

Chapter 7 Research Activities

Objective 5: Whether research activities undertaken by Tea Board or financed by Tea Board were effective in delivering results for effective tea development.

Support for research activities

7.1 Tea Board undertakes research work on tea through Darjeeling Tea Research and Development Centre (DTR&DC) in Kurseong, which was established by the Ministry in 1977 to primarily provide research and development support to the Darjeeling tea industry on demand of the State Government and Tea Associations. The Ministry, through Tea Board, also finances a substantial part of the expenditure of two industry-based Tea Research Institutes viz., Tea Research Association (TRA) and United Planter's Association for South India (UPASI-TRF), which also undertake research work on various tea-related areas. During 2002-11, the Board received ₹169.07 crore from the Ministry towards research and development activities which included funding to DTR&DC, TRA and UPASI-TRF and expenditure on IT Portal. Tea Board incurred an expenditure of ₹171.91 crore during this period.

Darjeeling Tea Research and Development Centre

7.2 The objective of this Centre is to perform research on various botanical and agronomical aspects, soil aspects, biochemical aspects and plant protection aspects of Darjeeling Tea. The Centre also extends advisory services to various gardens on specific requests. The Centre is headed by a Project Director. It has four divisions/ laboratories viz., Farm Management, Soil Science, Bio-chemistry and Plant Protection. An experimental farm of 21.6 hectares is also a part of the Centre.

Failure to provide research and development support to the Darjeeling tea industry

7.2.1 During 2002-09, DTR&DC received ₹76.46 lakh under Plan and ₹2.55 crore under Non-plan head from Tea Board. We observed that:

(a) DTR&DC spent only ₹73.57 lakh on Plan activities during 2002-09 which was inadequate to undertake proper research activities.

(b) There were 27 per cent vacancies of scientific staff⁵¹ in the centre. As such, the centre was not equipped with adequate manpower to undertake research activities to support the Darjeeling tea industry as per its mandate.

(c) Extension Services to the tea estates in the Darjeeling hills could also not be provided due to shortage of staff.

(d) Only one seminar was organised in the year 2004 at Darjeeling. No targets were set for conducting trainings /seminars /symposia /workshops and no training courses were organised to train people associated with tea industry.

(e) The Centre undertook 21 projects and completed eight during 2002-09.

⁵¹ Against the sanctioned strength of 11, only 8 scientific personnel were posted as of March 2009.

Neither were any deliverables transferred for the use of the tea industry nor were any patents filed. Tea Board also did not fix any target for research publications for the Centre. The Center published eight research papers in Indian Journals and one research paper in International Journal during 2002-09, however, impact factor of the same was not furnished.

(f) Scientific Advisory Committee, with expert scientist members, is responsible for evaluation and finalisation of the programmes prepared by first and middle level committees. We observed that the Committee did not meet twice a year as mandated and met only thrice during April 2002 to October 2008. This indicated inadequate monitoring at apex level.

Thus, projects activities of DTR&DC did not give any fruitful end results for use of the tea industry due to inadequate manpower and resources. The Ministry agreed in October 2009 that due to lack of scientific manpower and infrastructural development, significant contribution of research in the form of publication and development of package of practices for the industry did not happen.

Other research organisations funded by GOI

7.3 Government of India supports Tea Research Association (TRA) and United Planters' Association for Southern India–Tea Research Foundation (UPASI-TRF) by contributing 49 *per cent* of their annual expenditure on certain approved administrative items⁵² subject to a specified ceiling, from the Plan Budget of Tea Board. Tea Board released an amount of ₹8.15 crore to UPASI-TRF and ₹43.07 crore to TRA during 2004-05 to 2010-11. In addition, an amount of ₹4.86 crore and ₹16.45 crore was released by the Board to UPASI-TRF and TRA as research grant during the said period. The responsibilities assigned to these organisations are given below.

Responsibilities of Tea Board to monitor performance of TRA and UPASI-TRF

To ensure that the grant-in-aid is spent by these research organisations for the purpose envisaged

- These organisations are required to submit their accounts of previous financial year, duly audited and passed by their respective Council/Trustee Board to Tea Board by 30th September.
- Tea Board is required to audit their annual accounts and ensure accountability for proper utilisation of funds.
- The Ministry directed Tea Board to develop a system for monitoring and evaluating the research activities undertaken by UPASI-TRF and TRA and take steps to ensure that research results were disseminated to end-users.

Failure to conduct

7.3.1 We observed that Tea Board conducted audit of TRA for the period

⁵² The approved administrative items include salary and allowances including gratuity, PF and medical expenses (excluding pension), expenses on meetings and conferences, seminars and training, consumables, electricity and water supply, printing and stationery, postage and telegram, travel expenses, books and journals and clonal selection and nursery.

audit by Tea Board

from 2001-02 to 2004-05 only in December 2005. Tea Board did not conduct audit of TRA thereafter. Tea Board also did not conduct audit of UPASI-TRF for the period from 2002-03 to 2007-08. The status of conducting audit of these two institutions during 2008-09 was not intimated. As such, there was no mechanism in Tea Board to assure that the funds released by them were utilised for the purpose for which they were released.

The Ministry agreed in October 2009 that regularity in conduct of audit of TRA and UPASI-TRF was lacking and they would do it on regular basis in future.

Increased dependence of GOI funding

7.3.2 We observed that though till the year 2003-04, Tea Board released 49 *per cent* of the annual expenditure of these research organisations as envisaged, from 2004-05 onwards, the percentage share of GOI increased to 80 *per cent* as these organisations were not able to meet their own expenses. On the other hand, a huge amount i.e., ₹5.86 crore towards subscription from member tea gardens was lying outstanding in respect of TRA during 2002-03 to 2008-09. Outstanding subscriptions in respect of UPASI-TRF were not furnished. This led to increased dependence on Government of India funding.

The Ministry stated that both Tea Board and TRA have been continuously pursuing this issue of outstanding subscription with the Industry and there has been some improvement as compared to earlier years.

Absence of controls to evaluate and monitor research activities

7.3.3 We observed that no mechanism was put in place by the Board to monitor and evaluate the research projects undertaken by them. These organisations undertook 34 projects from 1997 to 2009 at an expenditure of ₹22.52 crore and completed 19 projects. We reviewed 10 (50 *per cent*) projects costing ₹7.09 crore and observed that:

- In four projects, technologies were not commercialised for end use of the industry, though developed.
- In the remaining six projects, no technology was developed.
- Tea Board had no information regarding the number of research papers published, their impact factor, patents filed and granted and technologies developed, transferred and commercialised etc., despite instructions of the Ministry to monitor and evaluate research activities of TRA and UPASI-TRF.

During the Exit Conference, Ministry/Tea Board agreed that a strict control needs to be put in place for monitoring and evaluating the performance of these research organisations, so as to make them accountable for the grants provided by the Ministry.

Information Transparency- Development of IT Portal

7.4 Tea Board undertook development of IT framework to facilitate consolidation and dissemination of information globally. The plan laid down a specific programme for setting up an Indian Tea Portal on the *World Wide Web* with the following three-fold objectives:

- Disseminating information about Indian Tea to the industry, both in India and abroad.
- Assisting various tea auction centers in their initiatives to create an efficient market place for trading Indian tea, and
- Generating awareness of information technology in areas that are primarily dependent on tea industry.

To fulfill the above objectives, the Ministry approved a research project titled 'Supply, installation and implementation of the IT based Information Dissemination Plan' at a cost of ₹23.01 crore in July 2003. While conveying the approval, the Ministry had categorically directed that the Government/Tea Board would not bear any recurring expenditure after 2004-05 and that the same should be borne by the tea industry from the year 2005-06 onwards. In November 2002, Tea Board awarded, the work for 'Supply, Installation and Implementation of an Electronic Commerce Solution' to IBM India Limited. The scope of work included providing technical architectural design, business requirement specifications (BRS) and detailed system design and install, commission and execute testing plan to meet the defined business requirements and the system functionality. However, the project could not be completed and after incurring an expenditure of ₹17.26 crore, Tea Board awarded the work to another vendor i.e., Information Technology arm of National Stock Exchange (NSE.IT) in September 2007 at a cost of ₹9.35 crore. Tea Board intimated during the exit conference in October 2009 that the newly developed software was functional.

Deficiencies in planning of the project

7.4.1 In this regard, we observed that the planning for the project and its execution was deficient as discussed below:

- The Ministry accorded approval to the project categorically stating that Tea Board would not bear any recurring expenditure after 2004-05 and that the same should be borne by the tea industry from the year 2005-06 onwards. We, however, observed that Tea Board took up the project without any commitment from the industry and incurred recurring expenditure of ₹6.71 crore during 2003-04 to 2007-08, which was ₹2.40 crore in excess of the sanctioned funds of ₹4.31 crore. The Ministry stated that the Board could not pass on the burden of sharing the revenue expenditure from third year onwards to the Industry, as the e-auction system was not fully functional at that time and could not be handed over to them. We further observed that the Tea Board awarded a contract for a new IT Portal to NSE.IT, again without obtaining formal commitment from the industry to take responsibility of financing recurring expenditure after a specified period. There were gaps between the business requirements and the system functionality, as the BRS prepared by IBM was not comprehensive. As such, the desired software could not be developed and the project could not be implemented.

Deficiencies in execution of the project

- In the absence of a penalty clause in the agreement, the Board could not impose penalty on IBM and had to bear losses as discussed in Para below.

7.4.2 The Board incurred ₹10.55 crore for capital items and ₹6.71 crore for recurring expenditure from November 2002 to March 2008. The implementation of the software had two components. In the first part, separate contracts for Internet housing and communication services, system integration and operation management and IT Portal support services etc., were awarded at a cost of ₹9.35 crore. The second component comprised of procurement of servers and other related hardware, 265 PCs and 480 laptops at an estimated cost of ₹6.87 crore. In this regard we observed the following :

- An amount of ₹6.71 crore towards recurring expenditure was rendered unfruitful as services contracts for these services were terminated. Hardware worth ₹2.16 crore was disposed off at a loss of ₹0.43 crore.
- The laptops and PCs procured for Auction Centers remained idle since 2003, blocking an expenditure of ₹4.71 crore. In order to make these compatible in the new environment, Board further needs to upgrade RAM of these laptops and PCs from 256 MB to 512 MB, which would require additional expenditure.

The Ministry agreed and stated in October 2009 that the Board had taken all possible steps to protect the investments made in the project, but it was not a cost effective solution to use the hardware procured earlier and thus, it was decided to dispose of the same.

Non-updation of Tea Statistics

7.5 We observed that the statistics of the Tea Board were published up to 2005-06. The statistics were posted on the web site of the Tea Board only up to 2003-04. Thus, late publication of the statistics resulted in poor dissemination of data to the tea industry.

Despite incurring an expenditure of ₹26.61 crore on development of IT Portal, Tea Board was unable to maintain the website with updated data on tea statistics.

Our Recommendations and response of Tea Board

7.6 We recommended in November 2009 that Tea Board may provide adequate scientific manpower and other resources for Tea Research, while ensuring effectiveness in terms of papers published along with Impact Factor of the papers and technology developed/ transferred /commercialised and patented. We also recommended that Tea Board may evolve an effective mechanism to ensure accountability of the money spent by external research entities like UPASI and TRA and obtain formal commitment of the industry for fruitful/effective implementation and continuance of the e-commerce initiative of IT-portal.

Tea Board accepted these recommendations and stated in October 2010 that the following measures would be taken.

- *Augmentation of equipment and development of infrastructural*

facilities including establishment of Quality Control Laboratory and Training Centre.

- *Strengthening of monitoring of the funds release and fund utilisation mechanism based on performance on a quarterly basis and evaluation of Annual Progress Report by Tea Research Liaison Committee formed by MOC&I once in a year.*
- *Conducting mid-term scientific review by independent agencies like CSIR and ICAR and Performance Audit/Outcome Audit along with scientific evaluation in line with CSIR adopted system.*
- *Getting mandatory number of research papers to be published in peer reviewed journals with impact factors for each scientist/department/institute and encouraging Patenting (product/process) wherever applicable.*

*Tea Board proposed timeline for implementation by **March 2012.***

Conclusion 7.7 Research activities were not fruitful as neither any deliverables were transferred for the use of the tea industry nor were any patents filed due to inadequate monitoring and shortage of manpower and resources. The outcome of the research activities was also not commensurate with the support provided to external entities i.e., UPASI-TRF and TRA. Tea Board despite having regulatory and development role, failed to bring tea industry along in implementation of e-commerce initiative of the IT Portal Project which impacted the success of its initiative and an expenditure of ₹7.14 crore on revenue/capital account was rendered unfruitful. Tea Board is yet to secure the financial commitment from the industry for operating IT Portal Project post implementation.

We are of the view that proposed course of action on our recommendations for improving the results of research can be achieved only when the adequate scientific manpower and other resources for Tea Research along with effective monitoring system are ensured. Further success of IT portal project would depend on the ability of Tea Board to rope in Tea industries willing support.