

## CHAPTER II : MINISTRY OF COMMERCE AND INDUSTRY

### 2. Rubber Board

#### Functioning of the Rubber Board, Kottayam

##### Highlights

The area under rubber cultivation, production of natural rubber and productivity showed consistent uptrend during X Plan period. The productivity of 1879 Kg per hectare (provisional) was achieved during 2006-07 which was highest among the rubber producing countries in the world. The performance audit revealed certain areas which need to be addressed for sustaining the growth momentum. The highlights of the audit findings are as under:

- During the X Plan period the Board targeted 34850 hectares for replanting by removing old and moribund plants. The achievement was 23771 hectares.
- Productivity Enhancement Scheme was not implemented during the first three years of the X Plan period due to delay in getting the Ministry's approval for the Scheme.
- Inadequate procurement of inputs like materials for rain guarding, fungicides etc. had affected the implementation of Productivity Enhancement Scheme.
- *Percentage* of under-utilization of available area in Board's nurseries during 2002-07 ranged from 38 to 62. In ten Regional offices test-checked, the shortfall in supply of plants from the nurseries was *86 per cent*.
- The Board had not fixed any time frame for disposal of applications for permits resulting in delay in granting financial assistance to growers.
- There was decline in the area of plantation in Goa, Andaman & Nicobar, Orissa, Maharashtra and Andhra Pradesh.
- Group Planting Scheme was not implemented in Regional Office Guwahati during 2002-03 and 2003-04 due to delay in approval of the scheme. Implementation of the activity during 2004-05 to 2006-07 was tardy.

- **Insufficient field visits in the North-East resulted in deficiency in advisory and extension support to growers.**
- **The Scheme for setting up of demonstration plots was not implemented by Guwahati Regional Office during X Plan period.**
- **Against its target to set up 500 Rubber Producer's Societies (RPSs) during X Plan period, the Board set up only 72 RPSs.**

#### **Summary of recommendations**

- **The Board should increase the coverage of the 'Productivity Enhancement Scheme' during XI Five Year Plan period.**
- **Effective steps should be taken for procurement and timely distribution of agro-inputs taking into consideration the needs of the growers.**
- **As the growers rely on the Board for quality planting material, efforts should be made to maximize production and distribution of plantlets to the growers by optimizing use of the available areas in the nurseries.**
- **The Board should set up a time frame for disposal of applications for speedy and timely release of financial assistance to the growers.**
- **Board may analyze reasons for decline in the area of plantations in Goa, Andaman & Nicobar, Maharashtra and Orissa and take suitable remedial steps to stem the decline.**
- **Board should also encourage and cover SC/ST population under the scheme particularly in climatically suitable regions in Goa, Andaman & Nicobar, Maharashtra, and West Bengal.**
- **Adequate and effective extension support of technical officers should be provided to the growers.**
- **Regional Research Institute of India should strive for obtaining patents for clones released by the Institute.**
- **The Board should focus its research activities on tackling the problem of Tapping Panel Dryness as this is the major area of concern for the growers. The Board should make concerted efforts to popularize Low Frequency Tapping (LFT) among the growers by strengthening extension activities.**
- **The Board should take effective steps for the setting up of the Rubber Parks.**

## **2.1 Introduction**

India occupies fourth position among the world's natural rubber producing countries. The Rubber Board (Board) was constituted by the Government of India (GOI) as a body corporate under the Rubber Act 1947, with the primary objective of the overall development of rubber industry in the country. The main functions of the Board are to promote the development of rubber industry, initiate action for undertaking, assisting or encouraging scientific, technical and economic research, and impart training in improved methods of planting, cultivation, manuring and spraying and giving technical advice to rubber growers. The Board has the duty to advise GOI on all matters relating to the development of rubber industry and export of rubber. The rubber growing areas of the country are divided into three zones, viz., (i) Traditional region comprising Kerala state and Kanyakumari District of Tamil Nadu, (ii) Non-traditional region comprising all states other than Kerala state and Kanyakumari District of Tamil Nadu and North East region and (iii) North-Eastern region comprising Assam, Tripura, Meghalaya, Nagaland, Manipur, Mizoram and Arunachal Pradesh.

## **2.2 Organizational set-up**

The Board consists of a Chairman appointed by the GOI and 23 members including those representing GOI, States of Kerala and Tamil Nadu and Parliament as well as ex-officio members. The activities of the Board are carried out through eight departments, viz., Rubber Production, Rubber Research, Administration, Processing and Product Development, Training, Finance & Accounts, Licensing & Excise Duty and Statistics & Planning. The Headquarters of the Board is located at Kottayam in Kerala State.

## **2.3 Scope of audit**

Performance audit of the functioning of the Board was conducted during May to August 2007 for assessing the effectiveness of implementation of various schemes/ activities of the Board covering the period 2002 to 2007.

## **2.4 Audit objectives**

The performance audit of the Board was taken up to examine the efficiency and effectiveness of following major activities of the Board:

- Fund management and collection of rubber cess.
- Implementation of schemes like Rubber Plantation Development, expansion in non-traditional areas, expansion in North-Eastern region etc.
- Research activities undertaken by the Board.

## 2.5 Audit criteria

The audit criteria used for assessing the performance of the Board were derived from the following:

- The Rubber Act, 1947 and Rubber Rules, 1955
- GOI instructions for fund assessment and release and specific policy adopted by the Board
- GOI instructions for collection of Rubber Cess
- Policy adopted by Board for Public relation, marketing, training, internal control, monitoring and evaluation, and instructions issued from time to time on the subject by the Rubber Board/GOI.

## 2.6 Audit methodology

The performance audit commenced with an entry conference in May 2007 in which audit objectives, audit criteria and scope of audit were explained. Audit examined the records pertaining to the Board office at Kottayam, twelve Regional Offices (ROs)<sup>1</sup> and three Regional Research Stations (RRSs)<sup>2</sup>.

### 2.6.1 Audit findings

The area under rubber cultivation, production of natural rubber and productivity showed consistent up trend during X Plan period as given in **Annex I**. As stated by the Board, the productivity of 1879 Kg per hectare (provisional) was achieved during 2006-07, which was highest among the rubber producing countries in the world. The performance audit revealed certain areas which need to be addressed for sustaining the growth momentum. The audit findings are discussed in following paragraphs.

## 2.7 Fund management

### 2.7.1 Receipts and expenditure

The receipt and expenditure of the Board during 2002-07 are under:

*(Rupees in crore)*

Year	Receipts			Expenditure
	GOI Plan grant	Own resources	Total	
2002-03	71.28	0.65	71.93	84.08
2003-04	80.83	2.23	83.06	90.05
2004-05	90.00	4.82	94.82	90.68
2005-06	81.73	2.78	84.51	82.05
2006-07	78.39	1.94	80.33	90.10
<b>Total</b>	<b>402.23</b>	<b>12.42</b>	<b>414.65</b>	<b>436.96</b>

<sup>1</sup> Adoor, Changanassery, Erattupetta, Ernakulam, Kothamangalam, Pala, Palakkad, Thiruvananthapuram, Marthandam, Mangalore, Guwahati and Tripura

<sup>2</sup> Guwahati, Tripura and Kannur

### 2.7.2 Arrears in collection of Rubber Cess

Sub Section 2 of Section 12 of the Rubber Act, 1947 stipulates that the duty of excise (cess) on all natural rubber produced in India shall be collected from the manufactures by the Board and out of the cess collected, the Board is entitled to retain two *per cent* as cost of collection and the balance is to be remitted to the GOI. Year-wise details of cess collected, cost of collection and GOI grant are given below:

*(Rupees in crore)*

Year	Net proceeds of cess credited to the Consolidated Fund of India	Cost of collection retained	GOI grant
2002-03	84.42	1.66	71.28
2003-04	83.40	1.72	80.83
2004-05	93.83	1.92	90.00
2005-06	94.33	1.93	81.73
2006-07	99.19	2.02	78.39
<b>Total</b>	<b>455.17</b>	<b>9.25</b>	<b>402.23</b>

It was noticed in audit that as per the latest Demand, Collection and Balance (DCB) there were arrears of cess amounting to Rs. 9.05 crore of which Rs. 3.02 crore was more than five years old. It was also seen that though Cess arrears of Rs. 92.45 lakh was found to be irrecoverable, the amount has not been written off so far.

#### Recommendation

- *The Board should take effective measures to realize arrears of Cess.*

### 2.8 Implementation of Rubber Plantation Development (RPD) Scheme

The Rubber Production Department is responsible for planning, formulation and implementation of schemes for promoting cultivation of natural rubber and improving quality of the produce. The major programmes during X Plan period were Rubber Plantation Development (RPD) Scheme and Programme for promotion of Rubber cultivation among Scheduled Castes / Scheduled Tribes through block planting and group planting schemes.

The RPD Scheme is intended to increase production of natural rubber, by accelerating new planting and replanting of rubber on modern scientific lines by providing financial assistance to growers in the form of planting grant. It also envisaged setting up of revolving fund of Rs. 10 crore for purchase of critical inputs for distribution to small growers through Rubber Producers' Societies, maintenance of nurseries in traditional and non-traditional areas, supporting Model Rubber Producer's Societies, promoting extra income generation through apiculture, conducting educational campaigns, etc.

The major activities taken up under RPD scheme were as under:

- Planting and replanting

- Productivity enhancement
- Production and distribution of planting materials
- Distribution of agro inputs
- Rubber plantation for settlement of tribal people.

The GOI approved the RPD scheme for implementation during X Plan for an outlay of Rs. 132.73 crore.

### 2.8.1 Planting and Replanting in Traditional Areas

The Board targeted new planting in 5000 hectares and replanting of 34850 hectares of old and low yielding rubber plantations during X Plan period, by taking up 7970 hectares annually. The target and achievement of planting and replanting for X Plan period was as under:

Physical Parameters	Target (hectares)	Achievement (in hectares)					Total	Percentage of achievement
		2002-03	2003-04	2004-05	2005-06	2006-07		
Replanting	34850	4563	5386	4991	4777	4054	23771	68
New Planting	5000	1073	2196	4403	5647	4222	17541	351
<b>Total</b>	<b>39850</b>	<b>5636</b>	<b>7582</b>	<b>9394</b>	<b>10424</b>	<b>8276</b>	<b>41312</b>	<b>104</b>

It may be seen that while the Board's achievement in respect of new planting surpassed the target by a wide margin, its achievement in respect of replanting fell short of target by 32 *per cent* in X Plan. The shortfall was attributable to the rise in price of natural rubber; the growers were reluctant to remove old trees as even lesser production fetched reasonable income due to increase in prices.

The Board stated (June 2007) that replanting would be taken up in phased manner and replanting of the whole area was not contemplated as it would affect production.

### 2.8.2 Productivity Enhancement Scheme

The X Plan envisaged improving productivity by discriminatory fertilizer application, scientific tapping, scientific disease control method, soil conservation and rain guarding through the productivity enhancement scheme. To provide inputs to the growers at a concessional rate through Rubber Producer's Society (RPS), Board proposed to procure the inputs by creating a revolving fund of Rs. 10 crore. The Board aimed to achieve 15.30 *per cent* increase in production through these measures.

Audit scrutiny brought out the following:

- The Ministry approved RPD Scheme for X Plan period only in May 2005. Due to the delay in getting the approval for the scheme,

productivity enhancement component could be implemented only during the last two years of the Plan period.

- During the IX Plan period, productivity enhancement measures annually covered 50000 hectares when it was implemented through World Bank aided project. During X Plan period, the productivity enhancement measures annually targeted only 25000 hectares which was only 4.4 *per cent* of planted area of 566555 hectares at the end of IX Plan period. The target set was, therefore, very low.
- Even against the low annual target of 25000 hectares, Board could achieve the coverage of only 11000 hectares and 23276 hectares during 2005-06 and 2006-07 respectively.
- The procurement of agro inputs like materials for rain guarding, fungicides, etc did not meet the needs of Regional Offices. During 2005-06, copper sulphate (17.90 tonnes), rain guarding plastic (86.04 tonnes) and rain guarding compound (62.70 tonnes) were short supplied. During 2006-07, copper sulphate was not at all supplied against the required quantity of 125 tonnes. The quantity indented by ROs and the quantity for which orders were placed, supplied and shortfall in supply are given in **Annex II**. The shortage of arranging adequate inputs adversely affected the implementation of the productivity enhancement measures.

The Board stated (June 2007) that it achieved the productivity of 1879 kg/hectare/year at the end of X Plan period which was highest among the rubber producing countries and in order to achieve the highest optimum productivity of 2500 kg/hectare/year, all the old and uneconomic plantations would have to be replanted. This would be taken up in a phased manner keeping in view the allocations under RPD Scheme.

### **Recommendations**

- *The Board should increase the coverage of the 'Productivity Enhancement Scheme' during XI Plan period.*
- *Effective steps should be taken for procurement and timely distribution of agro-inputs taking into consideration the requirements estimated by the respective Regional Offices.*

### **2.8.3 Production and distribution of planting materials**

To ensure availability of quality planting materials at a reasonable price, the Board was maintaining seven nurseries in the Traditional Region. Of these, one nursery was closed down during X Plan period. Following was observed:

- The targets for production and achievement of six nurseries during X Plan were as given in **Table-A of Annex III**. While the production of plants in nurseries of the Board fell only marginally short of targets, test check in 10 Regional Offices revealed that against the requirement

of 77.69 lakh plants demanded by growers, the Board supplied only 10.90 lakh plants (shortfall- 86 *per cent*) during X Plan as detailed in **Table-B of Annex III**. Out of the 10 test checked Regional Offices more than 90 *per cent* shortfall was noticed in the Regional Offices at Thiruvananthapuram, Kothamangalam, Adoor and Marthandam.

- Further while Board failed to meet the growers' demand, there was under-utilization of available area in Board's nurseries during 2002-07. The *percentage* of under-utilization of area ranged between 38 and 62 *per cent* of available area as indicated in **Table-C of Annex III**.

### **Recommendation**

- *As the growers rely on the Board for quality planting material, efforts should be made to produce and distribute maximum plantlets by optimising the use of available areas in the nurseries.*

### **2.8.4 Disposal of applications for permits for planting and replanting**

For availing of assistance under RPD scheme, the growers have to apply in the prescribed form accompanied by survey plan, area proposed to be planted and such other details pertaining to the estate as may be required by the Board. Following was observed:

- The Board has not specified any time frame for its officers for disposal of applications and completion of related work of grant of permit.
- During 2002-03 to 2006-07, the Regional Offices of the Board received 101125 applications for assistance under RPD scheme for planting in 63277 hectares, but the Regional Offices disposed of 63362 applications for planting in 35456 hectares which was 56 *per cent* of area proposed by the applications. Details are at **Annex IV**.
- Non-completion of stipulated items of work, non-production of land documents, failure to rectify the defects pointed out by the officials of the Board, were attributed as the main reasons for non-disposal of all the applications.

Test check in 10 Regional Offices in traditional area revealed that:

- 1241 applications for planting and replanting in 1217.39 hectares relating to the period 2002-03 and 2003-04 were not settled even as of March 2007
- 13019 applications were pending for inspection. Out of the 16347 subsidy permits inspected, 3071 permits are due for payment.
- According to the scheme of payment of subsidy for planting and replanting, the release of subsidy was to be made only on completion of the inspections. As inspections were not conducted in time, disbursement of subsidy was held up. In order to tide over the situation, the Board decided to skip inspections during the year 2003



and 2005. In 10 Regional Offices test checked, subsidy of Rs. 78.25 lakh in 5859 cases was paid without inspections.

### **Recommendation**

- *The Board should set up a time frame for disposal of applications for speedy and timely release of financial assistance to the growers.*

### **2.9 Expansion of Rubber Plantation in non-traditional area**

The year wise status of area of plantations during X Plan period in Non-Traditional Region was as given in **Annex V**.

It was noticed that overall area under rubber plantation increased from 23480 hectares during 2002-03 to 28770 hectares during 2006-07 registering an increase of 23 *per cent*. But this was mainly due to increase in the area of cultivation in Karnataka State and there actually was decline in the area of plantation in Goa, Andaman & Nicobar, Orissa and Maharashtra. Further, SC/ST population was not covered under the scheme in Goa, Andaman & Nicobar, Maharashtra and West Bengal.

### **Recommendations**

- *Board may analyze reasons for decline in area of plantation in Goa, Andaman & Nicobar, Maharashtra and Orissa and take suitable remedial steps to stem the decline.*
- *Board should also encourage and cover SC/ST population under the scheme particularly in climatically suitable regions in Goa, Andaman & Nicobar, Maharashtra and West Bengal.*

### **2.10 Expansion of Rubber Plantation in North-East**

In the North-East Region there were two Zonal Offices at Guwahati and Agartala and eight Regional Offices. The Board had formulated separate programmes for rubber development in this region. The outlay for rubber plantation was Rs. 84 crore during X Plan period. The allocation during the Plan period was Rs. 101.51 crore and the expenditure was Rs. 74.91 crore. During X Plan period the Board targeted 25650 hectares against which the achievement was 21278 hectares up to 2005-06. Important points noticed during test check of the two Regional Offices are discussed below:

#### **2.10.1 Expansion of area and rubber production under Regional Office, Guwahati**

The production and yield per hectare of rubber for areas under the Regional Office, Guwahati during 2002-07 are given below:

Year	Total area under plantation (hectares)	Total area tapped (hectares)	Production of Rubber (tonnes)	Yield per hectares (kg)	National average (Kg/hectare)
2002-03	4350.85	1192.78	1233.00	1034	1592
2003-04	4131.25	1346.36	1583.00	1176	1663
2004-05	4560.15	1425.83	2270.95	1593	1705
2005-06	4901.99	1671.31	2714.88	1624	1796
2006-07	6903.24	3665.71	6058.00	1653	1879

The Deputy Rubber Production Commissioner stated (July 2007) that the decline in area under plantation during 2003-04 was due to adjustment of 442.43 hectares of rubber plantation damaged in natural calamities (cyclone, wild fire, hailstorm, landslide, wild animal menace etc.) during the period from 1980 to 2003. The sharp increase in 2006-07 was due to inclusion of 1337.83 hectares of plantation previously excluded during the period 1980 to 2006 in respect of the growers who had not been covered under RPD Schemes due to non-fulfillment of stipulated conditions.

As may be seen that the production as well as yield per hectare of rubber increased gradually during the last five years.

### 2.10.2 Expansion of area under Regional Office, Tripura

In Regional Office, Tripura the rate of expansion in rubber plantation during 2002-07 were as shown below:

Year	Total area up to previous year (hectare)	Growth during the year (hectare)	Total area (hectare)	Percentage of growth
2002-03	10954.97	286.83	11241.80	2.61
2003-04	11241.80	269.36	11511.16	2.40
2004-05	11511.16	602.93	12114.09	5.24
2005-06	12114.09	1225.09	13339.18	10.11
2006-07	13339.18	1838.37	15177.55	13.78

As may be seen there has been consistent increase in area under rubber plantation under RO Tripura.

### 2.10.3 Distribution of planting materials

For distribution of quality planting materials the Board was maintaining six nurseries in North-East region. Of these, one nursery was closed during X Plan period. Audit noticed that:

- The regional nurseries could cater to only 28 per cent of the demand of growers. During 2002-07, the nurseries could distribute 4.34 lakh plants (budded stumps) to the growers against the total requirement of 15.55 lakh and thus the balance 11.21 lakh were distributed by procurement from private parties (8.28 lakh), by making arrangement from other sources like sister units/Head Offices, etc., (1.25 lakh) and growers' own arrangement (1.68 lakh).

- There was no Regional Nursery functioning under Regional Office Tripura. The demand of planting materials by the growers was met from private nurseries. During 2002-03, the Regional Office supplied to the growers 1.58 lakh planting materials from other sources but during 2004-05 to 2006-07 no planting materials were provided by the Regional Office. There was no quality control system to ensure the quality of the planting materials supplied by the private nurseries to the growers.

#### 2.10.4 Group planting scheme

Group planting scheme was aimed at providing assistance to all categories of beneficiaries under Group Planting for land development, establishment of high yielding planting materials, establishment of leguminous cover crop, application of fertilizer, providing fencing and plant protection measures during 2002-07. There was a provision for granting assistance of Rs. 20,000 and Rs. 15,000 per hectare for SC/ST and General category of growers respectively under group planting scheme in addition to the subsidy under Rubber Production Development (RPD) Scheme. Audit noticed as under:

- The scheme was not implemented by Regional Office, Guwahati during 2002-03 and 2003-04 due to delayed approval of the scheme.
- Against the annual target of 300 hectares, the achievement during 2004-05, 2005-06 and 2006-07 was 77.55 hectares, 157.11 hectares and 328.76 hectares respectively. The *percentage* of shortfall during 2004-05 and 2005-06 was 74 and 48 respectively.
- The target of rubber plantation under Group planting for Tripura Zone was 600 hectares in X Plan period, whereas 1460.01 hectares of land had been planted during 2002-07 under Regional Office, Tripura itself. It exceeded the target set for Tripura zone by 860.01 hectares.

#### 2.10.5 Inadequate field visit

RPD scheme stipulates that plantations under the scheme would be visited by Board's technical officers once or twice during first year and once during each of the subsequent years to extend necessary advisory and extension support to the permit holders.

Details of field visits conducted during 2002-07 in Regional Offices Guwahati and Tripura based on monthly abstracts were as given in **Annex VI**.

While significant shortfall of 55 *per cent* in field visits by officials of Regional Office Guwahati was noticed during 2004-05. The overall shortfall in field visits during Plan period remained 23 *per cent*. In case of Regional Office, Tripura, it was noticed that out of 40466 visits required during 2002-03 to 2006-07, only 23221 visits were made resulting in overall shortfall of 43 *per cent*. Year wise shortfall ranged from 31 to 55 *per cent*. Inadequate field visits resulted in lack of advisory and extension support to the growers.

## Recommendation

- Adequate extension support of technical officers should be provided to the growers.

### 2.10.6 Financial assistance to demonstration plots

As per assistance for Demonstration of Agro-Management Practices in North-East Region, 500 Demonstration Plots for Controlled Upward Tapping (CUT) and 1000 demonstration plot in Farmer's fields under regular tapping for Soil and Moisture Conservation (SMC) were to be set up in Guwahati Zone during X Plan period. Financial assistance of Rs. 2700 per plot per year under CUT and Rs. 10 per pit limited to maximum of Rs. 1500 under SMC were available for the two programmes.

Scrutiny of records revealed that:

- None of the programmes was set up in Regional Office, Guwahati. The Deputy Rubber Production Commissioner stated that 'CUT/SMC' was not feasible in an extensive way in a place in rudimentary stage of rubber cultivation. This clearly indicated that the scheme was formulated without taking into consideration the feasibility of its implementation.
- In Regional Office, Tripura 500 demonstration plots were to be set-up under SMC during X Plan period. Though Rs. 3.58 lakh was paid to farmers during 2004-05 to 2006-07, no records were maintained for the number of pits taken/used for demonstration for which financial assistance was given.

## 2.11 Working of Rubber Research Institute of India

The Board established Rubber Research Institute of India (RRII) in 1955 with Headquarters at Kottayam. The main research farm with Central Experimental Station (CES) of RRII is located in an area of 250 hectares at Chethackal in Pathanamthitta District of Kerala State. There are nine Regional Research Stations (RRSs) across the country situated in Kerala, Tamil Nadu, Assam, Meghalaya and Tripura. RRII conducts research and development works in the field of Plant Breeding, Germplasm Technology, Agronomy and Soil Science, Plant Pathology, Economics and Rubber Technology, etc. The outlay provided for research in X Plan was Rs. 47.75 crore.

### 2.11.1 Botany Division

The RRII 105 clone released by RRII during 1980 was widely accepted by farming community and as a result more than 90 per cent of the area planted in recent years was with this high yielding clone. The clone was widely accepted by all rubber-growing countries and the Rubber Research Institute Malaysia had recommended this clone to their growers.

The Botany Division had been doing research for the development of further high yielding clones and developed RRII 400 series clones, which showed superior yield of 32 to 57 *per cent* higher than the popular clone RRII 105. The RRII supplied bud wood materials of RRII 400 clones for experimental planting to 127 small growers and 5 large growers in 2004-05. Analysis of data over four years of tapping was conducted and four clones RRII 430, 422, 414 and 402 were adjudged as high yielding variety.

It was noticed that the production of RRII 414 and RRII 430 was limited and budded stumps were distributed for popularizing these among growers. The commercial production of these plants in the nurseries of the Board had not commenced in full swing.

Though the 400 series released during 2005 was also widely accepted by growers, the Board has not, yet, taken patents for these two clones. In the absence of a valid patent for these clones, the country is not only losing the royalty for use of these clones in other countries but there is also risk of another country claiming patent for the clones, which were developed by the Board after decades of research.

### **2.11.2 Germplasm Division**

Introduction, conservation, characterisation and evaluation of germplasm were the main research activities of the Division. Forty-one selected accessions from 1981 wild germplasm collections received from Malaysian Rubber Board through the National Bureau of Plant Genetic Resources, New Delhi were evaluated in different agro climates in the traditional rubber growing regions and the non-traditional regions. Of the 41 accessions, 24 accessions were successfully multiplied in the Central Experimental Station, Chethackal and were evaluated further. The RRII was carrying out conservation of germplasm for the last several years. As at the end of X Plan period, field planting of 701 wild accessions was completed and were evaluated further for drought tolerance, growth characters, cold tolerance, and timber, latex traits, etc. The final results of these studies were, however, not finalized (July 2007).

### **2.11.3 Bio-technology Division**

#### **Tapping Panel Dryness**

Tapping Panel Dryness (TPD) is a physiological disorder affecting high yielding rubber trees that reduces rubber production in plantation. Observations have revealed that over exploitation leads to internal stress and thus certain trees succumb to TPD. Studies have ruled out the presence of bacteria, fungi, mycoplasma and protozoa as causative factors for TPD. Some of the symptoms are clone specific and the RRII 105 clone exhibited the maximum variety of symptoms. TPD was observed in plantation for decades. RRII had been given a pivotal role in coordinating an internal research programme on TPD. Even though some molecular and biological and histochemical studies had been undertaken by RRII, no specific

recommendations had been finalized and passed on to the growers. The physiological disorder remained unsolved even after decades of research.

### **Exploitation studies**

Low Frequency Tapping (LFT) in various agro-climatic regions showed increased yield of two tonnes per hectare with very low cumulative Tapping Panel Dryness of around 5 *per cent*. In addition to good yield and low TPD, adoption of LFT ensures considerable cost reduction and provides solution for increased tapper shortage problems. The LFT technique developed by the Rubber Research Institute of India had not been popularized among the growers as only 20000 (4.4 *per cent*) hectares of tapped areas had adopted the method against 454000 hectares of tapped area, at the end of X Plan period.

#### **2.11.4 Regional Research Station, Guwahati.**

A central research laboratory at the Regional Research Station (RRS) Rubber Board, Guwahati was established in 1985 with a view to monitoring the activities mainly on the research projects of crop management, crop improvement, and crop protection and exploitation technology. There is one research farm at Sarutari (in Kamrup District) functioning under RRS, Guwahati.

Scrutiny of records revealed that 14 activities under four major projects (i) Crop Improvement (ii) Crop Management (iii) Crop Protections and (iv) Exploitation Studies were undertaken by the Regional Research Station, Guwahati since 1985. Out of these 14 activities, seven were completed as of 31 March 2007 with fruitful results. Two activities on study on variation in cutting length of budded stumps and its effect on sprouting success and subsequent growth vigor, and a study on different sizes and alternative source of poly bagging on growth and development of poly-bagged plants, under Crop Management started in 2004 and completed in 2005 made no recommendations. Research findings of seven activities have not yet been standardized for application till June 2007.

### **Recommendations**

- *RRII should take patents for all clones and technologies of commercial importance released by the Institute.*
- *The Board should make concerted efforts to popularize Low Frequency Tapping among the growers by strengthening extension activities.*
- *The Board should tackle the problem of Tapping Panel Dryness in a comprehensive and holistic manner and evolve research-based strategies to contain it as this is the most important problem causing not only heavy loss to the growers but would also affect the productivity of Natural Rubber.*

## **2.12 Formation of Rubber Producers Co-operative Societies**

**2.12.1** From 1980 onwards, the Board had been promoting grass root level organization of farmers at village level by forming Rubber Producers' Societies (RPS) with the objective of providing better services to farmers. The Board distributed planting materials and plantation inputs such as rain guarding plastics, rain guarding compounds, copper sulphate and fungicides through these societies and provided financial and technical assistance for setting up of infrastructure and capacity building. As at the end of IX Plan Period, the Board had formed 2180 RPS including 35 model RPSs.

During X Plan, the Board had fixed a target to set up 500 RPS. Only 72 RPS were set up resulting in shortfall of 428 RPS. As RPS was a vital link between growers and Board, the need for setting up of RPS in all areas where they do not exist should have been addressed effectively.

**2.12.2** The Board had formulated the scheme for grant of financial assistance to RPS/Co-operative societies for setting up of group processing centres, latex collection centres, smoke houses, effluent treatment system and training facilities for improving quality of rubber. Audit noticed as follows.

- During X Plan, the Board had disbursed Rs. 10.10 crore to 202 RPS for the purpose. Twenty five of these RPS to whom assistance of Rs. 1.07 crore was released during October 2003 to December 2006 did not complete the work of group processing centres, smoke houses, etc., as of 31 March 2007.
- For setting up of environment friendly, community processing facility by providing aluminum dishes to RPS, the Board proposed to provide assistance to 118 RPS for purchase of 27200 aluminum dishes at an estimated cost of Rs. 20.40 lakh. Only 68 RPS availed of assistance of Rs. 5.76 lakh for purchase of 15400 dishes due to poor response of growers. This indicated that the scheme was not adequately publicized.

### **Recommendation**

- *The Board should accelerate formation of RPSs and provide them necessary support and assistance.*

## **2.13 Other schemes**

### **2.13.1 Scheme for improving tapping**

The Tapping demonstrators attached to the Regional Offices visit plantations and demonstrate to growers the scientific method of tapping. There were 21 regular Tappers' Training Schools including three in North-East maintained by Board at different plantation centres for imparting training to small growers and women. The training programmes are intended mainly for small growers and tappers of small holdings.

During 2002-07, training was imparted to 7967 persons in traditional and non-traditional areas including North-East Region. Apart from tappers training, Board also conducted short term intensive training courses in various practical aspects of scientific tapping with emphasis on improved methods in tapping, processing, rain guarding, etc. During 2002-07, these training programmes were conducted for 43280 persons.

### **2.13.2 Scheme for extra income generation from Rubber plantation**

GOI approved (May 2005) the scheme for providing financial assistance to small rubber growers for establishing bee keeping units in rubber plantations. The Scheme envisaged financial support to 5000 growers at Rs. 2000 per grower for establishing bee keeping units and it was implemented through Self Help Groups (SHGs) and RPS. The Board incurred an expenditure of Rs. 1.14 crore for providing financial assistance to SHGs/RPS, during the year 2005-06 and 2006-07, involving 93 RPS, and 435 SHGs, covering 5814 beneficiaries.

Audit scrutiny revealed that

- The impact of this scheme was yet to be analyzed by the Board (July 2007).
- In Regional Office, Guwahati apiculture was included in the scheme as a component after considering attractive market of honey and identifying rubber tree as an excellent source for honey. The scheme was not, however, implemented.
- In Regional Office, Tripura no training for bee keeping was imparted during the years 2005-06 and 2006-07.

### **Recommendation**

- *The Board should take effective steps to make the scheme more attractive.*

### **2.13.3 Popularization of low volume sprayers**

In order to popularize the use of low volume sprayers, the Board introduced a scheme in 2006-07 with an outlay of Rs. 41.25 lakh. Under the scheme, RPS in the RPS Sector/Rubber Co-operative marketing societies were eligible for financial assistance for the purchase of sprayers/dusters manufactured by the firms approved by the Board. The financial assistance per spraying equipment was limited to 50 *per cent* of actual cost of machine or Rs. 30500 for sprayers cum duster and Rs. 26750 for sprayers without dusting attachment whichever was less. For dusting attachment alone, the assistance was Rs. 6300 or 50 *per cent* of the cost whichever was less. The scheme was introduced at the fag end of X Plan period (February 2007). As a result, the suppliers could not distribute machines in time and many RPS/Companies could not make use of the scheme. Against the target of 150 beneficiaries only 54 beneficiaries availed the benefit involving an assistance of Rs. 15.35 lakh.



### 2.13.4 Performance of TSR Factory

Model TSR Factory was established during 1995-2000 with a production capacity of about 20 metric tonne natural rubber per day at Manganam near Kottayam. The objective of establishing this model factory was to commercially produce quality natural rubber for customers. Analysis of operating cost, capacity utilization, production trend, etc., of the factory for the last five years was as given in **Annex VII**.

It was observed that the operating cost was continuously increasing every year from Rs. 0.40 lakh per metric tonne in 2002-03 to Rs. 0.90 lakh/ per metric tonne in 2006-07. The installed Production Capacity of the factory per year was 6000 metric tonne whereas the capacity utilization of the factory on average remained below 50 *per cent* during the last five years. During the last five years except 2005-06 the factory was running on loss. The accumulated loss of the factory as on 31 March 2007 was Rs. 1.72 crore.

While there was export realization during 2002-03, during 2003-04 to 2006-07 sales was mainly local. The operational inefficiencies had created a vicious cycle and unless a model factory can demonstrate both technological superiority and economic viability it cannot evoke confidence of entrepreneur.

#### **Recommendation**

- *The Board should take effective steps for improving the working of the factory.*

### 2.13.5 Rubber Parks

In order to improve the marketability of natural rubber and increase value addition by setting up rubber product manufacturing industries, the Board in association with Tripura Industrial Development Corporation and Tamil Nadu Industrial Development Corporation, embarked on setting up of Rubber Park in the respective States.

The total cost of the project (Rs. 7 crore) in Tripura, would be financed to the extent of 80 *per cent* by ASIDE<sup>3</sup> State component, and 20 *per cent* by the Board of the AISDE Central component. The share of the Board amounting to Rs. 1.40 crore was made available to Tripura Industrial Development Corporation during March 2007.

Even though the project at Tripura was sanctioned in November 2004 and funds were made available under the ASIDE Scheme, the project is yet to commence.

The Tamil Nadu project was approved by the Department of Commerce in July 2005 with a capital outlay of Rs. 14.52 crore. Of this, Rs. 4.15 crore and

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<sup>3</sup> Assistance to states for developing export Infrastructure and allied activities

Rs. 3.55 crore shall be ASIDE state component and ASIDE Central Component respectively. The balance shall be equity from private promoters (28 per cent), Equity participation by TIDCO (3.37 per cent) and the rest from Banks.

Even though the funds and the land identified had been transferred to the implementing agency, this project is also yet to commence.

**Recommendation**

- *The Board should take effective steps for the speedy setting up of the Rubber Park.*

**Acknowledgement**

We acknowledge the co-operation and assistance rendered by the Board to Audit during the course of this performance audit.

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

**Annex I**

**(Referred to in paragraph 2.6.1)**

**Production and yield of natural rubber during X Plan**

<b>Year</b>	<b>Area under rubber cultivation in lakh hectares</b>	<b>Tapped area in lakh Hectares</b>	<b>Production in thousand tonnes</b>	<b>Yield (Kg/Ha)</b>
2002-03	5.70	4.08	649	1592
2003-04	5.74	4.28	712	1663
2004-05	5.78	4.40	750	1705
2005-06	5.81	4.47	803	1796
2006-07	5.84	4.54	853	1879*

\* Provisional

Annex II

(Referred to in paragraph 2.8.2)

Agro inputs indented, ordered, supplied and shortfall

Name of Item	Quantity required by ROs	Quantity ordered	Quantity supplied	Short fall	Quantity required by ROs	Quantity ordered	Quantity supplied	Short fall
	2005-2006				2006-2007			
Copper oxy chloride (MT)	38.98	38.272	38.272	0	29.7	75	71.38	3.62
Spray oil (KL)	191.141	188.580	188.370	0.210	144.270	378	377.37	0.63
Copper sulphate (MT)	128.581	50.00	32.100	17.90	124.20	125	0	125.00
Rain guard plastic (MT)	247.082	150	63.965	86.035	155.972	180	181.9	0
Rain guarding compound (MT)	700.041	440	377.300	62.700	383.980	455	443.375	11.625

## Annex III

(Referred to in paragraph 2.8.3)

Table- A

Target and achievement of production of planting material by nurseries in numbers

Year	Target			Achievement		
	GBS <sup>4</sup>	BBS <sup>5</sup>	Total	GBS	BBS	Total
2002	170000	673500	843500	198618	693326	891944
2003	125000	392208	517208	148116	385930	534046
2004	200000	580000	780000	217389	509894	727283
2005	174400	612000	786400	164718	613561	778279
2006	52500	595000	647500	61868	555708	617576
<b>Total</b>			<b>3574608</b>			<b>3549128</b>

Table- B

Demand and supply of planting material in numbers

Name of Regional Office	Requirement/demand from growers	Supply from Regional Office	Shortfall	Percentage of shortfall
Thiruvananthapuram	577379	22775	554604	96
Changanassery	228671	112059	116612	51
Erattupettah	394065	72720	321345	81.5
Pala	861385	94718	766667	89
Ernakulam	58000	26393	31607	54
Kothamangalam	995770	39714	956056	96
Palakkad	1230225	350551	879674	72
Adoor	713390	57205	656185	92
Marthandam	1300000	3725	1296275	99.72
Mangalore	1410000	310435	1099565	78
<b>Total</b>	<b>7768885</b>	<b>1090295</b>	<b>6678590</b>	

Table- C

Utilization of area in nurseries

Year	No. of nurseries Traditional/NT	Total available area (hectares)	Area utilized (hectares)	Percentage of under-utilization
2002-03	13	69.75	35.33	50
2003-04	13	69.75	27.35	61
2004-05	12	67.75	25.65	62
2005-06	13	71.75	44.73	38
2006-07	11	64.15	34.87	46

<sup>4</sup> Green Budded Stumps<sup>5</sup> Brown Budded Stumps

**Annex IV**

**(Referred to in paragraph 2.8.4)**

**Disposal of applications for assistance under RPD scheme**

<b>Details</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>Total</b>
Number of applications received	12257	14699	17302	26191	30676	101125
Area (hectares)	9038	10112	11437	15170	17520	63277
Number of permits issued	9119	11396	11251	14829	16767	63362
Area (hectares)	6465	6909	6630	7176	8276	35456

## Annex V

(Referred to in paragraph 2.9)

## Expansion of rubber plantation in non-tradition areas in hectares

State	2002-03		2003-04		2004-05		2005-06		2006-07	
	General	SC/ ST	General	SC/ ST	General	SC/ ST	General	SC/ ST	General	SC/ ST
Karnataka	20044	250	20210	250	20939	250	22903	250	25702	250
Goa	870	0	755	0	761	0	704	0	739	0
Andaman & Nicobar	960	0	962	0	843	0	762	0	762	0
Orissa	328	225	256	225	231	225	233	232	233	287
Maharashtra	200	0	182	0	152	0	149	0	149	0
West Bengal	494	0	461	0	473	0	523	0	537	0
Andhra Pradesh	27	82	26	98	26	98	9	98	13	98
<b>Total</b>	<b>22923</b>	<b>557</b>	<b>22852</b>	<b>573</b>	<b>23425</b>	<b>573</b>	<b>25283</b>	<b>580</b>	<b>28135</b>	<b>635</b>

Annex VI

(Referred to in paragraph 2.10.5)

Details of field visits

Regional Office, Guwahati

Year	Total cases under RPD	Total visits conducted	Shortfall (percentage in bracket)
2002-03	3898	3070	828(21)
2003-04	4018	4281	-
2004-05	3976	1777	2199(55)
2005-06	4668	4493	175(4)
2006-07	5516	4812	704(13)

Regional Office, Tripura

Year	Total cases under RPD	Total visits conducted	Shortfall (percentage in bracket)
2002-03	8646	5467	3179 (37)
2003-04	9231	5148	4083 (44)
2004-05	7095	3819	3276 (46)
2005-06	8104	3672	4432 (55)
2006-07	7390	5115	2275 (31)
<b>Total</b>	<b>40466</b>	<b>23221</b>	<b>17245 (43)</b>



## Annex VII

(Referred to in paragraph 2.13.4)

## Performance of TSR Factory

Parameters	2002-03	2003-04	2004-05	2005-06	2006-07
Production(in tonnes)	2081.27	2512.10	2278.90	3188.10	2719.37
Percentage of Capacity utilization	34.69	41.87	38.00	53.14	45.32
Material consumed (Rupees in lakh)	645.28	1121.53	1103.88	1922.35	2249.41
Other direct and indirect expenses (Rupees in lakh)	117.90	130.50	131.11	176.68	161.66
Sales ( Rupees in lakh)	724.47	1283.79	1215.86	2134.95	2326.21
Depreciation /preliminary expenses (Rupees in lakh)	65.72	60.53	55.63	58.09	47.43
Capital- GOI Grant (Rupees in lakh)	1274.94	1301.56	1320.79	1351.36	1382.08
Cost of production per MT (Rupees in lakh)	0.40	0.52	0.56	0.67	0.90
Net profit after adjustment (Rupees in lakh)				1.74	
Loss (Rupees. in lakh)	16.86	4.68	74.44		5.95
Export incentive (Rupees in lakh)	1.68	-	-	-	-