

CRUMB RUBBER IN INDIA MISCONCEPTIONS AND REALITIES

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SYNOPSIS

Many eye brows were raised when the Government of India had finally given the green signal to the Rubber Board to go ahead with the Processing Component of the Kerala Agricultural Development Project (KADP) financed by the World Bank. The Project interalia includes the setting up of ten rubber processing factories in the predominant rubber small holder areas to convert a sizeable share of their crop into technically specified block rubber popularly known as crumb rubber. This move was welcomed by a wide cross section of the people who were concerned about the welfare and well being of the rubber planters significantly small producers. However, the idea did not find favour with certain sections of the rubber community. The crepe mill industry saw in it an attempt to eliminate them from the rubber scene once and for all. The rubber dealers

whose profits are heavily dependant on visual grading system viewed the whole concept of organised crop collection and processing with mistrust. The consumers, significantly the major tyre companies knowingly or unknowingly showed only limited optimism on the success of crumb rubber in India. Medium and small rubber goods manufacturers looked upon it with scepticism and considered it as a deliberate attempt to increase the price of raw rubber to benefit the producers only. All these are now things of the past as it happened in the middle of the last decade. The Kerala Agricultural Development Project is already half way through and the rubber industry in general has got reconciled with crumb rubber by now. However, it cannot be said that this polymer has been readily welcomed and widely accepted in the Indian market. Even now there are

people yet to be convinced about the need for crumb rubber in India. Similarly there is still quite a lot of ignorance about this rubber, particularly its advantages, among the small and medium consumers. Probably this is due to the lack of appreciation of the need for India to go in a big way into crumb rubber production and also the absence of a realistic assessment of its advantages to the various sections of the rubber community. This article is intended to dispel such doubts if any in the minds of the critics by presenting the whole issue in the correct perspective. A convincing analysis is made through this article to justify the need for India to go into crumb rubber production from various angles and perspectives. The author is the Assistant Secretary (Market Intelligence) of the Rubber Board.

Introduction

India is now on the threshold of a revolutionary transition from the age old conventional system of processing into a

modern era of technically specified rubbers and special rubbers. This change is brought about by a growing awareness on the need to develop organised collection, processing

and marketing of small holders rubber. The need for revolutionary changes in the field of natural rubber processing was felt as the structural changes taking place

in the industry characterised by the growing pre-eminence of the small holding sector and a gradual reduction in the average size of holdings necessitated it. The new era heralding the transformation from the age old conventional system of processing and marketing into a modern system had already been ushered into during the last and the present decades with the setting up of various crumb rubber factories in the estate and private sectors and also under the Kerala Agricultural Development Project. In order to understand and appreciate the relevance of crumb rubber under Indian conditions, it is essential to know what is crumb rubber, how it is produced and what are its salient features and advantages. So also a brief review of its origin and growth is found necessary to evaluate the whole issue in the correct perspective.

Crumb rubber

Technically specified natural rubber in block form popularly known as block rubber or crumb rubber is a modern marketable form of dry natural rubber with certain distinct advantages over conventional grades such as ribbed smoked sheets and crepes. It symbolises the notable breakthrough achieved in the processing and presentation of natural rubber. It is a polymer which maintains the intrinsically good and allround properties of natural rubber and presented in a more uniform manner in blocks of convenient size and packing to cater to the specific requirements of the rubber consumers. A striking feature of this rubber is that it has to be graded and marketed as per technical specifications laid down to this effect.

Origin and growth

Crumb rubber is the product of relentless efforts made by the natural rubber producing countries particularly Malaysia

for presenting natural rubber in a comparable form with synthetic rubber. The fifties and sixties saw the rapid development of synthetic rubbers and the alarming decline of natural rubbers share of the total rubber market. This caused serious concern to natural rubber producing countries. There was widespread fear of the eventual eclipse of natural rubber as indigo was displaced by its synthetic alternative. It is common knowledge that synthetic rubber,

being a factory product, can be made to conform to rigid specifications by suitable adjustments in the feed stocks used for its manufacture, whereas natural rubber received from rubber trees has certain inherent properties. Since latex and field coagulum (scrap rubber) received from the rubber trees are the same irrespective of whether it is produced in an estate or a small holding, the quality of the processed rubber by and large depends on the system of processing. This was the starting point for major natural rubber producing countries significantly Malaysia to think seriously on ways and means to make natural rubber comparable with its synthetic substitute. The research work done in this regard in Malaysia bore fruit and they came out with Standard Malaysian Rubber (SMR) in the middle of the sixties. The initiative taken by Malaysia in this regard was followed by other major natural rubber producing countries. Within the last two decades of existence, crumb rubber has won world wide acceptance and recognition as evidenced by the consistent increase in the production and export of it in the major rubber producing countries. In 1982, the total exports of crumb rubber from Malaysia was 42% of the total natural rubber production there. The corresponding percentage in Indonesia was as high as 72. Even during the late seventies and early eighties when the rubber

industry the world over was passing through an unprecedented recession, crumb rubber maintained and even strengthened its position in the world market. In 1982, new records were set in the exports of SMR from Malaysia. Experts of SMR increased by 20,000 tonnes in 1982 from the exports in 1981. This bears ample testimony to the growing popularity of this polymer.

Block Rubber in India

Block rubber production started in India in 1974-75. The reason for its late arrival in India can be attributed to the lack of enough rubber production to meet the requirements of the rubber goods manufacturing industry in the country. The rubber produced indigenously is fully utilised by our rubber goods manufacturing industry and the deficit is made good by imports. Besides, the country was also traditionally used to the conventional grades of sheet and crepe and therefore a change was not felt necessary. Under scarcity conditions, no serious thought was given to bring about drastic changes in the field of processing until it became a necessity due to the pressure of circumstances.

At present there are ten crumb rubber factories in the country of which four are in the estate sector, three in the co-operative sector and three in the private sector. Besides, there is also a pilot crumb rubber factory owned and operated by the Rubber Board which can not be strictly classified as a commercial factory. It procures latex and scrap mainly from the Board's own experiment stations. This factory is also geared for undertaking extensive research on various aspects of crumb rubber production, such as raw material procurement, improvement in plant and machinery, quality control, development of special rubbers, effluent treatment and discharge and market promotion.

Even though there are eleven factories with an annual installed capacity of 14250 M. tonnes production of crumb rubber has been much below the desirable level. Production of crumb rubber in the country has been showing erratic trends right from the beginning. Variations in market demand, labour unrest other problems faced by the existing units etc are reasons attributed to this. In 1974-75 crumb rubber production was only 670 tonnes which had shot up to 3467 tonnes by 1976-77. Since then, there has been ups and downs in the total production of crumb rubber. In 1980-81 production reached the level of 2416 tonnes from which it has declined to 1853 tonnes by 1981-82. Since then, an increasing trend is observed. Production has reached 2919 tonnes by 1983-84 from 2240 tonnes in 1982-83.

The infant crumb rubber industry in the country received an impetus and face lift with the implementation of the Kerala Agricultural Development Project.

The Rubber Processing Component of this project inter alia includes the setting up of nine new 10 tonnes per day crumb rubber factories in a phased manner in the predominant small holder areas to convert their crop into technically specified block rubber and the expansion of the existing co-operative factory at Palai to 10 tonne per day capacity. It was envisaged that when the project factories are fully operational, they alone will be contributing 25,000 tonnes of crumb rubber to the total availability. The expansion of the Palai factory and the setting up of one factory each at Calicut and Kanjirappally have already been accomplished. These factories are now under commercial production. One factory each at Palghat Moovattupuzha and Thodupuzha and the expansion of the Kanjirappally factory to 20 tonnes per day capacity are now

in an advanced stage of implementation. The present indications are that World Bank assistance may not be forthcoming for the remaining four factories originally planned under the project. Besides, there are also proposals to set up crumb rubber factories by public sector plantations and certain private estates. Therefore, assuming only seven factories under the World Bank Project, the total block rubber production in the country is expected to reach around 22,000 tonnes by 1986, which may go up further to 38,000 tonnes by 1990.

Production of crumb rubber

Production of crumb rubber involves a series of unit operations such as pre cleaning, blending, final size reduction, drying and packing. The raw rubber in the form of latex and of scrap is converted into crumbs after precleaning operations to remove foreign matter, washed, dried at a temperature not exceeding 110°C compacted into blocks of standard size and shape and wrapped in low density polythene film. Grading is done by taking samples from bales representing each lot and testing for dirt, ash, volatile matter, nitrogen content, initial plasticity and plasticity retention index. It is then packed in high density polythene bags marked with the grade and net weight. Each bag contains two blocks of 25 Kgs each.

Grades of crumb rubber

In India, crumb rubber is to be graded and marketed adopting ISI specifications and therefore it is called Indian Standard Natural Rubber (ISNR). The grades of ISNR laid down by the ISI can be broadly classified into two, viz latex based crumb rubber and scrap based crumb rubber based on the starting materials used for production. There are two grades under the latex based crumb rubber namely ISNR 5 (special) and ISNR 5. Similarly there are three grades

under scrap based crumb rubber which are ISNR 10, 20 and 50. Efforts are now in progress to include some new grades such as ISNR 3 CV and ISNR 3 L into the ISI framework and deletion of the existing grade of ISNR 5 (special) in order to make it much more broad based and realistic.

Advantages of crumb rubber

Crumb rubber possesses certain specific advantages over conventional grades of ribbed smoked sheets and crepes.

They are:-

- (1) being available in five well defined grades. correct choice of the grade to suit the requirements of the consumers is easy
- (2) being processed in bulk quantities adopting latest technology, variation in technological properties within the same grade is minimum facilitating better quality control of the raw material and processing
- (3) being possible to assess the actual content of foreign and volatile matter, realistic assessment of the worth of the material is possible
- (4) being marketed in compact polythene wrapped bales, contamination of the rubber on storage, handling and transportation can be prevented

Cost benefits by using crumb rubber

It is well recognised that price is the most important factor influencing the selection of rubber grades by the consumers. However, market price alone is not sufficient for selecting rubber grades. In fact, the overall cost of production and the quantity and quality of the saleable products are also important factors to be considered. The following benefits in cost and quality by using crumb rubber regularly are worth mentioning:-

- (1) Crumb rubber can be efficiently handled at all stages of external and internal transportation in view of the optimum bale size and compact nature of bales. This will reduce handling and transportation cost
- (2) Crumb rubber being in standard size and compact shape, can be conveniently stored one above the other and the floor area required will be much less compared to that for conventional grades. This will result in savings on storage cost
- (3) Crumb rubber does not require removal of bale cover, precleaning, bale cutting and straining. Besides, being processed from crumbs, it requires comparatively less pre-mastication. It can be fed directly into the mill (depending upon its initial plasticity and mill size) or banbury. The extent of cost reduction in this respect can be quite significant in terms of labour, power, and machinery output. Besides, use of block rubber can minimise certain production problems wastage and variability in product properties
- (4) raw material testing as well as in process testing can be minimised by using crumb rubber with guaranteed specifications. Factories where facilities are not available for quality control testing can therefore avail of this advantage
- (5) Since dirt, volatile matter and ash content are controlled and regulated and there is no bale coating, consumers can obtain a more realistic pricing advantage in terms of the actual worth of the material

Is crumb rubber an absolute necessity in India?

After having glanced through the growth and development of crumb rubber industry in India and assessing the specific advantages accruing to rubber consumers by using it, let us now come to the most vital issue. Should India go in a big way into crumb rubber production? Opinions differed considerably on this issue. People who are familiar with the problems of rubber plantation industry and those who are farsighted enough to foresee some of the changes in the structure of this industry welcomed this proposition without any reservation or hesitation. However, some sections of the rubber community held divergent views on this issue. Some people argued that since India is still not self sufficient in this strategic raw material, maximum priority should be given to maximise production so that imports of rubber can be minimised and thereby drainage of valuable foreign exchange prevented. As such, diversion of scarce capital for building up crumb rubber factories, could wait till we achieve self sufficiency in rubber. However, they agree that, if India is exporting natural rubber there would have been a definite case for starting crumb rubber factories so as to remain competitive in the international markets. Another line of thinking is that since the rubber consumers in the country are happy and contented with conventional grades why should crumb rubber be imposed on them? To substantiate this argument further, it is pointed out that a request for crumb rubber, should have come from the consumers because after all they are the section to clamour for improvement in quality. The consumers never asked for it. Yet another group thinks that the Rubber Board is trying to transplant the SMR concept in India just for the sake of technological improvement in processing and

presentation of natural rubber, without assessing its absolute necessity under Indian conditions. While the above arguments against crumb rubber can be conceded as containing some stuff, some sections went further ahead and cast aspersions even on the viability of crumb rubber production in India. Serious doubts were also raised in these quarters on the market prospects of crumb rubber in the country. A careful analysis of their arguments will reveal that their antagonistic attitude to crumb rubber is not based on valid grounds, instead, it is a frantic attempt to protect and safeguard their own interests. The crepe mill industry have a genuine fear that crumb rubber will pose a potential threat to its very existence. Their fear is some what well founded also. In Malaysia, crepe mills made a gradual exit from the rubber scene with the advent of the SMR age. It is quite natural that rubber dealers will not be happy about any standardisation in quality which may tell upon their profits. They were very sceptical about the whole idea and there were even attempts to play down the demand for ISNR grades. Their anxiety to retain the system of conventional processing and visual grading system connected thereto is therefore quite understandable. However, the most surprising was the lack of enough patronage to crumb rubber from the tyre manufacturers. It is indeed dismaying to watch their subdued interest and enthusiasm because they are the people to reap the maximum benefits by using it. Their limited interest in this rubber is all the more significant considering the fact that almost all the technical collaborators of these companies are convinced about the advantages of crumb rubber and most of them are using it on a regular basis. It therefore becomes obvious that there are quite a lot of misconceptions about crumb rubber even now among

the various sections of the rubber community. Probably this may be due to the lack of a realistic assessment to evaluate the pros and cons of introducing crumb rubber into the country. Let us now proceed to analyse the circumstances which necessitated introduction of crumb rubber in a big way in India. It is expected that this will dispel the misgivings and doubts, if any, still remaining in the minds of the critics.

Crumb rubber and the consumer

The resistance to crumb rubber is much more in evidence in the consumers camp. Therefore, the first task is to establish how crumb rubber will benefit rubber consumers more than any other section. Higher prices of crumb rubber vis-a-vis the prices of conventional grades are often reported as the reason for their resistance to crumb rubber. However, this is due to the lack of an assessment of the net benefits accruing to them by using it. It is widely accepted that price is not the only consideration guiding purchase decisions. The overall cost of production, the net worth of the material, quality of finished products etc. are also equally important aspects to be considered. In fact due to a short sighted approach in which the price of rubber at a point of time is only considered in isolation the importance of availability of rubber of consistent quality at relatively stable prices throughout the year is often lost sight of. If a realistic assessment is made, it will become obvious that the consumers will stand to gain by switching over to such a polymer rather than depending exclusively on grades which are inconsistent in properties and erratic in supply. Consumers are the most benefited by crumb rubber as would become evident from the following analysis.

Availability of graded sheets
Complaints are often voiced by

consumers on the non-availability of graded sheet rubber of prescribed quality at reasonable prices. Many people think that this is only a temporary imbalance in supply which will get corrected over a period of time. But the fact is that this is the cumulative result of many factors including the structural changes taking place in the rubber plantation industry and as such it will continue to be a regular feature in the years to come. The reasons for this are not far to seek. Bulk of the graded sheets available in the country are produced by large estates. Cost of production of sheet rubber has been going up in the recent past without a corresponding increase in the premiums of such grades. This has made many estates to think of alternative sources to dispose of their crop. Coinciding with this development is the sudden spurt in the demand for field latex consequent on the boom for latex concentrates. Field latex which was at one time sold at a price less than lot, price started commanding premiums extending even up to Re. 1 per Kg. By selling the crop as latex, the estate could also dispense with processing and marketing cost. It is therefore natural that estates find it a lucrative proposition which guarantees a better return and at the same time save the trouble and responsibilities of processing and marketing. However, the net result of this development is that a sizeable quantity of latex is siphoned off from the quantum of latex going into the production of graded sheet rubber. This in turn paves the way for frequent imbalances in the availability of graded sheets, wide fluctuations in their prices and down grading in quality.

Quality of small holders rubber

While this is the case with estates, there has also been a consistent deterioration in the quality of sheet rubber produced by small holders. It is common

knowledge that the sheets produced by small holders significantly petty small holders are inferior in quality mainly due to the crude method of sun drying and kitchen smoking followed by them. Only a percentage of the small holders own the essential facilities for producing good sheets. Lack of cleanliness in collection, coagulation etc. is also found to be common. The spiralling cost of firewood has rendered operation of smoke houses for the production of quality sheets quite an unattractive proposition. The old practice of using a fallen rubber tree, or for that matter any tree, to cite an example, for the operation of smoke houses is not at all profitable due to the very high prices of timber and firewood. Yet another important reason is the lack of sufficient incentive to small holders to improve the quality of sheet rubber produced by them. The contributing factor is found to be the conventional system of processing and the visual grading system connected thereto. The small holders are fully aware that even if better sheets are produced by using improved methods of processing, they will not be compensated for their efforts as the existing marketing system allows the purchase of their rubber only as 'lot' without grading. As such the need of an average small holder is just to produce a sheet with the least minimum processing operations. It is therefore quite natural that such sheets suffer from lack of sufficient smoking, over smoking undried patches impurities and so on.

Future outlook

The circumstances leading to the gradual deterioration in quality of sheet rubber produced in the country have been explained. This tendency is not a healthy development. In this context it becomes necessary to examine whether this is going to be a regular feature and if so the impact of it on the availability, quality

and prices of graded sheet rubber in the long run. For this purpose it is necessary to examine the changes taking place in the rubber plantation industry as a whole.

Sheet rubber

The rubber plantation industry in India is passing through a structural change, which is brought about by the gradual breaking up of large plantations new plantings by subsistence farmers and sub division and fragmentation of existing small holdings, due to various socio-economic factors. The net result is the emergence of the small holding sector as the dominant partner in the industry. In 1960-61 small holdings accounted only for 59% of the total area under rubber in the country which increased to 67% by 1970-71. It further increased to 74% by 1982-83. Similarly the share of small holdings to total production has increased from 25% in 1960-61 to 56% by 1970-71: It further increased to 71% by 1982-83. Yet another striking feature of this change is the fastly increasing number of petty small holdings which has now gone upto 23% of the total number of holdings. This change is truly reflected in the average size of the holding. The average size of the holding was 1.34 hect. in 1960-61 which has come down to 1.23 hect. by 1970-71. It has declined further to 1.02 hect. by 1982-83. Past trends unmistakably show that proliferation of small holdings will accelerate further in the years to come. Since the sheets produced by small holders significantly petty small holders are inferior in quality, it is but natural that the direct impact of the structural change on the industry is a gradual decline in the quality of sheet rubber. The impact of this is being increasingly felt now and many consumers are rather compelled to buy lower grades, accepting it reluctantly as higher grades at enhanced premiums. On the one hand there is deterioration in quality and on the other

increase in premiums, that too for lower quality. In both ways the consumers stand to lose. If things continue at this rate the day is not far off when consumers have to knock from one source to another to procure enough raw rubber of prescribed quality, to meet their requirements.

Crepe rubber

Deterioration in the quality of crepe rubber produced from scrap rubber is still more significant. The scrap rubber produced by small holders is allowed to deteriorate in quality because of its unscientific storing in the growers courtyard. By the time it reaches the commercial crepe mills after passing through one or two market intermediaries, the quality would have deteriorated further. In fact an attempt is made then in the commercial crepe mills to upgrade the quality of such deteriorated scrap, without much success. Since estate brown crepe produced in the country is not subjected to any specifications, adulteration of the scrap with inferior quality skim rubber, bark particles etc is quite rampant. It is interesting to note here that bulk of the estate brown crepe produced in the private crepe mills cannot even be called as crepe as per the standards laid down in the Green Book. Quality problems of the crepe produced in private crepe mills are increasingly felt by major consumers, significantly tyre companies who consume almost 75% of it. They are, therefore, the worst sufferers in this regard.

Crumb rubber and the small holders

The decision to go in a big way for organised processing of small holders crop was also taken to ensure a better return to the small holders. In order to understand and appreciate this aspect it is necessary to examine the present system of marketing of small holder's rubber.

There is a marketing net work for small holders rubber involving a chain of agencies which has been evolved through the past many years. It consists of primary dealers, middle dealers and big dealers. Primary marketing co-operatives are also an integral part of this chain. However, their share of the market is considerably low. Their system of operation is more or less like middle dealers. Primary dealers operate at the village level and serve as the first outlet for small holders rubber into the market. Middle dealers operate at towns and buy rubber mostly from primary dealers and medium and big estates. From the middle dealers the rubber passes to the big dealers operating at important rubber markets in the country. At the level of the big dealers, proper grading and packing are done before the rubber is despatched to the ultimate consumer. Under the visual grading system followed in the country, grades are decided on visual inspection without relevance to the technical properties despite the broad guidelines and norms laid down. The main drawback of this system is that it paves the way for upgrading and down grading according to demand and supply forces. The visual grading system revolves around the 'lot' price. It is interesting to note that there is no specified grade as 'lot'. It just denotes a mixture of RMA 3, 4 and 5. Under the present system, small holders rubber is purchased at a discount to the 'lot' price, by primary dealers. The rubber thus collected by the primary dealers is sold to middle dealers as 'lot' itself for a small margin of profit. The discount made from the market rate represents the profit margin of primary dealers. At the level of the middle dealers, sorting and grading is done to some extent. But actual grading takes place only at the level of the big dealers. It is worthwhile to note here that the sheet rubber

produced by small holders does not undergo any change when it passes from one market intermediary to another before it reaches the final consumer ultimately. However, grading, packing and transportation etc. are services provided by dealers significantly big dealers.

Grade differentials for small holders sheet rubber

Due to the regular reporting of 'lot' prices in local dailies, the farm gate price received by small holders is comparatively high in the case of rubber. But the difference between the farm gate price and the price ultimately received by big dealers represents the marketing margin. Even after giving due allowance for the services provided by dealers in grading, packing, transportation etc., the marketing margin is found to be still high. The point stressed here is that grade differentials which ought to have gone to the producer, have in fact accrued to the intermediaries because of the present system of marketing characterised by visual grading which is again a by product of the conventional system of processing.

Price of small holders scrap rubber

The loss sustained by small holders in the sale of their scrap rubber is still more pronounced. Unlike the price of sheet rubber, the prices of scrap rubber are not reported in local dailies. As such the competitive status enjoyed by small holders in the sale of sheet rubber is totally absent in the case of scrap rubber. Bulk of small holders scrap is purchased by unlicensed dealers who visit the holdings periodically. The common practice is to negotiate a price for the whole lot rather than sorting out good quality scrap and paying a good price for it. Since the small holders are not keeping abreast with the latest price trends due to its non availability, they are not in a position to ascertain whether the price

received is reasonable. Besides, faulty weightments are also methods used by unlicensed dealers to exploit the small holders. A peculiar feature of this system is that many growers do not even realise the actual extent of loss sustained by them in selling scrap rubber to these petty traders.

The entry of crumb rubber factories into the scrap market has totally changed the situation in favour of the small holders. The system of purchase of scrap rubber at a fixed price formula by the KADP factories, rendered enough stability to the scrap prices. This becomes evident if the increase in the price of scrap rubber since the establishment of the KADP factories is closely examined. Prior to the setting up of the world bank aided KADP factories, the difference between 'lot' price and scrap rubber was well over Rs. 4 per Kg. This has narrowed down to Rs. 2.50 to 3 per Kg. by now.

Prospects of special rubbers

Many people still consider crumb rubber only as an improvement in the presentation of natural rubber with technical specifications. In fact it is much more than that. It symbolises the starting of a new era in the field of natural rubber processing in the country. Lot of work is now in progress throughout the world for the development of various customer oriented polymers. The rationale behind these efforts is to develop certain special grades which would cater to the specific requirements of the consumers. With the increasing mechanisation and sophistication of the plant and machinery of the rubber goods manufacturing industry, lot of emphasis is laid on techniques which would enable to dispense with certain initial stages in product compounding in the face of mounting cost of production significantly labour wages. It is therefore logical to expect an increasingly important role for special rubbers in the future set up. Operations like

pre-mastication, to cite an example, which is at present done in the factory could be totally dispensed with if a viscosity stabilised rubber is used.

A glowing example of this shift towards special rubbers from ordinary grades is visible in Malaysia. Crumb rubber factories there were producing only ordinary grades to start with. Since then Malaysia has come a long way in the development of special rubbers. When crumb rubber was introduced into the world market for the first time, arrangements were also made simultaneously to monitor the views and attitudes of customers to this rubber on a regular basis. The market feedback thus received gave valuable information on the choices and preferences of consumers. Based on this, regular and continuous research ensued which culminated in the development of special rubbers such as constant viscosity rubber, low viscosity rubber, general purpose rubber, tyre rubber and so on. Most of these rubbers are well received in the market.

India being a developing country, it is very essential that our limited polymers are utilised in an optimum way. We cannot afford to waste any of the available rubbers. Development of special rubbers has therefore much more relevance in India under the present situation. Efforts may have to be made to develop special rubbers to cater to the needs of various industry groups by judicious deployment and diversion of the available latex and scrap so that wastage of rubber can be brought down to the minimum. Special rubbers like viscosity stabilised rubber possesses promising prospects in our country due to the constraints on power. The role of crumb rubber in this regard needs no emphasis as it is the starting point for development of special rubbers.

Organised processing

To sum up the points already

discussed, there is a consistent decline in the availability of graded sheets from the estate sector, gradual erosion in the quality of small holders sheet rubber and deterioration in the quality of crepe rubber produced from small holders scrap rubber. The consumers feel to a greater extent. The producers, significantly the petty producers are also equally affected by the existing conventional system of processing and visual grading system connected thereto as it deprives them of grade differentials for their sheet rubber and a fair return for their scrap rubber. Moreover, with the increasing sophistication in the technology, plant and machinery of our rubber manufacturing industry and the deep impact of constraints like power shortage on its growth the need for special rubbers will be very keenly felt in the country in future.

After having identified the problems and the requirements let us examine the most ideal method to set things right. Here it is to be emphasised that an individual approach to improve the quality of rubber is rendered difficult because there are nearly 1.75 lakh growers who can not be practically reached, individually. The objectives of maintaining regular availability of higher grades of rubber with consistent quality at relatively stable prices, ensuring a better return

to small producers and prevention of degradation of small holders scrap rubber can be achieved by collecting the crop from the growers before deterioration and converting it into high quality rubber through improved processing techniques in central factories. Collection of latex and scrap can be effectively done through a net work of collection centres in the predominant small holder pockets. The collection centres thus set up can, in course of time, be converted into small holder development centres which can serve as the nucleus around which the entire process of modernisation of small holdings can be taken up. In addition to collection of crop these centres could arrange the required inputs and appropriate technology to the growers for scientific cultivation of rubber. Another advantage of this system is that the central factories can sell their products directly to the consumers and thereby secure a better sales realisation by minimising marketing margins. A portion of the profits thus made, can be channelled back to the growers as differential payments in the form of purchase bonus. This is precisely the programme envisaged under the Rubber processing Component of the Kerala Agricultural Development Project financed by the World Bank.

Conclusion

It has already been established beyond doubt that the decision taken to set up a chain of crumb rubber factories is a step in the right direction. It is beneficial to the consumers and producers alike. The consumers are benefited by regular availability of specified grades of rubber of consistent quality at relatively stable prices. Similarly the producers significantly the petty producers are assured of a better return for their crop. From the national point of view, the gradual erosion in the quality of sheet and crepe rubber has been arrested and a technical orientation brought into the field of processing and marketing of rubber. Moreover, with the setting up of crumb rubber factories, the required infrastructure has already been laid down in the country for the development of special rubbers, which is the need of the day. A beginning is only made and we have yet to go a long way in this field. Concerted efforts are therefore called for to develop special grades to suit the specific needs and requirements of our rubber manufacturing industry. It can be confidently said that with the passage of time crumb rubber will be better understood and appreciated in the country.

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ALL-SR TYRES A REALITY

The Soviet Union's rubber industry has developed all-synthetic-rubber radial and aircraft tyres, according to top industry officials there. The innovations are part of a major effort in the USSR to automate plants, cut costs and reduce the industry's already meagre dependence on imported natural rubber. The tyre developments were mentioned in speeches given during September's KP '84 International Rubber Conference in Moscow. No details were given on specific achievements, although Soviet officials spoke at length-and in broad terms-about their efforts to upgrade rubber product manufacturing. Dr P.F. Badenkov, Director of the Scientific Research Institute of the Tyre Industry, mentioned the development of an all-SR aircraft tyre-which would be a significant innovation, according to Western aircraft tyre industry sources. Badenkov said the USSR has been mass producing all-SR car, truck and agricultural tyres for 10 years, and maintained that they are "in no way inferior to NR based tyres." Now, he added, "aircraft tyre manufacture from SR has also been established." Elsewhere in the world, NR is considered a vital ingredient in aircraft tyres because of its impact strength.