

“Draft National Rubber Policy”

Stakeholder suggestions/feedback

The Ministry of Commerce & Industry, Department of Commerce has come up with a draft “National Rubber Policy” which envisages a well-developed value-chain of environmentally sustainable and globally competitive rubber industry, comprising natural and other forms of rubber and products thereof and ancillary sectors, capable of supplying materials and products of international standards to domestic and world markets, with focus on welfare of the entire stakeholder community and national economic progress.

The draft National Rubber Policy is put up in the public domain in order to seek wider consultation and feedback/suggestions from the stakeholders so as to provide the final shape to the policy. The suggestions may be forwarded in the following e-mail id by 25th February, 2019:

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Under Secretary to the Govt. of India

Draft National Rubber Policy 2019



**Department of Commerce
Ministry of Commerce & Industry
Government of India**

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List of Abbreviations

ANRPC	Association of Natural Rubber Producing Countries
CDM	Clean Development Mechanism
DoNER	Department of North Eastern Region
FDI	Foreign Direct Investment
GAP	Good Agricultural Practice
GMP	Good Manufacturing Practice
GPC	Group Processing Centres
ICT	Information & Communication Technology
INDC	Intended Nationally Determined Contributions
IRMRA	Indian Rubber Manufacturers Research Association
IRRDB	International Rubber Research and Development Board
IRSG	International Rubber Study Group
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MSME	Micro Small and Medium Enterprises
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
NR	Natural Rubber
NRP	National Rubber Policy
OEM	Original Equipment Manufacture
RPS	Rubber Producers Societies
RR	Reclaimed Rubber
RRII	Rubber Research Institute of India
SHGs	Self Help Groups
SR	Synthetic Rubber
WTO	World Trade Organisation

CHAPTER-I

PREAMBLE, GOAL AND OBJECTIVES

1.1 Preamble

- a) *Realising the vital industrial, environmental and strategic significance of Natural Rubber(NR)commercially produced in plantations from the tree species, Hevea brasiliensis;*
- b) *Recognising the economic importance of the rubber industry value chain in terms of its vast potential and versatility in value addition, extensive market for end products and prospective contribution to national economic progress;*
- c) *Considering the livelihood concerns of small and marginal holders dominating NR production;*
- d) *Highlighting the need for targeted intervention to ensure substantial domestic production of NR to meet the growing demand;*
- e) *Aligning with the present national policies and commitments under multilateral trade and other agreements; and*
- f) *Deciding to define goals and objectives, identify thrust areas and refine policy and operational strategies in tandem with emerging trends in the Rubber Sector, the National Rubber Policy – 2018 (NRP - 2018) is enunciated as follows.*

1.2 Goal

National Rubber Policy (NRP) envisages a well-developed value-chain of environmentally sustainable and globally competitive rubber industry, comprising natural and other forms of rubber and products thereof and ancillary sectors, capable of supplying materials and products of international standards to domestic and world markets, with focus on welfare of the entire stakeholder community and national economic progress.

1.3 Objectives

- I. To promote overall sustainability of the Rubber Industry with respect to economic, social and environmental dimensions.
- II. To provide required focus towards development of the entire Rubber Industry value chain from upstream production to downstream manufacturing activities.
- III. To strategize towards increase in area under Natural Rubber by new planting without causing any adverse impact on forests/natural ecosystems and food security.

- IV. To facilitate increase in average national rubber productivity through appropriate agro-management practices including systematic replanting and ensuring better income for the growers.
- V. To strategize towards meeting of raw material requirement of domestic industry through domestic production as far as possible.
- VI. To promote activities for ensuring quality of processed forms of NR at par with international standards.
- VII. To promote the development of rubber product manufacturing sector and facilitate export of quality rubber products.

CHAPTER-II

CONTEXT

2.1 Global Scenario

Natural Rubber is a commercial plantation crop from the tree species, *Hevea brasiliensis* grown in tropical humid climatic conditions. Thailand, Indonesia, Malaysia, Vietnam, China and India are the major NR producers globally. The current world production and consumption of NR is around 12.40 million tonnes and 12.60 million tonnes respectively. The major NR consumers are China, India, USA, Japan, Thailand, Indonesia and Malaysia. Rubber is largely perceived as a strategic industrial raw material and accorded special status globally for defence, national security and industrial development. Major consuming countries keep strategic reserves of NR.

Rubber is an internationally traded commodity and price of rubber is influenced *inter-alia* by trends in economic growth, production in major producing countries and demand in major consuming countries. Domestic NR prices generally follow the trends in the international market and is therefore, subjected to fluctuations in price.

2.2 Indian Scenario

Indian rubber industry is characterized by the co-existence of a well-established rubber production sector and a fast growing rubber products manufacturing and consuming sector. The Rubber Industry value chain begins from NR plantations and ends with a huge range of dry rubber and latex based products. Historically, NR was a regulated commodity with strong tariff protection and domestic market regulations. The key factors which have contributed to the growth of Indian rubber industry are positive intervention of institutional agencies aiming at self-sufficiency and import substitution.

Most of the rubber products including tyres require blends of NR and SR. Consumption of SR is mainly determined by end product composition, technological change and relative prices. Consumption of SR in India in rubber products manufacturing sector increased from 411,830 tonne in 2010-11 to 633,975 tonne in 2017-18. Currently, there are four companies producing SR and production increased from 110,340 tonne in 2010-11 to 331,221 tonne in 2017-18. Styrene Butadiene Rubber and Poly Butadiene Rubber accounted for 63% and 34% of SR production in the country. Import of SR amounted to 338,189 tonne in 2017-18. Consumption of SR in India is projected to reach 1.2 million tonne by 2025.

2.3 Production and Consumption

India is currently the sixth largest producer of NR in the world with one of the highest productivity (694,000 tonnes in 2017-18). The production capacity in India is around 900,000 tonnes, of which around 75% is tapped. Out of the total area under rubber in India of around

822,000 ha, 614500 ha is a mature yielding crop. Traditional rubber-growing states comprising Kerala and Tamil Nadu account for 81% of production. Major non-traditional rubber growing regions are the North Eastern states of Tripura, Assam and Meghalaya, Odisha, Karnataka, Maharashtra and West Bengal. Sheet rubber is the most preferred form of processing accounting for around 70% of processed rubber. Block rubber and latex comprise 17% and 12% respectively of rubber production in the country.

India is the 2nd largest consumer of NR globally with current consumption of around 1.1 million tonnes. Sheet rubber, block rubber and latex account for 47%, 43% and 8% respectively in NR consumption. Around 40% of the total NR consumption in India is at present met from import of rubber. 68% of NR consumption in India is in the automotive tyre sector.

2.4 Rubber Export

NR is not a traditional export-oriented commodity, more so because of the current deficit in production. Export of NR happens to adjust temporary demand-supply imbalances in the NR domestic market. There is a huge export potential for rubber products in the country, which if promoted, shall indirectly increase the demand for domestic NR as also the export earnings. Export from rubber products was worth ₹ 20,915 crores in 2017-18.

2.5 Socio-Economic Scenario

Globally and locally NR is largely grown by smallholders and 91% of rubber planted area and 92% of production is in smallholding sector (below 10 ha). There are around 1.3 million rubber growers and 0.6 million workers in rubber plantation sector in India. Average size of holding is the lowest in India among the major NR producing countries at 0.57 ha. Most of the growers in the non-traditional rubber growing regions are from tribal and other resource poor communities.

2.6 Legal and Institutional Framework in India

The Rubber Act, 1947 (XXIV of 1947) provides for the development of the rubber industry under the control of the Union. The Rubber Board, headquartered at Kottayam, Kerala, under the administration of the Ministry of Commerce and Industry has been effectively supporting the rubber industry since seventy years by undertaking/assisting/encouraging scientific, technological and economic research, providing training on improved methods of planting, cultivation, manuring and spraying, giving technical advice to rubber growers, improving marketing of rubber, compilation of statistics etc.

Considerable investment from the Central Government has been made in the last seventy years for providing financial support, advisory and regulatory services through the Rubber Board as per the requirement from time to time.

Provisions of Central and State level legislations and rules thereof relating to taxation, forests, land use, environment, pollution etc are also applicable to rubber sector. For promotion of rubber sector, Government of India has allowed 100% Foreign Direct Investment (FDI) in plantations of rubber, coffee, tea, cardamom, palm oil tree and olive oil tree.

2.7 International commitments and cooperation

India is a member of World Trade Organisation (WTO) and a signatory to several trade and economic cooperation agreements with other countries. Present economic and trade policies for the sector are in consonance with the commitments made under such Agreements.

India is also a member of intergovernmental commodity organisations, the Association of Natural Rubber Producing Countries (ANRPC), International Rubber Study Group (IRSG) and the International Rubber Research and Development Board (IRRDB). ANRPC coordinate NR related issues, IRSG generate statistics on production and consumption of NR & SR and IRRDB coordinate research on NR and SR. These organizations generate statistics and other relevant information on rubber sectors for member countries and facilitate networking and research on rubber. The rubber sector in the country benefits from India's association with these organizations by participating with specific agenda, focusing on technology sharing and coordinated research. There is a need for Rubber Board and Associations in the private sector to influence such intergovernmental organisations to pro-actively take up issues of (a) Impact of climate change and mitigation measures, (b) Ways of balancing the demand and supply and projections for the future, (c) Promote the ways in which NR could be used in diverse set of industries, (d) Challenges faced by the small growers and possible roadmap for sustainable rubber production.

2.8 Strengths and Challenges of Indian Rubber Sector

The major strengths of the sector include existence of a domestic rubber products manufacturing industry capable of consuming the entire NR produced in the country, vast areas in non-traditional regions suitable for rubber cultivation, strong and systematic rubber research, well-knit extension network and grower forums comprising Rubber Producers Societies (RPS), Self Help Groups (SHGs), RPS companies and Cooperatives.

The sector also faces many challenges, some of which are sub-optimal agro-climatic conditions and adverse impact of climate change, saturation of area for new planting in traditional regions, agro-climatic, topographic, social, cultural, institutional and infrastructure constraints in non-traditional regions, global price volatility and low-price situations, and its repercussions on production, lack of competitiveness, stagnation in the growth of Non-Tyre Rubber manufacturing sector etc.

2.9 Policy priorities

The external and internal challenges in the Indian rubber industry can be addressed by ensuring synergy amongst components of the entire rubber value chain and through appropriate

policy interventions. While sustained production of NR and price support are critical to protecting the incomes of rubber farmers, the rubber products manufacturing sector is at the centre of growth in the value chain in the Rubber sector and therefore needs specific focus.

Taking cognizance of the presence of vast untapped production potential of NR and large consumption base of rubber products in various sectors, including strategic industries such as defence, aerospace and petrochemical, specific policy and operational interventions need to be devised for a sustainable development of the domestic Rubber Industry. Also, in recognition of the strategic importance of Rubber, policy priorities need to be accorded to rubber as a strategic raw material.

In the context of projected growth of Indian economy, strengthening and advancing all links in the value chain in rubber sector is the key policy priority and objective of the National Rubber Policy.

CHAPTER III

POLICY INTERVENTIONS

3.1 Status of Natural Rubber

Natural rubber is a critical and strategic industrial raw material and will remain so in the foreseeable future. Natural rubber is grown primarily in landholdings that are owned by small growers. Majority of rubber processing is also done in a decentralised manner in small farms. Therefore, notwithstanding the status of NR being a crucial industrial raw material, the possibility of treating NR as an agricultural product for all practical and legal purposes and income from rubber production as agricultural income would be explored in consultation with the Ministry of Agriculture & Farmers Welfare. NR, being an industrial raw material or not included under the Agreement on Agriculture (AoA) of the WTO, has nothing inconsistent with its status as an agricultural product for domestic policies.

3.2 Sustainability in Production

Self-sufficiency had been the main focus of development plans in NR sector till the last decade. Though importance of self-sufficiency cannot be reduced, competitiveness and sustainability have to be considered while setting up goals and formulating strategies pertaining to Rubber production in the country. NR consumption in the country in 2030 is projected at around 2.00 million tonne. It is envisaged that the domestic production is able to meet at least 75% of the NR requirement in 2030. In order to attain the projected production, average annual new planting and replanting would be to the tune of at least 8,000 ha and 10,000 ha respectively. Efforts would be made to get all the available mature area under rubber tapped.

3.3 Complementary growth of all links of Rubber Industry value chain

There would be an orderly and complementary growth of all links in the Rubber Industry Value Chain viz., NR production and processing, manufacturing of tyres and general rubber products, trading, ancillary activities etc. Focussed efforts would be taken at synchronizing all initiatives and attempts towards growth of rubber industry as a whole.

3.4 Centre and State synergy

Efforts would be made for holistic planning and execution of rubber development programmes as per the present economic realities. There is a need of a Centre-State synergy for collaborative and coordinated approach on policy and strategy formulation, implementation of programmes and projects, institutional arrangements and financial mechanisms in all aspects of rubber value chain development. Constitution/ presence of a State Task Force on Rubber

may also provide the additional impetus for resolving issues at State level and taking up specific rubber development activities.

3.5 Import- Export Policy

Due to deficit in the domestic market, low prices for some forms of rubber in the international market, price fluctuations and quality/technical considerations, NR import has seen a significant rise over the years. Recognizing the sensitiveness of NR import in terms of its impact on domestic price and raw material supply for end user industries, import policy on NR should accord protection to rubber growers against unwarranted imports adversely influencing domestic prices, and at the same time ensure availability of the raw material for consumers at affordable prices. Elimination of inversion in tariffs may be important for increasing global competitiveness of Indian rubber products manufacturing sector but parity in tariff with other comparable commodities, implications on production and future availability of NR, livelihood concerns of small and marginal farmers etc., will also have to be taken into consideration.

NR is not a traditional export oriented commodity and export may be promoted only to adjust temporary demand-supply imbalances in the domestic market, reflected in lower domestic prices. The brand "Indian Natural Rubber" distinguishing Indian rubber in the international market with its assured and consistent quality parameters may also be promoted.

3.6 Revamping Institutional Framework

With a view to streamline the objectives envisaged in the Rubber Policy and also to promote "Ease of Doing Business", the functioning of the Rubber Board would be aligned with the policy requirements. It is desirable that the role of the Government is more of facilitation and promotion rather than control and regulation, enabling relevant industries to grow and function in a competitive environment based on market forces. Harmonization with other relevant policies and laws would also be facilitated to address the concerns in the rubber sector on issues such as security of land and assets owned by rubber plantation companies, restrictions on felling rubber trees, transit rules, etc.

3.7 Livelihood issues of small and marginal growers

The price volatility in rubber crop directly impacts livelihood of lakhs of small and marginal growers involved in the sector. Efforts would be made to ensure the livelihood protection of rubber growers by way of insurance/price support in consonance with the prevailing norms and policies.

3.8 Integrating Climate Change Concerns

Climate Change with its three major dimensions of global warming, increasing seasonal weather variability and higher incidence of extreme/unusual weather events will have impact

on rubber plantations in the future. Rubber Research Institute of India (RRII) has reported that if the present warming trend continues, NR productivity in Kerala could be reduced by 4% to 7% and that in North East could go up by as much as 11% in the next decade. The change in climate also has its effects on incidence of diseases in rubber plantations. Focused research on Climate Change on assessing climate risk vulnerability and developing climate resilient technologies for adaptation and mitigation protocols would be taken up to address the challenges.

CHAPTER IV

OPERATIONAL INTERVENTIONS

The operational interventions would be based on the basic strategy to ensure at least 75% of NR supply from domestic sources. This is important in view of the rapidly increasing domestic consumption in major NR exporting countries and growing dominance of some countries over production of NR globally.

4.1 Area expansion

Plantation of Rubber in traditional rubber growing regions comprising Kerala and Tamil Nadu has reached near saturation. However, in the non-traditional rubber growing regions, especially in the North Eastern States there is ample scope for increase in area under rubber cultivation. As per the present estimates, more than 500,000 ha. of area is available for plantation in non-traditional areas. However, food security, forest and biodiversity conservation, edaphic & climate conditions and other socio-economic factors will have to be given due consideration for identifying suitable areas for rubber cultivation.

Extension services coupled with financial assistance is vital in motivating growers to take up rubber cultivation. Adequate planting subsidy would be given for incentivizing rubber plantation. Priority would be given to marginal and small growers belonging to the resource poor communities.

Use of modern technology in planning and implementation in areas such as assessment of potentially suitable areas for cultivation, advisories to rubber growers and provision of extension services, etc. would be promoted. Monitoring and outcome assessment would be regularly carried out using Information & Communication Technology (ICT) enabled tools.

Another very important aspect is the institutional makeover, including infrastructure support of the Rubber Board in the non-traditional regions, to evolve an integrated approach towards development of rubber along with promotion of other farm livelihood and rubber integrated agro-forestry systems. Rubber based integrated farming systems would be developed taking into consideration location-specific factors. Such trials have been taken up in major rubber producing countries including Thailand and Malaysia, though adoption rate is not considerable. Efforts would be made for better networking and collaborations between the various line departments of the State and the Central government to make rubber plantations successful in the non-traditional areas.

4.2 Replanting of senile rubber areas

The share of rubber plantations in the highest age group of above 20 years is around 20% in the country based on historical planting trends, extending to around 1,60,000 ha. Out of this, around 30,000 ha should be replanted immediately due to delay in replanting. The

remaining rubber plantations will have to be replanted during the next decade. Apart from age of the trees, realised yield, tapping intensity followed and prices of rubber and rubber wood influence replanting.

The focus in traditional regions would therefore be on systematic replanting of senile plantations with high yielding and disease resistant varieties. The extent of replanting would be increased in non-traditional regions in future. The annual replanting would be more than 10,000 ha in a long term perspective. In order to promote plantation and replantation, the pattern of assistance provided by the existing schemes would be reviewed from time to time.

4.3 Productivity enhancement

Productivity of rubber plantations in India is one of the highest globally. However, growing market uncertainties and high labour costs have a direct correlation with productivity of Rubber plantations with people resorting to abandoning mature productive rubber areas. Formulation and adoption of appropriate agronomic practices and concerted extension strategies are required to be resorted to enhance productivity of rubber plantations.

One of the key factors determining productivity is quality of planting materials. Capacity of existing departmental nurseries under Rubber Board would be fully utilised for propagation of genetically superior and quality planting materials and budwood of clones developed by RRII and supplied to growers. RPS and SHGs may be provided financial and technical assistance for setting up nurseries. Certification of private nurseries for propagation of high yielding cultivars should be promoted.

4.4 Tackling labour shortage

The emergent labour shortage, characterized by the paucity of skilled rubber tappers in both the smallholding as well as the organised plantation sectors is one of the issues of immediate concern in raising productivity in rubber plantations. This shortage is being temporarily met by migrant tappers in the traditional areas. However, this will not be a complete solution in the long run in view of the area expansion in non-traditional regions.

Cluster formation of tappers can achieve the twin objectives of providing regular employment to tappers and availability of skilled tappers to growers. Setting up of Tappers Banks as SHGs attached to RPS would be formalized and continued. Tapping by small and marginal growers who do not have any other engagement would be promoted as this can in turn enhance the viability of rubber cultivation, more so in the non-traditional areas. Unlike the dominant presence of women in the production and processing activities in the tea, coffee and cardamom plantations, active participation of women in the rubber smallholdings has been negligible. Efforts towards gender mainstreaming are likely to help in solving the problem of labour shortage to a large extent.

4.5 Rubber Processing

Ribbed Smoked Sheets (RSS) has been the strength of Indian NR sector and is largely preferred by rubber growers due to the relatively high farm gate price it fetches. However, the quality of sheet rubber, processed by around a million small and marginal farmers is often inconsistent.

Global composition of processed forms of NR is dominated by block rubber on account of its consistency in properties and low cost of production. In the Indian context, in view of the labour shortage in traditional rubber growing regions leading to escalation in production cost of sheet rubber and block rubber being preferred by the consumers/manufacturers leading to 80% of import being block rubber at present, there is a need for a shift in approaching rubber processing from predominately sheet rubber and promoting block rubber in the country.

However, in view of the existing huge processing infrastructure of sheet rubber with smallholders at farm level comprising rubber rollers and smokchouses which has been established over decades for processing sheet rubber, this transition/shift in processing should be gradual and systematic.

The existing practice of visual grading of rubber sheets would be replaced with more scientific and automated systems of grading. This will enable the rubber growers to get the maximum price by way of avoiding the discrepancies in terms of 'downgrading' of rubber sheets in the present visual grading system.

Further, in order to ensure quality and standardisation of sheets, Group Processing Centres (GPC)/Community processing centres would be promoted with facilities for processing latex, effluent treatment, biogas, etc. Latex/sheet/scrap collection through RPS/SHGs would be supported technically and financially. This will facilitate fetching of better price by avoiding intermediaries. Proper awareness among growers and skill development for processing is also the need of the hour. Processing block rubber from latex coagulum would also be promoted simultaneously.

4.6 Participatory Extension strategy

Extension Action Plan would be formulated to update the knowledge of the rubber growers in matters relating to planting, harvesting, processing and marketing with special reference to cost reduction and increase in net farm income. Participatory extension with focus on group approach has proved to be an ideal channel of extension in rubber sector in the country and Rubber Board has been instrumental in promoting voluntary forums of smallholders of rubber viz., Rubber Producers Societies (RPS) at village level, private limited companies and Self Help Groups (SHGs). These grower forums would be revived and actively involved for implementation of the action plan and Farmer Producer Companies (FPCs) should be promoted.

Generally, extension services are focused towards relatively more enterprising growers across crops. Special strategies would be devised to reach the unreached so that there can be a marked improvement in adoption of Good Agricultural Practices (GAPs). Extension strategies in traditional and non-traditional regions would be different and need to account for the levels of literacy, socio-economic context, experience in rubber cultivation, possibilities of digitised/modern communication tools etc. In traditional regions, advisory services would be mainly using Information and Communication Technologies (ICT) and online services. Personal advisory services would be continued with more presence of extension staff in non-traditional regions. Use of digital technology, remote sensing and pest and disease advisory services by using ICT would get more attention. Similarly, initiatives on providing market prices, market intelligence and movement towards an e-auction system would be the priorities.

4.7 Market Interventions

Rubber Board has promoted formation of cooperative rubber marketing societies and they have been active in rubber processing and marketing since 1980s. The share of cooperatives and RPS sector together in rubber trading is around 12% at present. Efforts would be made to increase the share of grower forums in rubber trading.

Integration among grower forums involved in rubber processing and rubber trading would be promoted by involving major rubber growing states /by formation of trading companies for integrating the efforts of cooperatives, RPS, RPS companies etc. on PPP model with a view to manage a substantial portion of rubber processed and traded.

The possibility of extending exclusive financial assistance schemes for grower forums for processing and trading in rubber would be explored in consultation with NABARD.

Futures trading is a competitive tool of marketing and regulated futures trading can contribute to price discovery and facilitate hedging to reduce risk. NR is traded in auction only in Central Rubber Market of Thailand and by Colombo Rubber Traders Association and the traded volume is minimal. However, the auction prices have seen to have indicative influence in both markets. Hence, introducing auction for rubber trading in the country would be attempted for fair price discovery.

4.8 Price Safety mechanism in Rubber Sector

Sustainability of Rubber development, especially with grower having smallholding predominantly, would face a perilous situation, if market uncertainties as caused by drastic price fall persist for long. In perennial crops like NR, phases of low prices and volatility in prices have serious implications as a planting decision cannot be reversed in the short run. Further, the very small size of holding in traditional regions and majority of resource poor farmers in non-traditional regions intensify the need for safety nets for growers. Efforts would be made to address these issues by suitable programmes.

4.9 Rubber consumption and Export of Rubber Products

Rubber consumption is the direct indicator of rubber based industrialisation. Though India is the second largest consumer of NR in the world, per capita consumption of rubber as a whole is just around 1.2 kg as compared to 6.5 kg in China and the global average rubber consumption of 3.6 kg. End product range of rubber covers more than 50,000 items, which are used far and wide in various industries like transport, health, households, sports, entertainment etc. Consumption of rubber shall be promoted for the overall development of the rubber industry value chain.

Demand for tyres originates from the vehicle/automobile manufacturers for fitment on new vehicles (OEM supplies), vehicle population which is already on the road (replacement or aftermarket) as well as export. In some categories like passenger cars, motorcycle tyres, etc. the share of OEMs is more than 50% of total supplies. The future potential can be gauged from the present low automobile penetration in India. Growth in production and fitment of tyres is directly linked to the growth in GDP, particularly growth in infrastructure (for commercial tyres) and income levels (for passenger tyres). Tyre sector is poised to record notable growth in near future contributed by increase in GDP and export prospects.

General rubber goods sector is dominated by Micro Small and Medium Enterprises (MSME). However, the versatility of these products, their potential in terms of huge domestic and external markets and relatively high employment potential are to be considered in according high policy priorities to the sector. General rubber goods sector also requires special attention with regard to research and development activities, technology upgradation and transfer, machinery import, export promotion, branding, quality enhancement, skill development etc.

Promotional activities in rubber product manufacturing are mainly undertaken by M/o MSME, DIPP and Industries Departments of state governments. There is no designated national level agency to assist rubber products manufacturing sector. A Rubber Industry Development Plan would be formulated by DIPP in consultation with other relevant Ministries/Departments and Rubber Board.

Rubber Parks are areas publicly procured, zoned and planned for the purpose of rubber based industrial development wherein infrastructure and common facilities are provided and single windows for clearances are established. Development of Rubber Parks as processing hubs would be promoted in the private sector or under PPP mode.

Several studies have highlighted significant advantages of rubberised roads over normal roads and it is inferred that though there is a marginal increase in the initial cost, periodic maintenance of these roads can be reduced by 35% compared to that of the bituminous roads. NR latex and crumb powder made from end-of-life tyres can be used for modification of asphalt for road rubberisation. Promotion of Road Rubberisation would have twin advantages of boosting rubber consumption and infrastructure durability in the long run.

An independent Rubber Products Export Promotion Council could be considered to be constituted in order to address the export related issues of the Rubber Products Sector (both tyres and General rubber goods) and also to specifically handhold the manufacturers belonging to MSME sector which is highly essential in the present scenario. Further, export oriented clusters would be identified and specific strategies would be framed for giving the focussed boost in exports.

4.10 Commercial Utilisation of Rubber Wood

Increasing demand for timber and timber products, declining supply of timber from conventional sources and growing concern for environmental conservation etc. has propelled the search for alternative sources of timber. In this context, rubber wood can emerge as a potential alternative because of its distinct advantages of being a sustainable and renewable source and its amenability to versatile industrial applications. Specific action plan for promotion of commercial utilisation of Rubber wood as an alternative source of timber would be prepared with due importance for small dimension technology. However, harmonisation with relevant legal provisions under Forest Acts and Rules has to be done to prevent legal hitches in harvesting, transit and marketing of rubber wood.

4.11 Substitutes/Alternatives to Natural Rubber

Substitutes

Substitution and choice of other forms of rubber such as Synthetic Rubber (SR) and Reclaimed Rubber(RR) for end users would depend on availability, technical considerations, product composition, technological changes and relative prices. Share of SR has been increasing in India during the recent past mainly due to increase in the relative share of car tyres and switchover to SR in some sectors such as foam, footwear etc. Relative share of NR is expected to decline gradually on account of increasing share of car tyres and replacement of NR by SR in some segments. However, the decline in the relative share of NR will be more than compensated by the general increase in the demand for NR on account of the fast growth of rubber products manufacturing sector in the country.

The policy envisages furthering SR production, especially types and grades deficit in the country and providing adequate attention on protection against possible environmental hazards involved in their manufacturing. With respect to RR, the policy envisages increase in RR production and consumption and thus minimising environmental hazards from used rubber products.

Alternatives

Alternative sources of rubber include *Guayule* rubber, Russian *Dandelion* rubber, *Ceara* rubber etc. which can be grown in regions that are agro-climatically not suitable for *Hevea*.

However, none of these are expected to be commercially produced and consumed in the foreseeable future in substantial scales.

4.12 Carbon market

The carbon dioxide sequestration rate of rubber trees is very high as compared to many other plant species and even tropical forests which has been thoroughly quantified by the RRII and research institutes in other countries. Production of one tonne of NR leads to absorption of 3.24 tonnes of CO₂ from the atmosphere and release of 2.35 tonnes of Oxygen.

Under the Clean Development Mechanism (CDM), one of the three forms of carbon trading mechanisms under the Kyoto Protocol, rubber planting is theoretically eligible for carbon credits that can be obtained and sold in the CDM market. Efforts would be made to solve the “additionality” criterion and other legal hurdles to make this happen.

However, the carbon dioxide sequestration and other ecosystem services provided by rubber plantations in the country would be documented also using geospatial technology. At the same time, a voluntary market for such carbon sequestration for sale to a buyer either under a bilateral CDM or under the proposed Intended Nationally Determined Contributions (INDC) of developing countries like India would be explored.

CHAPTER -V

RESEARCH AND TRAINING

5.1 Research and Development in Rubber Sector

The Rubber Research Institute of India (RRII) established in 1955 in Kottayam has emerged as one of the largest institutes of its kind in the world, significantly contributing to the Indian Natural Rubber (NR) plantation sector and rubber products manufacturing industry. The achievements of decades long research efforts of RRII, such as development of high yielding hybrid clones and the prescriptions of Good Agricultural Practices (GAPs) for different agroclimatic regions of India are widely followed by rubber growers with visible tangible results. As an outcome, the productivity of Rubber in India became one of the highest among the major NR cultivating countries in the world.

In the future, research and development activities throughout the entire value chain of rubber industry shall be emphasised and specific focus would be on research of upstream/midstream segments of rubber cultivation and processing and on downstream i.e. general rubber goods and tyre/tube sectors.

RRII would focus on "*scientific, technological and economic research*" as mandated vide Section 8 of the Rubber Act. RRII, being the foremost rubber research institute in the country, would lead and coordinate research on all aspects of rubber, including synthetic and reclaimed rubber as they are increasingly used by the Indian rubber industry. Location specific research shall be accorded due priority in the context of the expansion of rubber cultivation to non-traditional regions. Package of practices recommended would be examined for formulation of GAPs taking into consideration the location specific requirements, climate risks, optimising farm income, reducing costs and ensuring environmental sustainability.

5.1.1 Major research agenda in upstream (production) and midstream (primary processing) segments would cover the following areas.

- I. Genetic improvement of *Hevea brasiliensis* through conventional and molecular breeding for developing ideal clones of NR suitable for cultivation in the Indian conditions.
- II. Decoding of the genetic code (whole genome sequencing) of *Hevea* tree, identifying the genes and elucidating the molecular mechanisms behind rubber production, adaptation to different agro-climatic stresses, tolerance to pests and diseases, climate resilience etc,
- III. Developing sustainable rubber-based farming systems, including agronomic management practices, sustainable soil productivity, latex harvesting techniques and processing methods appropriate to different agro-climatic regions.

- IV. Study the viability of intercrops during immature phase and mixed planting with rubber as main crop.
- V. Use of geospatial techniques for developing a decision support and management system to aid extension work in the NR plantation sector and support policy makers.
- VI. Assessing the impact of climate change on growth and productivity of NR and establishing the green credentials of NR.
- VII. Assessing the impacts of rubber as a monoculture and its consequences to agrobiodiversity as well as natural ecosystems in rubber growing regions in India.
- VIII. Assessing the socio-economic impact of NR cultivation in India
- IX. Improvement in NR processing and modified processed forms of NR.
- X. Monitoring and analyses of rubber sector developments nationally and internationally.
- XI. Economising on energy use in primary processing of NR.

5.1.2 Indicative research strategies for downstream (rubber products manufacturing) segment would cover the following.

- I. Improvements in technological processes of rubber product manufacturing.
- II. Innovation of new products and protocols and refining of existing ones.
- III. Development of specialty elastomeric/composite materials/products for niche applications.
- IV. Recycle/waste management and environment protection.
- V. Indigenisation/import substitution in rubber products imported by defence sector.
- VI. Developing rubber products application based on reclaimed rubber, developing process for reclaiming vulcanized rubber waste such as silicone, nitrile, viton etc.
- VII. Substituting toxic compounding additives in rubber product manufacturing with safe molecules.
- VIII. Substitution of conventional fillers originating from petroleum sources in rubber compounding.
- IX. Economising on energy use in product manufacturing and green tyre technologies.

5.2 Coordinated Research

There are several institutions undertaking R&D activities in rubber sector such as RRII, IRMRA, IITs, Universities and in-house research facilities of major companies. There is a need of coordination among agencies and a holistic research policy on rubber so as to arrive at convergence in research activities, leading to exchange of technology, minimising duplication in efforts and increased output.

Stakeholder, especially industry participation in research activities is yet another important aspect to be given due attention. Involvement of stakeholders in research would align research projects to actual requirements of the industry and facilitate easier technology transfer. Linkages between research institutions and industry are to be enhanced for proper and easier dissemination of information.

5.3 Training and Skill Development

Training of frontline staff at implementation level would be carried out on a regular basis by the Rubber Training Institute (RTI) in the Rubber Board. Focused programmes would be conducted through need analysis, curriculum development on latest technologies and practices, programme development, execution and follow up through impact analysis to achieve the cost-quality competitiveness at global level towards sustainability and development of the entire rubber value chain. The training modules would be fine-tuned to the requirements of the sector which would include ICT based extension technologies, technical knowhow related to rubber cultivation and processing, cluster management, public relations and general management.

Skill development and capacity building of tappers/growers would be accorded priority in view of the shortage of skilled tappers in rubber sector, an area of serious concern in rubber plantation sector in the country. Short and medium training programs would be conducted in rubber growing regions on tapping and sheet processing. Experienced tappers can be used as facilitators for such skill development programmes.

Scientists of the RRII and field functionaries of Rubber Board would also be deputed for training to national and international research institutes of repute and other technology exchange programmes for skill development and capacity building.

CHAPTER-VI

FINANCIAL SUPPORT

For enhancing global competitiveness, reducing import dependence of raw materials, research, innovation and technological upgradation, improvement in quality, productivity enhancement, branding and market promotion including focus on exports, GAPs and environment friendly processes, skill development and improvement, protection and incentives for marginal sections such as smallholders, workers and small scale entrepreneurs of non-tyre products, enforcement of regulations on quality and standards and sustainability of rubber industry value chain, etc. , proportionate budgetary provisions would be made.

Budget from the Central government in the rubber sector would have focus of special allocation for new plantation and replanting of rubber. Appropriate convergence and dovetailing of funds with other programmes of departments/ministries of the Central and State Governments such as Mahatma Gandhi National Rural Employment (MGNREGA), Tribal Affairs, Dept of North Eastern Region etc. would be attempted.

CHAPTER-VII

IMPLEMENTATION FRAMEWORK AND PERIODIC REVIEW

The policy envisages for an implementation framework to be put in place to deliver on the policy commitments. An institutional mechanism in form of the Rubber Board set up under the Rubber Act 1947 already exists to regulate and promote development of Natural Rubber which shall be the nationally designated agency for this purpose.

The National Rubber Policy recommendations would be implemented through synergy with various Ministries/Departments and in unison with concerned state governments. Periodic review to deliberate on the future course of action and suggest corrective or further actions as may be necessary, would be done by the Central Government.
