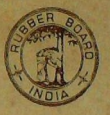
ANNUAL REPORT OF THE RUBBER BOARD FOR THE YEAR 1988-'89



THE RUBBER BOARD
[GOVT. OF INDIA, MINISTRY OF COMMERCE]
KOTTAYAM—686 001
KERALA STATE

ANNUAL REPORT OF THE RUBBER BOARD FOR THE YEAR 1988-'89

THE RUBBER BOARD
(GOVT. OF INDIA, MINISTRY OF COMMERCE)
KOTTAYAM—686 001
KERALA STATE

THE RUBBER BOARD

Annual Report on the activities for the year 1988-89

.....II

.....III

vNs

ANNUAL REPORT ON THE WORKING OF THE RUBBER BOARD FOR 1988/1989.

PART I- INTRODUCTION

This is the annual report of the Rubber Board on its working for the year 1988/89 and contains a summary of the activities from Ist April 1988 to 31st March 1989.

As a strategic raw material with thousands of industrial uses rubber plays an important role in the industrial and economic development of the country. Rubber cultivation was introduced to our country as a large estate sector crop during the first decade of this century. Smallholdings made their appearance later. The Rubber Board was set up in 1947 under the Rubber Act, 1947. The Rubber Research Institute of India was set up in 1955 under the Rubber Board.

In selection of planting materials, soil conservation measures, plant protection techniques, crop harvesting, etc. India had to evolve suitable location specific package of practices. With sustained research and development activities coupled with extension and advisory back-up for transfer of technologies evolved in the laboratories to the planters' fields, a quick changeover from traditional methods to modern cultural practicesand technology was effected. India soon established its rightful place among the natural rubber producing countries and is now the fourth largest producer of natural rubber in the world, after Malaysia, Indonesia and Thailand.

In developing high yielding planting materials also our country's contribution are significant. The Indian clone RRII 105 with yield potential of about 2500 kg per hectare a year, can stand comparison to any modern clone in the world. More promising varieties in the RRII 200 and 300 series are in the pipeline, undergoing evaluation trials.

Growing the crop with leguminous ground cover, application of fertilisers after soil and leaf analysis, crop exploitation with yield stimulation, processing technically specified rubbers that offer process advantage and energy saving to the manufacturer, consumption research to improve the technological properties of rubber etc are some of the major thrust areas receiving attention.

As the country accelerates its pace of industrial development demand for rubber registers a corresponding increase. It is estimated that India would require about 6 lakh tonnes of natural rubber by 2000 AD. A two-pronged strategy is adopted to meet this demand by indegenous production, increasing the area under rubber and improving production from existing plantations.

Natural rubber industry performed well during 1988/89, production increased to 259172 tonnes from 235,197 tonnes in 1987/88, registering 10.2 per cent growth. The growth in consumption was also impressive 313,830 tonnes in 1988/89 as against 287,480 tonnes in the previous year, recording a growth of 9.2 per cent. In order to meet the gap between demand and supply, 59835 tonnes of NR was imported, including 8468 tonnes under the export incentive scheme.

The activities undertaken for development of the natural rubber industry consisted of implementation of schemes for -

(a) promotion of newplanting and replanting of rubber,

(b) production and distribution of high yielding planting materials,

(c) improving production and crop processing through extension services, training, demonstration, supply of inputs, etc.

Promotion of newplanting and replanting was mainly carried out through implementing an integrated scheme called the Rubber Plantation Development Scheme. This scheme offers financial assistance and free technical assistance. Cash subsidy at Rs.5,000 per hectare is granted for new planting/replanting rubber by growers owing upto 5 hectares of rubber in traditional areas and by all categories of growers in the non-traditional areas. Input subsidy in the form of reimbursement of the cost of high yielding planting materials of advanced growth at Rs.6 per plant to all growers and interest subsidy at 3% on loans taken for meeting planting expenses under the agricultural refinance scheme of NABARD are also granted to rubber growers owning 5 ha. in traditional areas and to all growers in non-traditional areas.

In view of the limited scope for expansion of rubber cultivation in traditional areas, development of rubber plantations in selected non-traditional tracts is undertaken in the North-Eastern States, Orissa, Goa, Maharashtra, Andaman & Nicobar Islands, etc. To effectively propagate rubber in these new areas special awareness campaigns were conducted and nurseries for generating sufficient seedlings and planting materials were set up. The extent planted in non-traditional areas during the year increased to 6600 ha. as against 5500 ha. in 1987-88.

2. Rubber Prices.

The rubber market remained without much fluctuations during 1988/89. The monthly average prices for RMA 4 grade rubber is given below.

Monthly average price of RMA-4 per quintal

		Rs.
1988	April	1762
	May	1776
	June	1786
	July	1828
	August	1894
	September	1904
	October	1902
	November	1792
	December	1757
1989	January	1755
	February	1789
	March	1834
1988-89	Average	1815

.....3/-

3. Expenditure :

The total expenditure during 1988/89 was Rs.2327.33 lakhs; Rs.1617.92 lakhs under Plan and Rs.709.41 lakhs under non-Plan. The funds received from the Government amounted to Rs.2186.90 lakhs. The entire amount allotted under Plan Schemes, including Rs.1.89 crores sanctioned in March 1989, was utilised. An amount of Rs.1267.00 lakhs was collected towards excise duty on rubber. The physical and financial performance under the VII Five Year Plan in general and the reporting year in particular were impressive. Even by the end of the 4th year of the Plan, the physical target for planting during the entire 5 year period has been exceeded by 30%. The utilisation of the outlay exceeded by 8% of the total outlay for the five year period .

4. International developments.

World production of natural rubber during 1988 increased to 5010 thousand tonnes from 4775 thousand tonnes in 1987 recording a growth rate of 4.9 per cent. The consumption of rubber improved to 5130 thousand tonnes from 4810 thousand tonnes registering an increase of 6.7 per cent. Consumption during the year exceeded production by 120 thousand tonnes. The international price of rubber had recorded a steep increase from January to June, 1988. The price in Kuala Lumpur in June reached the highest level since Second World War. The average price of RSS-3 grade which was M$ 272.2 (Rs.1399/-) per quintal in January went upto M$ 368.3 (Rs.1948) in June 1988. Since June the price recorded a downward trend. The market remained almost steady during the third quarter. The average price in 1988 was M$ 301.2 (Rs.1599/-) as against M$ 235.8 (Rs.1215/-) in 1987. The increase in price was mainly due to the spurt in demand for latex in line with the rising production of examination and surgical gloves and condoms in the context of the spread of AIDS. The other factors were increased demand over production, declining values of US $ relating to other major currencies and increase in speculative and hedging activities. The decline in the price in the second half of the year was mainly due to the improved production and INRO buffer stock sales. The new International Natural Rubber Agreement (INRA) came into force provisionally at the end of 1988 when the required 75 per cent ratification from the exporting and importing countries were met.

The 13th Assembly of the Association of Natural Rubber Producing Countries (ANRPC) was held in Bangalore on 16th and 17th August, 1988. Prior to the Assembly, committees of the ANRPC met from 8th to 13th. The Assembly was inaugurated by His Excellency the Governor of Karnataka, Sri P Venkata Subbiah on 16th morning. Sri Priyaranjan Dasmunsi, Hon'ble Minister of State for Commerce addressed the gathering at the closing session of 17th evening. Altogether 27 foreign nationals consisting of 20 delegates from member countries namely Malaysia, Indonesia, Thailand, Singapore and Sri Lanka, two observers and 5 officials from ANRPC participated in the Assembly and connected meetings. The Assembly considered various subjects like progress of multi-lateral clone exchange trials, trade and marketing of NR, improvement of statistics, and progress and development in the International Natural

Rubber Agreement. The Assembly approved the project study entitled "Establishment of rubber based manufacturing industries in the ANRPC member countries" with a grant of US $ 240,000 from Asian Development Bank". During the meeting it was also decided to seek technical and financial assistance from FAO to undertake a project on training on SALB and other diseases of rubber. Sri PC Cyriac, Chairman, Rubber Board of India was elected as Chairman of the Assembly, which is the supreme body of the ANRPC, for 1988-89.

The Fourth meeting of the Working Group on 'Improvement of natural rubber statistics' was held in Cochin from 4th to 6th May, 1988. The Working Group was constituted by ANRPC with a view to improve the collection and compilation of statistics in member countries and to standardise the concepts and definitions of various NR statistical terms in member countries. 7 foreign delegates from member countries and 3 ANRPC officials participated in the meeting.

-.-.-.-.-.-.-

pvk/-

PART II - CONSTITUTION AND FUNCTIONS

1. Introduction

The Indian Rubber Board was constituted under the Rubber (Promotion and Marketing) Act, 1947 which came into force on 19 April 1947, 'to promote by such measures as it thinks fit the development of the rubber industry in India; The Rubber Production and Marketing(Amendment) Act of 1954 made certain changes in the constitution of the Board and its name was changed as Rubber Board. This Act came into force on 1st August, 1955. The Rubber Act was further amended by the Rubber (Amendment) Act, 1960 and by the Rubber (Amendment) Act, 1982. This last amendment was made by the Government to appoint a part time/whole time Chairman for the Board and an Executive Director on whole time basis (if considered necessary).

2. Constitution.

The Rubber Board is attached to the Ministry of Commerce of the Government of India. The Board has at present a full time Chairman as principal executive officer responsible for implementation of the decisions at the meetingsof the Board and discharge of the duties under the Rubber Act. There are 25 other members consisting of -

i) two members to represent the State of Tamilnadu one of whom shall be a person representing rubber producing interests;

ii) eight members to represent the State of Kerala, six of whom shall be representing the rubber producing interests, three of such being persons representing the small growers;

iii) ten members to be nominated by the Central Government, of whom two shall represent the manufacturers and four labour;

iv) three members of Parliament of whom two shall be elected by the Lok Sabha and one by the Rajya Sabha;

v) the Executive Director (ex-officio); and

vi) the Rubber Production Commissioner (ex-officio).

The position of Executive Director has not been created so far.

List of the members as on 31-3-1989 is given at the end of this report.

One of the members is elected as Vice Chairman. Sub Committees are formed to examine various proposals and affairs affecting the rubber industry and make recommendations to the Board. Seven such Committees, viz., Executive Committee, Research and Development Committee, Planting Committee, Statistics & Import/Export Committee, Market Development Committee, Labour Welfare Committee and Staff Affairs Committee were constituted.

Sri PC Cyriac, IAS continued to be the Chairman of the Board.

Sri MK Vidyadharan, member representing small rubber growers continued as Vice Chairman.

.....6/-

8. Functions

The functions of the Board according to clause 8 of the Rubber Act are -

1) Promote by such measures as it thinks fit the development of the rubber industry. The measures may provide for -

(a) Undertaking, assisting or encouraging scientific, technological and economic research.

(b) training students in improved methods of planting, cultivation, manuring and spraying;

(c) supply of technical advice to rubber growers;

(d) improving the marketing of rubber;

(e) collection of statistics from owners of estates, dealers and manufacturers;

(f) securing better working conditions and the provisions and improvement of amenities and incentives for workers, and

(g) carrying out any other duties which may be vested in the Board.

2) It shall also the duty of the Board -

(a) to advise the Central Government on all matters relating to the development of the rubber industry, including the import and export of rubber;

(b) to advise the Central Government which regard to participation of any international conference or scheme relating to rubber;

(c) to submit to the Central Government and such other authorities as may be prescribed, half yearly reports on its activities and the working of this Act; and

(d) to prepare and furnish such other reports relati to the rubber industry as may be required by the Central Government from time to time.

4. Meetings of the Board and its Committees.

The following meetings of the Board and the Committees were held during the year.

(a) Board meetings - on 2 occasions; 5.10.1988 and 28.3.1989.

(b) Committee meetings -

The Executive Committee met four times, the Staff Affairs Committee thrice, the Statistics & Import/Export Committee, the Labour Welfare Committee, the Market Development Committee and the Planting Committee twice each and the Research and Development Committee once.

5. Organisational set up.

The activities of the Board are carried out by six Departments, viz., Administration, Rubber Production, Rubber Research, Rubber Processing, Finance & Accounts and the

....7/-

Department of Training; headed respectively by the Secretary, the Rubber Production Commissioner, the Director of Research, the Project Officer, the Financial Adviser and the Joint Director.

The headquarters of the Board, along with the Administration, Rubber Production and Finance and Accounts Departments are located at the Kottayam Public Library building, Sastri Road, Kottayam -1. There are eight Sub/Liaison Offices under the Administration Department, functioning at important rubber consuming centres in the country. The Rubber production Department has 26 Regional Offices, 125 field offices, 20 Regional Nurseries and 11 Tappers Training Schools located at different rubber growing regions. The Rubber Research cum Development Station in South Andamans, the Zonal Offices at Bhubaneswar and Guwahati and the Nucleus Rubber Estate cum Training Centre at Agartala also come under the Department of Rubber Production.

The Research Department, the Department of Rubber Processing and the Department of Training function in the Board's own buildings at Kottayam -9. The Research Department runs two Regional Experiment Stations in Kerala, one each in Tripura, Maharashtra (Dapchari), Assam, Meghalaya, Mizoram and Orissa. The Pilot Crumb Rubber Factory located at Kottayam is run by the Department of Rubber Processing.

The Chairman exercises administrative control over all departments and offices. The total officers and staff under the Board as on 31-3-1989 was 1715. Very cordial relations existed between the staff and the management. The good work turned out by them as a whole has resulted in the impressive record of achievement during the year.

The activities of the different departments are summarised in the following pages.

-.-.-.-.-.-

pvk/-

PART III - RUBBER PRODUCTION DEPARTMENT

Functions and Organisational set up.

Registration of rubber estates, formulation and implementation of various long term and short term schemes for the development and modernisation of rubber plantations, planning and undertaking advisory and extension services and supplies (for all categories of rubber growers), production, procurement and distribution of high yielding planting materials and other inputs, imparting training on tapping and production of raw rubber and identification of suitable areas for expansion and accelerated development of rubber cultivation in non-traditional areas formed the major functions of the Rubber Production Department.

The Rubber Production Commissioner exercised overall control and supervision of the department. He is assisted by four Jt.Rubber Production Commissioners and eight Dy.Rubber Production Commissioners and a complement of other officers and staff.

The field activitiesof the department are managed through 30 Regional Offices which are grouped under four zones, i.e. South zone and north zone in South West India, Eastern Zone and North-Eastern Zone. Under the Regional Offices, there are 125 Field Offices, 21 Regional Nurseries and 25 Rubber Tappers' Training Schools.

Control and supervision of activities at the Zonal level are exercised by Dy.Rubber Production Commissioners excepting in the North-East zone which is under a Jt.Rubber Production Commissioner. A NRETC each is functioning in Tripura and Andamans. The NRETC, Tripura is headed by a Project Director (Jt.Rubber Production Commissioner) and the NRETC in Andamans (earlier the RRDS) is manned by an Estate Manager (Dy.Rubber Production Commissioner). A Central Nursery was continued to be maintained in Kerala. The Rubber Production Department's activities were organised under 2 wings at the Central Office level, viz., Development and Extension, each co-ordinated by a Jt.Rubber Production Commissioner.

Activities of the Development Wing.

1. Registration of estates.

It is laid down in the Rubber Act that all rubber estates in the country shall be registered with the Board.

A total of 12613 rubber plantation units were newly registered covering 6954.34 ha. Area removed from records by cancellation of registration was 1,303.43 ha. The total area progressively registered as on 31-3-1989 was 298,315.13 ha. covered under a total number of 234,133 units.

The Board at its 110th meeting held on 8-3-88 decided to do away with the system of licensing newplanting/replanting with effect from 1/4/88, pending amendment of the Rubber Act and the Rubber Rules. This decision was taken in view of the finding by the Internal Work Study Unit of the Commerce Ministry that the system does not serve any useful purpose at present.

....9/-

2. Replanting subsidy scheme.

The Replanting Subsidy Scheme aimed at rehabilitation of old and uneconomic rubber plantations with high yielding varieties in order to increase the supply of natural rubber in the country was introduced as early as 1957. This was the first important development scheme implemented. It underwent many modifications from time to time. The scheme provided assistance for replanting on a slab rate based on the size of the plantation.

Initially, the replanting subsidy ranged from Rs.250/- to Rs.400/- per acre. The rate was revised to Rs.1,000/- per acre (Rs.2,471/- per hectare) from 1960. Until 1972, subsidy was granted for replanting areas planted prior to 1956 and registered with the Board in April 1958 or earlier. The rule was later relaxed to bring under replanting all uneconomic areas planted upto 1962 and registered with the Board. From 1975 to 1979, subsidy was paid under 3 slabs (per ha. Rs.7,500/-) for growers owning upto 2 ha. of rubber, Rs.5000/- to those having rubber between 2 and 20 ha and Rs.3,000/- to those having above 20 ha. of rubber. The subsidy was paid in 7 annual instalments.

The instalments of subsidy due in 1975 and in subsequent years for replanting carried out from 1969 to 1974 were also paid at the revised rates. With the introduction of the RPD Scheme in 1980-81 which aimed at promotion of replanting and newplanting in an integrated manner, the RP Subsidy Scheme ceased to operate except for effecting spill over payments.

As at the close of March 1989, subsidy amounting to Rs.192,525,577/- was granted for replanting a total area of 53,605 ha. under 34,822 permits. During the year under report, the spill over payment made for earlier instalments amounted to Rs.3,92,952/-.

Apart from payment of cash subsidy, the scheme provided for additional assistance to small growers owning less than 6.07 ha. of rubber to use high yielding planting materials and for fertilisers and soil conservation work. Since the inception of the scheme, the following amounts had been disbursed as additional assistance till 31-3-1989:

1.	Half cost of fertiliser mixture supplied.	.. Rs.21,625,796.30
2.	Reimbursement of cost of planting materials.	.. Rs. 1,961,253.80
3.	Assistance for soil conservation work.	.. Rs. 131,326.00

3. Loan Scheme.

In addition to assistance for replanting, loan schemes were operated for expansion of area under small holdings and also for maintenance. The Newplanting Loan Scheme and Upkeep Loan Scheme were first introduced in 1962 and 1963 respectively, providing loan assistance at the rate of Rs.750/- per acre for expansion of small holdings to economic units of the size 5 to 15 acres (2 to 6 ha.) by newplanting, and a maximum of Rs.475/- per acre to immature small plantings of 15 acres (6 ha.) and below for doing maintenance operations until the bearing stage. Both the loans were interest free.

From the inception of the scheme a total amount of Rs.734,038.91 was disbursed to newplant 439.01 ha. against which Rs.792,986.27 was received on repayment of loan with interest. The amount disbursed under the Upkeep Loan Scheme was Rs.262,560.14 to maintain 304.73 ha. and the amount received back was Rs.267,982.67.

In replacement of these two Loan Schemes a Revised Loan Scheme was introduced in 1966, which provided for higher rates of loan for expansion of holdings to a minimum of 2.00 and a maximum of 20.23 ha. and for maintenance of immature area in small holdings. The scale of assistance was Rs.3,460/- per ha. for newplanting and at a maximum of Rs.2,200/- per ha. for maintenance over 6 years. An interest of 5% per annum was charged under this scheme from the 10th year of planting.

The loanees had to mortgage the rubber areas to the Board as security. Payments were effected in yearly instalments, after completion of the respective items of work. Repayment became due from the 10th year of planting.

The Revised Loan Scheme was discontinued after 1978 when the successor Rubber Newplanting Subsidy Scheme, 1979, was put into operation. A cumulative amount of Rs.74,71,082.11 was disbursed as loan to benefit 849 small growers to cover 3,113.38 ha. The amount refunded by loanees with interest amounted to Rs.88,02,713.44.

Loan permit holders possessing not more than 6.00 ha. of rubber were also eligible for additional assistance on reimbursement of cost of planting materials and half cost of fertiliser mixtures. Total amount thus disbursed was Rs.56,101.64 and Rs.508,935.60 respectively.

During the period an amount of Rs.323/- was received back under Upkeep Loan Scheme and Rs.1,22,011.56 under the Revised Loan Scheme. The loan accounts under 16 Revised Loan Scheme permits were closed. Now there are 72 cases under Revised Loan Scheme and 2 cases under Upkeep Loan Scheme wherein repayments are not complete. Majority are under legal proceedings for recovery of the amounts due.

4. Rubber Newplanting Subsidy Scheme, 1979.

Rubber Newplanting Subsidy Scheme, 1979 was sanctioned by the Government in January, 1980 as a new measure to encourage newplanting on par with replanting. This was a credit linked scheme. Newplantation under the scheme was in 6550 ha. excelling the target of 4000 ha. The following were the incentives offered under the scheme.

(1) Capital subsidy at Rs.7500/- per ha. for growers owning upto 2.00 ha. of rubber and Rs.5,000/- per ha. for growers owning above 2.00 ha. and upto 20.23 ha. of rubber. The amount was paid in 7 annual instalments after completion of the items of works stipulated for each year.

(2) Input subsidies were also given to growers whose total rubber area did not exceed 6.00 ha. These comprised of reimbursement of cost of approved planting materials, 50% cost of fertilizers and a subsidy for carrying out soil conservation work.

.....11/-

(3) Interest subsidy at the rate of 3% for long term loans availed of from banks to supplement the subsidy.

(4) Advisory and extension support at all stages of planting, maintenance, tapping and processing of crop, free of cost.

Though 34,350 applications were received for subsidy actual planting was done only in 17,131 cases. Subsidy amounting to Rs.455.04 lakhs had been sanctioned under the scheme. The amount of spill over instalments of subsidy sanctioned on pending cases from 1-4-1988 to 31-3-1989 was Rs.5.54 lakhs.

According to information available, banks have sanctioned loans in favour of 907 permit holders to the order of approximately Rs.96.28 lakhs.

5. Rubber Plantation Development Scheme Phase I.

This Scheme aimed at integrated promotion of new-planting and replanting of rubber to successfully make India self-reliant in natural rubber. This replaced all the earlier planting subsidy schemes. The target set out was 12,000 ha. per year for 5 years, 1980-81 to 1984-85.

The following incentives were offered for both replanting and newplanting of rubber.

(1) Capital subsidy @ Rs.5,000/- per ha. to growers owning upto 20 ha. including any area planted under the scheme and Rs.3,000/- per ha. to growers owning more than 20 ha.

(2) Input subsidies to the weaker sections of growers possessing not more than 6 ha. of rubber for using approved planting materials and approved fertilisers and a subsidy of Rs.150/- per ha. for undertaking soil conservation work.

(3) The beneficiaries could avail of long term agriculture credit of NABARD to supplement the assistance . The maximum credit per ha. was limited to Rs.15,020/-, Rs.17,000/- and Rs.18,700/- respectively for growers owning upto 6 ha. of rubber, above 6 ha. and upto 20 ha. of rubber and above 20 ha. of rubber. The loan advanced in 7 annual instalments is repayable in 5 instalments from the 10th to the 14th year of planting. The interest accrued upto the 7th year is payable during the 8th and 9th years. During repayment only current interest becomes payable.

(4) The rate of interest is 12½%. The Board subsidises 3% interest to all categories of growers subject to limitations laid down on the quantum and mode of availing such loans.

(5) Free advisory and extension support at all stages of planting and maintenance.

The cumulative progress of the scheme as on 31-3-1989 is summarised below:

.....12/-

	Years to which applications relate					
	1980	1981	1982	1983	1984	Total
No. of subsidy permits issued.	17517	19078	18810	21089	24421	1009
Area covered by permits (in ha.)	12090	13494	13014	15300	17107	71
No. of cases rejected.	9174	9535	9443	9305	10166	476
No. of cases pending final disposal.	2	9	84	310	847	12

During the year an amount of Rs.301.51 lakhs was disbursed as subsidy. The total disbursements of subsidies since the inception of the scheme came to Rs.3569.84 lakhs as on 31-3-1989.

The NABARD has made financing arrangements for grant of loans through 18 selected commercial and co-operative banks. According to information received, 14 banks have sanctioned loan to the order of Rs.465.61 lakhs. The instalments of loan already disbursed amounted to Rs.119.75 lakhs. The beneficiaries number around 3401 with an area coverage of approximately 3936 ha.

6. Rubber Plantation Development Scheme Phase II.

The RPD Scheme Phase II is being implemented from 1985 onwards. As against the target of 60,000 ha. set out for newplanting and replanting under Phase I Scheme, the target under Phase II scheme is only 40,000 ha. in view of resource constraints.

The assistance offered under Phase II scheme are the following.

(1) Capital subsidy at the rate of Rs.5,000/- per ha. for growers owning upto 5 ha. of rubber in traditional areas and for all categories in the non-traditional areas.

(2) Input subsidy for the use of high yielding planting materials of advanced growth (poly-bagged plants) at the rate of Rs.6/- per plant subject to a maximum of 450 plants per hectare. Growers in the traditional region having more than 5 ha. of rubber and carrying out planting under the scheme are also eligible to receive this assistance.

(3) The beneficiaries could avail of bank loans under the agricultural refinance scheme of NABARD. The loans will be advanced in 7 annual instalments, repayable in 5 annual instalments from the 10th year of planting with a moratorium on payment of interest till the 7th year. The interest accrued upto the close of the 7th year is payable during the 8th and 9th year. During the repayment of loan, only the current interest becomes payable.

(4) The normal rate of interest for the loan is 12½% per annum. The Board subsidises 3% of the interest from the first to the 9th year to those eligible for the capital subsidy.

.....13/-

(5) Free advisory and extension support at all stages of planting, maintenance, tapping and processing of the crop.

The following is a summary of the progress of the scheme:

	Years to which the applications relate				
	1985	1986	1987	1988	Total
Total no. of applications received.	30912	27417	26616	26126	111071
No. of cases in which planting has materialised.	30888	27359	26613	26037	110097
No. inspected in the field.	30139	26629	25155	21143	103066
Balance pending for inspection.	749	730	1458	4894	7831
Permits issued.	21041	10309	17032	12053	60435
No. rejected/ withdrawn.	7211	5368	4163	2189	10931
Area covered by permits (ha).	14167	12781	12812	9431	49211
Applications pending disposal.	2636	3689	5410	11790	23533

According to information obtained from banks, an amount of Rs.52.47 lakhs has been sanctioned as loan for the period upto 31-3-1989of which Rs.20.33 lakhs has already been disbursed to 202 beneficiaries involving an area of 209.92 ha.

7. Insurance for rubber plantations.

Insurance of rubber plantations against natural calamities has been got introduced through M/S National Insurance Co. Ltd., a subsidiary of the public sector General Insurance Corporation of India. In the first instance, they have started giving cover to the 1988 planting carried out under the Rubber Plantation Development Scheme. In December, 1988, the Board took a Master Policy costing Rs.5 lakhs for covering a total area of 1000 ha. of 1988 plantation, at a premium of Rs.500/- per hectare to cover the whole immaturity period of 7 years. The Board issues individual policies to the growers and the premium are recovered from them. The field services for the issue of individual policies and investigation of claims is undertaken by the Board.

The insurance scheme had achieved a fair coverage of area and acceptance from the growers. As at the end of the year individual policies worth Rs.4.50 lakhs were issued.

The Insurance company is examining proposal for extending the insurance cover to immature areas of all ages and the mature areas.

.....14/-

8. Activities of the Extension Wing.

The Extension Wing consisting of 2 Divisions; viz., Extension Service & Supplies Division and Planting Materials Division attended to the following items of work.

1. Rendering technical assistance and advice to rubber growers at all stages of planting, upkeep, production, processing, etc.
2. Conduct seminar and study classes and group discussion on rubber cultivation, production and methods of processing.
3. Demonstration of scientific methods of tapping in small holdings and impart training to tappers.
4. Extension activities for the development of rubber cultivation in non-traditional areas.
5. Procurement and distribution of Pueraria seeds for establishment of ground cover.
6. Implementation of the scheme to supply low volume power operated sprayer to Rubber Producers' Societies/co-operative societies and individuals at subsidised rates.
7. Implementation of the scheme to grant financial assistance to small rubber growers for purchase of hand operated sheeting rollers.
8. Assistance to small rubber growers for purchase of bee-hives.
9. Financial assistance to small rubber growers for construction of small smoke house.
10. Financial assistance for irrigation in rubber plantations.
11. Assistance for fencing in non-traditional areas.
12. Distribution of planting materials including supplies to non-traditional areas.
13. Maintenance of one central nursery and seven regional nurseries in traditional areas and twelve regional nurseries in non-traditional areas.
14. Procurement and supply of brown budded stumps and polythene bags to non-traditional areas under PD Scheme Phase II & Special Component Plan/Tribal Sub Plan to SC/ST rubber growers.

1. Technical assistance and advice.

During the period technical officers visited rubber holdings for imparting advice on scientific methods of rubber cultivation, production and processing.

.....15/-

2. Seminars, study classes and group discussions on rubber cultivation, production and processing.

The details of visits by officers are furnished below:-

Designation of Officers	No. of units visited
Jr.Field Officers	1,13,596
Field Officers	46,709
Asst.Development Officers.	3,350
Development Officers	1,540
	1,65,195

Out of these 4278 visits were exclusively for advisory work. A total of 1194 seminars were conducted in which 43,226 growers actively participated. Further, 97 leading discussions/radio talks on various aspects of rubber cultivation were conducted.

3. Demonstration of scientific tapping to small holdings/ training to tappers.

The Rubber Tapping Demonstrators visited 7251 small holdings to demonstrate scientific methods of tapping and crop processing. Further, 1366 tappers training camps of one week duration were conducted in small holdings and practical training was imparted to 9277 growers/tappers. Twenty T.T.Schools were functioning in the traditional area and 1 in non-traditional area (Agartala). In all 1570 tappers were trained in 88 batches.

4. Extension activities for the development of rubber cultivation in non-traditional areas.

Promotion of rubber cultivation in the non-traditional areas where agro-climatic conditions are found to be suitable was continued through advisory visits, training of growers, group discussions, motivation of new entrepreneurs, etc. The services of one R.T.D. was made available to the Tripura Forest & Plantation Development Corporation Ltd., Agartala for imparting training in scientific methods of tapping and processing.

5. Procurement and distribution of seeds of Pueraria (leguminous ground cover)

Under the scheme to procure leguminous cover crop seeds from the private estates and distribute to small growers at concessional rates. 8.5 MT of cover crop seeds could be procured and distributed.

6. Scheme for supply of low volume power operated sprayers/dusters to co-operative societies, associations and individual small growers at subsidised rates.

Under the scheme to popularise use of low volume power operated sprayers/dusters among small growers for control of leaf diseases 45 low volume sprayers/dusters were supplied and Rs.2,66,212/- was disbursed as subsidy. The rate of subsidy was 50% limited to Rs.7,050/- per sprayer-cum-duster and @ Rs.4,920/- for institutions and 25% for individuals.

....16/-

7. Financial assistance to small growers for purchase of rubber sheeting rollers.

To improve quality of processed raw rubber, small holdings were extended financial assistance for purchase of rubber sheeting rollers of standard specification offering subsidy limited to Rs.1,500/- per set. A total amount of Rs.9,97,125/- was granted as subsidy for purchase of 665 rollers.

8. Financial assistance for bee-keeping.

Rubber plantation is a good source of honey during the refoliation period and offers immense potential for bee-keeping. Honey extraction generates additional income to small growers. This is an added incentive to take up rubber plantation. In order to popularise this concept, a scheme was operated to grant financial assistance limited to 70% and 90% of the unit cost of Rs.1,750/- to growers in general category and SC/ST growers respectively. During the period 738 growers have availed of the benefit. The subsidy paid amounted to Rs.7,93,190.90.

9. Financial assistance to small rubber growers for construction of small smoke houses.

In order to pursuade and help the small rubber growers to adopt better processing and curing technique, implemented a scheme offering financial assistance in the form of 50% subsidy for construction of small smoke houses limited to Rs.4,000/- per unit. During the period, assisted construction of 250 smoke houses with subsidy of Rs.9,94,000/-

10. Financial assistance for irrigation in rubber plantations.

Irrigation has been found beneficial for satisfactory establishment and growth of young plants in the field, reduction of immaturity period, increase in yield and quick renewal of tapped bark. But the infrastructure for irrigation is highly capital intensive. In order to motivate and promote irrigation, implemented a scheme for giving financial assistance against capital investment in establishing proper irrigation facilities. The rate of capital subsidy was Rs.2,500/- per ha limited to Rs.7,500/- in traditional areas and Rs.50,000/- in non-traditional areas per grower.

The scheme evoked tremendous response. Subsidy amounting to Rs.9.90 lakhs had been disbursed to 449 rubber growers in the traditional area and Rs.897,250/- in the non-traditional area benefitting 136 growers.

11. Assistance for fencing in North-Eastern States.

One of the major constraints in the expansion of rubber cultivation in non-traditional areas is the difficulty in getting established young rubber plants in the field in the early years due to the menace from wandering cattle and trespassers. An effective remedy to this is giving proper boundary protection to the plantation. But due to heavy capital expendfture for permanent fencing small and marginal farmers do not come forward to make adequate investment on this

....17/-

Therefore, to motivate and assist them, implemented two schemes offering financial assistance, one for the growers in the general category and the other in the SC/ST categories, the subsidy for whom was at a higher rate for barbed wire fencing and other standard pattern of boundary protection in non-traditional areas.

During the period under report growers belonging to SC/ST categories availed of a total subsidy of Rs.860,000/-. An amount of Rs.147,765.10 had been paid to 92 growers belonging to the general category.

12. Distribution of planting materials including supplies to non-traditional areas:

A total of 22.46 lakhs of budded stumps and 27,766 metres of budwood were distributed. These comprised of planting materials generated in our central/regional nurseries and purchases from private sources in Kerala and in the non-traditional region as detailed below:-

		Free of cost	At cost price	At concessional rate
1.	No. of green budded stumps.	46588	20665	158670
2.	No. of brown budded stumps.	1592190	20215	207383
3.	Budwood (in mtrs)	1000	15298	11468

There was great demand for rubber seeds to raise stock seedlings. The Board has procured 100.195 lakhs seeds from estates and local suppliers in Kanyakumari District. Of this 24.54 lakhs was utilised for Board's nurseries in traditional areas and the remaining 75.655 lakhs was supplied to non-traditional areas to meet the requirements of Board's nurseries as also of private nurseries on payment basis.

13. Board's nurseries.

The Central Nursery at Karikkattoor and all 7 Regional nurseries were continued to be maintained well during the period. The Regional Nursery, Neriamangalam was wound up as the land had to be handed over for public purpose. All the 12 Regional Nurseries in the non-traditional areas of the North Eastern States, Orissa, Andhra and Andamans were operated moderately well in spite of several physical constraints and disturbed conditions in the North East.

The total production of planting materials in Board's nurseries in traditional areas is as follows, during 88/89.

Green budded stumps	..	2,82,287
Brown budded stumps.	..	5,13,822
Budwood (metres)	..	22,276
Polybagged plants	..	3,509

In addition about 6 lakhs of budded stumps were produced in the nurseries in non-traditional areas.

.....18/-

The area utilisation in the nurseries had been as below:-

Name of nursery	Total extent (in ha.)	Region
-1. CN, Karikkattoor	20.23	Kottayam Dist.
-2. RN, Kadackamon	4.05	Punalur
-3. RN, Perumpulickal	4.00	Pathanamthitta
-4. RN, Kanhikulam	4.89	Palghat
-5. RN, Ulickal	5.20	Tellicherry
-6. RN, Manjeri	2.00	Nilambur
-7. RN, Peruvannamoozhy	3.60	Kozhikode
-8. RN, Alakode	3.42	Taliparamba
Total in Kerala	47.39	

The Board has maintained the following nurseries in non-traditional areas having extent of land as below:-

-1.	RN, Ranibaro	4.48	Orissa
-2.	" Devarappally	0.93	Andhra
-3.	" Mile Tilak	1.52	S. Andamans
-4.	" RRDS, Andamans	1.65	"
-5.	" Tesso Ajur	6.00	Diphu, Assam
-6.	" Derrangari	3.00	Guwahati, Assam
-7.	" Balacherra	4.50	Silchar, Assam
-8.	" Are-mile	5.00	Tura, Meghalaya
-9.	" Rangutia	5.27	Agartala, Tripura.
10.	" Jengithchakgiri	2.57	Tura, Meghalaya.
11.	" Madhura	0.65	Silchar, Assam
12.	" Mijungdisa	4.00	Diphu, Assam
	Total in non-traditional area.	39.57 ha.	

Action taken to wind up one regional nursery in NE Region and to locate new sites for setting up regional nurseries in potential centres.

14. Procurement and supply of budded stumps and polythene bags for raising polybag nurseries in non-traditional areas under Rubber Plantation Development Scheme Phase II and Special Component Plan/Tribal Sub Plan to SC/ST rubber growers:

Under the programme of accelerated development of rubber plantations in non-traditional areas procured high yielding planting materials from the traditional areas and transported to non-traditional areas by rail/road for raising polybagged plants. The polythene bags were arranged to be procured from approved firms in these States locally. During the period from 1-4-88 to 31-3-1989 a total quantity of 1,762,690 nos. of budded stumps could be despatched to non-traditional areas from Kerala as detailed below:

Zonal Office, Guwahati	..	16,12,440 Nos.
Zonal Office, Orissa	..	30,150 "
Regional Office, Goa	..	98,800 "
Andhra (Maredumilli)	..	21,300 "
		17,62,690 "

.....19/-

Including local procurements the following quantities of planting materials and polythene bags were distributed in non-traditional areas for raising polybagged plants for field planting in 1989.

	General category	SC/ST category
Planting materials	1,102,870	1,364,700
Polythene bags	1,155,060	2,135,782

9. Development of rubber plantation in non-traditional areas.

In view of the limitations of land along the south west coast where rubber has been traditionally grown in India, the Rubber Board has been progressively identifying suitable non-traditional areas for promoting development of rubber plantations. Such non-traditional areas where rubber cultivation has already established well or which are in the process of making significant progress are the following:

1. Coastal districts of Karnataka.
2. Goa.
3. Konkan region of Maharashtra.
4. East Godavari & Vishakapatnam Districts of Andhra Pradesh.
5. Coastal and adjoining districts of Orissa.
6. Bastar District of Madhya Pradesh.
7. North Eastern parts of West Bengal.
8. North Eastern States.
9. Andaman & Nicobar Islands.

Development establishments have been maintained in all these regions excepting Maharashtra, Madhya Pradesh, West Bengal, Manipur, Mizoram, Nagaland and Arunachal Pradesh, which were also being covered from the nearby development centres.

i. North Eastern Rubber Development Project.

The North Eastern Rubber Development Project (NERDS) for accelerated development of rubber plantations in NE Region has been under implementation from 1984-85. The project period is six years during which 24,000 hectares would be newly brought under rubber in two phases, at the rate of 3,000 hectares during the first three years and 5,000 ha. during the next three years. However, as the project was cleared late in 1984-85 and as the region posed many unforeseen problems such as poor infrastructural facilities, socio-political upheavals and insufficient supply of planting material expected from State Government owned nurseries, the progress during the first three years was not upto the level expected. Our set up in the North East could be strengthened only during 1985-86 with the establishment of a Zonal Office in Guwahati employing skeleton staff. Additional staff posting was also delayed as fresh recruitment after obtaining sanction and other processes had taken its own time. The actual planting in 84-85 was only 1,150 ha. and in 85-86 1,800 ha. Therefore, the progress was critically reviewed and the targets were revised taking into account

.....20/-

the realities and to achieve the original goal of 24,000 ha. by 1989. During 1986-87 the area planted was 3000 ha. during 1987-88 the achievement was 4560 ha. and during 88-89, 5645 ha. Thus, so far, 16,155 ha. have been planted. The goal during 89-90 is 8,000 ha. The overall physical target of planting 24,000 ha. laid out in the project will be achieved in full by the close of 89/90, despite several constraints such as natural calamities, disturbances and consequent disruption of communication lines, etc., which had very often upset the normal functioning in this remote region.

The development activities in NE Region are controlled and co-ordinated by the Zonal Office at Gauhati headed by a Joint Rubber Production Commissioner. Under the Zonal Office, 7 Regional Offices functioned at Gauhati, Silchar, Diphu & Jorhat in Assam State, Tura in Meghalaya State and at Agartala and Udaipur in Tripura State. The Regional Offices at Jorhat (Assam) and Udaipur (Tripura) have been newly set up during the year under report. In order to strengthen the extension net work, the Board had recruited 7 more Junior Field Officers. Even then, the total number of base level extension officers numbering 33 are quite inadequate considering the total backwardness of the region and magnitude of the challanges. A number of campaigns for motivation and training of small growers were held in all potential centres in various States besides undertaking on the spot advisory visits to small holdings. Teams of selected small farmers from Assam and Meghalaya were taken to Kerala for study tours and to familiarise them with the improved methods of rubber cultivation and also the working of related agencies like co-operative Marketing Societies and voluntary organisations. Also, monthly news letters in Assamese and Bengali languages were continued to be published for the benefit of small growers and new entrepreneurs.

The development schemes of the Board were well availed of by the planting community in NE Region. Under the RPD Scheme an amount of 65 lakhs had been disbursed as cash subsidy. A special scheme for assisting boundary protection was implemented and assistance granted to the order of Rs.10 lakh the bulk being paid to the weaker sections. The Zonal Office had distributed nearly 39 lakhs of polythene bags and 22 lakhs of budded stumps for raising polybag plants to achieve the planting targets during 89/90. An amount of Rs.20 lakhs was paid as maintenance grant for polybag nurseries. Despatch of budded stumps from Kerala and local procurement of plants from private nurseries in the region have been continued. Since supply of planting materials at close quarters was experienced as one of the major hurdles for expansion of cultivation the Board adopted a policy to attempt to produce locally planting materials on a large scale. Accordingly, action was taken to extend the areas of the existing 7 rubber nurseries including a new nursery opened in 88/89 at Mijundisha in the tribal district of Karbi Anglong, Assam. Also, preliminary arrangements were finalisedto set up another new nursery at Kaline, Silchar (Assam) to be planted during 89/90. It was also decided to encourage setting up of private nurseries by local entrepreneurs.

As a result of concerted efforts, rubber plantation development has gained good momentum in the NE Region especially among the weaker sections of the community. The situation is well poised for faster development inspite of certain

.....21/-

unhealthy trends and local disturbances. An ambitious target of expansion of cultivation in 75,000 ha. have been tentatively set for the VIII Plan for NE Region.

One of the components of the Project for Accelerated Development of Rubber Plantations in NE Region (NERDS) is the setting up of a Nucleus Rubber Estate & Training Centre (NRETC). The project envisages establishment of a 1000 ha. plantation in Tripura State for the purpose of demonstration and training of small farmers, skilled workers, field supervisory personnel of estates, etc. Eventhough the project was launched in 1985, the progress has not been quite satisfactory owing to long uncertainities in the matter of land allotment from the Govt. of Tripura. Against 1000 ha. originally earmarked for the Project, the Govt. of Tripura had actually handed over only 120 ha. to the Board so far. Several rounds of meetings and follow up action at the highest level were held. But owing to claims from the tribal community the lands allotted to the Board had to be shifted and the final decision from the Govt. is still awaited.

The small area handed over to the Board at Surendranagar (120 ha.) had been planted up in 1987 and 1988 and well maintained. The project is also running 2 nurseries in Surendranagar and Tulakona for production of high yielding planting materials. In Surendranagar nursery a total number of 50,423 numbers of polybag plants have been raised and 32,954 budded stumps successfully produced during the year. Tulakona nursery produced 55,000 numbers of budded stumps and 5462 metres of budwood.

A special training programme was organised for small growers and 46 local small farmers were given practical training and theoretical coaching in improved methods of planting, upkeep and production. A tappers' training programme also was conducted by NRETC and 27 tappers from Tripura underwent training. As part of the training package for small growers, 14 representatives of the tribal communities were taken to Kerala for a study tour at Board's expense.

Construction of a semi permanent office cum store was undertaken in Surendranagar farm and it has reached roof level. The NBCC was entrusted with the work of providing barbed wire fencing to Surendranagar farm. All arrangements to start a Tappers' Training School on a regular basis to impart training for the tappers of the TFDPC Ltd. as also to small growers/tappers from small holdings were finalised.

The progress of the project is held up owing to problems relating to land allotment. The issues have been taken up with the State Government for solution on an emergency footing. It is expected that a firm and final decision in the matter will be taken by the Govt. soon, in order to enable the Board to overcome the initial hurdles and go ahead with the project.

ii) Nucleus Rubber Estate and Training Centre in Andamans & Nicobar Islands.

The Board is maintaining Rubber Research Cum Development Station having an extent of 202.55 ha. in South Andamans which comprises of plantations raised during the period 1965 to 1968. The extent of plantation now under regular tapping is 191.55 ha., rest of the area being occupied by buildings, road and a small nursery. This station

was originally started as a pilot project for promoting rubber plantation in the whole A&N Islands and for rehabilitation of repatriates from Burma and Sri Lanka. The Board took over the project from the Ministry of Rehabilitation in 1975 for running it as a demonstration plot. Considering the vast scope for expansion of rubber cultivation in the A&N Islands, a scheme was proposed for conversion of the RRDS into a Nucleus Rubber Estate and Training Centre to serve the demonstration and training requirements of the entire Islands and the scheme was approved by the Government of India in June 1986. Accordingly, the station is now being managed by a Dy.Rubber Production Commissioner assisted by a Development Officer and other essential supporting staff.

During the year under report, the station provided regular employment to 111 workers including 6 head workers in addition to casual workers engaged for various seasonal works. The Board's appeal filed against the award of the Industrial Tribunal, Port Blair, in the workmen's demands regarding wage revision, etc. is still pending with the High Court, Calcutta. In the meantime, negotiations were held with the workers' representatives by the members of the Rubber Board S/S K Padmanabhan, A Kunheeran and Rubber Production Commissioner. An interim out of court agreement (without prejudice to the claims of both the parties to the disputes pending in the High Court) was arrived at, in December, 1988. As per this agreement the tappers would get wages @ Rs.21/- plus incentive @ Rs.0.80 and Re.0.50 per kg. d.r.c. of latex and scrap respectively produced in excess of the minimum prescribed quantity. The wages of general workers has been increased to Rs.19.50 and that of Factory workers to Rs.20.25. Head workers would get an additional benefit of Rs.30/- per month plus Re.0.10 per kg. drc. of latex as incentive for production over the prescribed minimum.

Consequent to the signing of this agreement, the performance of the workers improved and as a result the production from the station during the last quarter increased and the total production for the year was as shown below (During 1987/88 the total production was 67,232 kgs.).

Sheet rubber	63728 kg.
Scrap rubber	12150 kg.
Foam sheet	403 kg.
Earth scrap	1850 kg.
	78131 kg.

Sheet rubber produced in the station was continued to be sold to the Kerala State Co-operative Rubber Marketing Federation and the scrap rubber brought to the Board's Pilot Crumb Rubber Factory for conversion into crumb rubber.

Civil construction works for setting up processing factory, residential accommodation for workmen and staff, permanent fencing around the plantation, development of estate roads, etc. entrusted with the NBCC are in progress.

About 7000 numbersof budded stumps produced in the small nursery at RRDS were distributed to the local planters through the Regional Office at Port Blair.

23/-

iii) Eastern India Rubber Development Project.

A project for creating the infrastructure needed for developing rubber in Eastern India comprising States of Andhra Pradesh, Orissa, Madhya Pradesh and West Bengal has been approved by the Government in April 1988. The project includes,

1. Assisting development of rubber planting in 1000 ha. in the region during the 7th plan.
2. Establishing an NRETC in 250 ha. and
3. Setting up of 200 ha. of research farm in Orissa for conducting applied and adaptive research.

For assisting development of rubber planting in the region, a Zonal Office started functioning at Bhubaneswar, Orissa in September 1986 headed by a Deputy Rubber Production Commissioner. Under the Zonal Office 2 Regional offices at Berhampur and Baripada were opened in 1988. A field station has been started at Maredumilli in Andhra Pradesh. As a result of the organised extension activities and supplies and services rendered so far, a total area of 200 ha. had been newplanted with rubber in these States in Eastern India during the scheme period. This includes also the area planted by the 3 Public Sector corporations in Orissa. Eventhough large tracts of denuded forest lands are available in these States, the main hurdle for large scale expansion of rubber cultivation in this Zone is the difficulty in getting clearance for the denuded lands from the application of Forest Conservation Act, 1980.

For production of high yielding planting materials for this Zone, 2 nurseries have been established, one at Ranibare (8 ha.) in Orissa and the other at Maredumilli (2 ha.) in Andhra Pradesh. It is expected that nearly 2 lakhs of budded stumps will be available for distribution during the coming year from these nurseries. Arrangements for installing sprinkler irrigation system in the Ranibare nursery was undertaken.

During 88-89, 3 lakhs of budded stumps were transported from Kerala and raised in polythene bags in the various potential centres of Orissa and the successful polybagged plants were distributed to growers free of cost. Further, a trial plantation had been raised by the Horticulture Department in Madhya Pradesh.

Nearly 2 lakhs plants supplied from Kerala were raised in polybags in the various centres of Andhra Pradesh for planting by the tribal beneficiaries of Integrated Tribal Development Agency.

An area of 8 ha. was brought under experimental planting in the land in possession of the research complex of RRII, in Orissa.

The NRETC Project could not be launched so far. Since the land provisionally allotted in Orissa has not been physically handed over by the State Government to the Board.

****

pvk/-

PART IV - RUBBER RESEARCH

Thrust areas of research of the Rubber Research Institute of India continued to be

(a) research activities aimed at increasing productivity to fill up the gap between consumption and production in the country, and

(b) product improvement aimed at increasing service life and optimising the use of natural rubber.

In our efforts to increase production and productivity, priority was given to develop appropriate location specific agrotechnology for successful cultivation of rubber in non-traditional areas. A detailed report on the activities of the Institute is given below.

BOTANY DIVISION

The Botany Division continued to concentrate on tree improvement through breeding and ortet selection, propagation techniques, anatomical investigation, cytogenetical studies and on introduction, establishment and conservation of Hevea germplasm.

1. Breeding and selection

The 1988 hybridization programme was completed. A total number of 11999 hand pollinations belonging to 31 cross combinations were carried out. A final fruit set of 3.52 per cent was recorded for the 1988 hybridization programme and the resultant progenies (532 seedlings) were established in a nursery. The 1986 HP seedlings were test tapped at the age of 18 and 24 months. Girth measurements were made and bark samples collected from selected seedlings and they were finally cut back for generating green shoots. A total of 221 seedlings belonging to 36 cross combinations were selected for laying out a small scale trial during the 1988 season. Budding of the selected seedlings and their parental clones were initiated. Field planting of 174 progenies of the 1983 hybridization programme was done along with their parents, controls and a few ortets in an area of 8.1 ha at Kerala Agriculture University, Vellanikkara. Selections from 1971 HP were multiplied and planted in a small scale trial employing RBD with three replications.

Annual girth of 1979 HP seedlings (82 planting) were recorded and arrangements made to open the area for tapping. All immature small scale trials and HP nurseries were properly maintained. Established a second breeding garden of 25 clones at HBSS, Paraliar. In the 1989 in-breeding programme a total number of 2148 self pollinations were attempted employing two treatments each in two clones. Simultaneously 4257 open pollinated female flowers were tagged to studying the rate of open pollination. Initial and final fruit counts of 1988 inbreeding programme were recorded and a total of 235 seedlings, resultant of selfing

.....25/

belonging to different treatments were established in a nursery. Under ortet selection programme, three small scale trials involving 63 ortets were laid out at Cheruvally estate. Forty two ortet selections from Boyce estate were multiplied for field planting in the ensuing season. Carried out four rounds of yield recording of 199 selected mother trees from Koney estate. Based on yield data of different seasons 50 trees were finally selected for further multiplication. As a result of preliminary screening of 657 ha at Kodumon estate, 75 apparent high yielding trees were selected for further recording of yield and secondary characters. Observations on ortets in small holdings were continued. Gap filling was carried out in the trial on estimation of genetic paramaters. Open pollinated progenies of 14 clones established in the nursery were maintained properly.

Genetic divergence study is being carried out on 40 clones in the germplasm garden. Observations on yield and yield components are recorded at monthly intervals. Girth, bark thickness and other secondary characters were also recorded from the clones under study. Seeds resultant of open pollination were collected from 20 clones and the seedlings were planted in nursery for prepotency study. Morphological characters were recorded three months after planting. For the study on inbreeding depression, selected clones were self pollinated. For investigations into the causes of low fruit set, six treatments comprising of growth regulators were imposed on trees of clone Gl 1. Observations on number of flowering twigs, number of female flowers per panicle and three fruit counts (under open pollination) at monthly intervals were recorded. Five treatments with conventional method of hand pollination as control, were employed to improve fruit set following hand pollination.

Detailed observations of characters, collection of leaf, twig and bark samples, were done for the 1985 clone trial at Dapchari. Data are being processed. Monthly yield and annual girth and secondary character recording were done for the 1968, 1971, 1973, 1977, 1978 and 1979 clone trials. In addition, monthly recording of latex volume and d.r.c. was done for the 1979 clone trial. RRII 105 recorded highest yield during the second year. Annual girth and yield (monthly) were recorded for the block trials at Koothattukulam, Kulathupuzha, Kinalur, Palai, Myladi, Manikkal and Malankara. The block trials at Poovarani, Kanjirappally and Nedumkunnam were opened for tapping. Annual girth and monthly yield data were collected. The immature block trials at Iymkompu, Vakayar, Chethelvetty and Shaliacary were properly maintained and recorded annual girth and secondary characters. At Chittadi a polybag planting of seven modern clones was taken up for laying out a block trial during the ensuing season. Three new block trials at Malankara (5 clones), Koney (8 clones) and at Venchempu, Anchal (9 clones) were laid out during the season. Field planting of six selected clones was done for an observational trial at UPASI, Coonoor. Polybag planting was also done for filling the

.....26/-

casualties. Two hundred and fifty budded stumps each of four selected clones were planted in polybags for an observational trial at UAS Regional Station at Brahmavar. Data collected from space cum clone trial over 13 years were summarised, statistically analysed and a scientific paper prepared and presented at Placrosym VIII. Yield data of 12 clone trial, Chandanappally were also summarised.

2. Germplasm

One thousand five hundred genotypes from the Brazilian germplasm collection, maintained at RRIM source bush nursery, were introduced in five consignments. Budgrafting was done and more than 95% success was obtained. A total of 3300 budded stumps produced from 1436 genotypes are now being maintained in the polybag nursery at CSS and 1864 genotypes of the previous introductions are being maintained in the nursery. Steps are being taken for the field planting of the budded stumps kept in polybags.

Yield, growth, floral biology and other secondary characters of the clones in the three germplasm gardens are being collected. Juvenile characteristics of the Brazilian genotypes are also being studied and recorded.

3. Propagation and planting methods

Crown budding of bag plants was completed. Crown budded plants were cut back to develop the crown to the appropriate stage of growth under different treatments. Plants which had attained the required stages of growth were transplanted to the soil from the bag. For this a new trial was laid out at the RRII Experiment Station.

One more round of benchgrafting was carried out and the plants are being maintained in bags for further growth. Benchgrafted plants produced last year and raised in polybag nursery were observed for their growth characters such as height, diameter, number of leaf flushes and number of leaves.

Open pollinated seeds of RRIM 600, RRII 105, RRII 203 and RRII 300 were planted in seedling nursery to raise stock plants for next season's budding in connection with the trial on genetic basis of stock scion relationships, involving diallelic combinations of stocks and clones.

4. Anatomy

Under screening and characterisation, hundred genotypes of Brazilian germplasm (nursery plants) and 195 genotypes of 19 cross combinations resulting from 1983 hand pollinations (at two years growth) were studied for the number of latex vessel rows and bark thickness. For identification of bark anatomical parameters for clone selection, studies on bark structure were continued. Recording of bark anatomical characters of ten clones at the age of ten years (1976 Sri Lanka clone trial) has been completed. Periodic collection of bark samples and recording of bark thickness for investigating the

....27/-

process and extent of bark renewal, have been completed. The bark samples are being processed and the data on the extent of bark renewal have been compiled for statistical analysis.

Characterisation of clones for the number of intraxylary phloem and stomatal characters were extended to ten more clones. Studies using scanning electron microscope on the developmental stages of epicuticular wax formation in Hevea leaf and also the organographic variations in the cuticular ornamentation due to the different pattern of epicuticular wax formation were in progress. The ontogeny of stomata in Hevea has also been studied. The stomatal density and size were recorded with respect to six clones for early evaluation studies.

Studies on wood anatomical investigation were continued. For comparative study of the seedlings and buddings of Hevea tree with respect to the quantity and distribution of tension wood, tension wood zones from wood discs of six seedling trees and six buddings of the respective seedlings have been traced.

5. Cytogenetics

Monthly yield recordings and annual girth measurements were carried out in the trials on irradiated and polyploid materials. The plants resultant of mutagenic treatment of seeds and hand pollinated (dwarf) progenies were maintained in the nursery. The growth attributes of the progenies of the dwarf variant had shown that intermediate and normal types were superior. Three genotypes were budded with RRII 105 and budgrafted plants were raised in polybags for genetic studies as per statistical layout. The four types were multiplied and also planted in the field. The trees in 1982 polyploid trial were marked for tapping.

Detailed investigations on the meiotic behaviour of polyploid male sterile clones and progenies of male sterile clones were being carried out. F1 progenies of GT 1 were totally devoid of fertile pollen, showing manifestation of cytoplasmic male sterility which was reported for the first time in Hevea. A plant showing dwarf stature and total male sterility was identified from a population resultant of seed irradiation (3000 rad). About 30% PMCs of this plant showed cytomixis, being the first report in Hevea. Detailed studies on microsporogenesis had elucidated that in the male sterile clone there was persistent tapetum. Scanning electron microscopic studies on Hevea pollen were carried out. In vivo studies on pollen tube growth were being carried out. Growth attributes of the progenies of male sterile clones were studied. Test tapping was carried out at three seasons in the progenies of male sterile clones.

6. Collaborative/multi-disciplinary projects

Recording of juvenile yield for two seasons was done in the trial on early evaluation for yield. Also recorded girth, panel length, plugging index and d.r.c. from six selected clones. Associated in the laying out of a trial at Koney estate for nutritional studies on

....28/-

emerging clones. Selection and multiplication of modern clones and laying out and proper maintenance of a polybag nursery for the proposed multidisciplinary evaluation were attended. A total of 3991 plants belonging to 27 clones were established for field planting during the ensuing season.

BIOTECHNOLOGY DIVISION

Progress has been achieved in establishing a tissue culture propagation system for some important commercial rubber clones. This procedure is being further refined in order to make it a viable commercial propagation system. All commercial cultivars recommended for planting by the Rubber Board are being tried to suit this propagation system. Several clones have responded favourably to this in vitro manipulation. A few hundred plants were generated by shoot tip culture and after the hardening process about 150 plants were planted in the field during July 1988. They are growing well without any supplementary irrigation. It is visualised that the tissue culture derived rubber trees would have the following advantages.

(a) Adverse effects of traditional propagation system can be circumvented (eg. yield variability caused by the root stock scion interaction).

(b) Since the tissue culture derived trees may resemble seedling trees, they may reach tappable girth earlier.

(c) Faster rate of propagation per unit time.

Anther culture is another area where significant advancement has been achieved. A few plants were regenerated by this techniques and some of their ploidy levels were established. By utilizing this system, trees with a new threshold of character combinations can be obtained; unattainable by the conventional plant breeding alone.

AGRONOMY/SOILS DIVISION

The nutritional studies on mature and immature phases of rubber were continued. The results computed for two years from immature rubber show that there is response to nitrogen and potash at 30 and 20 kg/ha respectively, whereas the effect of phosphorus was seen upto 60 kg/ha. The pre and post monsoon fertilizer applications as per the treatments and annual girth recordings were done for all the trials. Monthly yield recordings and collection of soil and leaf samples from mature trial areas were also done. Five estates were selected to lay out a new fertilizer experiment in immature rubber with clone RRII 105 for offering precise region-wise fertilizer recommendation. A new trial on mature rubber (clone RRII 105) was also started in the northern region of Kerala. A clone cum fertiliser experiment was laid out with the pre released promising clones of RRII. Treatment imposition, recording of girth and other biometric observations were done from the trial on density of planting. In the

.....29/-

studies on irrigation and soil moisture management, irrigation treatments were imposed during summer months and observations were carried out. Mass rearing of larvae of Pareaucheetus insulata, the bio control agent for controlling noxious weed (C. odorata) received from IIHR, Bangalore was done. If found useful, the study will be extended to field condition.

Installation of electric fencing was done for the intercropping trial area in the high elevation and planting was undertaken. Fertilizer application was also carried out in all intercropping trial areas.

Resource information system for rubber through remote sensing was in progress in two estates. Three experiments started at Regional Research Station, Orissa on wind belt system, testing of clones and nutritional requirements were in progress. However, heavy casualties were noticed in the field due to adverse climatic conditions prevailing in the region and hence vacancy filling was done.

The incubation study to understand the phosphorus release characteristics of super phosphate, mussorie rock phosphate and bowl sludge was completed and based on the results the study is being extended to field condition. A scientific paper on the beneficial use of bowl sludge, a waste product from centrifuge factory was presented at the VIII Placrosym held at Cochin during December 1988.

Post recommendation evaluation of fertilizer application was in progress and it was noticed that adoption of discriminatory fertilizer recommendation was economical.

A new trial to study the water requirement of immature rubber through lysimeter technique was undertaken. Another trial on soil and water conservation techniques on rubber plantation was also laid out and the necessary devices were installed.

PLANT PHYSIOLOGY DIVISION

In the field of water relations significant progress was made towards conceptual development. Our work has attracted attention from the Institutes in France (IRCA) and Brazil conducting research in NR.

By protein mapping, definite clonal differences could be established in terms of yield characteristics. Further conformation could be obtained with regard to early prediction parameters for high yield and drought tolerance in Hevea.

Preliminary studies on calcium carbide application, incorporating a new method of application was found to be very effective in increasing latex yield in clone RRIM 600. In the high yielding clone RRII 105 the yield difference between third daily and alternate daily tapping systems was found to narrow down to 15% during the second year of tapping when compared to a difference of 24% in the first year.

....30-

Contact shading was found to effectively replace conventional shading under Konkan conditions. Contact shading is much cheaper. In Maharashtra clones RRIM 600, RRII 300 and PR 107 continued to show better growth. At Mudigere (high elevation) clones RRIM 703, RRIM 600, RRII 300 and RRII 118 were found to show comparatively better growth than other popular clones. In Wynad (high elevation) clones RRIM 600, RRII 203, RRIM 612 and RRII 118 performed better comparatively.

Five species of medicinal herbs were identified which can be commercially grown profitably as intercrops in mature rubber stands. The planting techniques and other cultural operations of these species were standardised. A large planting material source was created and planting materials were raised for field planting in 10 ha area. A biological bund using the species strobilanthus was found to be promising to prevent the soil erosion as well as conserve rain water. This species was also found to be a good source of honey during off season.

New experiments were initiated during the period. Four hectares of experimental plantings were done at Hevea Breeding Station in Karnataka and two hectares in RRII main campus. An experiment on low intensity tapping system was also taken up during this period.

PATHOLOGY DIVISION

1. Investigations on diseases of rubber caused by Phytophthora.

Severe incidence of abnormal leaf fall disease due to the prolongation of South West monsoon was noticed in 1988. Leaf retention in unsprayed areas was less than 10 to 25%, in sprayed areas of tolerant clones it was above 50% and in susceptible clones about 30%.

The high volume experiment conducted at Malankara estate with 2000 and 1200 litres per hectare dosage of Bordeaux mixture did not give any positive indication as the disease incidence was very severe and leaf fall above 50% was noticed in all the plots. For the control of shoot rot an experiment was conducted with newer fungicides and it was found that better control was received with instant Bordeaux followed by 1% bordeaux mixture + 0.5% zinc sulphate, water based copper oxychloride and Alliette. For the bark rot control experiment, weekly application of fungicide was found to be superior to fortnightly application and Dithane M 45 proved to be a good substitute for Emisan. The crown budding experiment newly started in Malankara estate and Karnataka Forest Plantation Corporation estate were in progress.

2. Pink disease and its control

The panel protection compound Sopkot was found to be a better carrier of fungicide for the control of pink disease than Pidyvil China clay compound. Details are being collected from large estates on clonal susceptibility to pink disease.

...31/-

3. Powdery mildew disease

Dusting experiments in mature areas indicate that two rounds of dusting with 1% Calixin and one round of Sulphur give better control than 4 rounds of sulphur. Spraying trials on young rubber indicate that Bavistin 0.05%, Baycor 0.025%, Bayleton 0.025% and Topsin 0.07% give better control. Effect of dosage of fertiliser on disease incidence is being studied.

4. Studies on minor diseases of rubber and unconventional methods of control

Experiments are in progress on the control of diseases by pressure injection with systemic fungicides and antibiotics and also for the preservation of rubber wood by pressure injecting wood preservatives before felling the trees.

Experiments conducted on the control of Gleosporium leaf spot indicate that none of the fungicidal treatments gave better control. Experiment is in progress for the control of brown bast disease by drenching systemic fungicides in the collar region in the base of trees.

.....32/-

5. Dry rot disease

Different methods of application of fungicides viz. incorporation of fungicide into the petroleum compound and applying to the affected part, or washing the affected part with the fungicide solution and later applying the petroleum compound; proved to be equally effective.

6. Pollution due to fungicides, pesticides and rubber factory effluents

Copper residue analysis is being continued. The presence of oil and grease in the water used in the first two rollers of PLC factory did not affect the properties of processed rubber, when recycled. The sludge from the crumb rubber factory could be used for culturing Oyster mushrooms and this requires further evaluation.

7. Yield loss due to diseases

A new experiment on yield loss is laid out at the Central Experiment Station, Chethackal on RRIM 600, GT 1, RRII 105, and RRII 118. The treatment will be imposed in 1989. Pre-treatment yield data was recorded. Yield loss studies due to powdery mildew disease at Vaikundam estate, Kanyakumari is being continued.

8. Biology, Epedemiology and Physiology of Pathogens

The climatic regimes determined for triggering abnormal leaf fall disease was not found good for the year 1988. Phytophthora seems to tolerate 1 to 1.5°C higher minimum temperature and lower moisture conditions. Phytophthora spores were collected as early as 3rd June in the soil spore trap. Leaf fall occurred in the trees only on 13th June. The longivity of fungal mycelium grown in cloth bits in soil is being studied. A reliable method for evaluation of susceptibility of clones of powdery mildew disease was evolved. In susceptible clones the conidia readily germinated and form apprasoria abundantly. Secondary hifae also produced early.

9. Selection, testing and introduction of leguminous cover crops

Nitrogen fixing capacity of various cover crops and rhizobium isolates was estimated using gas chromatography. Pueraria and winged bean and two isolates of rhizobium were found to have higher nitrogen fixing capacity. On comparison of the soil moisture in pueraria and Mucuna areas, the soil moisture at 30 and 60 cm depth was found to be similar. In

Mucuna at 90 cm depth the soil moisutre was lower. Appreciable difference was not noticed in the soil moisture between slashed and unslashed mucuna fields.

10. Rhizosphere studies and isolation and testing of antagonistic micro organisms

Large scale testing of the antagonistic micro organism against pink disease is being continued. Control achieved is comparable to that of Bordeaux paste.

11. Insect pests of rubber

Plots broadcast with Beauveria brorgniartii and B. bassiana spores recorded 92% survival of plants in the root grub control experiments. Among the chemical treatments Isofenphos 5G at 25 kg per ha was most effective. For the control of bark feeding caterpillar Fenval 0.4% dust was found to be superior. A termite control experiment was started at the regional research station, Kamakhyanagar, Orissa.

12. Non insect pests

By repeated tests 1% bordeaux paste was found to repel slugs and snails for a period of 30 to 40 days. Aldicarb was found to be toxic to slugs and snails even in concentrations lower than 0.025%. For the first time root knot nematode was recorded from the roots of rubber seedlings at the Regional Nursery, Kadackamon.

13. Studies on bee keeping

Alternative bee flora are being planted and maintained in large scale at CES, Chethackal. The activity of the pollen feeding mites and that of predatory wax moth was at the peak in June July..

14. Two agrometerological observatories were established, at Mundakayam, Kerala and at Nettana, S.Kanara. The agro-climatic studies fevealed that the regional differences in productivity is mainly due to the availability of moisture throughout the year to meet the evapotranspiration demand. The mean water requirement of a mature rubber tree is about 100 l/day. Data area being collected to study the crop weather relationship in Hevea under different agroclimatic conditions. Collaborative studies with Plan Physiology and Agronomy Divisions are in progress. Meterological data collection and compilation from all the observatories are continuing.

ECONOMIC RESEARCH DIVISION

1. Evaluation of planting materials under commercial planting

Popularity measures of different planting materials have been worked out based on the data of 42 participating estates. Taking popularity and yield as criteria, 10 planting materials have been selected for a detailed econometric analysis. The final yield statements for the third report have been prepared.

Yield performance of planting materials was analysed in the case of one of the largest rubber planting companies in India. This analysis was further extended to examine whether the planting policy of the company was in tune with the yield of the selected materials. The influence of two variables viz. the year of tapping and the density on the yield was also analysed. The paper has been published in the Indian Journal of Natural Rubber Research.

2. Study of rubber wood

Data were collected from Pattambi, Olloor, Kovilpatti, Sivakasi, Gudiyattom, Erode, Salem, Kulasekharapuram, Quilon, Killikolloor, Kottarakkara and Kunnicode to estimate the consumption of rubber wood. Collected data also from Chumkom, Kumaranelloor, Kurichy and Aimanam in connection with the publication of a book on rubber wood by the RRII. The book is under print. Explores possibilities of establishing a laboratory for the studies on rubber wood by visiting KFRI, Peechi, Physics Department of the University of Calicut, Wine Wood Factory, Thiruvambady and Western India Plywoods Ltd., Baliapattam.

3. Cooperative Societies as the modal point for the dissemination of scientific information on rubber - A study of its usefulness

The study has been completed. A paper has been prepared and presented in the PLACROSYM VIII at Cochin in December 1988. The study revealed that the rubber growers were giving the leadership for agricultural development through co-operative societies in Kerala.

4. Management of rubber small holdings at different levels of input

Survey is being continued. Collected details of rubber growers who had availed agricultural term loans from 9 Banks in Palai as also from 120 sample holdings.

5. Study on brown bast

Survey is being continued. Collected details from two large estates and 20 small holdings. Questionnaires have been sent to 20 large estates to collect the data.

6. Rubber seed oil

Collected data from Virudhunagar, Salem, Erode and Pathanapuram to estimate the production and consumption of rubber seed oil.

7. Rubber honey

Collected data from honey purchase depot of the Khadi and Village Industries Commission, Thrippunithura, Trivandrum, Nagercoil, Pallarimangalam, Parathode, Melatur, Trichur, and Sarvodaya Sangham, Ottappalam and Bee Research Institute, Pune to estimate the production of honey.

8. Role of Government and structural changes in Rubber Plantation Industry

The study has been completed. A paper has been prepared and published in Economics and Political Weekly, November 26, 1988.

9. Study on replacement of NR by plastics in India

Study is being continued. Collected basis secondary data from CIPET, Madras.

10. Census of unregistered rubber small holdings in a ward in Puliyannoor Village.

Selected Ward No.1 (Neyoor Desom) for the study. Collected data in the questionnaire prepared from 175 farmers.

11. Condition of workers in the processing and marketing of rubber

In order to have adequate data a study has been taken up. Collected the details from 65 mills by interviewing two workers each of a mill.

12. Scale of production, location and the trends in cost of processing - A case study of block rubber processing industry in India

The main objective of the study is to understand the existing relationship between size of the units, capacity utilisation, location and the average cost of processing among the various size groups of crumb rubber factories.

Collected information from all the 15 units in a questionnaire by interview method. Data are under compilation.

13. Study of cover crops and the savings in cost of production

Survey is being continued. So far 62 farmers were contacted in Palai region and data were collected in the questionnaire.

14. Economics of different levels of fertilizer application

Survey is being continued. So far 81 farmers were contacted in Palai region and data were collected in a questionnaire.

15. A quick study was undertaken to assess the potential of new clones in the large plantations by visiting six estates of Harrisons Malayalam Limited and collected data mainly on PB 217 and PB 235.

16. A quick study on the economics of two types of rainguarding materials was also made, after collecting data from seven large estates and 50 small holdings.

RUBBER CHEMISTRY, PHYSICS AND TECHNOLOGY DIVISION

During the period under review continued studies on methods to improve the processing and quality of natural rubber, chemical modification, and technological/applied aspects of the same. New projects to study the degradation of NR vulcanisates and structure property relations of NR latex vulcanisates were taken up.

1. Development of solar drier for sheet rubber

The different factors affecting the drying of sheet rubber in solar drier were studied and the quality of solar dried sheets were compared with conventionally dried sheets. The rate of drying and properties of solar dried sheets were comparable to those of conventional smoke dried sheets. The data were compiled to a research paper and published in Indian Journal of Natural Rubber Research.

A collaborative study on solar drying of sheet rubber was initiated with the Department of Bio-Energy, College of Agricultural Engineering, TNAU and a few trials have been conducted, with the solar drier at TNAU.

2. Epoxidation of natural rubber

Different batches of ENR have been synthesised at different conditions. All the products have been characterised using NMR spectroscopic techniques. Reaction conditions for the preparation of ENR-25 as well as ENR-50 with negligible side reactions have been identified. Bunch scale batches of ENR-25 and ENR-50 have been prepared, compounded and the vulcanisate properties have been studied. Attempts have also been made to find out suitable conditions to synthesise ENR at temperatures above room temperature.

3. Preparation and properties of depolymerised natural rubber (DPR)

A modified apparatus for preparing DPR was installed. Conditions were standardised for producing DPR conforming to different viscosity ranges. MBT was also found to be an effective peptiser. DPR of different viscosity grades were prepared.

The effect of DPR as a reactive plasticiser in nitrile rubber compound was studied for processing characteristics, vulcanisate properties, ageing and weather resistance etc, for compounds containing upto 15 phr of DPR: Rheological response of compounds containing varying loading of DPR were studied, in comparison to the conventional plasticiser.

4. Studies on structure-property relations in latex vulcanisates

Latex films of post and pre-vulcanised latices were cast to compare the structure-property relations using SEM.

A method was standardised for the determination of transparency of latex vulcanisates with the UV visible spectrophotometer. The effect of compounding ingredients such as zinc oxide, fillers, sulphur, TiO_2, plasticiser etc were studied.

5. Studies on blooming

Trials conducted confirmed that the acidity of fillers have no direct influence on blooming of rubber vulcanisates. The effect of glycerine to prevent blooming was also studied but the results were not encouraging.

6. Studies on compression set of NR vulcanisates

Compression set tests were carried out for gum and filled samples at temperatures -40°C to 70°C for 4 and 7 days. In all cases donventional system of vulcanisation was found

to have better set characteristics than either EV or perioxide system at and below 20°C. Investigations on the effect of concentration of different fillers such as HAF, clay and silica on compression set showed that the same is high for higher loading of the filler.

7. Development of chemical and heat resistant NR compound

Effect of ageing different filled vulcanisates in phosphoric acid (40%) at 70°C and 90°C upto two weeks were studied. No appreciable change in properties were observed except that a slight reduction in tensile strength was observed at 90°C after one week.

8. Studies on degradation of natural rubber

The effect of five fillers on thermal stability of NR vulcanisates were studied and attempted to correlate the same with the volume fraction (V_r) and sol content. The effect of bound antioxidants on leaching characteristics of vulcanisates, in comparison to conventional antioxidants were also tried. Work was also initiated to study the effect of antioxidants on green strength of rubber compounds during storage.

9. Studies on natural rubber/1,2 polybutadine blends

The radiation resistance of NR/1,2 polybutadiene blends was evaluated by exposing the test samples to 10, 15, 20, 25 and 50 M rads. of Gamma radiation. The test results indicated that tensile properties of the blends decreased with increased dosage of -radiation and that the blends containing higher proportion of NR showed better resistance to radiation in silica filled compounds. However in unfilled blends, the resistance to radiation was least for 60/40, NR/1,2 PB blend.

12. Studies on the use of 1,2 polybutadiene as a substitute for SBR in Microcellular solings

Among the different proportions of the NR/1,2 PB blends studied, a blend of NR/1,2 PB in 70/30 proportion was found to give optimum properties. The effect of different fillers and their concentration, the effect of concentration of the blowing agent etc were studied with respect to the above blend. Cell characteristics of the selected microcellular soles were also studied, using SEM.

DEVELOPMENT WORK

1) As per request from M/s Gujarat Filaments Ltd. satisfactory processes and formulations for latex and latex foam backing of polypropylene carpets were developed. The samples

prepared were sent to the party and were acceptable to them. The details of the norms for know-how transfer are being worked out.

2) Three samples of cyclised natural rubber having different extent of cyclisation were prepared and sent to M/s Presidency Rubber Mills Ltd., Calcutta for their trials in adhesives.

3) For standardising the conditions for preparing rubberised bitumen at the refinery itself, 19 samples of rubberised bitumen were prepared and sent to Cochin Refineries Ltd at Ambalamugal. The bitumen used were drawn from the production line at different stages of oxidation and the rubber used was latex, vulcanised rubber waste and rubber solution. The penetration and ductility of the samples were studied.

4) Microcellular sheets of different hardness and specific gravity ranges were prepared and sent to Santokhz Durlabhji Memorial Hospital and Medical Research Institute for trials in the production of artificial foot.

5) The test samples of rubber bungs sent to M/s KELTRON were reported to be meeting all the physical properties except electrical resistance. Further trials are being conducted to improve the electrical resistance of these samples.

6) A sample of 'Polyhard' received from M/s Barim & Co., Calcutta was evaluated for its suitability as a substitute of SBR 1958. The tests conducted showed that 20% replacement of SBR 1958, with polyhard did not affect the properites of micro-cellular sheets.

7) 53 mixes of polybutadiene rubber were prepared in the intermix for M/s Apollo Tyres.

8) About 107 kg of rubber compounds (Neoprene/Nitrile) were prepared for NPOL, Cochin.

9) The Division continued to provide analytical/testing support to the Technical Consultancy Division. Three months campus training was imparted to the M.Tech. and B.Tech. students of the Cochin University of Science and Technology.

CENTRAL EXPERIMENT STATION, CHETHACKAL

1. AREA

Total area	: 254.7586 ha
Planted area including nursery	: 223.9736 ha
Area under production	: 154.5 (approx.)

2. CROP

There were 307 tapping days during the period under report. Monthwise production from the station for the report

period is given below:

Period	Production (kg)
April 88	18653.7
May	25136.2
June	25859.9
July	28002.4
August	22614.8
September	19569.9
October	28777.0
November	29523.6
December	32190.0
January 89	25905.4
February	17097.9
March	12064.2
	285395.0

3. LABOUR STRENGTH AND LABOUR ENGAGEMENT

During 1988-89 the total strength of permanent and casual workers in the roll were 195 and 209 respectively. A total of 65767.5 mandays were utilised for various operations.

4. LABOUR WELFARE

As a labour welfare measure a labour canteen and a workers' co-operative society are functioning in the station.

5. MEDICAL WING

During the year medical treatments involving 14011 cases were attended to at the CES Dispensary utilising medicines worth Rs.52500/-.

REGIONAL RESEARCH STATION, AGARTALA

The station has a farm with an area of 66.4 ha and a laboratory equipped to take up scientific investigation on the disciplines in physiology, botany, agronomy, plant breeding and soil science. A library also has been set up with books worth nearly Rs.2 lakhs and 23 journals are subscribed.

During the period 25 research projects were in progress including a new trial on placement of fertiliser. Sub-projects were initiated under the project on physico chemical characteristics of the soil.

Besides the research trials three observational trials had been taken up. In line with the programme for block planting of clones two clone trials, one in Tripura with 8 clones and another in Assam (Cachar district) with 8 clones were started.

The 1979 clone trial was brought under tapping. The damage inflicted by the hailstorm was subsided. The 1980 clone nutritional trial (NPK) also has attained tappable girth and trees have been marked. Similarly 1981 planting also has a large number of plants which have attained tappable girth and these have been marked. During the current year winter was severe and the immature plants suffered considerable casualty. In our trial on multi disciplinary evaluation of clones with 16 clones, the maximum casualty was observed in the clone RRIM 501 followed by RRII 105. The observations showed that the damage was minimum for the Chinese clones.

There have been frequent reports of late dripping during winter time and it has been observed that late dripping is followed by a very high dilution of the DRC. This is being studied. The data generated on the soil physical and chemical properties and trend of other on-going field experiments have been used to evolve a provisional fertiliser recommendation for Tripura. The studies on flowering and wintering pattern provide some useful results on flowering synchronisation and on the lay out of polyclonal seed garden. It has been successful in inducing flowering by girdling 12 months old plants which help in hand pollination programmes. Observations in the germplasm nursery indicated varied adaptibility of the germplasm strain to stress conditions.

FARM

The entire area in the farm has been planted up. For further expansion the Government of Tripura has been approached to acquire the adjoining 100 acres of land. The acquisition procedure was progressing but 30 acres from this area had to be earmarked for Army and hence fresh proposal was submitted. The matter is under active consideration of the Government.

A portion of the lunga land available in the farm was excavated for water catchment. The catchment was been proved to be highly successful; it was retaining water to a depth of around four to five feet during peak summer. The water is pumped to irrigate nurseries. Embankments have been used to raise nurseries. An irrigation set up was laid out.

NURSERY

The seedling nursery of 1.2 lakhs seedlings (about 2 ha) has been raised. Due to non-availability of seeds at the right time and also since the quality of seeds available was poor the nursery had to be limited to 2 ha. About 80,000 to 90,000 budded stumps would be available from the nursery.

A budwood nursery with about 5,000 points is maintained from which 5,135 meters of budwood was supplied to various Regional Stations, Regional Nurseries, etc. over and above the consumption in the farm. In addition, 34,050 budded stumps were supplied to various Regional Research Stations for on-farm trials etc.

LABORATORY

The following equipments have been procured during the period:

1.	Glass Electrode for PH meter	1 No.
2.	Automatic Slide Projector	1 No.
3.	Deep Freezer	1 No.
4.	B.O.D. Incubator	1 No.
5.	Rubber Sheet Roller	2 Nos.
6.	CRYOCAN	1 No.
7.	Calibrated N_2 & Co_2 Gas Cylinder	1 No.
8.	Spectronic -20	1 No.
9.	Binocular Research Microscope	1 No.
10.	Remi Cyclo Mixture	1 No.
11.	Heating Mantle with Energy Regulator	1 No.

CONSTRUCTION

The staff quarters constructed by the State PWD at Taranagar farm was taken over. Money has been deposited for electrification work.

The CPWD completed the barbed wire fencing of the farm and around the meteorology observatory. The construction of the processing shed is progressing and work has been awarded for construction of the smoke house. The brick-soling of roads in Taranagar farm, Phase I has also been awarded. The NBCC has prepared lay out plan of the office complex.

REGIONAL RESEARCH STATION, DAPCHARI

The total area available with the station is 50 ha, the utilisation of which has been as follows:

a) Experimental plantation	: 18 ha
b) Bulk planting	: 16 ha
c) Nursery	: 1.8 ha
d) Meteorological station	: 0.2 ha
e) Area under office, roads, quarters, valley, unused land under power lines, fire belt, etc.	: 12 ha

RRIM 600 is in promising growth out of the 12 clones in the trial and the girth data of these clones are as under:

RRIM 600	42.9 cm
RRII 612	41.3 cm
Tjir 1	36.4 cm (the lowest girth among the 12 clones)

Clone trial

The girth rate of this trial out of 15 clones are below:

RRII 208	23.5 cm
RRII 6	22.4 cm
PCK 2	16.7 cm (the lower girth)

Dry farming technique

The trial is laid with 12 treatments of deep irrigation and pit and pitcher irrigations, dew catching method, pitcher drips and china clay reflectant on canopy. The girth rate is shown below:

Deep irrigation (basin irrigated plants	
Trial 1 (200 ltre/10 day)	28.7 cm
Control plants without irrigation	25.5 cm

Contact shade trial

The trial during 1987-88 had shown that 15% china clay spray over canopy had yielded a girth of 10.3 cm than the control plants shaded with coconut baskets without china clay spray at 9.2 cm.

Mulching trial

This is a new trial started to evaluate the effect of mulching with and without irrigation. Mulching without irrigation showed lower girth than the plants with mulching with irrigation.

Drip irrigation

The drip irrigation trial with young Hevea plants to study the comparative effects of basin irrigation and drip irrigation has been started.

Demonstration of rubber plantation

A demonstration plantation has taken up with Vishwa Hindu Parishad at Talasary, 6 km away from this station.

Irrigation

Experimental plantings are provided irrigation at the rate of 150-200 litre/plant as per requirement and remainder of the plantation and new Pueraria beds are provided with life saving irrigation at the rate of 50-100 litre/plant once a month.

Damage to Clone trial/Polybags

A fire accident at the station on 24.2.1989 at 2 PM resulted in loss of about 120 clone trial plants, 900 polybagged RRII 105 plants and 24 polyclonal seedlings.

Cultural operations

The monsoon winds and heavy rains caused bending of trees which led to gap around the collar region of a majority of the plants, exposing the root region. These gaps were filled with soil. Due to persistant winds, many plants have leaned towards north-east, which were provided supports with coir ropes. The excess grass in the farm was harvested by the Diary Project and in turn they have supplied with stable refuses for our mulching purposes, thereby reducing the expenditure in grass cutting aand mulching.

NEW TRIALS

The following new trials were started during the reported year.

a. Mulching trial - RRIM 600
b. Contact shading trial - RRIM 600
c. Dry farming techniques - RRII 105

LIBRARY AND DOCUMENTATION CENTRE

The library has a very good collection of rubber and related literature. During the current year about 300 new books were added to the collection, making the total book strength to 20,200. The library subscribed to more than 300 journals and 16 dailies. About 200 other journals were received either as gift or as exchange to our publications.

As part of the documentation and information services, three issues of Rubber Alert, two issues of Recent Additions to RRII Library, two Documentation lists and forty weekly bulletins of prices of natural rubber at the International markets were compiled. English translation of twenty one foregin language articles, thirty photocopies/reprints of articles were also added to the library collection. The computerisation of the library started with the processing of rubber and related books and the work is in progress.

With the starting of the publication of Indian Journal of Natural Rubber Research as a half yearly publication, the library launched on active programme for sales promotion. Two issues of the Journal were published and now have an impressive subscription list. About 200 copies of "Handbook of Natural Rubber Production in India" were also distributed during 1988-89.

The facilities and services of the library were extended to planters, manufacturers and others connected with the industry including students and research workers.

****

nda/

PART V

RUBBER PROCESSING

The activities geared to improvement of processing and marketing of natural rubber were continued through coordinated efforts of 6 divisions namely Engineering, Process Control, Technical Consultancy, Factory Management, Economics & Finance and Marketing.

Important services rendered were:

(1) Engineering services for setting up new NR processing/ product manufacturing units and or for the maintenance and upkeep of existing processing and products manufacturing units.

(2) Analytical services to rubber growers, rubber Producers Societies, processors and rubber products manufacturers in crop processing, standardisation and quality control of rubber, rubber products and inputs for production and processing.

(3) Promotion of quality NR grades adopting the standards fixed by Bureau of Indian Standards (BIS) for raw dry rubber or latex concentrates.

(4) Technical assistance and consultancy services for establishment and or for running of rubber processing and rubber products manufacturing units.

(5) Make available consumer protection services to NR users

(6) Set up a new Pilot Latex Processing Centre at the Central Experiment Station Chethackal and operate the Pilot Crumb Rubber Factory for the promotion of technically specified rubber, speciality rubbers and latices.

(7) Modernisation of small holdings adopting productivity improvement programmes through Rubber Producers Societies.

(8) Conduct market studies, price collection and monitoring of price movemen-ts of various types and grades of NR.

In addition, the Processing Department provided engineering services for civil construction and maintenance and upeekp of the Board's buildings, electrical

....46/-

installation and the vehicles.

(1) Engineering Services:

a) Engineering services for operation and maintenance of the plant and machinery of the 9 co-operative rubber factories consisting of six crumb rubber factories established under the Kerala Agricultural Development Project, one centrifuged factory of the Meenachil Rubber Growers Co-operative Rubber Processing and Marketing Society and the Pale Latex Crepe factories of the Kaduthuruthy Co-operative Rubber Marketing Society and Changanacherry Co-operative Rubber Marketing Society were provided. Assistance was rendered in procurement, installation and commissioning of diesel generators by the Kerala State Co-operative Rubber Marketing Federation's crumb factory at Kanjirapally, Palghat District Co-operative Society's crumb rubber factory at Mannarghat, Changanacherry Co-operative Society, PLC factory at Karukachal and the Kaduthuruthy Co-operative society's PLC factory at Kaduthuruthy, under the scheme for provision of financial assistance to co-operative factories for establishment of diesel generating units to tide over power shortage problems.

b) Engineering services required in connection with the following work were also provided.

(1) Civil, mechanical and electrical erection of a new electrical drier in the Pilot Crumb Rubber Factory.

(2) Civil, Mechanical and electrical erection of the Pilot Latex Processing centre at CES, Chethakkal.

(3) Procurement, installation and commissioning of a 40 KVA Genset at the PLPC factory at CES, Chethackal.

(4) Installation of a diesel filling station at RRII.

c) Besides, engineering consultancy services were provided for establishing processing factories to M/S.Tripura Forest Development & Plantation Cprporation, M/S.Mamparambil Rubber Industries, Palai, M/S.Meenachil Rubber Growers Co-operative Rubber Processing & Marketing Society, M/S.Rehabilitation Plantation Ltd. M/S.State Farming Corporation, M/S.Plantation Corporation of Kerala, and M/S. Changanacherry Co-operative Rubber Marketing Society. A total fee of Rs.56,688/- was collected for providing these services.

Also executed directly Board's civil works costing Rs .8.38 lakhs, such as rubberisation of roads, repairs and maintenance of residential quarters and office bldgs., water supply system, construction of new office buildings etc. Civil works such as water supply installation, effluent ponds, lab. building block etc. estimated to cost Rs.6.2 lakh were initiated during the year. The Kasaragod Co-operative Rubber Marketing Society and 4 Rubber Producers' Societies were assisted in establishing group processing facilities. The total cost of construction came to Rs.6,79,380/-. In addition, 21 Rubber Producers Societies were given assistance to identify suitable sites for construction of the smoke house, and to invite tenders and to evaluate the tenders.

(e) Followed up and got completed the deposit works through the CPWD such as (1) Miscellaneous civil work of SJMB at RRII (2) 2 Nos. of Type II quarters at Regional Nursery, Alakode, (3) 2 Nos. of Type I quarters at Regional Nursery, Alakode, (4) Dispensary cum medical officer's residence, office building, guest house, (5) Type V quarters at CES, Chethackal, (6) Providing barbed wire fencing with gate at Hevea Breeding Station at Nagercoil, and (7) 4 Nos. Type II quarters at RRII. Construction of 75 nos. of labour lines and two type IV quarters at CES, Chethakkal has been started. The works are in progress.

(f) Provided the engineering services for the civil construction work being done by the National Building construction Corporation at the Nucleus Rubber Estate and Training Centres at Andamans and Tripura and at the various Research Centres in the North Eastern States.

(2) Analytical Services rendered

The Central Laboratory continued to provide analytical services in connection with standardisation and quality control of raw rubber, latex and latex concentrates and for trea-tment and disposal of factory effluents. A total of 17,942 analytical determination on latex, dry rubber and effluent samples were made during the year as against 14,607 determinations during 1987-88. An amount of Rs.1,59,048.50 has been levied astesting fees. Besides providing the analytical services, the laboratory personnel rendered assistance in quality control and

....48/-

marking of the block rubber produced in the Pilot Crumb Rubber Factory and in the Cooperative sector, in standardising xxxxxx processing operations for general purpose block rubber. For promoting the concept of quality improvement and maintenance, continued inter laboratory round robin test on dry rubber and provision of training services, Conducting 2 sets of round robin tests and training 40 persons which includes B.Tech and M.Tech students of the Cochin University on quality testing of latex and dry rubber. Further, prepared design and estimates for the construction of effluent treatment plant for the centrifuge factory owned by the Meenachil Rubber Marketing and Processing Co-operative Society and of the Karnataka Plantation Development Corporation and for the crumb factory owned by the Palai Co-operative Rubber Marketing Society.

(3) Promotion of quality marketing of NR

Continued implementing the I.S.I. marking scheme for raw natural rubber and Latex concentrates in collaboration with the Bureau of Indian Standards (BIS). A total of 294 inspections of processing units were carried out, testing samples for various parameters specified by BIS as per the scheme of Inspection and Testing. A total of 13,888 analytical determinations were made in this connection and the results alongwith inspection reports were communicated to BIS and other concerned organisations as against 9,686 during 1987-88. Also the processing units were given advice on problems of quality control. An amount of Rs.72,800/- was received from BIS during the year towards the share of I.S.I. marking fee.

In addition, samples of rubber compounds, rubber products and chemicals were tested for quality control on a charged basis. A total of 1,690 tests were conducted and the test results were communicated to the concerned organisations. An amount of Rs.15,110/- was collected towards testing fees. Participation was continued in the International Round Robin Cross Check Scheme and in the Committees set up for standardisation by BIS. Suggestions for revising/introducing standards for the following items were made:

1) Gloves for electrical purpose
2) Code and practice for storage of vulcanised rubber
3) Vulcanised NR based compound
4) A new test method of International Standards Organisation for TSR

The Rubber Sectional Committee of PCDC 14, approved our draft standard on creamed latex for circulation among producers and consumers to elicit comments. Prepared a circular highlighting the importance of quality of centrifuged latex in latex products manufacture and distributed. Also assisted the State Training Corporation in the local procurement of 4280.55 M.Tonnes of rubber during the year by checking the grades and certifying the quality.

(4) Technical Assistance and Consultancy Services

A variety of technical assistances and consultancy services were provided to rubber growers, rubber processors and rubber goods manufacturers and an amount of Rs.4.02 lakhs was levied as fees against Rs.3.38 lakhs during 1987-88. The important items of work done and or achievements made in this respect are the following:

a) Developed 36 project reports; 20 for establishment of Rubber Processing units and 16 for setting up rubber products manufacturing units.

b) Evaluated 60 project reports relating to different rubber processing and/or rubber products manufacturing units and comments were sent to the Ministry of Commerce/ Development Commissioner of Export Processing Zones.

c) Developed and supplied on a charged basis 13 project profiles on rubber products and or processed forms of NR and revised 4 Nos. of project profiles.

d) Developed Technical Bulletins on the production of eleven rubber products and technical notes on manufacture of 3 rubber products and distributed among the interested entrepreneurs on a charged basis.

e) Advisory assistances were given to 1,290 parties in the form of clarification and or essentiality certificates relating to various aspects of rubber processing and rubber products manufacture.

f) Provided technical support and assistance in conducting the following training programmes.

(1) Training for Estate Supervisory personnel - 4 batches
(2) Training on latex goods manufacture - 7 "
(3) " on Dry rubber goods manufacture - 4 "

...50/-

(4) Training on sheet rubber grading - 5 batches

(5) Refresher inservice training for the Officers of the Board - 5 "

(6) Refresher training on processing - 1 "

(7) Workshop on manufacture of Examination Gloves - 1 "

Besides the above, provided training to 18 collection agents deputed by Rubber Producers' Societies on latex testing and to 2 persons on testing of latex concentrates.

g) offered consultancy services to 2 elastic thread units by visiting the units and offering technical assistance for solving their production problems.

h) Provided analytical support to various rubber products manufacturing units by testing samples of the products and offering advice based on the test results.

i) Continued efforts for the development of rubber products for new applications/import substitution and as a result achieved the following.

i) Developed a latex coating to medical band aid for M/S.Orthopaedics, Alwaye.

ii) Prepared reclaimed rubber from the wastes of latex based industries.

iii) Standardised a formulation for pipe sealant rings for M/S.Jindal Aluminium Ltd., Bangalore as per their specification.

iv) Developed the knowhow for the production of heat resistant elastic thread.

v) Developed the technology for the production of medical tubing.

vi) Produced and supplied NR Chord to M/S.Keltron, Trivandrum.

vii) Developed a tyre tread formulation using ISNR-20 for M/S.Dewan Tyres, U.P.

viii) Developed a formulation for production of transparent rubber bands.

ix) Standardised a compound formulation for production of tyre flaps meeting BIS specification.

x) Standardised a formulation for the manufacture of Balloons starting from preserved field latex to help reduce cost of production.

xi) Prepared Neoprene sponge pads for M/S.BEL, Bangalore.

xii) Developed pharmaceutical closures based on NR and Butyl rubber meeting BIS standards, for Shri Prakash George Mathew, an entrepreneur from Cochin.

xiii) Evaluated the crystal brand latex coagulant produced by M/S.B.S.P. Enterprises.

xiv) Continued studies on Radiation Pre-vulcanised Latex (RPVL). Despatched 50 kgs. centrifuged latex to BARC for the preparation of RPVL and provided assistance for the preparation of RPVL. Using RPVL obtained from Japan and Indonesia, latex thread and surgical gloves were prepared and their properties were evaluated.

xv) Technical guidance and assistance was given to 3 M.Sc (Polymer Chemistry) students of Gandhiji University in conducting their project work. Also provided technical assistance to Cochin University of Science and Technology in conducting practical classes and practical examination for B.Tech and M.Tech students.

xvi) Examined the proposals of 22 applicants for processor's licence and assessed their suitability for issue of licences.

(5) Consumer protection services to NR users

Different grades of technically specified raw rubber and speciality rubbers like general purpose rubber, Process Aid-80 rubber, Methyl Methacrylate grafted rubber and Pre-vulcanised latex were got produced at the Pilot Crumb Rubber factory and distributed among selected consumers and advised them on the optimum use of each type and grade. Offered advisory services geared towards protection of NR consumers through issue of advisory letters, discussions, analytical services and implementation of BIS certification scheme for raw rubber and latex concentrates. Pamphlets developed for educating the consumers on the various types and grades of rubber were also distributed among consumers.

(6) Production and Market promotion of Technically specified and speciality Rubbers

The work connected with the erection of a new electric drier was completed. The Pilot Crumb Rubber Factory processed a total quantity of 315.54 M.Tonnes of different grades of technically specified rubber against 275.12 M.Tonnes during 1987-88. The performance did not improve as desired due to shut down for 2½ months in connection with erection of the new drier, labour unrest and lack of water during summer months. However, the factory could process 23 M.Tonnes of general purpose natural rubber 35.5 M.Tonnes dry rubber equivalent of

....52/-

preserved field latex and samples of speciality rubbers like PA-80 and SP rubber. A total of 300.55 M.Tonnes of rubber costing Rs.60.30 lakhs was marketed, achieving an average sales realisation of Rs.21.46 for the latex grade and Rs.18.16 for the scrap grade. The work connected with setting up of a latex concentrate factory at CES, Chethackal was almost complete and arrangements were made for recruitment of personnel, collection of raw materials and for trial production.

(7) Modernisation of small holdings

Efforts for the modernisation of small holdings by implementation of various schemes through village level Rubber Producers' Societies were continued. As a result, 350 Rubber Producers' Societies were registered, out of which 341 societies were granted approval. As on 31.3.1989, there were 535 approved Rubber Producers' Societies functioning in the various rubber growing areas. The work of all these RPSs were monitored and inspections were conducted whereever necessary. Implemented the following schemes through the Rubber Producers' Societies.

1) Scheme for equipping the latex collection centres

The following equipments were issued to the Rubber Producers' Societies in lieu of the financial assistance as provided in the scheme, for establishment of latex collection centres.

Sl.No.	Name of equipments	Issued during the period	Cumulative total
1	Platform balance	12	65
2	Chemical balance	12	52
3	Air Oven	15	65
4	Bulking tank	4	49

2) Scheme for equiping sheet and scrap rubber collection centres at village level

A total of 92 platform balances were issued to the Rubber Producers Societies during the year for the sheet and scrap collection centres. Among the 194 Rubber Producers' Societies who have been given assistance for operating sheet and scrap collection centres, 118 participated in the scheme for procurement of members produce and marketing the same to selected tyre companies. The following tyre companies thus procured a total quantity of 2098.60 M.Tonnes rubber providing grade benefits to

a l.

Name of the Tyre company	Area from where the small holders rubber was collected
i) M/S.Dunlop India Ltd.	Kottayam, Muvattupuzha and Thodupuzha.
ii) M/S.Modi Rubbers Ltd.	Punalur and Pathanamthitta
iii) M/S.MRF Ltd.	Kozhikode and Kottayam
iv) M/S.Vikrant Tyres Ltd.	Cannanore area

A scheme to procure sheet rubber by Kerala State Co-operative Rubber Marketing Federation through their various depots making use of the facilities developed by the Rubber Producers Societies, was evolved for implementation.

3) Scheme for setting up of smoke houses

The scheme was continued and 4 Rubber Producers' Societies namely, Kadayanickad, Elangulam, Navolimattom and Pothanicadu, completed their smoke houses. Construction work of 15 more is in progress, out of which 5 smoke houses are in an advanced stage of completion. An amount of Rs.6.63 lakhs was paid as subsidy for setting up the smoke houses.

4) Scheme for providing financial assistance to RPSs for setting up of Group Processing Centres

The scheme for financial assistance to RPSs to operate smoke houses as Group Processing Centres was initiated, under which Rs.43,000/- and equipments for latex collection and processing were given to 4 RPSs.

5) Scheme for supply of inputs to small orpwers at subsidised rates.

Evolved separate scheme for supply of fertilizers, spraying materials, panel protection materials, rainguarding materials, sieves, paranitrophenol, plastic cups, cup hangers, head lights, tapping knives and sub soil water injectors. All these were implemented, excepting the scheme for distribution of headlights. The following inputs were procured and distributed under the scheme including carryover stock.

	Procured	Distributed
(1) Fertilizers		
Urea	1370 M.Tons	1414 M.T.
Muriate of potash	1084 "	1363.4"
Mussoria Rock phosphate	3250 "	4090 "

....5a/-

(2) Spraying materials		
Copper sulphate	165 M.Tons	178.7 M.T.
Copper oxychloride	20.607 M.T.	24284 "
Spray oil	100 KL	60.6 KL
(3) Panel protection materials		
Sopkot	10 MT	3.2 MT
Emissan	300 kg	1,177 kg
(4) Raincuarding materials		
Polythene sheet	55 M.Ton.	58.0 MT
Adhesive	70 M.Ton.	165.0 "
(5) Paranitrophenol	500 kg.	407.0 kg.
(6) Sieves	5020 Nos.	6584 Nos.
(7) Jebong Tapping Knieves	10,000 Nos.	2643 "
(8) P.Girdle	50,000 Nos.	40,800 "
(9) Plastic cups - white	3.24 lakhs	10,40,125 nos
Black	8.51 "	
(10) Sub soil water injectors	100 nos.	62 nos.

Distribution of the inputs was decentralised also to Taliparamba, Manjeri, Muvattupuzha and Pathanamthitta. Earlier the distribution was from Kottayam alone.

Two more schemes, namely scheme for providing assistance to Rubber Marketing Co-operative Societies for setting up of community processing centres and scheme for providing financial assistance to Co-operative Rubber Processing factories for establishing Diesel Generating Sets, were implemented. The Kasargode District Co-operative Rubber Marketing Society established a Community Processing Centre consisting of a processing shed, a 500 kg. RRIM type smoke house at a cost of Rs.4.02 lakhs, also utilising an amount of Rs.3 lakhs offered as subsidy in two instalments. Diesel Generator sets with 380 KVA capacity were procured and commissioned by the crumb rubber factories of the Kerala State Co-operative Rubber Marketing Federation at Kanjirapally and the Palghat District Co-operative Rubber Marketing Society at Mannarghat. Also generators with 125 KVA were procured and commissioned by the Changanacherry Co-operative Rubber Marketing Society and Kaduthuruthy Co-operative Rubber Marketing Society at their Pale Latex Crepe factories. A total of Rs.9.6 lakhs were given to these 4 co-operative factories as subsidy.

(6) Market studies, and connected activities

i) Rubber price support operation

The rubber prices had fallen below the lower level of the price band during October-November and hence price support operations were initiated. Floor prices were revised at Rs.1780 for RMA - 4 and Rs.1730 for RMA-5 per quintal and the STC was fielded to make floor price procurement. They appointed Kerala State Co-operative Rubber Marketing Federation and the Kerala State Warehousing Corporation as their agents to procure rubber. During the year, the STC procured 4288.55 M.Tonnes of rubber consisting of 1577.7 M.T. of RMA-4, 1217.85 MT of RMA-5 and 1493 MT of ISNR-20.

ii) Directory of Rubber Goods Manufacturers in India

Efforts were made to bring out the revised edition of the directory of rubber goods manufacturers in India. Collected names and addresses of the manufacturing units, names of products quantity of rubber licensed to each unit and compiled the details State-wise and product-wise. Also prepared lists of processors of centrifuged latex, preserved field latex, creamed latex, crumb rubber, and Pale latex crepes and a note on the rubber industry in India, for incorporation in the Directory. Arrangements for printing the directory were completed.

(iii) A study on centrifuged latex industry was undertaken. The draft report isbeing finalised incorporating more details.

iv) Price monitoring

Continued to collect, compile and disseminate the daily, weekly and monthly prices of various types and grades of rubber including scrap rubber at Cochin and Kottayam markets.

v) Natural Rubber subsidy scheme

Calculation and dissemination of NR subsidy payable to exporters of rubber goods to compensate them for higher indigenous price of raw rubber, was continued. Compiled NR subsidy for the months December 1987 to November 1988 and intimated the same to the Commerce Ministry, Capexil and 26 port authorities.

....56/-

(2) Spraying materials		
Copper sulphate	165 M.Tons	178.7 M.T.
Copper oxychloride	20,607 M.T.	24284 "
Spray oil	100 KL	60.6 KL
(3) Panel protection materials		
Sopkot	10 MT	3.2 MT
Emissan	300 kg	1,177 kg
(4) Raincuarding materials		
Polythene sheet	55 M.Ton.	58.0 MT
Adhesive	70 M.Ton.	165.0 "
(5) Paranitrophenol	500 kg.	407.0 kg.
(6) Sieves	5020 Nos.	6584 Nos.
(7) Jebong Tapping Knieves	10,000 Nos.	2643 "
(8) P.Girdle	50,000 Nos.	40,800 "
(9) Plastic cups - white	3.24 lakhs	10,40,125 nos.
Black	8.51 "	
(10) Sub soil water injectors	100 nos.	62 nos.

Distribution of the inputs was decentralised also to Taliparamba, Manjeri, Muvattupuzha and Pathanamthitta. Earlier the distribution was from Kottayam alone.

Two more schemes, namely scheme for providing assistance to Rubber Marketing Co-operative Societies for setting up of community processing centres and scheme for providing financial assistance to Co-operative Rubber Processing factories for establishing Diesel Generating Sets, were implemented. The Kasargode District Co-operative Rubber Marketing Society established a Community Processing Centre consisting of a processing shed, a 500 kg. RRIM type smoke house at a cost of Rs.4.02 lakhs, also utilising an amount of Rs.3 lakhs offered as subsidy in two instalments. Diesel Generator sets with 380 KVA capacity were procured and commissioned by the crumb rubber factories of the Kerala State Co-operative Rubber Marketing Federation at Kanjirapally and the Palghat District Co-operative Rubber Marketing Society at Mannarghat. Also generators with 125 KVA were procured and commissioned by the Changanacherry Co-operative Rubber Marketing Society and Kaduthuruthy Co-operative Rubber Marketing Society at their Pale Latex Crepe factories. A total of Rs.9.6 lakhs were given to these 4 co-operative factories as subsidy.

.....55/-

(6) Market studies, and connected activities

i) Rubber price support operation

The rubber prices had fallen below the lower level of the price band during October-November and hence price support operations were initiated. Floor prices were revised at Rs.1780 for RMA - 4 and Rs.1730 for RMA-5 per quintal and the STC was fielded to make floor price procurement. They appointed Kerala State Co-operative Rubber Marketing Federation and the Kerala State Warehousing Corporation as their agents to procure rubber. During the year, the STC procured 4288.55 M.Tonnes of rubber consisting of 1577.7 M.T. of RMA-4, 1217.85 MT of RMA-5 and 1493 MT of ISNR-20.

ii) Directory of Rubber Goods Manufacturers in India

Efforts were made to bring out the revised edition of the directory of rubber goods manufacturers in India. Collected names and addresses of the manufacturing units, names of products quantity of rubber licensed to each unit and compiled the details State-wise and product-wise. Also prepared lists of processors of centrifuged latex, preserved field latex, creamed latex, crumb rubber, and Pale latex crepes and a note on the rubber industry in India, for incorporation in the Directory. Arrangements for printing the directory were completed.

(iii) A study on centrifuged latex industry was undertaken. The draft report isbeing finalised incorporating more details.

iv) Price monitoring

Continued to collect, compile and disseminate the daily, weekly and monthly prices of various types and grades of rubber including scrap rubber at Cochin and Kottayam markets.

v) Natural Rubber subsidy scheme

Calculation and dissemination of NR subsidy payable to exporters of rubber goods to compensate them for higher indigenous price of raw rubber, was continued. Compiled NR subsidy for the months December 1987 to November 1988 and intimated the same to the Commerce Ministry, Capexil and 26 port authorities.

....56/-

vi) Marketing and connected activities

Continued collecting progress reports and annual marketing plans from co-operative societies offered necessary advice. The payments due from them towards refund of loans advanced during previous years and dividends due were collected. Monitored marketing of crumb rubber produced by the six co-operative factories established under the Kerala Agricultural Development Project and provided assistance for the Kerala State Co-operative Rubber Marketing Federation for resolving their marketing problems.

Assisted the NAFED to market the rubber procured through the Monippally Rubber Marketing Society and the Meenachil Rubber Marketing and Processing Society. Rendered marketing assistance to the Kanjirapally Co-operative Rubber Marketing Society and the Punchavayal Rubber Industrial Co-operative Society. Export promotional activities for rubber goods manufactured in India by carrying out liaison work with various export houses and manufacturers were undertaken. The lists of units manufacturing surgical, industrial and examination gloves, hose pipes, cycle tyres, two wheeler tyres, trolly tyres, tricycle tyres, solid tyres and latex thread were prepared and made available to various parties on request.

.....

spn/

PART VI

ADMINISTRATION

The basic administrative functions of assisting the Board to form its policies and plan of action to achieve the goals envisaged under Section 8 of the Rubber Act, communicating the Board's decision to various functionaries and monitoring the performance as well as centralised personnel management activities are performed by a separate Department of Administration. The major functions of the department consist of constitution/reconstitution of the Board and its Committees, arrange regular meeting of the Board/Committees, prepare and present to the Government and other bodies Annual Report, Annual Accounts and periodical progress reports, liaise with the Government and other institutions for clearance of the proposals approved by the Board for development of the rubber industry, maintenance of Board's establishment, collection of cess, licensing of rubber traders and rubber manufacturers, undertake market intelligence activities, publicise Board's schemes and activities, carry out labour welfare measures, collection of statistics, preparation of plans and proposals for increasing natural rubber production in the country, attend to vigilance and legal functions, arrange for O & M studies and training of administrative personnel etc.

These functions were carried out through the following sections/divisions/offices:

1. Establishment (general administration, personnel administration and entitlements)
2. Board's Secretariat
3. Excise Duty
4. Market intelligence
5. Licensing
6. Statistics & Planning
7. Publicity and Public Relations
8. Labour welfare
9. Legal
10. Internal Audit
11. Vigilance
12. Hindi
13. O & M
14. Sub/Liaison Offices

All the sections except Statistics & Planning and Vigilance functioned under the Secretary. These two are functioning directly under the Chairman. The Sub/Liaison Offices in Bangalore, Madras, Bombay, Ahemadabad, Delhi, Jalandhar, Kanpur and Calcutta continued to function as part of the Administration Department.

1.1 General Administration/Staff welfare:

The activities of the Board were documented through annual reports and presented to the Govt. Towards staff welfare measure, eligible employees were granted children's educational allowance/reimbursement of the tuition fee etc. During the period 56 employees were given financial assistance for the construction of houses by advancing Rs.17,94,438/- as per the approved scheme. Vehicle advance of Rs.3,44,410/- was paid to 35 employees. Maintenance works of the office buildings and of the staff quarters were done as necessary and water supply/electricity facilities were ensured to all Head Quarters

....58

Offices/Staff quarters. To make the concerned officers and staff mobile in their bid to serve the producers and consumers of rubber, the Board owned 70 vehicles which were maintained in good condition. The services of the post, telegraphs, telephone and telex and computer were harnessed in a bid to obtain good communication facilities. Further action to implement the Board's decision to establish a Central School in Kottayam town as well as to get the head quarters building of the Board constructed in the plot acquired were taken. Board's canteen at Head Quarters was operated efficiently and a subsidy of Rs.37,716.00 was paid during the year.

1.2 Personal Administration:

Selection of suitable personnel essential for the smooth functioning of the Board was ensured based on the sanction by the Board and the IWSU clearances by following recognised recruitment procedure and statutory provisions relating to reservation of posts for candidates from the SC/ST category. Periodical returns on the personnel recruited were sent to the Govt. and to the Employment Exchange. Service Book, Leave accounts and personnel files of employees were maintained. Retirement benefits were granted promptly to all the employees who superannuated during 1988-89.

The total number of Officers and staff under the Board as on 31-3-89 was 1715, as detailed below:

Department	GROUP A	GROUP B	GROUP C	GROUP D	Consolidated pay	Total
Administration	24	56	164	22	-	266
Rubber Production	59	223	623	55	6	966
Research	47	93	171	31	16	358
D.R.P.	15	19	42	5	10	91
Finance & Accounts	2	5	20	1	-	28
Dept. of Training	1	2	3	-	-	6
Total:	148	398	1023	114	32	1715

1.3 Public grievance:

A total of 1355 public complaints were received during the year. Of these 1127 were disposed of in favour of the applicants. The complaints were mainly on non-receipt of financial aid for rubber cultivation. Representation on service matters from employees of the Board had also formed part of the grievances.

Eighty two complaints had to be rejected since the grievances were not found redressable as they were outside the purview of the schemes implemented. The grievances pending disposal at the end of 31.3.89 were 126.

Excise duty (Cess) on rubber:

Under Section 12(1) of the Rubber Act 1947, a duty of excise not exceeding 50 paise per kg. is to be levied on all rubber produced in India. The cess is collected under Section 12 (2) of the Act, on the quantity of rubber acquired by the manufacturers, except in the case of Sole Crepe rubber which is collected from the producers. Every manufacturer has to obtain a licence to acquire natural rubber and is bound to give monthly and half yearly returns showing the quantity of rubber acquired and consumed. It is on the basis of the purchases reported in the half yearly returns that the assessment of cess is normally made.

2.1 Issue of licence:

Licences are issued under Rule 40 of the Rubber Rules 1955 to prospective manufacturing units and such licences are renewed in the subsequent years. Some manufacturers after exhausting the originally licensed quantity, apply for licence for acquiring additional quantity of rubber. In such cases supplementary licences are issued. Some licensed manufacturers require licence in an emergency to sell rubber acquired by them to another manufacturer who is also holding a valid licence. In such cases, emergency licenses are to be issued under Rule 40 A.

The details of licences issued during the year 1988-89 are given below:

	1988-89	1989-90
a/ Fresh licences	525	37
b/ Renewal licences	1163	3469
c/ Supplementary licences	39	-
d/ Emergency licences	5	-
Total:	1732	3506

During the previous period, the licence in respect of 3000 manufacturers were renewed for the year 88-89. Thus the total number of licences issued for the year 88-89 was 4732. Deducting the supplementary and emergency licences issued to 44 manufacturing units, the total number of manufacturers to whom licence were issued during 88-89 was 4688. The statewise distribution of the licensed manufacturer is furnished hereunder:

Sl.No.	Name of the State	No. of units
-1	Kerala	742
-2	Maharashtra	551
-3	Punjab	496
-4	West Bengal	482
-5	Uttar Pradesh	442
-6	Tamilnadu	433
-7	Delhi	391
-8	Gujarat	300
-9	Haryana	244
10	Karnataka	207
11	Andhra Pradesh	146
12	Madhya Pradesh	70
13	Rajasthan	64
14	Bihar	39
15	Orissa	20
16	Himachal Pradesh	18
17	Pondicherry	15
18	Goa	14
19	Assam	4
20	Tripura	4
21	Daman	3
22	Kashmir	2
23	Manipur	1
	Total:	4688

The list of licensed manufacturers was prepared and supplied from time to time for reference to the rubber dealers and interested public.

During the period, licences of 7 manufacturers were suspended on account of serious irregularities and mal-practices in their business. On receipt of explanation and on compensating the cess loss, the licences of two manufacturers were restored. Licences in respect of 3 units were cancelled at their request.

2.2 Registration of letter of authorisation to purchase rubber by dealers on behalf of manufacturers:

Apart from the issuance of licence to the manufacturers, registered 981 letters of authorisation from manufacturers in favour of dealers to purchase and despatch rubber on their behalf.

2.3 Registration of Branch/purchase Depots:

On the basis of the application received from the manufacturers 6 new branches/purchase depots were registered.

2.4 Letter of authorisation to purchase rubber to units situated in Jammu & Kashmir:

Letters of authorisation were issued to 5 manufacturers in Jammu & Kashmir to purchase natural rubber from the licensed rubber dealers/processors.

2.5 Assessment of Excise Duty on rubber:

A total of 9,286 half yearly returns were obtained during 1988-89 from various rubber goods manufacturers and Sole Crepe Producers. Inspection reports in respect of 1,090 manufacturers were received from the various Liaison Officers and other inspecting officials. These reports were scrutinised in issue of licence and assessment of the cess. On the basis of discrepancies detected in the books of accounts of manufacturers and cross checking their monthly returns with their half yearly returns and the monthly returns of dealers etc., additional assessments were made in 155 cases on a quantity of 13,36,229 kgs. of rubber involving a cess amount of Rs.6,64,484/-. The total amount of cess assessed during the period was Rs.1,275.97 lakhs.

2.6 Collection of Excise Duty on rubber:

The amount of cess collected during the period far exceeded the target fixed. As against the target of Rs.1200 lakhs, the actual collection rose to Rs.1,266.58 lakhs. This was remitted to the Consolidated Fund of India. The amount included recovery of Rs.90 lakhs out of old arrears.

2.7 Amendment in procedure:

An important modification brought about in the licensing Procedure was issuing licence to manufacturers in Jammu & Kashmir on the basis of their application, licence fee and advance cess in lieu of the letter of authorisation being issued previously.

2.8 Court cases:

The Board had filed a complaint in the court of Chief Judicial Magistrate, Kottayam for prosecuting a manufacturer for contravening provisions of the Rubber Act & Rules. Arrangements for opposing a petition filed by an applicant for a new licence in Agra in the Court of District Judge, Agra were also made.

3. Licensing of rubber dealers:

Licences are issued to rubber dealers and processors according to Section 14 of the Rubber Act and Rule 39A of the Rubber Rules, 1955. At the beginning of the year there were only 5,808 licensed dealers. Their strength increased to 6,450 at the close of the year. Similarly the number of processors was 84 which has risen to 88 at the year end.

3.1 Dealers Licence:

During the period 1,097 dealers licences were issued, of which 907 were fresh licences and 190 renewal of licences. Of these 942 (888 fresh licences and 54 renewal) licences were for one year i.e. validity upto 1988-89, 4 (renewal) licences were for 2 years i.e. validity upto 1988-90 and 149 licences (19 fresh and 130 renewal) were for 3 years i.e. validity upto 1988-91. Two short period new licences were also issued.

In addition, 2,765 licences were issued in advance with validity effective from 1-4-'89. Of these 398 were for 1989-90, 5 for 1989-91 and 2362 for 1989-92.

Statewise distribution of licences are as follows:-

a/ Kerala:

Sl.No.	Name of District	No. of dealers
-1	Kottayam	1,984
-2	Ernakulam	873
-3	Pathanamthitta	664
-4	Quilon	657
-5	Trivandrum	370
-6	Idukki	314
-7	Cannanore	225
-8	Calicut	151
-9	Trichur	72
10	Palghat	94
11	Kasargode	31
12	Malappuram	184
13	Wynad	37
14	Alleppey	25
	Total:	5,681

b/ Outside Kerala:

Sl.No.	Name of State/Union Territory	No. of dealers
-1	Rajasthan	1
-2	New Delhi	135
-3	Tamilnadu	183
-4	Maharashtra	81
-5	Utter Pradesh	52
-6	Punjab	104
-7	Haryana	22
-8	Karnataka	52
-9	Madhya Pradesh	3
10	Gujarat	19
11	Chandigarh	3
12	Mizoram	1
13	Bihar	2
14	Andamans	6
15	Tripura	9
16	Orissa	1
17	Assam	2
18	West Bengal	92
19	Meghalaya	1
	Total:	769

5,681 + 769 = 6,450

3.2 Processors Licence:

Twenty Processors licences were issued during the period, 14 fresh licences and 6 renewals. Besides, 78 processors licences were issued with validity effective from 1-4-89 onwards.

As on 31-3-89 there were 88 licensed rubber processors all over India. The state-wise/districtwise distribution of licensed processors as on 31-3-89 is given in the following table:

a/ Kerala:

Sl.No.	District/State	No. of unit
-1	Cannanore	1
-2	Ernakulam	11
-3	Idukki	2
-4	Kottayam	38
-5	Calicut	2
-6	Kasargode	3
-7	Malappuram	8
-8	Palghat	2
-9	Trichur	5
10	Trivandrum	3
11	Pathanamthitta	1
	Total:	76

b/ Outside Kerala:

-1	Karnataka	4
-2	Tamilnadu	7
-3	Tripura	1
	Total:	12
	Grand Total 76 + 12 =	88

3.3 Registration of branches:

Registered 1,116 branches of the dealers for the year 1988-89. Already 218 branches were registered earlier. As such, as on 31-3-89 there were 1,334 registered branches of the dealers in the country.

3.4 Registration of agents:

On the basis of the authorisation letters received from the dealers authorising certain other dealers to function as their agents on commission basis 317 agencies were registered. Taking into account the agencies already registered earlier, the total number of the agencies as on 31-3-89 was 418.

3.5 List of licensed rubber dealers:

Three batches of the list of licensed rubber dealers were prepared and printed in book form. The fourth batch prepared was cyclostyled. Supplied 696 books of 1st batch, 685 books of second batch, 670 books of third batch and 281 lists of fourth batch and collected Rs.11,821/- towards sale value. Arrangements were made for sale of the books at the Sub Offices outside the State of Kerala.

.....63

4. Market intelligence:

Detection of bogus/unlicensed dealings in rubber, arranging surprise inspection of the business premises of dealers for verification of their books of accounts and the physical rubber stock and cross verification of the statutory returns of dealers/manufacturers/processors/estates for ascertaining the actual quantity acquired in a bid to prevent evasion of cess formed the major portion of the market intelligence work. Suitability of the applicants to hold fresh licences/branch registrations in rubber trade was also evaluated.

4.1 Inspection and verification:

During the year, 1,791 inspections as given below were conducted:-

a/	No. of inspections in connection with the dealers licences	: 888
b/	No. of inspection in connection with shifting of premises of dealers and registration of branch/godown	: 215
c/	No. of surprise inspections of the premises of licensed dealers/processors for verification of accounts and records.	: 458
d/	Detailed verification of accounts and records of dealers and processors at the office	: 108
e/	Inspection of manufacturing units and their accounts	: 35
f/	Detection of unlicensed dealing in rubber	: 10
g/	Confidential enquiry regarding issue of licences, agency registration etc.	: 68
h/	Inspection for issue of authorisation to acquire Latex and sell it after ammoniation	: 9
	Total	: 1,791

4.2 Detection of bogus transaction:

With a view to curtail bogus transactions and to detect bogus dealers, timely watching and scrutity of Form 'N' declarations and connected returns were undertaken. Suspicious transaction of certain dealers were detected and reported to concerned liaison officers for immediate enquiry and detailed report. This resulted in prevention of certain bogus transactions by manufacturers and dealers. The licence of 5 manufacturers and 13 dealers were suspended.

4.3 Detection of unlicensed dealing:

As a result of the surprise inspections conducted, 10 cases of unlicensed dealings were detected. But as the quantities were small, prosecution steps were not initiated against them.

....64

They were warned and appr-ised of the consequences if such unlicensed dealings were detected in future. Consequently, they stopped such dealings. Later on, applied for licenses and were brought under the purview of the Rubber Act through issue of licence.

Close contact with the Sales Tax department of Kerala State as well as the Police department was maintained. At Kalpetta 4 lorry loads of rubber latex (180 barrels) were seized by the Police, Kalpetta on the basis of our complaint. The material was released by the First Class Judicial Magistrate Court on the strength of bonds for Rs.8 lakhs executed by the claimant. The complaint is being investigated by the police under crime Nos. 175/88, 176/88, 177/88 and 178/88.

Another complaint was also filed before the Superintendent of Police, Kottayam to investigate into the involvement of one dealer at Kanjirappally in the forging and printing of N2 declaration forms for inter-State transport of rubber. Two lorry loads of latex (99 barrels), 2 lorry loads of sheet rubber (15,790 kgs.) and one lorry load of sheet rubber (10 tonnes) were seized by the police authorities of Sultan Battery, Tamarassery and Calicut respectively, on the basis of the complaint filed by the Board. Private complaints were also filed before the 1st class Judicial Magistrate Court at Sulthan Battery and Tamarassery. On direction from the Hon'ble High Court of Kerala in connection with the disposal of a complaint relating to filing of writ petition by impersonation, a detailed report regarding the Board's experience in dealing with the evasion of rubber cess and other violations of the provisions of the Rubber Act and Rule was filed before the Court.

4.4 Cross checking of returns/form N declarations:

Cross checking of monthly returns of 48 dealers, 17 manufacturers and 15 estates with those of their suppliers/purchasers was carried out. Unaccounted purchases was detected and a sum of Rs.5,83,027/- was realised from dealers on account of their sale of rubber to bogus dealers/manufacturers.

4.5 Supply of declaration forms for inter-State transport of rubber and scrutiny of daily movement of rubber through Walayar Sales Tax Checkpost:

A total of 10,142 form N books were supplied to various estates/processors/dealers/manufacturers, the brakup of which is given below:

Form N1	-	1,664
Form N2	-	2,860
Form N3	-	568
Form N4	-	5,050
		10,142

During the year 58,197 copies of form N declarations were scrutinised and entered in the concerned form N Return Registers. Whenever discrepancies were noticed, explanation/clarification were called for from the concerned parties. As per daily statement received from Walayar Sales Tax Checkpost 19,040 consignments of rubber had passed through the checkpost. These were cross verified with the returns of the concerned parties.

.....65

5. Statistics & Planning:

5.1 General statistics:

Statutory monthly returns collected from rubber growers, dealers, processors and manufacturers were compiled and analysed every month. The sample studies in small-holding sector by field visits were continued with the help of the field staff in order to ascertain the monthly variation in production, stock etc. pertaining to small growers. The data collected from various sources were computed and production, consumption, import and stock of rubber were worked out on monthly basis. These details are presented in tables attached as part IX of this report.

Supply, demand and price of rubber was periodically monitored and appropriate recommendations were made to the Government. The Statistics & Import/Export Committee and the Rubber Board met twice to review the demand and supply of rubber based on statistical data and advised the Govt. on the rubber position in the country. Continued to furnish relevant information to the various organisations connected with the rubber industry. The "Rubber Statistical News" (monthly) was published regularly. This covers among other things details of production, consumption, import and stock position of natural, synthetic and reclaimed rubber and price of natural rubber.

Materials were prepared and furnished for answering Parliament questions and Kerala Legislative Assembly questions pertaining to various aspects of the rubber industry. A comprehensive note on rubber was prepared and forwarded to the Govt.

The census work of rubber area was initiated in March 1989. The field work was completed during 1988-89. A total of 175 villages scattered in all districts of Kerala and Kanyakumari District of Tamilnadu were selected for the census work. Enumerators were temporarily appointed for carrying out the field work. Their work was properly guided and co-ordinated. Data pertaining to 67,000 smallholdings were collected. Field conditions in 1,650 holdings out of these were cross verified and further details were collected.

5.2 Planning:

'Monthly reports' pertaining to the rubber plantation industry were prepared and forwarded to the Govt. of India. These reports interalia included trends in production, consumption, import, stock and price of rubber, progress of assessment and collection of excise duty and progress of important Plan Schemes. Prepared Annual Plan for Rubber for 1989-90. Initiated the work on preparing 8th Five Year Plan for rubber.

5.3 Supply of information to world organisations:

Continued to supply information to world organisations like the International Rubber Study Group (IRSG), London and the Asssociation of Natural Rubber producing Countries (ANRPC), Kuala Lumpur.

A meeting of the ANRPC Working Group on improvement of natural rubber statistics was held in Cochin from 4th to 6th May, 1988. Ten foreign participants including 3 officials of ANRPC attended it. Proper arrangements were made for hosting the meeting.

...66

The 13th Assembly of the Association of Natural Rubber Producing Countries (ANRPC) and connected committee meetings were hosted by India in Bangalore on 16th and 17th August 1988. Prior to the Assembly, the 5th Meeting of the ANRPC Working Group on Improvement of Natural Rubber Statistics was held from 8th to 10th August. The 11th Meeting of the Committee of Experts was held on 11th and 12th and the 3rd meeting of the International Natural Rubber Council was held on 13th August. Necessary facilities were provided for conducting the meetings.

6. Publicity:

6.1 Journals and publications:

The circulation of the Rubber Magazine recorded an upward turn with an average of 12,000 copies a month. The scheme for enrolling perpetual subscribers continued to attract encouraging response. The total perpetual subscribers now stand raised to 3,454. A total of 1,44,000 copies of the magazine were got printed and distributed as against 1,26,500 copies during the previous year.

Four issues of the quarterly Rubber Board Bulletin were also broughtout. One issue of the Indian Rubber Statistics compiled by the S & P Division was brought out and distributed. The revised and updated edition of the Malayalam Book entitled "Rubber Vithumuthal Vipani Vare" (3rd edition) was released. This edition has 2,000 copies. The Rubber Grower's Companion 1989, a combined handbook and diary was published in December 1988 to ensure prompt distribution by the beginning of January 1989. It contained 344 pages, including 140 pages of reference material on different aspects of rubber cultivation.

6.2 Press releases and advertisements:

Press releases on various topics were released to the national dailies which secured wide coverage. A total of 152 press releases and 66 advertisements were issued. Farm features were also prepared and released to 'Karshika Rangam' pages of Malayalam Dailies.

6.3 Promotional Campaign to boost rubber production and productivity:

An intensive drive was launched to boost rubber production and productivity from 25th April to 13th May 1988 in the traditional rubber growing areas of Kerala and Kanyakumari Dist. of Tamilnadu. Group meetings were held in 340 rural centres in these regions. In all, 24,170 growers actively participated in the proceedings and the discussions that followed. The campaign was also instrumental to enlisting 3,417 subscribers and 402 perpetual subscribers for the 'Rubber' magazine.

6.4 Rubber Producers' Societies:

In order to modernise rubber cultivation in rural areas, organised 610 Rubber Producers' Societies throughout the rubber growing areas. The objective in organising the Societies is to disseminate innovative cultivation techniques to the rural farmers. As part of the many schemes popularised and implemented, 4.5 lakhs of polybagged plants were raised through 101 selected Rubber Producers' Societies.

.....67

6.5 One day seminars:

In the traditional areas 113 one day seminars were conducted in addition to the group meetings organised in connection with the promotional campaign. Out of the 113 seminars, 60 were full day and 53 were half day seminars. Four full day seminars were organised with the active involvement of the Service Co-operative Banks, one by MCBS Generalate of Chunanganvely near Alwaye and 108 by Rubber Producers' Societies. These seminars were sponsored in association with fertilizer firms like FACT, PPCL and Indian Potash. On an average 50 to 300 rubber growers participated in one meeting.

6.6 Exhibition:

The Rubber Board participated in the Industrial Trade Fair 1988 organised by the Mizoram Government. The fair was held at Aizwal from 8th to 13th December 1988. Charts and photographs were displayed highlighting various aspects of rubber cultivation.

6.7 Other activities:

All channels of the media were utilised in propagating the activities of the Rubber Board. Both All India Radio and Doordarshan highlighted our achievements in various spheres of activities. The Malayalam Dailies played a prominent role by allotting enough space in popularising the farm features issued by the Rubber Board.

7. Labour Welfare:

In order to promote measures for securing better working conditions and the provisions, and improvement of amenities and incentives to Rubber Plantation Workers as per Section 8 (2) of Rubber Act 1947, continued to implement the Educational stipend, Medical Attendance and Group Insurance-cum-Deposit Schemes during the year. All the schemes were simplified to minimise procedural delays in offering the benefits to the plantation workers. A new scheme named Housing Subsidy Scheme was introduced on an experimental basis.

A total amount of Rs.19,78,202/- was disbursed towards labour welfare measures during 1988-89 as per details furnished below:-

1. Educational stipend	:	Rs.13,12,194.00
2. Group Insurance-Cum-Deposit	:	Rs. 87,300.00
3. Medical attendance	:	Rs. 57,708.00
4. Housing subsidy	:	Rs. 5,21,000.00
Total	:	Rs.19,78,202.00

7.1 Educational stipend scheme:

The scheme provides educational assistance to children closely related to rubber plantation workers for undergoing studies in recognised courses in Arts, Science, Commerce, Engineering, Agriculture and Medicine. The educational stipend covers reimbursement of tuition fee, hostel/boarding fee and grant for purchase of books, instruments etc. An amount of Rs.13,12,194/- was paid to 7,400 workers towards educational stipend. In order to overcome delay in payment, implementation of the stipend scheme would be decentralised at Regional Office levels with effect from 1.4.1989.

....68

/educational

7.2 Group Insurance-Cum-Deposit Scheme:

This scheme provides compensation to rubber plantation workers not covered by the provisions of Plantation Labour Act, 1951, against death/injuries by accidents. It will also develop a habit of savings among the workers on a long term basis. The scheme provides insurance coverage in a variety of circumstances. Number of workers were newly enrolled under the scheme during the year comes to 191, making the cumulative total to otal to 911. An amount of Rs.87,300/- was remitted towards Board's share in the names of the insured. Four workers obtained benefit of Rs.3,700/- through accident compensation.

7.3 Medical attendance scheme:

The Distress and Prolonged Illness Relief Scheme in existance was simplified to evolve the Medical Attendance Scheme. It provides grant of financial aid for treatment of prolonged illness exceeding two weeks to workers employed in the rubber plantations not covered by the provisions of the Plantation Labour Act and whose wages do not exceed Rs.1,600/- per mensem. An amount of Rs.57,708/- was disbursed to 110 workers during the period.

7.4 Housing Subsidy Scheme:

This scheme was introduced on an experimental basis for encouraging workers of rubber estates with a minimum of 5 years service, to help construct their own houses. A worker constructing a house with plinth area between 20 to 70 sq. mts. under an estimated cost not exceeding Rs.70,000/-, would be eligible for a grant of Rs.5,000/- for carrying out the finishing works after the roof has been laid. An amount of Rs.5,21,000/- was paid to 113 applicants.

8. Vigilance:

Anticorruption work, handling of disciplinary cases etc. in the course of enforcing CCA Rules and Conduct Rules form the major Vigilance function.

8.1 Complaints:

During the period took up enquiry/verification of 36 complaints containing allegations against 17 officers of Group A & B status and 19 employees of Group C & D status. The allegation in the complaints related to delay in dealing with subsidy files causing hardship to growers, recommendation of subsidy/financial assistance to ineligible growers, demand and acceptance of illegal gratification from growers, failure to maintain integrity/devotion to duty etc. Appropriate action was taken against the erring officials and grievances of the parties concerned were redressed.

8.2 Cases:

Major penalty proceedings against 15 officials and minor penalty action against 18 officials were taken during the year. Administrative action was also taken against 7 officials.

.....69

8.3 Property statements:

Annual statements of immovable property as on 31-12-1988 were called for from all officers of Class I & II (Group A & B) status. The statements received were scrutinised and 112 applications for sanction to acquire/dispose of immovable property and 77 applications pertaining to purchase/dispose of movable property were dealt with/processed.

8.4 Disciplinary cases:

Thirteen major penalty disciplinary cases were ordered for action, of which 5 were completed. All the Inquiry reports were accepted in toto by the Disciplinary Authority. Seven cases were pending for finalisation. One case was dropped by the Disciplinary Authority.

9. Legal matters:

The Legal functions include drafting agreements/contract/ other legal documents, rendering advice on labour/service matters, assisting in conciliation proceeding and tax cases, taking steps to initiate prosecution under the Rubber Act and Rules, assisting/briefing the lawyers in conducting litigation on behalf of the Board etc. During the year rendered well considered legal opinion/advice in more than 385 files. Fifty cases are at present pending in various courts for and against the Board, to protect the interest of which steps have been taken through lawyers. Twentyfour cases were initiated during the year while 22 cases were disposed of.

Amendments to Rubber Act and Rules were further pursued with the Central Government by furnishing the amendments in bill form. Effective assistance was given to Police, Public Prosecutors and the Sales Tax Authorities in registering FIR and investigating 9 crimes registered at various places, for keeping and transporting rubber in violation of the provisions of Rubber Act and Rules. Memoranda and Articles of Association of three companies, viz. M/s. Pazhassi Rubbers Pvt. Ltd., Ponmudi Rubbers Pvt. Ltd. and Pamba Rubbers Pvt. Ltd. were prepared and got the same incorporated under the Companies Act.

10. Internal Audit:

During the period under report, the internal audit was conducted in 21 units including 11 Regional Offices, 2 Zonal Offices, Sub Office, Calcutta, Licensing Section, Cochin, Research Complex, Guwahati, RRS, Agartala and Kamakhya Nagar, NRETC, Agartala, CES, Chethackal and C.R.N. Karikkattoor.

Follow ups on the previous inspection reports were actively pursued and compliance watched. A horizontal review of the Attendance Register for the year 1988 of all the offices/sections numbering 34 was conducted and the findings with a copy of relevant rules were intimated for rectifying defects.

Quarterly review reports were prepared on the basis of statements/returns received from the various offices/sections/ divisions on the following items:

i/ Office vehicles
ii/ Outstanding advances:
  a/ TA advance
  b/ Suspense advance
  c/ LTC advance
iii/ Annual stock verification

.....70

Audit on the accounts of the Rubber Board for the year 1987-88 was conducted during May-June 1988 by the A.G. Kerala. During the audit all pending paras for the years 1971-72 to 1986-87 were got reviewed. Out of 269 paras pending as on 1.4.1988, 156 paras were got dropped leaving a balance of 113 as on 31.3.89.

Introduction of a Log Book for using Taxi by visiting officers in Liaison Offices was suggested for implementation. Also modifications were suggested to the existing application forms for the RPD Schemes to improve the quality/clarity of the present reporting system in the field. In respect of Licensing Section, Cochin a new accounting procedure was got implemented and also suggested many improvements in the present functioning.

A special audit of the accounts of the HQ canteen was conducted and a report was presented.

Under the "Suggestion award scheme" 23 cases were received, out of which 12 cases were disposed of after thorough scrutiny and 11 were accepted and implemented.

11. Hindi work:

Meetings of the Official Language Implementation Committee were held two times, which reviewed progress of implementing provision in the Official Language Implementation Action. Quarterly Progress Reports showing the progress in use of Hindi were sent to the Ministry.

After attending Hindi classes, 45 employees appeared for the examination conducted by Ministry of Home affairs on November 1988 of whom 39 were eligible for Cash awards. Thirty more employees were undergoing training in Hindi. Seven employees were trained in Hindi Typewriting. Four in the earlier batch were eligible for cash award and personal pay.

One Hindi Workshop was conducted for the Senior officers in November 1988, in which 34 officers attended.

Hindi week was celebrated on 14th September 1988. Competition in essay, elocution, translation, letter writing, Noting and Drafting, quiz and typewriting were conducted. There were competitions for the children of employees. Hindi day was celebrated in the Regional Offices at Calicut, Trichur, Ernakulam, Palai and Trivandrum. Certificates and token prizes were awarded to the winners.

One Raj Bhasha seminar was conducted in the Head Quarters of the Board when a paper on "Hindi as Official Language" was presented. Employees of the Board, Hindi staff from colleges and schools and Hindi students attended the seminar.

Three issues of the Hindi Bulletin "Rubber Samachar" were published during the year. The book on "Rubber and its Cultivation" was translated and published in Hindi.

Annual Report, Audit Report and statement of accounts were issued bilingually.

12. Organisation development programme:

Conducted Procedure Simplification and Systems Improvement Study on the following areas/departments:

1. O&M Study in Administration Department.
2. Functioning of Mobile Soil Testing Labs. of the Agronomy Division of the RRII.
3. Glass Blowing unit of Chemistry Division of RRII.
4. Systems of registration in the Rubber Production Dept.
5. Reorganisation of the RP Establishment.
6. Reducing delay in implementation of decisions taken in the various meetings of the Board.
7. Work Study in the RP Accounts.
8. Fertiliser distribution of Marketing Division.
9. LTC processing - Evolved a new format for easier processing.
10. Reorganisation of Engineering Division.
11. Work Study of Licensing Section, Cochin.
12. Procedure simplification study of Licensing Section, Cochin.
13. MBO Study - prepared a detailed time/task oriented Action Plan for the year 1990-91.
14. Prepared Organisational Chart.
15. Developed proforma for half yearly evaluation of performance on all personnel appointed temporarily.

In addition, attempted organisational excellence by introducing and conducting Quality Circles Training Programme. One expert from Madras Port Trust conducted the introductory session. A hand book exclusively for Quality Circles was prepared.

13. Sub/Liaison Offices:

There are 8 Sub Offices in the major rubber consuming centres outside Kerala, at Ahemadabad, Bangalore, Bombay, Calcutta, Jalandhar, Kanpur, Madras and New Delhi. These are manned by Excise Duty Officers/Asst. Excise Duty Officers. They function also as Liaison Officers of the respective region providing a link between the Board and the local Government offices and institutions.

The officials assessed suitability of rubber dealers and rubber goods manufacturers to possess licences to purchase/deal in rubber and verified the books of accounts and records to ensure that all rubber procured have been subjected to excise duty assessment. Surprise/squad inspections were arranged at premises of certain dealers/manufacturers in order to detect unlicensed dealing in rubber in contravention of the Rubber Act and Rules.

They had pursued collection of arrears of excise duty. Their activities had a great bearing on cess collection of Rs.1266.58 lakhs surpassing the target of Rs.1200 lakhs for 1988-89 and the achievement of Rs.1116 lakhs during 1987-88.

PART - VII

FINANCE & ACCOUNTS

The Finance and Accounts Department looks after the following functions.

1. Formulate conventional budget, performance budget and foreign exchange budget.
2. Exercise budgetory control on the expenditure.
3. Place demand for grant from Government, collection and distribution of the funds and internally generated resources.
4. Advise on financial propriety and regularity of transactions.
5. Prepare accounts of the Board, get the same audited by the Accountant General and present the Audited Accounts to the Government/Parliament.
6. Make available to the Government and the Planning Commission details regarding financial achievements under Plan and Non-plan allocations.
7. Costing and financial evaluation of projects.
8. Attend to taxation matters; and,
9. Electronic Data Processing of various activities including financial accounting, Pay roll preparation, subsidy payment, etc.

IMPORTANT ACTIVITIES.

i) Budget.

The Revised Estimate 88-89 envisaged a total outlay of Rs.940-77 lakhs under Non-plan and Rs.1960.11 lakhs under Plan. The corresponding proposals for the Budget Estimate for 89-90 were to the tune of Rs.1027.36 lakhs and 2415.36 lakhs. These proposals were presented to the Government in October 1988. The release sought from Government against the budget proposals was Rs.2716 lakhs for 88-89 and Rs.3300 lakhs for 89-90, after adjusting the internal and extra budgetory resources. As against this the release initially sanctioned by the Government was Rs.1982 lakhs comprising of Rs.570 lakhs under Non-plan and Rs.1412 lakhs under Plan. Its inadequacy was brought to the notice of the Ministry at various levels and additional release of Rs.189 lakhs under Plan and Rs.15,90 lakhs under Non-plan was sanctioned by the Government in March 1989. The entire releases have been fully utilised. The performance of the Board for 88-89 was quite satisfactory with reference to financial achievements and management of funds within the budgetary allocations.

ii) Funds.

Under the Rubber Act, the Board maintains two funds i.e. General Fund and Pool Fund. All amounts paid to the Board by the Central Government under Sub Section 7 of Section 12 of the Rubber Act against budgets is credited to General Fund. The internal resources generated, including cost of collection of cess retained by the Board also forms part of

.....

PART - VII

FINANCE & ACCOUNTS

The Finance and Accounts Department looks after the following functions.

1. Formulate conventional budget, performance budget and foreign exchange budget.
2. Exercise budgetory control on the expenditure.
3. Place demand for grant from Government, collection and distribution of the funds and internally generated resources.
4. Advise on financial propriety and regularity of transactions.
5. Prepare accounts of the Board, get the same audited by the Accountant General and present the Audited Accounts to the Government/Parliament.
6. Make available to the Government and the Planning Commission details regarding financial achievements under Plan and Non-plan allocations.
7. Costing and financial evaluation of projects.
8. Attend to taxation matters; and,
9. Electronic Data Processing of various activities including financial accounting, Pay roll preparation, subsidy payment, etc.

IMPORTANT ACTIVITIES.

i) Budget.

The Revised Estimate 88-89 envisaged a total outlay of Rs.940-77 lakhs under Non-plan and Rs.1960.11 lakhs under Plan. The corresponding proposals for the Budget Estimate for 89-90 were to the tune of Rs.1027.36 lakhs and 2415.36 lakhs. These proposals were presented to the Government in October 1988. The release sought from Government against the budget proposals was Rs.2716 lakhs for 88-89 and Rs.3300 lakhs for 89-90, after adjusting the internal and extra budgetory resources. As against this the release initially sanctioned by the Government was Rs.1982 lakhs comprising of Rs.570 lakhs under Non-plan and Rs.1412 lakhs under Plan. Its inadequacy was brought to the notice of the Ministry at various levels and additional release of Rs.189 lakhs under Plan and Rs.15,90 lakhs under Non-plan was sanctioned by the Government in March 1989. The entire releases have been fully utilised. The performance of the Board for 88-89 was quite satisfactory with reference to financial achievements and management of funds within the budgetary allocations.

ii) Funds.

Under the Rubber Act, the Board maintains two funds i.e. General Fund and Pool Fund. All amounts paid to the Board by the Central Government under Sub Section 7 of Section 12 of the Rubber Act against budgets is credited to General Fund. The internal resources generated, including cost of collection of cess retained by the Board also forms part of

.....

the General Fund. Pool Fund is maintained by transfer from General Fund. This is utilised for the rehabilitation of the small growers. In addition to these the Board is dealing with other funds such as Rubber Board General Provident Fund, Rubber Board Provident Fund (Contributory) and Rubber Board Employees Pension Fund under Rules framed in this regard by the Government as per stipulations in the Act. The Pension Fund is maintained by transfer from General Fund, as prescribed in the Rules and as approved by the Government in the budget allocations. All payments to retired employees are made out of this fund. The Board is also maintaining a Group Insurance Scheme, linked with L.I.C. A Workers' Group Insurance Fund is also maintained under Labour Welfare Scheme.

iii) Collection of Cess.

The Board collects a cess on indigenous production of natural rubber at the rate of Rs.500/- per tonne under Section 12 (1) and (2) of the Rubber Act. These collections are immediately remitted to the Consolidated Fund of India. The remittances are made after retaining 2% as collection charges as per orders from Government. The budgeted figure for collection of cess during 88-89 was Rs.12 crores, against which the achievement was to the tune of Rs.12.67 crores.

iv) Expenditure position.

The expenditure for the period from 1-4-88 to 31-3-89 is provisionally worked out as follows subject to finalisation of accounts and completion of audit.

NON-PLAN

Sl.No.	Heads	Actuals for 88-89
1.	Administration	126.68
2.	Research	178.60
3.	Development	289.94
4.	Works	16.72
5.	Labour Welfare	19.85
6.	Official Language Implementation.	0.76
7.	Advance to Employees	21.38
8.	Contribution to Pension Fund/CPF.	50.00
9.	Pilot Crumb Rubber Factory	1.77
10.	Department of Training	3.71
	Total Expenditure Non-plan.	709.41.

.....

Sl. No.	Heads		Actuals 88-89
1.	RPD Scheme including spill over schemes and Special component Plan and Tribal Sub Plan.		1098.90
2.	Scheme for acceleration of rubber development in Non-traditional areas.		
	a. NRETC South Andamans	77.90	
	b. RRDS Res.Component.	85.66	
	c. NERDS Dev.Component.	41.50	
	d. NERDS NRETC.	12.35	217.41
3.	Establishment of Nurseries.		23.60
4.	Extension, Training & Supplies.		49.89
5.	Improvement of Processing (DRP)		30.17
6.	Research Schemes (continuing)		26.51
7.	Rubber Dev. in Eastern India		11.42
8.	Rubber Dev. in Western India		8.35
9.	Promotion of irrigation.		16.13
10.	Boundary protection.		9.15
11.	Distribution of inputs at subsidised rates.		49.94
12.	Scheme for improving processing		64.97
13.	Scheme for granting assistance to RPS for RUSDECS.		3.20
14.	Research Schemes (New)		8.28
	Total Plan		1617.92

Thus the gross expenditure under Non-plan is Rs.709.41 lakhs against the sanction of Rs.724.61 lakhs. Under Plan, the gross expenditure is Rs.1617.92 lakhs against the budgetory allocation of Rs.1611 lakhs.

v) Accounts and Audit.

Annual Accounts for 87-88 were finalised and presented to audit within time limit. Hundred copies of the audit reports in Hindi and English together with replies to the audit points were sent to the Ministry to be placed in Parliament. These documents were placed in the Parliament on 30-3-1989.

vi) Cost Accounts

The Cost Accounts Branch performed the following functions.

a) Collected input costs for updating cost of cultivation/production of natural rubber.

b) A cost survey was conducted covering regions of Karnataka, Goa, Assam, Tripura, etc. which was

....

instrumental to fixation of development cost in these areas. Also, a survey on cost of production of Poly bag plants was conducted. Estimate of development cost for different regions formed the basis for the NABARD to finance rubber cultivation proposals.

c) Conducted a study on Cost of Production of planting materials for fixing the selling price and for evaluation of previous years' performance of the nurseries.

d) Implecations of the various issues like rehabilitation allowance/replanting allowance, turn-over tax, Excise duty on Rubberwood based furniture, tax on replanting subsidy, capital gains on felled rubber trees, etc. were studied and communicated to the Ministry.

e) Hundred matters relating to Sales tax and Agricultural Income tax and rendered advice on taxation structure, consignment tax and other development in the tax scenario.

f) Evaluated schemes forwarded by the Kerala State Co-operative Agricultural Development Bank Ltd. for planting rubber, provision for smoke house, rollers, fencing, etc.

g) Conducted a study into the cost of collection of cess and recommendation was furnished to the Ministry.

h) Management Information Reports from various estates were analysed and suggestions were made for improvement.

vii) Electronic Data Processing.

Computerisation of different areas such as preparation of form iv reports, issue of permits, financial accounting, pay roll preparation, statistical report generation, etc. were continued. Nearly 3000 permits were issued and 11000 form IV subsidy cases were processed. Total subsidy cases processed involved an amount of Rs.1 crore. The output data such as monthly trial balance quarterly ledger, journal, cash book, bank book, etc. were prepared as also final trial balance for 88-89 in respect of all accounts Divisions.

2. Statistical Report Generation.

Developed statistical report generation package for '88 sample survey utilising which nearly 66,000 cases were processed.

3. In order to facilitate extension of computerisation to other areas like documentation of library, statistical analysis, etc. three Personal Computers were procured. Two of them were installed in the RRII and the remaining one has been installed in the Computer Centre at the Head Office.

The Economics & Finance Division attached to the Department of Rubber Processing prepared financial statements for 46 project report and offered comments on economic aspects of 85 applications for setting up rubber goods manufacturing units in Export Processing Zone.

A scheme for payment of pension through State Bank of Travancore was introduced during the year under which pensioners and family pensioners can get their pension through any branch of the State Bank of Travancore through an account opened for this purpose by the pensioner.

-.-.-.-.-

pvk/-

instrumental to fixation of development cost in these areas. Also, a survey on cost of production of Poly bag plants was conducted. Estimate of development cost for different regions formed the basis for the NABARD to finance rubber cultivation proposals.

c) Conducted a study on Cost of Production of planting materials for fixing the selling price and for evaluation of previous years' performance of the nurseries.

d) Implecations of the various issues like rehabilitation allowance/replanting allowance, turn-over tax, Excise duty on Rubberwood based furniture, tax on replanting subsidy, capital gains on felled rubber trees, etc. were studied and communicated to the Ministry.

e) Hundred matters relating to Sales tax and Agricultural Income tax and rendered advice on taxation structure, consignment tax and other development in the tax scenario.

f) Evaluated schemes forwarded by the Kerala State Co-operative Agricultural Development Bank Ltd. for planting rubber, provision for smoke house, rollers, fencing, etc.

g) Conducted a study into the cost of collection of cess and recommendation was furnished to the Ministry.

h) Management Information Reports from various estates were analysed and suggestions were made for improvement.

vii) Electronic Data Processing.

Computerisation of different areas such as preparation of form iv reports, issue of permits, financial accounting, pay roll preparation, statistical report generation, etc. were continued. Nearly 3000 permits were issued and 11000 form IV subsidy cases were processed. Total subsidy cases processed involved an amount of Rs.1 crore. The output data such as monthly trial balance quarterly ledger, journal, cash book, bank book, etc. were prepared as also final trial balance for 88-89 in respect of all accounts Divisions.

2. Statistical Report Generation.

Developed statistical report generation package for '88 sample survey utilising which nearly 66,000 cases were processed.

3. In order to facilitate extension of computerisation to other areas like documentation of library, statistical analysis, etc. three Personal Computers were procured. Two of them were installed in the RRII and the remaining one has been installed in the Computer Centre at the Head Office.

The Economics & Finance Division attached to the Department of Rubber Processing prepared financial statements for 46 project report and offered comments on economic aspects of 85 applications for setting up rubber goods manufacturing units in Export Processing Zone.

A scheme for payment of pension through State Bank of Travancore was introduced during the year under which pensioners and family pensioners can get their pension through any branch of the State Bank of Travancore through an account opened for this purpose by the pensioner.

-.-.-.-.-

pvk/-

PART VIII

TRAINING

During the year organised many training programmes for the inservice personnel and for those engaged in the rubber plantation and manufacturing industry. Seminars and one-day training programmes were also arranged. The following were the training courses organised:-

1. TRAINING PROGRAMME FOR INSERVICE PERSONNEL:

a/ Refresher Training Programme for Dy. Development Officers/ Asst. Development Officers of the Board.

The last batch of this refresher training programme of seven days duration was arranged for ten Dy. Development Officers/ Asst. Development Officers during September 1988. Re-evaluation of 15 Dy. Development Officers/Asst. Development Officers, who failed to get qualifying marks in the earlier evaluations was also carried out.

b/ Refresher Training Programme for Field Officers/Jr. Field Officers of the Board.

Twelve batches of this training course of ten days duration were completed during the period. Re-evaluation was also conducted for those who could not get the qualifying marks in the earlier evaluations.

Classes of the Kerala State Productivity Council, Cochin on "Office Management" were also arranged for all the participants of the Refresher Training Programmes described above.

c/ Training Programme for Newly Recruited Junior Field Officers:

Two batches of this training were held by the Department for the newly recruited Jr. Field Officers of the Board during the period under report. Twenty Officers attended the programme.

d/ Refresher Training for Asst. Farm Supdts./Farm Assts./ Field Assistants:

Fifteen participants in the category of Asst. Farm Supdt./ Farm Assts./Field Assts. had attended this training programme of five days duration. Evaluation was also conducted for these personnel.

e/ Refresher Training for Excise Duty Officers/Asst. Excise Duty Officers:

This training programme of four days duration was held for Excise Duty Officers/Asst. Excise Duty Officers of the Board. Eleven officers attended this training programme.

2. GENERAL TRAINING COURSES:

a/ Training course on Manufacture of Products from Rubber Latex:

Seven batches of this course of six days' duration for the benefit of small-scale rubber goods manufacturers of different States were held. 149 entrepreneurs/industrialists attended the seven batches of training course together.

b/ Training course on Manufacture of Products from Dry Rubber:

Four batches of this course were held during the months of May 1988, October 1988, December 1988 and March 1989 respectively. This course was for a duration of eight days. Sixty four participants attended this course.

c/ Short-term training course on Rubber Culture and Estate Management:

Three batches of this course of 18 days duration were held during the period under report for the managers/supervisors of estates. Seventyone persons from Tamilnadu, Andhra Pradesh, Meghalaya, Mizoram and Nepal attended this course. Fee concession was allowed at the rate of 50% per participant for the deputees from Integrated Tribal Development Agency, Andhra Pradesh. Of the three batches held, one was exclusively for the newly recruited Field Assistants/Processing Assts. of Arasu Rubber Corporation Ltd., Government of Tamilnadu. Fee concession was given to trainees from this Government Corporation also.

d/ Training course on Rubber Sheet Grading:

58 persons were given training under this two-day training course conducted during the months of April 1988, July 1988 and December 1988 respectively. Most of them represented Rubber Producers' Societies/Rubber Marketing Societies and three belonged to scheduled caste/scheduled tribe.

e/ Training course on Maintenance and Operation of Rubber Nursery:

Under the two-day training 80 participants were given training in two batches held during May 1988 and January 1989. The participants included Agricultural Officers of some Nationalised Banks.

f/ Training course on Weedicides:

In this one-day trainin-g course held in May 1988 fifteen candidates participated.

g/ Training course for small-holders:

This course of five days' duration for small-holders was held in two batches, one in the month of October '88 and the other during February 1989. Thirty eight persons attended the course in two batches together, out of whom 24 represented Rubber Producers' Societies and one belonged to scheduled caste.

h/ Training course on Mushroom Culture:

Thirty eight persons were given training on Mushroom cultivation under this one-day course held in two batches during November 1988 and January 1989 respectively.

i/ Workshop on Examination/Disposable Gloves:

A work-shop on production of Examination/Disposable Gloves was organised during March 1989 for 15 manufacturers from different States.

.....

3. TRAINING COURSES CONDUCTED ON SPECIALISED DISCIPLINES AS PER REQUEST FROM GOVERNMENT DEPARTMENTS AND OTHER AGENCIES:

a/ Training on Rubber Culture and Crop Processing:

A two-day training course on rubber culture and crop processing was held for the supervisory personnel of Plantation Corporation of Kerala Ltd. in June 1988. A fee of Rs.3,400/- at the rate of Rs.100/- per participant was levied for imparting the training.

b/ Training on Glove manufacture:

One representative of M/s. Powath Gloves (P) Ltd. was given training of five days duration under this course levying a fee of Rs.1,500/-.

c/ Training course on Rubber Processing and Manufacturing:

Thirty eight candidates of the Small Industries Service Institute, Madras were given training on rubber processing and manufacturing for a period of five days. A course fee of Rs.3,800/- at the rate of Rs.100/- per participant was collected for imparting this training.

d/ Short-term training on Rubber Processing and Technology:

This training of three-days duration was held in September 1988 for the Superintendents and managerial personnel of Messrs. A V Thomas & Company. Ten persons had undergone this training. A fee of Rs.500/- per participant was collected for conducting the course.

e/ Eighteen Agricultural Officers of Department of Agriculture, Government of Kerala was given training on different aspects of rubber cultivation and processing.

f/ Training on Latex Preservation and Testing:

Three persons were given training under this training programme. A course fee of Rs.750/- per participant was collected for this training course.

g/ Training on Foam Rubber Testing:

Three persons were given training under this programme in the months of June and November 1988 after levying a fee of Rs.500/- each.

h/ Training course on Upward Tapping:

Six supervisors of Karnataka Forest Development Corporation and three persons from other private estates were given training on upward tapping. This course was for a duration of two days. Fee prescribed for this course is Rs.200/- per participant.

i/ A two-day training on rubber was convened in December 1988 for the managers/Agricultural Officers/Rural Development Officers of Banks. Fifteen officers attended this course. A fee of Rs.200/- per participant was levied for imparting this training.

j/ Training on various cultural operation in rubber estates were imparted to estate workers of the Kodumon Estate, Plantation Corporation of Kerala. A fee of Rs.2,500/- was levied for imparting this training.

.....

k/ Six one-day training programmes on rubber cultivation and processing were organised in which 263 persons attended. The participants were from the Rubber Producers' Societies at Ulickal, Kappunthala, Iravinallur, Kavana, Kadanadu and Officers of Regional Agricultural Technology Training Centre, Government of Kerala.

During the period under report collected a total amount of Rs.2,36,255/- from various training programmes conducted and expert service rendered to other agencies.

P A R T - IX

STATISTICAL TABLES

TABLE 1

PRODUCTION, IMPORT & CONSUMPTION OF NATURAL RUBBER

(Tonnes)

Month		Production	Import	Consumption (Indigenous & Imported)
April	1988	17,030	9,937	26,365
May	"	25,850	14,792	25,805
June	"	14,815	7,380	26,270
July	"	14,070	6,823	25,250
August	"	13,970	3,440	25,475
September	"	13,540	764	25,565
October	"	32,890	1,384	24,975
November	"	34,650	625	26,555
December	"	36,340	4,036	28,320
January	1989	27,727	4,750	26,370
February	"	12,480	1,606	25,850
March	"	15,810	4,298	27,030
Total:		259,172	59,835	313,830

TABLE 2

STOCK OF NATURAL RUBBER AT THE END OF EACH MONTH

(Tonnes)

Month		Growers & Dealers	Manufacturers	STC	Total (Rounded)
April	1988	32,290	27,070	5,336	64,700
May	"	34,630	29,262	15,648	79,540
June	"	32,015	30,960	12,488	75,460
July	"	25,180	25,920	20,005	71,105
August	"	23,065	24,950	15,025	63,040
Sept.	"	20,310	22,470	8,100	50,880
October	"	33,195	25,550	1,428	60,170
November	"	38,620	29,200	1,072	68,890
December	"	41,375	33,515	6,055	80,945
January	1989	43,325	32,480	11,247	87,050
February	"	33,130	28,995	13,132	75,260
March	"	26,095	26,165	17,019	69,280

TABLE - 3

GRADEWISE STOCK OF NATURAL RUBBER AT THE END OF EACH MONTH

	April 1988	May 1988	June 1988	July 1988	Aug. 1988	Sept. 1988	Oct. 1988	Nov. 1988	Dec. 1988	Jan. 1989	Feb. 1989	Marc 1989
RMA Grades	39,940	51,260	47,370	42,355	33,210	24,595	33,190	39,465	49,935	53,650	45,365	41,7
Estate Brown Crepes & Remilled Crepes	8,455	8,190	7,450	6,525	6,390	5,485	5,615	7,440	8,340	7,990	5,910	7,2
Latex concentrates (drc)	3,780	4,460	4,585	4,580	4,725	4,115	4,580	5,575	7,225	7,990	8,190	6,45
Pale Latex Crepes	505	585	555	545	480	610	730	820	1,010	1,120	1,095	74
Block Rubbers	5,885	7,600	8,760	10,770	12,010	9,950	7,835	6,995	6,205	7,770	7,430	5,44
Scraps (drc)	5,880	7,220	6,655	6,185	6,105	6,040	8,090	8,400	8,120	8,430	7,180	7,53
Other grades	255	225	85	145	120	85	130	195	110	100	90	70
Total (Rounded)	64,700	79,540	75,460	71,105	63,040	50,880	60,170	68,890	80,945	87,050	75,260	69,280

vns/

TABLE - 4

PRODUCTION, IMPORT, CONSUMPTION & STOCK OF SYNTHETIC RUBBER

(Tonnes)

	Production	Import*	Consumption	Stock at the end of the month
April 1988	3,405	2,585	6,990	12,040
May "	4,366	2,388	6,820	12,545
June "	3,445	3,149	6,960	12,350
July "	4,576	3,149	6,920	12,950
August "	3,516	2,237	6,745	12,360
September "	4,131	2,883	7,015	12,550
October "	4,926	2,737	6,710	13,690
November "	4,771	2,330	7,165	13,730
December "	4,355	3,238	7,485	13,810
January 1989	4,923	1,606	6,840	13,700
February "	4,491	2,903	6,815	14,180
March "	4,853	2,465	7,685	14,510
Total	53,758**	31,670	84,150	

* Incomplete

** Including a quantity of 2000 tonnes, for which monthwise break up is not available.

TABLE - 5

PRODUCTION, CONSUMPTION AND STOCK OF RECLAIMED RUBBER

(Tonnes)

	Production@	Consumption	Stock at the end of the month*
April 1988	3,220	3,270	2,995
May "	3,240	3,295	2,940
June "	3,175	3,120	2,995
July "	3,040	2,965	3,070
August "	3,070	3,210	3,140
September "	3,230	3,295	3,075
October "	3,220	3,225	3,080
November "	3,300	3,260	3,120
December "	3,810	3,870	3,060
January 1989	3,965	3,900	3,125
February "	3,660	3,720	3,065
March "	4,030	4,070	2,800
Total	40,960	41,200	

@ Indigenous purchase by manufacturers

* Stock with manufacturers

--ooo--

vNs

ANNEXURE - I

LIST OF MEMBERS OF THE RUBBER BOARD AS ON 31/3/1989

01	Sri PC Cyriac, IAS	Chairman, Rubber Board
02	The Agricultural Production Commissioner, Kerala Trivandrum-695 001	Nominated by the Govt. of Kerala to represent that State.
03	The Chairman Plantation Corporation of Kerala Ltd., Kottayam-686 004 Kerala	
04	The Principal Chief Conservator of Forests Govt. of Tamil Nadu Madras-600 006	Nominated by the Govt. of Tamil Nadu to represent them
05	Sri George John Thamarappally Rubber Company Ltd., Ancheril Bank Buildings Kottayam-686 001 Kerala	
06	Michael A Kallivayalil Kuttikkanam PO Peermade Idikki Dist Kerala	Elected by the Large Growers in the State of Kerala
07	Sri K Jacob Thomas Managing Director Vaniampara Rubber Company Ltd., Vazhakkala Buildings Kottayam-686 001 Kerala	
08	Sri R Subramonian Veerabhadra Gardens Pattom Palace PO Trivandrum-695 004 Kerala	Elected by large growers in the State of Tamil Nadu

09 Sri George Joseph Mundakkal MP
192 North Avenue
New Delhi

10 Sri VS Vijayaraghavan MP
25 North Avenue
New Delhi

} Elected by the Lok Sabha

11 Sri Kamalendu Bhattacharjee MP
19 North Agenue
New Delhi - 110 001

} Elected by Rajya Sabha

12 Sri K Padmanabhan
Konnanath House
Chelakkode PO
(via) Pazhayannur
Trichur Dist
Kerala

13 Sri Sridam Sutradhar
Secretary
Tripura Rubber Shramik Union
PO Kailashahar
CPI (M) Office
North Tripura-799 277

14 Sri A Kunheeran
General Secretary
Kerala State Plantation
Workers Federation
Kondotty PO
Malappuram

15 Sri N Narayana Pillai
General Secretary
Kumari Estate Workers Union
22 A/13 AP Road
Nagercoil
Tamil Nadu

} Nominated by the Central Govt. to represent Labour

16 Sri P Mukundan Menon
Rubber Production Commissioner - Ex-Officio
Rubber Board
Sastri Road
Kottayam-686 001

17 Sri K Joseph Monippally
General Secretary
Indian Rubber Growers
Association
34/1802 Kadavantara
Cochin-682 016
Kerala

18 Sri MK Vidyadharan
Uthamam
LIC Lane
Pattom Palace PO
Trivandrum-695 004
Kerala

19 Sri M Assainarkutty
Malackandath
Chapparapadavu
(via) Taliparamba
Cannanore Dist
Kerala

} Nominated by the Central Govt. to represent Small Growers of Kerala

20 President
All India Rubber Industries
Association
Lamington Road
Bombay-400 008

21 President
Automotive Tyre Manufacturers
Association
2nd Floor,
9A Cannaught Place
New Delhi

} Nominated by the Central Govt. to represent rubber goods manufacturers

22 Sri ET Varghese
President
Rubber Dealers' Association
C/o United Rubbers
KK Road
Kottayam-686 001
Kerala

23 Managing Director
Karnataka Forests Plantation
Corporation
No.6, Kumara Park East
Bangalore-560 001

24 Sri RG Ketkar
Director
Sudhagad Rubber Industries
Rahem Mansion
No.2, 1st floor
44-S Bhagath Singh Road
Bombay - 400 039

25 Sudhir Majumdar, MLA
Tripura Secretariat
Tripura

} Nominated by the Central Govt. to represent 'Other interests'

vNs