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AGARTALA

Assistant Director of Tea Development,
Akhaura Road, Fire Brigade, Chowmuhani
Agartala - 799 001, Tripura (West)
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SILIGURI

Dy. Director of Tea Development (Plantation),
Sahid Bhagat Singh Commercial Complex,(3rd floor),
2nd Mile, Sevoke Road,
Siliguri, West Bengal
Tel/Fax: 0353-2544778/2540209
E-mail : amal.roychowdhury@gmail.com

JALPAIGURI

Assistant Director Tea Development,
Tea Board, Ruby Cottage
Shibajee Road, Hakimpara
Jalpaiguri
Te: 03561 225146
E-mail: teaboardjal@gmail.com

PALAMPUR

Assistant Director Tea Development,
Tea Board, Mission Road,
Palampur - 176 061
Kangra, Himachal Pradesh.
Tel : 01894-230524
Fax : 01894-231748
E-mail : csmteaboard@gmail.com

DARJEELING (DTR & D.C.)

Project Director,
Tea Board, Acharya Bhanu Path,
Kurseong - 734 203, Darjeeling.
Tel.: 0354-230287
Fax : 0354-230218-Fax & Tel
E-mail: tea2darjeeling@yahoo.co.in

MUMBAI

Superintendent
Tea Board, Resham Bhavan,
78, Veer Nariman Road,
Mumbai - 400 020.
Telefax.: 022-22041699
G.H. (Tel): 2367 5401
E-mail : mumtea@vsnl.net

OFFICES ABROAD**UNITED KINGDOM**

Mr.Ali Raza Rizvi, IAS,
Director of Tea Promotion
Tea Board of India, India House, Aldwych,
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Mobile : 00447788420995
Residence : 4, Carrick Gate,
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E-mail : teabordlon@aol.com

DUBAI

Sri Manish Shankar Sharma, I.P.S.,
Director of Tea Promotion
Tea Board of India
P.O. Box No. 2415, Flat No. 5, Al Abbas Buildings,
Bank Street, Bur Dubai, Dubai UAE.
Tel. : 009714 3522612/3522613
Fax : 00 9714 3522615
Mobile:0097154575283, 513275
E-mail : teaboard@emirates.net.ae

MOSCOW

Dr. P. Shakil Ahammed, IAS,
Director of Tea Promotion
Tea Board of India, C/o Embassy of India,
4, Vorontsovo Polye, Russian Federation, Moscow.
Tel : 007095-9171657
Fax : 007095-9163724
Res. : 007095-2543743
E-mail : teaboard@com2com.ru



Annexure-IV

Expenditure Statement under Grant-in-aid and Research Schemes during 2009-2010

1.	Grant-in-Aid to TRA	4,91,38,199.00
2.	Grant-in-Aid to UPASI	1,14,47,809.00
3.	DTR&DC Upgradation	1,17,98,708.00
4.	Research grant to TRA	1,66,00,000.00
5.	Research grant to UPASI	1,00,00,000.00
6.	Research grant to DTR&DC	12,00,000.00
7.	Research grant to C-DAC	30,00,000.00
8.	Research grant to IIT-KGP	50,00,000.00
9.	Research grant to B.C.Guha Centre	15,00,000.00
10.	Research grant to HPKWV	3,50,000.00
11.	Research grant to AAU	2,00,000.00
12.	Seminar and workshop	74,22,614.63
13.	TRA Centenary Grant	5,60,00,000.00
14.	AED to TRA	3,10,87,432.00
15.	AED to UPASI	72,42,491.00
16.	ASIDE Scheme	50,00,000.00
	Total	21,69,87,253.63

Note : This does not include expenditure on development issues under R & D head.



Annexure-V

**SCHEMEWISE DISBURSEMENT SEPARATE POOL UNDER THE BOARD'S LABOUR
WELFARE ACTIVITIES DURING THE YEAR 2009-10.**

Sl. No.	Description	North India	South India	All India
1.	Educational Stipend & Nehru Award	10,37,744.00	60,75,017.00	71,12,761.00
2.	Bharat Scouts & Guides	4,17,662.00	1,20,000.00	5,37,662.00
3.	Family Welfare Educational Programme of IPARW, Jalpaiguri	1,75,000.00	-	1,75,000.00
4.	Family Welfare Educational Programme of ITA	7,87,103.00	-	7,87,103.00
5.	Medical Assistance to Tea Plantation Workers	20,000.00	-	20,000.00
6.	Assistance to disabled persons	-	65,462.00	65,462.00
7.	Siliguri Greater Lions Eye Hospital, Siliguri, West Bengal	8,00,000.00	-	8,00,000.00
8.	Programme for construction of sanitary latrines in tea garden labour lines of Assam	50,00,000.00	-	50,00,000.00
9.	Chappanalla H.S. School, Nagaon, Assam	1,07,275.00	-	1,07,275.00
10.	Nakachari College, Jorhat, Assam	1,81,353.00	-	1,81,353.00
11.	Moran Mahila Mahavidyalaya, Sivasagar, Assam	5,95,000.00	-	5,95,000.00
12.	Dr. Birinchi Kr. Barooah College, Puranigudam, Assam	4,37,500.00	-	4,37,500.00
13.	Golaghat Commerce College, Golaghat, Assam	2,00,000.00	-	2,00,000.00
14.	Hemoprova Borbora Girls' College, Golaghat, Assam	2,00,000.00	-	2,00,000.00
15.	Machkhowa Degree College, Machkhowa, Assam	1,96,236.00	-	1,96,236.00
16.	Chaiduar College, Sonitpur, Assam	2,69,850.00	-	2,69,850.00
17.	Demow College, Sivasagar, Assam	6,00,000.00	-	6,00,000.00
18.	Siksha Sangh High School, Darjeeling, West Bengal	6,00,000.00	-	6,00,000.00
19.	St. Mathews L.P. School, Vandiperiyar, Kerala	-	4,20,000.00	4,20,000.00
20.	Simkuna Sai Jr. High School, Darjeeling, West Bengal	3,84,050.00	-	3,84,050.00
21.	Chandrakamal Bezbaruah College, Jorhat, Assam	6,71,300.00	-	6,71,300.00
22.	Ghoom Girls' H.S. School, Darjeeling, West Bengal	6,00,000.00	-	6,00,000.00
23.	P.C. Barjalenga High School, Cachar, Assam	1,57,500.00	-	1,57,500.00
24.	Griffith H.S. School, Darjeeling, West Bengal	3,00,000.00	-	3,00,000.00
25.	Borhat B.P.B. Memorial College, Sivasagar, Assam	1,86,375.00	-	1,86,375.00
26.	St. Mary's Girls' H.S. School, Coonoor, Nilgiris.	-	10,78,351.00	10,78,351.00
	Total	1,39,23,948.00	77,58,830.00	2,16,82,778.00







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