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Rubber

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NATURAL RUBBER RESEARCH IN INDIA -
ITS SCOPE AND OBJECTIVE ✓

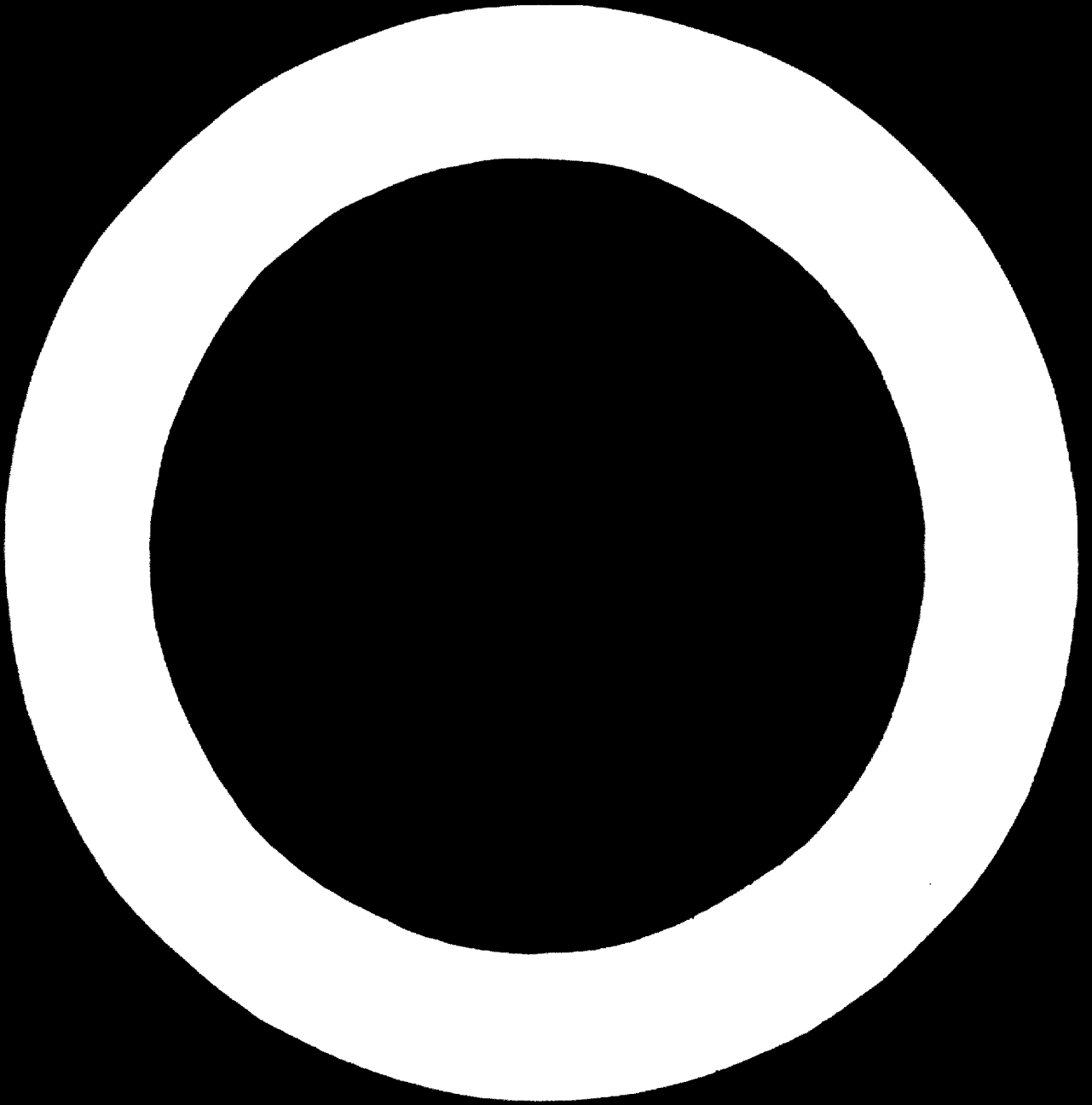
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CONTENTS

| | <u>Paragraphs</u> |
|--|-------------------|
| I. INTRODUCTION | |
| The Rubber Plantation Industry in India | 1 - 2 |
| The importance of the industry | 1 |
| | 2 |
| II. PRODUCTION OF NATURAL RUBBER AND TOTAL CONSUMPTION OF RUBBER IN INDIA | 3 - 9 |
| The rate of growth in the production of Natural Rubber and in the total consumption of rubber in India | 3 - 6 |
| Future prospects for increasing production of natural rubber in India | 7 - 9 |
| III. RESEARCH AND DEVELOPMENT IN NATURAL RUBBER PRODUCTION IN INDIA | 10 - 16 |
| The Rubber Research Institute of India and its objective | 10 |
| The contributions of the Rubber Research Institute of India for the development of the Rubber Plantation Industry | 11 - 13 |
| The need for further modernisation of the Rubber Plantation Industry in India for its long-term economic viability | 14 |
| The scope for intensification of the research activities of the Rubber Research Institute of India | 15 - 16 |
| IV. CONCLUSIONS | 17 |

I. INTRODUCTION

1. The cultivation of rubber trees - Hevea brasiliensis - on a commercial scale in about 200 hectares in South India during 1902, marked the beginning of the rubber plantation industry in India. Since then, this industry rapidly developed, after passing through ups and downs and attained its present status. At present, the rubber plantation industry in India consists of over 0.1 million plantation units and covers a total area of a little over 0.2 million hectares.

2. The Rubber Plantation Industry in India is a small agricultural industry as it covers only about 0.15 per cent of the total cultivated area in the country. But, in spite of its small size, it is considered as a very valuable agricultural industry because it provides direct employment for nearly 0.2 million people and at the same time meets the major share of the country's ever increasing demand for raw rubber which is an indispensable material for the industrial development of India.

II. PRODUCTION OF NATURAL RUBBER AND TOTAL CONSUMPTION OF RUBBER IN INDIA

3. The production of Natural Rubber which was only about 80 tonnes in 1910 rose to about 6,300 tonnes in 1925 and practically all the rubber produced during these early years of the plantation industry was exported. The plantation industry which continued to depend on export market made only little progress till 1936 when two tyre manufacturing units started operating in the country. After 1936, the Rubber Goods Manufacturing Industry in India made great progress during the Second World War and particularly after India attained freedom from foreign domination and resorted to planned development. These developments in the rubber manufacturing industry provided an opportunity for the rubber plantation industry to develop by ensuring easy marketing of the rubber produced by the industry at remunerative prices.

4. The statistics relating to area under rubber production and total consumption of rubber in the country during the last decade is given in Table I.

Table I

Area under rubber, production of Natural Rubber and total consumption of Rubber in India

| Year | Total area under rubber in Hectares | Production of Natural Rubber in M. Tonnes | Total Rubber consumption in M. Tonnes |
|----------|-------------------------------------|---|---------------------------------------|
| 1961-'62 | 1,40,880 | 27,447 | 64,642 |
| 1962-'63 | 1,46,149 | 32,239 | 71,126 |
| 1963-'64 | 1,52,946 | 37,487 | 81,096 |
| 1964-'65 | 1,35,324 | 45,616 | 85,711 |
| 1965-'66 | 1,64,713 | 50,530 | 95,092 |
| 1966-'67 | 1,71,260 | 54,818 | 1,03,190 |
| 1967-'68 | 1,81,592 | 64,468 | 1,09,704 |
| 1968-'69 | 1,87,514 | 71,054 | 1,28,022 |
| 1969-'70 | 1,96,703 | 81,953 | 1,31,104 |
| 1970-'71 | 2,03,098 | 92,171 | 1,34,745 |

5. From the Table I, given above, it is evident that in ten years time, the area under rubber increased from 1,40,880 hectares to 2,03,098 hectares, thus registering a 44 per cent increase during 10 years. During the same period, the production increased from 27,447 tonnes to 92,171 tonnes recording a 235 per cent increase. In this connection, it is important to mention that among the various major rubber growing countries in the world, India is leading in the rate of increase in Natural Rubber production.

6. It is evident from the Table that the total consumption of rubber in India during the last decade also registered a very marked increase. From 64,642 tonnes, the consumption increased to 1,34,745

tonnes. That is, the consumption has nearly doubled during the last 10 years. The gap between the production of Natural Rubber and the total consumption of rubber was being bridged by importing rubber till 1963. During 1963, a SBR Synthetic rubber factory was built up at a cost of over 300 million rupees with a rated capacity of 30,000 tonnes per annum. Apart from this Synthetic plant, factories were also set up to manufacture reclaimed rubber. In spite of all the commendable progress made in the production of rubber in the country, there is still a gap between production and consumption of rubber in India.

7. India is a developing country which is on the threshold of an industrial revolution. Therefore, there is a great need for increasing the production of rubber in India, as it is indispensable for the industrial development. In this connection, it is worth mentioning that the per capita consumption of rubber which may be considered as an index of the degree of development of a country, in India is one of the lowest in the world. During 1968, the per capita consumption of rubber in India was only 0.21 kg as against the 12.5 kg of USA, 7.7 kg of UK, 7.3 kg of Canada, 6.9 kg of Australia and 6.5 kg of France. Therefore, it is only reasonable to expect that in India the per capita consumption of rubber will steadily increase as the industrial development of the country progresses. As large quantities of rubber is required even for a very small increase in the per capita consumption of rubber in India due to the huge population in the country, it would seem that the prospects for increased production of rubber in India is very bright.

8. Though there is immense scope for increased production of rubber in India, it is necessary to consider the possibility of increased production of synthetic rubbers, in making conclusions on the prospects of increased production of Natural Rubber in the country. There is at present only one Synthetic Plant producing annually 30,000 tonnes SBR type of synthetic rubber. The cost of production of synthetic rubber being produced by this plant is one of the highest in the world, because the raw materials used are not

the conventional petro chemical by-products, but the alcohol obtained from molasses and benzene.

9. Raw material cost is the main item in the cost of production of synthetic rubbers, as the operations involved in synthetic rubber production are highly susceptible to mechanization and automation. and, therefore, labour cost inputs are not a significant part in the cost of production. Therefore, countries where petro-chemicals are available at reasonable prices only can produce synthetic rubbers cheaply. So, in countries like India, which lack a large scale petroleum refining and petro-chemical industrial capacity, but possess sufficient production potential for natural rubber, it is not desirable to build up their synthetic rubber production capacity. Moreover, synthetic rubber production is not labour intensive and requires large scale foreign capital for plant, machinery and know-how. Taking into consideration all these factors, it can be concluded that the prospect for increased production of Natural Rubber in India is very bright.

III. RESEARCH AND DEVELOPMENT IN NATURAL RUBBER PRODUCTION IN INDIA

10. The Rubber Research Institute of India was established in 1954 under the Rubber Board which was constituted by an Act of the Parliament of India to safeguard the interests of the rubber industry in the country and to promote its development. The main object of the Institute is to provide scientific assistance required for the development of the Rubber Plantation Industry on a sound footing. To enable this, the Institute conducts a comprehensive research programme on the rubber plant and its improvement, planting, management, nutrition, control of pests and diseases, harvesting and the processing of the crop into forms in which raw rubber is required by the consumers.

11. Since its inception, the Institute has made valuable contributions for the improvement of the Rubber Plantation Industry. As a first step, the Institute sorted out the planting, soil management,

manuring, plant protection, exploitation and crop processing methods suitable to the conditions obtaining in the rubber growing areas in India, based on the scientific knowledge accumulated as a result of the work carried out in other countries and on the results of scientific methods of rubber production followed in some of the progressive rubber plantations in the country. These methods which were all geared for increasing the per hectare production of rubber in the country were then popularised among the rubber growers in the country.

12. Having attended to the primary need of the rubber growers in the country, detailed research programmes were then drawn up in the various fields and investigations were initiated. Although the majority of these investigations initiated by the Institute must necessarily take many years to obtain conclusive results, the data so far collected from them helped to make advances in the selection of planting materials suited to Indian conditions, manuring, cover crop establishment, cultivation methods, plant protection practices and processing methods. These advances have all helped in the improvement of the rubber plantation industry, in general and particularly in bringing down the period of immaturity of the trees, cheapening maintenance operations and control of the pests and diseases affecting rubber in the country and in the efficient exploitation of rubber trees.

13. The success of the research and development activities of the Rubber Research Institute can be judged from the fact that the productivity of rubber in the case of the large number of plantations in the country has improved to a very considerable extent, after the commencement of research activities. The data on the average yield of rubber per annum during the last decade presented in Table II clearly shows that research has played an important part in achieving the spectacular development of the Rubber Plantation Industry in India.

Table II

| Year | Average yield in Kg/Hectare |
|----------|-----------------------------|
| 1961-'62 | 370 |
| 1962-'63 | 384 |
| 1963-'64 | 393 |
| 1964-'65 | 420 |
| 1965-'66 | 448 |
| 1966-'67 | 483 |
| 1967-'68 | 548 |
| 1968-'69 | 570 |
| 1969-'70 | 616 |
| 1970-'71 | 653 |

14. The research efforts of the Rubber Research Institute of India so far were mainly concentrated on finding out ways and means of increasing production with a view to bridging the gap between production and consumption of rubber in the country. From the above discussions, it can be noted that these efforts of the Institute were fruitful to a great extent in increasing the production of Natural Rubber in India substantially in recent years. But, with the spectacular increase in yield, the industry is now facing new problems such as storage, quality control and marketing. Also it is now well recognised that the long term economic viability of the rubber plantation industry in India will depend on its ability to produce Natural Rubber at all times at a lower cost than the prevailing cost of production of the general purpose synthetic rubbers and to process and present it in comparable forms, because of the threats from synthetic rubbers. Therefore, there is a great need for the modernisation of the Natural Rubber Plantation Industry in India so as to enable it to produce enough high quality Natural Rubber to meet the country's growing demand of this raw material at a reduced cost.

15. The modernisation of the Rubber Plantation Industry in India is possible only through intensive and exhaustive scientific research geared to increase the productivity of rubber trees, to reduce the cost of production of rubber from individual plantations and to improve the processing and presentation of the rubber produced in each of the plantations. Therefore, it is essential that the Rubber Research Institute of India will have to pursue its research activities more vigorously in the years to come, particularly in the following fields:

- (1) In breeding and selection to evolve high yielding and disease resistant clones suited to the agro-climatic conditions prevailing in the rubber growing tract in the country.
- (2) In evolving more economical and efficient planting techniques, soil management and manuring practices.
- (3) In the economic use of fertilisers by the correct assessment of the fertiliser requirements of individual plantations.
- (4) In cheapening the control of the pests and diseases of rubber prevalent in India.
- (5) In evolving efficient exploitation schedules for individual clones and clonal seedlings wherein the latest advances made in the use of yield stimulants can effectively be made use of.
- (6) In introducing the recent advances made in the processing and presentation of natural rubber in other countries with a view to improving the competitive position of natural rubber.
- (7) In implementing the technical specification scheme for the meaningful grading of natural rubber produced in India.

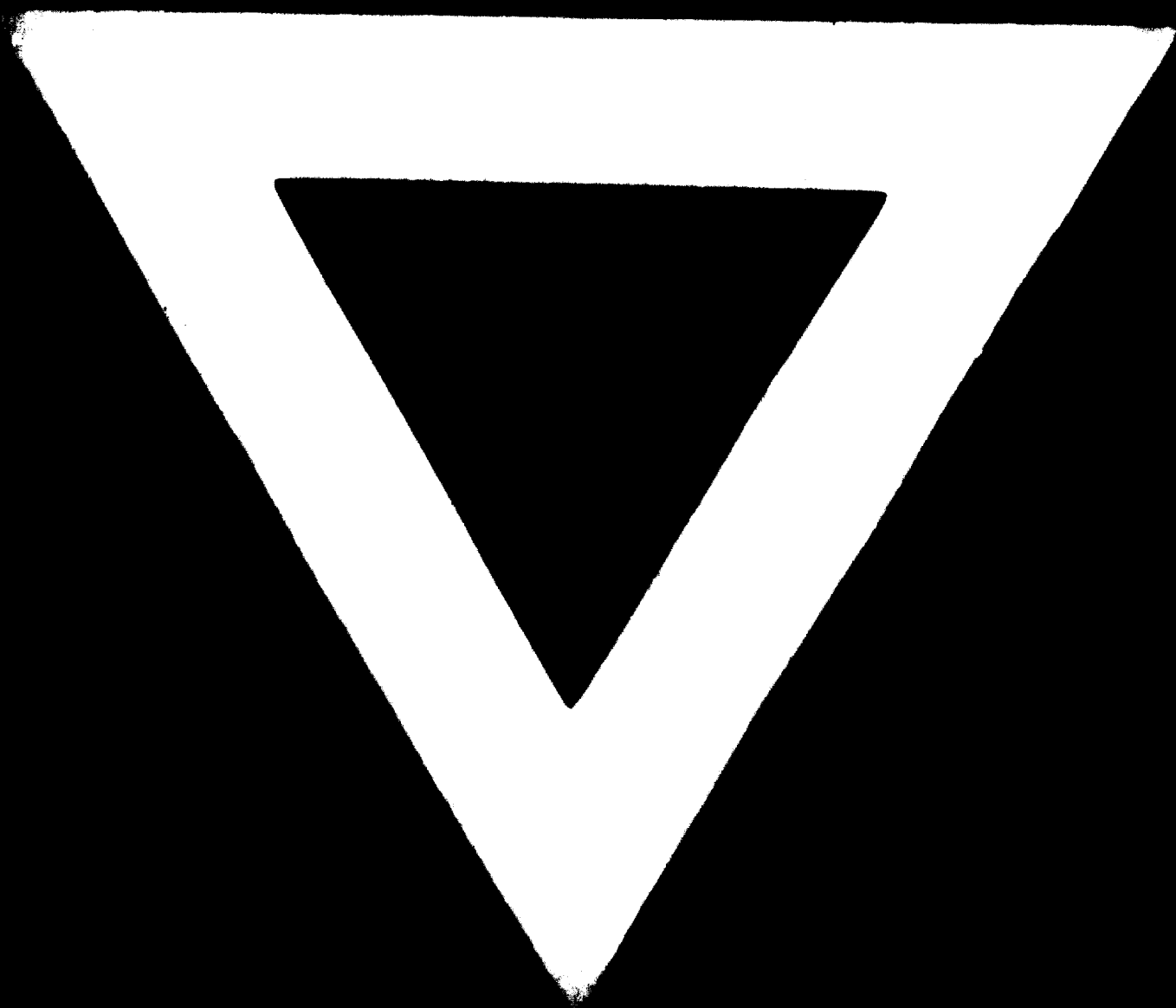
16. From the above discussions on the need for the modernisation of the Rubber Plantation Industry in India and the role of research in the modernisation of the Plantation Industry, it can be concluded that there is immense scope for the intensification of the research activities of the Rubber Research Institute of India.

IV. CONCLUSIONS

17. Being an industrially developing country, it is likely that there will be an ever increasing demand for raw rubber in India. Since the present economic circumstances of India is not favourable for the increased production of synthetic rubbers, there is immense scope for the further development of the Rubber Plantation Industry to meet the country's increasing requirements of rubber in the years to come. But, while developing the industry, it is essential to ensure its ability to produce natural rubber at all times at a lower cost than the prevailing cost of production of synthetic rubbers in the country and in forms comparable to synthetic rubbers, in order to keep the industry economically viable. For enabling this, the Rubber Plantation Industry requires modernisation. The research and development activities of the Rubber Research Institute of India which helped to a great extent in building up the Rubber Plantation Industry to its present position will have to be pursued very vigorously for its modernisation and development.

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