CHAPTER I : MINISTRY OF COMMERCE AND INDUSTRY

1. Coffee Board

Working of the Coffee Board

Highlights

The developmental activities relating to coffee in India come under the purview of the Coffee Board. Following are the highlights of the findings of performance audit of the working of the Coffee Board.

- **The target of stepping up production from the level of 3 lakh MT in 2001-02 to 4.20 lakh MT by 2006-07 remained unachieved. The production as at the end of 2006-07 was 2.88 lakh MT only. As compared to production targets, the actual production fell short by 14 to 31 *per cent* during the Plan period.**

- **No new varieties of coffee were released by the Board for the benefit of the farmers after 1984 and the Board continued to rely on the main varieties developed before 1980 for breeding purposes; these varieties (developed before 1980) were prone to pest infestations thereby hampering productivity.**

- **The Board could not develop any forecasting models on either weather parameters *versus* yield or weather parameters *versus* outbreak of pests/diseases.**

- **At the end of 2006-07, sixty *per cent* of total planted area of Robusta coffee, the variety mainly affected by the coffee berry borer (CBB) continued to be under CBB infestation and 77 *per cent* of the total Arabica planted area continued to be infested with white stem borer.**

- **The Board was yet to recommend any effective effluent treatment mechanism to combat water pollution. This has resulted in release of the coffee effluents without treatment to the fields and streams affecting aquatic life.**

- **The Board failed to bridge the yield gap between large and small growers.**

- **The Board failed to consolidate the cultivated area of coffee in North Eastern Region; the productivity was also very poor.**

- **The productivity of coffee in non-traditional areas of Andhra Pradesh and Orissa was quite poor as compared to national average and fluctuated widely from year to year.**

- **The Board failed to achieve the targets of exports of Indian coffee as envisaged. The exports remained even below the base level of 2.4 lakh tonnes during most part of the Plan period. The exports to Belgium, the Russian Federation and Germany which were major markets for Indian Coffee showed declining trend.**

- **For integration of India's coffee trade with the global coffee trade, the global strategy consultants recommended that the Board could start by opening a business centre on its premises to allow global traders to use its resources, office space and quality control laboratory and market intelligence. The Board failed to take concrete steps in this direction.**

Summary of recommendations

- **As the Board is the premier organization conducting research on coffee in India, research activities should be strengthened and more oriented towards developing new pest/disease resistant varieties for cultivation and enhancing coffee quality.**

- **The Board should strive to expeditiously develop reasonably reliable forecasting models on weather parameters *versus* yield and weather parameters *versus* outbreak of pests/diseases.**

- **The Board should accord top priority to plant protection measures.**

- **The Board should expeditiously make validated Geographical Information System available to coffee growers.**

- **The Board should expeditiously identify and recommend effective effluent treatment mechanism to combat water pollution.**

- **The Board should make concerted efforts to bridge the yield gap between large and small growers by providing necessary support to small grower sector.**

- **The Board should step up efforts to consolidate the coffee area already under cultivation in North East Region and Non Traditional Areas to achieve better production and productivity.**

- **Besides targeting key markets for increase in exports, the Board should also take measures to consolidate its share in other major markets.**

- **The Board should work towards reducing growing costs so as to ensure a competitive landed price for Indian coffee. The Board should also take measures for maintaining consistency in the quality of exported coffee.**

- **The Board should take concrete steps towards achieving integration of India's coffee trade with the global coffee trade.**

1.1 Introduction

The Coffee Board (Board), a statutory organization under the administrative control of the Department of Commerce, Ministry of Commerce and Industry, Government of India was constituted under the Coffee Act, 1942. The developmental activities of coffee in India come under the purview of the Board. Prior to 1992, the Board was vested with the powers of marketing the entire coffee produced in the country under a unique pooling system. The Government of India (GOI) liberalized the coffee marketing by introducing free sale quota in a phased manner from 1992-93, achieving full liberalization in 1995-96. The focus of the Board thus shifted from active marketing to critical areas like research, extension, quality management, market promotion, etc. in post liberalization phase.

The main functions of the Board are:

- formulating strategies for development of the coffee industry;
- taking up activities to improve the production, productivity and quality of coffee;
- encouraging scientific, technological and economic research for transfer of technology to the coffee industry;
- collecting, disseminating and publishing economic and technical information, statistics and studies relevant to the coffee industry;
- promoting, encouraging and increasing the consumption of coffee in India and abroad by undertaking market development activities;
- developing, promoting and regulating the export of coffee and
- evolving suitable quality standards for coffee.

1.2 Organizational Set-up

The Board is headed by the Chairman appointed by the Central Government and 32 members representing various interests as provided under the Coffee Act and Rules made thereunder. The Chairman is assisted by a Secretary and three Directors for Finance, Research and Promotion. The Board has its head office in Bangalore and a network of research institutions / extension offices in the coffee growing regions and promotional units in different parts of the country.

1.3 Scope of audit

The performance audit was conducted covering the period from 2002-03 to 2006-07 through test check of records pertaining to the Board's head office, Central Coffee Research Institute (CCRI), Balehennur, two Coffee Research Institutes (CRIs) and nine extension offices (EOs).

1.4 Audit objectives

Performance audit was conducted to examine the economy, efficiency and effectiveness of the activities of the Board in respect of the following areas/ schemes:

- Utilization of funds
- Stepping up production, productivity and quality through plant improvement and bio-technology, crop management and protection etc.
- Transfer of technology through extension centers and capacity building
- Providing support to small grower sector viz., re-plantation, quality up gradation, water augmentation, pollution abatement etc.
- Export promotion of Indian Coffee

1.5 Audit criteria

Audit criteria were derived mainly from the following:

- Provisions of Coffee Act, 1942 and rules and regulations framed there under.
- The commitments/targets set by the Board in the X Plan proposals submitted to GOI;

1.6 Audit methodology

The performance audit of the Board commenced with an entry conference with the Board's management in October 2006 in which the audit objectives, scope and criteria were explained. Audit examined the records of the Board, CCRI, CRIs, and nine EOs. Besides, it analysed relevant data and performance of the Board with the stipulated criteria. Memoranda containing audit observations were issued to various levels of management, and audit findings were discussed in detail in an exit conference.

Audit Findings

1.7 Financial Management

GOI approved (between June 2002 and July 2003) an outlay of Rs. 298.93 crore for implementation of the central sector schemes during the X Plan period against which the Board incurred an expenditure of Rs. 212.22 crore.

The year-wise details of grants released by the GOI, and the expenditure incurred by the Board are given in the table below:

(Rupees in crore)

Year	Opening Balance	Grants released	Total	Expenditure	Closing Balance
2002-03	8.41	48.00	56.41	31.68	**24.73**
2003-04	24.73	26.00	50.73	45.52	**5.21**
2004-05	5.21	50.00	55.21	36.63	**18.58**
2005-06	18.58	51.50	70.08	42.43	**27.65**
2006-07	27.65	29.93	57.58	55.96	**1.62**
Total		**205.43**		**212.22**	

As may be seen from the table, the grants released by the Ministry fell short of the approved outlay by 31 *per cent.* There were huge unspent balances at the end of year 2002-03 (Rs. 24.73 crore), 2004-05 (Rs. 18.58 crore) and 2005-06 (Rs. 27.65 crore) and the short release of grants by the Ministry was attributable mainly to slow pace of utilization of funds by the Board. The Board attributed (September 2007) the reason for short utilisation of grants to the poor response by the growers for the developmental schemes owing to crash in coffee prices and prolonged drought.

1.8 Coffee production

Coffee cultivation in India is mainly confined to the traditional areas in Karnataka, Kerala and Tamil Nadu which accounted for 99 *per cent* of the coffee production. Limited cultivation in non-traditional areas of Andhra Pradesh, Orissa and North Eastern States contributed the remaining one *per cent*.

With a view to increasing the production of coffee from 3 lakh MT in 2001-02 to 4.2 lakh MT by the end of 2006-07, the Board had implemented seven major schemes during X Five Year Plan as given below:

Sl. No.	Scheme	Month / Year of Approval	Outlay	Expenditure
			(Rupees in crore)	
1.	Stepping up Production, Productivity and Quality	-	92.40	53.14
2.	Infrastructure Development, Capacity Building and Transfer of Technology (ToT)	June 2002	96.55	73.69
3.	Market Development	-	42.70	18.19
4.	Interest subsidy to Small Growers	October 2002	15.00	31.30
5.	Transport subsidy	January 2003	9.00	11.30
6.	Interest subsidy to Large Growers	February 2003	7.08	6.02
7.	Support to Small Grower Sector	July 2003	36.20	18.58
	Total		**298.93**	**212.22**

1.8.1 Achievements against Targets

Achievements against targets for production for the Plan period are indicated in the following table:

Year	Production target (MT)			Actual Production(MT)			Shortfall (*per cent*)		
	Arabica	**Robusta**	**Total**	**Arabica**	**Robusta**	**Total**	**Arabica**	**Robusta**	**Total**
2002-03	116000	205000	321000	102125	173150	275275	12	16	14
2003-04	127000	215000	342000	101950	168550	270500	20	22	21
2004-05	140000	226000	366000	103400	172100	275500	26	24	25
2005-06	154000	238000	392000	94000	180000	274000	39	25	30
2006-07	170000	250000	420000	99700	188300	288000	41	25	31

It is evident from the above table that coffee production remained stagnant during X Plan period except minor improvement of around 5 *per cent* shown during 2006-07 as compared to previous year. As compared to production targets, the actual production fell short by 14 to 31 *per cent* during the Plan period. Further, while production of Robusta showed minor improvement, the production of Arabica exhibited declining trend during the X Plan period. The Board stated (September 2007) that constraints such as man power, low coffee prices and severe pest menace in the early years of the Plan period had adverse impact on achievement of targets for production and productivity. The coffee growers did not have the capacity to absorb the subsidy based interventions.

1.9 Programmes for stepping up of production, productivity and quality

The programmes for stepping up of production, productivity and quality consisted mainly of three components.

- Plant improvement & use of biotechnology
- Crop management
- Plant protection measures

1.9.1. Plant improvement & use of biotechnology

The objective of the scheme was to develop improved planting material in the form of seeds, seedlings and clones of improved varieties for supply to growers, to characterize and conserve the gene pool of Arabica and Robusta and introduce new germplasm selections from other countries for utilization in breeding, to develop protocols for in vitro multiplication of coffee, to develop strategies for producing genetically modified coffee plants for disease and pest resistance and low caffeine.

1.9.1.1 Non-development of new variety

During the X Plan period, the research division of the Board continued the pilot scale evaluation of four genotypes, one of which was started in the year 1981, with an intention to release them for cultivation. The division was yet to conclude (August 2007) the evaluation studies and consequently no new varieties were released by the division for the benefit of the farmers after 1984. The Board continued to rely on the main varieties developed before 1980 for

breeding purposes; in fact, the variety released during 1945-46 continues as the major variety for cultivation. But these varieties (developed before 1980) were prone to pest infestations thereby hampering productivity. The Board stated (September 2007) that the materials released for commercial cultivation earlier to 1980 were still reasonably productive, but recently became more susceptible to diseases and pests on account of age and emergence of new strains of leaf rust.

1.9.1.2 Characterization and registration of germplasm selections and hybrids

The division continued studies on characterization of coffee germplasm selections and hybrids during the X Plan period with the objective of utilizing the available genetic resources in breeding programme. During the X Plan period, the division planned to complete the characterization of 200 existing germplasm selections and targeted to register 150 of them with the National Bureau of Plant Genetic Resources (NBPGR). But by the end of 2006-07, the division achieved partial characterization of only 112 selections and registered nine selections (three selections were registered during the Plan period). The Board replied that the NBPGR registered only unique indigenous lines and that out of 12 Arabica varieties, indigenous bred for commercial cultivation of nine were already registered and remaining three would be registered during 2006-07. The Board attributed the slow progress of work primarily to lack of personnel who can be put exclusively on this work. The reply of the Board is not convincing as the Board had planned evaluation of four new genotypes, characterization of 200 germplasm selections and registration of 150 germplasm by redeploying the existing staff of CCRI besides engaging temporary scientific staff like Research Associates/Research Fellows, Technical Assistants/Skilled Assistants on adhoc basis for the project period.

1.9.1.3 Use of biotechnology

The expected outputs for the X Plan included production of leaf rust resistant transgenic plantlets, isolation of Bacillus thuringiensis crystal proteins effective against the white stem borer and coffee berry borer and production of microbial caffeine degradation gene etc. In this regard following was observed:

- The Research division developed two leaf rust resistant transgenic plants during 2002-03, but the plants did not survive. This project was discontinued in June 2004 without recording the reasons for not carrying forward the leads obtained from the project.
- The project for introduction of cry genes of Bacillus thuringiensis carried out in collaboration with Madurai Kamaraj University (MKU), Madurai was also discontinued during June 2002. The Board replied (September 2007) that the protocols developed would be used for developing transgenic plant in the next phase of the project.
- The research division had taken up a project for developing microbial caffeine degradation gene in collaboration with Indian Institute of

Science (IISc), Bangalore but the project was discontinued in June 2002 without recording any reasons. The Board stated (September 2007) that IISc withdrew itself from participation during the middle of the project since no Memorandum of Understanding (MoU) signed between the partners existed and the technology could not be delivered. The Board also added that the CFTRI, Mysore, which was also involved in the project, developed caffeine free coffee plant which was available for further studies in the next phase of the project, which was in execution.

Thus, the fact remains that the Board could not achieve any break-through in production of leaf rust resistant transgenic plantlets or isolation of Bacillus thuringiensis crystal proteins effective against the white stem borer and coffee berry borer or production of microbial caffeine degradation gene.

Recommendation

- *The Board needs to strengthen and orient its research activities towards developing pest/disease resistant varieties and for enhancing coffee quality.*

1.9.2 Crop Management

The scheme envisaged the development of agro-techniques to enhance productivity, studies on the physiological aspects of biotic/abiotic stress in coffee and integrated nutrition management and soil/tissue testing advisory service.

1.9.2.1 Development of forecast models on yield and outbreak of pests and diseases based on weather parameters

Crop weather modeling project initially launched in CCRI, Balehonnur (1997-98) was continued in the X Plan under the scheme of crop management under the title 'Development of agro-techniques to enhance productivity' to develop a crop weather model to identify the critical weather parameters, which influence the yield in coffee and to develop forecast models on yield and outbreak of pests and diseases based on weather parameters. The project involved field experiments in various agro climatic zones and development of computer models for forecasting the crop yields and outbreak of major pests and diseases in collaboration with other research institutes /universities. Audit observed as follows:

- As per the project proposal, the studies required the services of an agro meteorologist for overall implementation and monitoring of the scheme, and two temporary research associates to assist the agro meteorologist in the research programmes. The services of agro-meteorologist were required for co-relating the data on weather with data on pest incidence to develop a forecasting model. The

Government did not accord sanction for the appointment of an agro-meteorologist.

- In the absence of an agro-meteorologist, the Board also failed to collaborate with other research institutes to make use of expertise available in the area of crop weather modeling.
- In the Staff Research Council meeting (May 2006), it was decided that agronomy scientists would record weather data while scientists of entomology and plant pathology would be involved in recording of incidence of pests. Three automatic weather stations were established under the project but the project did not proceed beyond generating data. The project could not develop any forecasting models on either weather parameters *versus* yield or weather parameters *versus* outbreak of pests/diseases.

Thus, the Board was yet to develop (August 2007) a forewarning model on pest/disease outbreak.

The Board stated (September 2007) that development of weather forecast model required pest and disease data for at least 15-16 years as the board had the disease data linked to weather only for the past six years, it would be possible to standardize a forecast model by the year 2015.

1.9.2.2 Geographical Information System

The Board entered into an agreement (2001) with Indian Institute of Technology, Delhi for development of Geographical Information System (GIS), a computer based planning and management system, capable of assembling, storing and displaying maps at a projected cost of Rs. 5 lakh. The aim of the project was to develop state-of the art software tool, which would enable decision making in efficient management of coffee plantations. The project was to be completed in one year. The pilot software was developed at an expenditure of Rs. 5 lakh and released during 2004 to five private estates for validation. As the Board was yet to gather the feedback, the Board could not validate the system and make it available to coffee growers. The Board stated (September 2007) that the growers wanted to use the system for all crops in the coffee estate and the issue was being taken up with the IIT, Delhi.

Recommendations

- *The Board should strive towards developing reasonably reliable forecasting models on weather parameters versus yield and weather parameters versus outbreak of pests/diseases.*
- *The Board should validate the GIS developed by the IIT Delhi and make it available to coffee growers.*

1.9.3 Plant protection measures

The objective of the scheme was to pursue studies on bio-ecology of key pests and diseases of coffee viz., white stem borer (WSB), coffee berry borer (CBB), mealy bugs, shot-hole borer, nematodes, leaf rust, black rot, stem canker, root diseases and black spot on beans and to facilitate effective transfer of integrated pest and disease management techniques to the coffee growing community.

The Board spent Rs. 2.62 crore as subsidy for supply of picking mats, broca traps etc. during the period 2002-03 to 2006-07 to limit the damage caused by CBB. The Board also incurred an expenditure of Rs. 3.79 crore during the years 2003-04 (Rs. 2 crore), 2004-05 (Rs. 1.06 crore), and 2004-05 (Rs. 0.73 crore) to provide financial incentive under the 'Catch and Kill' project to Arabica growers to trace out and remove WSB affected plants and to recover pest stages from the affected plants with the objective of bringing down the pest levels to below threshold levels in all major Arabica zones, within a reasonable time frame.

At the end of 2006-07, 121368 hectares of land under Robusta cultivation in traditional areas which constituted sixty *per cent* of total planted area of Robusta coffee, the variety mainly affected by the CBB, continued to be under CBB infestation and 1,07,103 hectares of land (77 *per cent* of the total Arabica planted area) continued to be infested with WSB. The trend of infestation levels during the Plan period is indicated below:

(In hectares)

Year	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**
Area affected by CBB	123848	123998	134595	119544	121368
Area affected by WSB	Data not available			93479	107103

While admitting that no pest could be eradicated, the Board stated (September 2007) that the project had helped the growers to contain the incidence of CBB and WSB within manageable limits. It further added that the *percentage* area affected was with reference to pest incident at different levels and not the area infected continuously. However, the fact that the production of coffee remained stagnant during X Plan period and actually showed decline in case of Arabica is a pointer that the efforts put in by the Board to bring down the level of infestation were ineffective.

Recommendation

- *Top priority should be accorded to plant protection measures to bring down the infestation levels.*

1.9.4 Standardization of Post Harvest Technology (PHT) and containing mycotoxin & pesticide residue and metal contamination in Coffee

The objective of the scheme was to evaluate and standardize post harvest processing machinery, evolve methods for efficient utilization of coffee

processing by-products and study mycotoxin, pesticide residue and heavy metal contamination etc. in coffee with the objective to produce quality coffee.

The Board had envisaged achieving the following by the end of the Plan period:

- Identification of efficient pulper cum washers and driers for coffee;
- Development of technologies for converting coffee wastes into useful products;
- Generating data base on mycotoxin, pesticide residues and heavy metal contamination in coffee;
- Developing code of good practices to prevent occurrence of mycotoxins in coffee and
- Evolving cost viable treatment methods for coffee effluent.

Audit observed the following:

- The Board had identified efficient pulper cum washer and recommended the same for adoption.
- The Board also developed a code of good practices to prevent occurrence of contaminants in coffee like mycotoxin, pesticide residues and heavy metals.
- The effluents arising out of wet processing of coffee were required to be treated before releasing to fields and streams as stipulated in the Water Act, 1974. Board in association with National Environmental Engineering Research Institute (NEERI) developed an Effluent Treatment Plant (ETP) during the IX Plan period. But the ETP did not conform to the specifications stipulated by Karnataka State Pollution Control Board (KSPCB). The research division also evaluated 16 ETPs located at various estates and the bio-reactor developed by IISC installed at CCRI during the Plan period. The Board, however, was yet to recommend an effective effluent treatment plant to combat water pollution. This has resulted in release of the coffee effluents to the fields and streams without treatment affecting the aquatic life. The Board stated (September 2007) that issue had been taken up with the concerned authorities for relaxation of norms to find a solution for realistic and achievable targets.

Recommendation

- *The Board should expeditiously identify and recommend effective effluent treatment plant to combat water pollution.*

1.10 Transfer of technology and capacity building

The objectives of the scheme are to render extension services to enable coffee growers to achieve overall improvement in productivity, quality and market

competitiveness, empower small and tiny growers in decision making, provide quality seed material, plant material, bio-agents, encourage infrastructure development for production of quality coffee and provide market information and training on coffee culture. The details of targets / achievements under different components of the scheme are indicated in **Annex I.**

The Board did not carry out the extension activities such as Integrated Pest Management blocks, maintenance of demonstration plots and check inspection on census of coffee estates.

The Board stated (September 2007) that the maintenance of IPM blocks and demonstration plots were discontinued as the usefulness of such practices got diffused among the growers and the pest menace was effectively brought under control by dissemination and adoption of appropriate management practices. Limited strength of extension personnel was the reason stated for discontinuance of census of coffee estates. The Board further stated that it reoriented the activities with emphasis on conducting Farmers' Participatory Method (FPM) workshops, conducting mass communication programmes, training programmes etc. that were more crucial and needed by the growers.

1.11 Programme to provide support to Small Grower Sector

The scheme envisaged to bridge the yield gap between large growers and small growers which was estimated at 200Kg/hectare. The main components of the scheme were incentive for replanting, water augmentation, quality up-gradation and pollution abatement measures. The Board got the scheme approved by GOI only in July 2003 and could utilise only 50 *per cent* of the approved outlay.

1.11.1 Re-plantation

With a view to improve competitiveness and market share in Arabica in the international market, the Board set a target for new plantation / re-plantation of 10,000 hectares with Arabica varieties during the Plan period by providing 20 *per cent* subsidy on the capital cost. The scheme included re-plantation of existing Arabica tracts by removal of old/moribund plants and substitution of Robusta with Arabica in locations suitable for Arabica cultivation.

The achievements vis-à-vis targets were as indicated below:

	2002-03	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**Total**
Target in Hectares	2000	2000	2000	2000	2000	10000
Achievement in Hectares	0	27.25	493	1404	7606.05	9530.30

The Board attributed (September 2007) the low achievement during 2002-05 to the combined effect of adverse international prices during the period 1999-2004, pest attack and prevalence of prolonged drought conditions in coffee growing regions.

1.11.2 Water Augmentation

With a view to enhance productivity of Robusta, the Board proposed to provide incentives for 1400 units to facilitate water augmentation by development of tanks, wells, storage dams, bore wells etc., for water harvesting and provision of protective irrigation. Under the scheme, the growers were eligible for a subsidy of 25 *per cent* of the actual cost of construction/equipment subject to a maximum of Rs. 50000/- per unit. The Board provided incentives for development of 3409 water sources exceeding the target by 143 *per cent.* But, the scheme failed to make a significant impact as the extent of Robusta area benefited under the scheme during the Plan period was merely 8.8 *per cent* (12807 hectares) of the total planted area of Robusta (145949 hectares) in traditional areas.

The Board stated (September 2007) that many growers had the infrastructure developed by their own resources and with the support from the Board and other financial institutions over the last three to four decades and only the remaining and viable area could be covered under the scheme in a phased manner. The Board agreed to consider the fixation of targets for area coverage also during XI Plan period.

1.11.3 Quality upgradation

To encourage scientific method of coffee processing at estates and curing centers, the Board envisaged to provide financial assistance in the form of subsidy at the rate of 20 *per cent* on the investment made by the growers, curers, traders and exporters for upgrading their facilities aimed to improve quality of coffee. Audit observed the following:

- The achievement (2922 units) far exceeded the target (450 units) in respect of pulpers/washers, drying yards and godowns during 2002-03 to 2006-07.
- Against target of establishment of 25 Quality Testing Centers only five centers were established.
- The Board did not implement the scheme in respect of BIS/ISO certification, assistance for Backward Integration of Processors and Upgradation of Curing Machinery.

The Board attributed the shortfall in establishment of quality testing centers to the existence of sufficient quality testing centers operated by private sector apart from the three centers established by the Board. The reply of the Board indicates that the targets were fixed without properly assessing the need. With regard to BIS/ISO certification, the Board stated that there were no takers to avail of this initiative.

The Board further stated (September 2007) that due to price crisis and prolonged drought condition up to 2004-05, the small growers were not able to

make capital investments required for taking up activities relating to quality upgradation .

1.11.4 Pollution Abatement Measures

The scheme envisaged 20 *per cent* subsidy as incentive for the use of Bioreactors and other technologies recommended by the State Pollution Control Boards for controlling the pollutants arising out of the coffee effluents. The year-wise physical achievements against targets in terms of number of bio-reactors installed are indicated below:

	2002-03	2003-04	2004-05	2005-06	2006-07	Total
Target	20	70	70	120	120	400
Achievement	0	3	1	0	0	04

The above table indicates that the scheme did not find favour with the Coffee growers. The Board stated (September 2007) that the cost of the bio-reactor developed by IISc, Bangalore being very high, the response to the scheme was poor as the coffee growers were already cash strapped due to steep fall in coffee prices. Further, according to the Board, the Bioreactor did not meet the required standards prescribed by Central Pollution Control Board and the matter was taken up with the Union Ministry of Environment and Forest for revision of standards for coffee effluents.

1.11.5 Census of the coffee holdings

The Board did not conduct the census of the coffee holdings covering the size, area, production, productivity etc., for the last three decades. The projection under the scheme was made based on rough estimates/assumptions only.

In the absence of comparative details of productivity of small and large growers, audit could not assess the impact of various schemes implemented to bridge the gap between the small and large growers. The Board, stated that the gap in productivity between small and large growers almost remained at the same level of 200 Kg per hector.

Recommendation

- *Concerted efforts should be made to bridge the yield gap between large and small growers by providing effective support to small grower sector.*

1.12 Promotion of Self Help Groups of Small Growers

80 *per cent* of Coffee growers in India are small farmers. To help the small growers increase productivity by adopting improved standards of cultivation and upgrade facilities required for production of quality coffee, the Board decided to encourage all relevant activities linked to augmentation of productivity, quality improvement and value addition to be achieved through group approach by establishment of Self Help Groups (SHG).

Audit observed that the Board established only 144 SHGs against the target of 250 fixed during the Plan period.

The Board stated (September 2007) that SHGs being a new concept, it was possible to establish only 144 SHGs against 250 targeted during the Plan period. It also added that more thrust was given for formation of mini SHGs by providing financial assistance for raising Arabica coffee seedlings to encourage gap filling/replanting of plants uprooted due to pest infestation. The reply of the Board is not tenable as SHG is not a new concept.

Recommendation

- *The Board should promote SHG or mini SHG depending upon its experience with SHGs/ mini SHGs formed so far.*

1.13 Development of Coffee in North East Region

The objective of the scheme was to expand coffee cultivation in areas already identified as suitable in the seven states of North East Region (NER), consolidate the existing coffee holdings to improve the production and productivity from level below 100 kg/ha to a modest level of 250 kg/ha by extending subsidy for expansion, consolidation and market support activities.

The Board had targeted expansion as well consolidation of planted area by 3000 Ha during the Plan period. The planted area, production and productivity of coffee in NER during the Plan period are detailed below:

Year	Planted Area (Ha)	Estimated Yield (MT)	Effective Bearing Area in hectare	Actual Production (MT)	Productivity (Kg/Ha)
2002-03	14690.70	820	6534.10	262.40	40
2003-04	14298.75	1275	6534.10	288.50	44
2004-05	15678.15	1630	6174.15	248.05	40
2005-06	10414.19	2010	5928.18	232.20	39
2006-07	6251.84	3000	2795.46	144.50	52

As may be seen from above table that despite increase in planted area of coffee up to 2004-05, there was net reduction of total planted area from 14690.70 ha during the 2002-03 to 6251.84 ha at the end of the Plan period. Not only there was drastic decrease in production but the productivity also remained low and ranged from 39 kg/ha to 52 kg/ha. Thus, the targeted productivity of 250 kg/ha remains a distant dream.

The Board stated (September 2007) that 13000 hectares area brought under coffee cultivation prior to IX Plan period by the State owned corporations was not properly managed due to lack of involvement and support from the State Governments. About 7000 hectares of planted area handed over to around 5000 tribal growers was in abandoned condition. The Board was involved in providing technical support and financial incentive in the form of subsidy for the growers who came forward and evinced interest in proper care and

maintenance of coffee area. The Board further stated that it was not possible to provide adequate follow up support to far-flung areas with the limited man power available. The reply of the Board is not convincing as both planted area and production drastically decreased during X Plan period which is a matter of concern and indicative of absence of concrete steps by the Board towards coffee cultivation in North East Region (NER).

Recommendation

- *The Board should ascertain the reasons as to why tribal growers were abandoning planted areas; do cost-benefit analysis of coffee cultivation to ascertain whether or not it makes sense to expand coffee cultivation in NER particularly in view of very poor productivity and accordingly take steps to address the real problem.*

1.14 Development of Coffee in Non Traditional Areas (Tribal Areas of Andhra Pradesh and Orissa)

The scheme envisaged the consolidation of existing coffee in the Non-Traditional Areas of Andhra Pradesh and Orissa and enthuse the tribal growers to produce quality coffee through improved coffee processing infrastructure by extending subsidy under consolidation and quality up-gradation scheme. Further the Coffee Board, in association with the Government of Andhra Pradesh, proposed coffee expansion in tribal sector to the extent of 24,000 ha during the Plan period.

The physical targets and achievements of various X Plan programmes for the development of coffee in Non-Traditional Areas are detailed below:

Sl. No	Activity	Target	Achievement	Shortfall in *percentage*
1	Expansion of coffee in Andhra Pradesh	24000 Ha	15984 Ha	33
2	Expansion of coffee in Orissa	1000 Ha	1005 Ha	
3	Consolidation of coffee in Andhra Pradesh	3000 Ha	2368 Ha	21
4	Quality up gradation measures			
	a) Community pulpers	115	05	96
	b) Baby pulpers	1900	1230	35
	c) Community centres/Godowns	22	21	5
	d) Curing works	1	1	-

The planted area, production and productivity of coffee in NTA during the Plan period are detailed below:

Year	Planted Area (Ha)	Production (MT)	Productivity (Kg/Ha)	National average (Kg/Ha)
2002-03	21777.60	2615	201	859
2003-04	24080.80	2270	167	832
2004-05	29305.65	4138	227	826
2005-06	32285.50	1802	91	803
2006-07	35728.70	3749	180	840

The production showed drastic fall during 2005-06. Besides, the productivity was quite poor as compared to national average and fluctuated widely from year to year.

The Board attributed low achievement to non adoption of intensive cultivation by the tribal growers.

Recommendation

- *The Board should focus on consolidation of the coffee area already brought under coffee cultivation in NTA regions to achieve better production and productivity.*

1.15 Scheme for promotion of export of Indian coffee

To enhance the market share of Indian Coffee in overseas markets, the Board launched the scheme for Export Promotion of Indian Coffee, which was approved (October 1998) by the GOI. The Scheme was continued even in the X Plan. McKinsey & Company, the global strategy consultants engaged (February 2001) by the Board to prepare a medium term export strategy for Indian coffee had recommended the following six point strategy:

- Shifting product mix in favour of Arabica
- Ensuring a competitive landed price for Indian coffee radically reducing growing costs
- Maintaining consistency in the quality of export of coffee
- Ensuring reliability of exporters
- Improving awareness of Indian coffee in target markets
- Integrating India with the global coffee trade

The strategy presented (April 2001) by the Board was subsequently approved by the GOI.

1.15.1 Achievements against targets in respect of Coffee export

Based on the recommendations of the global strategy consultants, the Board set out the target to achieve a compounded annual growth rate of 5 *per cent* keeping a base level of 2.4 lakh tonnes of coffee exports *per annum* with 6 *per cent* growth rate for Arabica and 4 *per cent* for Robusta and to enhance the market share of Indian coffee in key markets viz., USA, Germany and Italy and also in the secondary markets like Japan, Spain, Belgium and Netherlands.

Achievements against targets fixed for export of Indian Coffee are indicated in the table below:

(Qty in Metric tonnes)

	2002-03	2003-04	2004-05	2005-06	2006-07	Total
Target	252000	264600	277830	291722	306308	**1392460**
Achievement	207333	232684	211765	201555	248687	**1102024**
Shortfall (in *per cent*)	18	12	24	31	19	**21**

As may be seen, the exports of the Indian coffee fluctuated during the X Plan period within a range of two lakh MT to 2.5 lakh MT and remained lower than even the base level of 2.4 lakh MT except during 2006-07.

The details of export of Indian coffee to key markets and secondary markets are given in the **Annex II.**

While the exports to Italy showed uptrend, exports to Germany, another key market showed downtrend during 2003-04 and 2004-05 with improvement during 2006-07. In respect of secondary market countries, while the share of exports to Japan, Spain and Netherlands remained more or less constant, it decreased in the case of Belgium and Russian Federation.

Thus, the Board failed to maintain level of exports to Belgium, the Russian Federation and Germany which could be major market for Indian Coffee.

The Board stated (September 2007) that the coffee available in the country was exported and there was no probability of enhancing the export without increased production.

1.15.2 Shifting product mix in favour of Arabica

The Board had targeted to achieve the product mix of 40:60 between Arabica and Robusta by the end of X Plan. However the share of Arabica ranged from 34 to 38 *per cent* of total production.

The Board stated (September 2007) that low prices, unfavourable weather conditions and loss of millions of plants due to stem borer incidence during the period 2002-05 had affected the productivity of Indian Arabica while these unfavourable conditions did not affect the Robusta to that extent. As Robusta was more cost competitive, there was natural preference shown by the growers to augment Robusta production instead of Arabica. The Board also stated that Robusta variety, being the strength of Indian coffee industry, corrective action to treat Arabica and Robusta on equal footing was taken while formulating the XI Plan.

1.15.3 Ensuring a competitive landed price for Indian coffee by radically reducing growing costs

In order to be competitive in the global market, the landed cost of Indian washed Arabica should be competitive with Central American and Mexican washed Arabica in USA and Europe. Similarly, the landed price of Indian

Robusta in Italy should be competitive vis-à-vis that of African Robusta. This required Indian growers to cut growing costs by Rs. 7 per kg for Arabica and Rs. 4 per kg for Robusta by increasing yields by almost 35 *per cent*.

The expected yield by the end of X Plan period and actual yield at end of Plan period are shown below:

		Expected yield per Hectare	**Actual yield per Hectare (*)**
Arabica	Small growers	975	657
	Large growers	1150	
Robusta	Small growers	1400	985
	Large growers	1750	

(*) break-up for small and large growers not available

The Board failed to achieve the objective of increasing the yield and thereby bringing down the growing costs.

1.15.4 Consistency in the quality of exported coffee

Inconsistencies in the quality of coffee shipped could be attributed to inconsistencies in cup quality. The following five focused initiatives were to be implemented to ensure that cup quality remains consistent:

- Restricting the varieties of coffee grown for both Arabica and Robusta
- Aggressively communicating prioritized list of quality improvement measures to be adopted by farms
- Upgrading processing infrastructure for small farmers
- Making cupping mandatory for exporters and processing units in the next two years
- Making it mandatory for all processing works to obtain certification in the next two years

The Board implemented the first two initiatives. As regards, upgrading processing infrastructure for small farmers and obtaining BIS/ISO certification for processing units, there was shortfall in implementation of the schemes envisaged in this regard. The Board is yet to make cupping mandatory for exporters.

1.15.5 Reliability of exporters

To ensure that only reliable exporters are allowed to trade the following measures were recommended:

- formation of quality certification task force.
- utilisation of criteria for quality certification.
- accredition of external agencies for checking at Ports.

- checking of shipments for visual defects such as bean size and moisture.
- checking of shipments for cup defects such as foul odour.

The Board did not initiate any major measures in this regard.

Failure of the Board to initiate measures to ensure shipment of quality coffee and its low production resulted in decline in exports of Indian coffee to Germany, a key market country as decline in market share in Germany was due to inconsistency in quality and inability to supply in big lots.

1.15.6 Integrating India with the global coffee trade

As none of the global trading companies has offices in India, integration of India's coffee trade with the global coffee trade was felt necessary. To encourage large buyers to set up offices in India, the consultant recommended that the Board could start by opening a business centre on its premises to allow global traders to use its resources, office space, quality control laboratory and market intelligence.

The Board stated that this recommendation remained unimplemented though it had drawn up tentative plans/estimates during 2002-03 because of lack of serious proposals from buyers and non identification of location. The reply of the Board with regard to lack of serious proposals from buyers is not acceptable in view of the fact that the Board had not yet identified the location and made any efforts to invite proposals from the buyers, by making its intentions public.

Thus, the Board failed to implement the recommendations stated in the medium term export strategy. The Board could not even maintain the base level (export level of 2001-02). The Board stated (September 2007) that the targeted production growth rate could not be achieved due to unprecedented price crisis coupled with the adverse weather conditions during the most part of the Plan period and the export being, a function of production, the targets envisaged also could not be achieved.

Recommendations

- *The Board should not only target key markets for increase in exports but also make efforts to consolidate its share in other markets like Belgium and Russian Federation.*
- *The Board should work towards reducing growing costs so as to ensure a competitive landed price for Indian coffee. Besides, it should also take measures for maintaining consistency in the quality of exported coffee.*
- *The Board should take concrete steps towards achieving integration of India's coffee trade with the global coffee trade.*

Acknowledgment

We acknowledge the cooperation extended by the Coffee Board authorities to the audit team during the course of audit as well as entry and exit conferences.

The matter was reported to the Ministry in September 2007; their reply was awaited as of December 2007.

Annex I

(Referred to in paragraph 1.10)

Targets/achievements under different components of transfer of technology and capacity building scheme

	Extension activities		**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**Total**
1	Request visits	T	5000	5000	5000	5000	5000	**25000**
		A♣	27586	21812	23377	26582	26937	**126294**
2	Integrated Pest Management (IPM blocks)	T	200	200	200	200	200	**1000**
		A	Not carried out					
3	Printing of brochures and leaflets	T	10000	10000	10000	10000	10000	**50000**
		A	----	----	13755	13260	16843	**43858**
4	Media campaign	T	40	40	40	40	40	**200**
		A	26	23	8	55	49	**161**
5	Field Demonstrations	T	4000	4500	5000	5500	6000	**25000**
		A	5007	4064	4842	5650	5811	**25374**
6	Seminars by SLO level	T	50	50	50	50	50	**250**
		A	79	54	8	23	46	**210**
7	Mass contact programmes in remote areas	T	10	10	10	10	10	**50**
		A	13	4	4	16	16	**53**
8	Maintenance of Demonstration plots	T	40	40	40	40	40	**200**
		A	Not carried out					
9	Check inspection on Census of coffee Estates	T	8000	7000	---	---	-----	**15000**
		A	Not carried out					
10	Crop Estimation	T	4	4	4	4	4	**20**
		A	5	5	5	5	**5**	**25**
11	Implementation of developmental activities, collection of information of data etc.,		Targets were to be fixed depending upon the requirements. However, details of targets fixed and progress made were not available.					

♣ represents all the estate visits; breakup of request visits not available

Annex II

(Referred to in paragraph 1.15.1)

Details of export of Indian coffee to key/secondary markets

(Qty in MTs)

Country	2002-03	2003-04	2004-05	2005-06	2006-07
Key market					
USA	3505(1.69)	3237(1.39)	5646(2.69)	2448(1.21)	4232(1.70)
Italy	45594(21.99)	52197(22.43)	49232(23.25)	53413(26.51)	62786(25.25)
Germany	23344(11.26)	25680(11.64)	16518(7.80)	16742(8.31)	21835(8.78)
Secondary Market					
Japan	4899(2.36)	3538(1.52)	5918(2.90)	4147(2.06)	4644(1.91)
Spain	11142(5.37)	13898(5.97)	11499(5.43)	10292(5.11)	11091(4.46)
Belgium	17430(8.41)	18777(8.07)	9204(4.35)	11190(5.55)	13989(5.63)
Netherlands	2566(1.24)	3205 (1.38)	3604(1.70)	2949(1.46)	3445(1.39)
Russian Federation	36578(17.64)	33592(14.44)	34459(16.27)	29432(14.60)	27288(10.97)

Note: Figures in parenthesis indicate *percentage* with reference to total quantity of exports