CHAPTER-III
ANALYSING THE RUBBER CRISIS

Sec 3.1:-Government Sector

The definition of crisis in the rubber scenario is very difficult. To know whether there was any crisis and how it began is no simple thing because different sectors view it from different viewpoints and hence no unanimous conclusion can be reached. For a better understanding of the situation it would be of help to examine the NR price scenario. The analysis mainly focuses on the time period between 1995-2000 or in other words the period of cyclical fluctuation from a peak price level to a trough level and its gradual recovery.

Chart 3.2 shows the average price level from 1985-86. In other words it covers a lagged fifteen year planting decision range and is therefore more relevant. One can see that between 1985-1990 the prices remained in the 16 to 20 range during early nineties. In the post liberation era the prices were contained in the band of 20-25. The mid nineties showed a rise to the 35 level and from 1995 onwards it continued its upsurge to reach fantastically high levels like 57 to Rs 60 at a point of time. In the year 1997-98 saw the plummeting of prices to Rs 30 level. Sometimes fluctuating downwards to Rs. 25 after 1998 the downward tendency was reaffirmed. Prices were again within the 25 to 30 level. Wild fluctuations in prices are pointed out by growers as the causative factor of the crisis. Not enough returns in the lament of the small growers who say they are in a near suicidal situation. Whereas on the other hand manufactures and some policy makers raise their brows and ask "Is there a crisis?" Indian rubber situation shows that causative factor for the so called crisis come from various sources. It remains an unresolved debate even today.

Visions of vested interests are always myopic. Micro level relatively interdependent attributed causative factors are cited in figure 3.1.
a) Liberalisation argument

A leftist economist cites liberalisation as the main cause for rubber crisis through various papers and articles. To know how far the assertion is true we shall go through major routes of import.

Though rubber is an item in the restricted list, import is possible through the following channels.

1. **License against public notice**: This facility is available only in deficit years. After periodical review of the availability and consumption requirements of rubber, the Rubber Board would recommend for import of rubber in the deficit year. In pre-liberalisation times, such imports were through State Trading Corporation (STC). Now the rubber product manufacturers can directly import it after submitting an application to the Director General of Foreign Trade (DGFT). Owing to market glut, Government of India has banned import under this route after 1995-96.

2. **Special Import Licensing Scheme (SIL)**: Generally SIL is given to exporters having certificates as export houses, Trading houses, Star/superstar Trading houses. This license is transferable and subject to periodical duty revision. Importers using transferred license has to give certain percentage as premium. Because of these duties and premiums import through SIL is rare. After liberalisation the basic import duty of NR which was as high as 60 percent was slashed down to 25 percent in 1995 and further lowers to 20 percent in 1996. As a result importing rubber with the duty under SIL became an attractive option when there is considerable lowering of price relative to Indian price. Government of India has discontinued issuing license to import using SIL w.e.f April 2001.

3. **Advance Licensing Scheme**: Except in 1993, this was the main channel for rubber import in the early 90's. Under this scheme, industrialists who are exporting their products are entitled to import raw materials to produce the exported good. Tyre exporters are allowed to import NR, SR, carbon black, nylon cord and other necessary chemicals.

The Advance Licensing scheme allows two routes for export related import of NR.
Fig: 3.1 - Circular flow of attributed macro economic interdependent causative factors

**GOVERNMENT SECTOR**
- Liberalization
- Industrial recession, taxes, cess policies, stock procurement, level of BMP

**FOREIGN SECTOR**
- IMF conditions, GATT, WTO,
  - South Eastern Asian Economic crisis,
  - INRA Break down,
  - Global industrial recession

**BUSINESS SECTOR**
- Tyre manufacturers,
  - Political lobbying,
  - Speculative stock management policies

**HOUSEHOLD SECTOR**
- Price expectations and resultant supply decisions,
  - Glut, sticky wages
Fig 3.2- Indian rubber prices

Source: Indian Rubber Statistics
Fig 3.3 - Latex prices in India

Year
Source- Indian Rubber Statistics

b) Value Based Advance Licensing (VBAL) - Under VBAL there was no restriction on the type of items that can be imported. Many misused this facility to import only NR. So in 1997, VBAL was reformed and Quantity Based Advance Licensing (QBAL) was introduced. Under QBAL, quotas were fixed for import items. Thereafter if one item is not imported; it became impossible to import other items.

As a support measure, the Government of India imposed ban on the import of NR against advance license w.e.f. 20 February 1999. Owing to the pressure of industrialists exporters of rubber goods have been allowed to purchase NR from STC as an alternative arrangement. STC would supply at the international price from their locally procured stock. Since Advance license has a normal validity for 18 months after issue and can be extended twice for duration of six months each, import of NR continued even after the imposition on ban. However with the fixation and notification of minimum price, (which is based on import parity price for trading in natural rubber) procurement of NR through STC was stopped.

With effect from April 2001, Quantitative Restrictions [QRs] on import of natural rubber has been removed. Prior to that natural rubber was included in the negative list as a restricted item of import.

Sec 3.2:- The Long standing threat of synthetic Rubber

In the mode of production NR is labour intensive and SR is capital intensive. New tyre manufacturing technologies require materials with more consistent, predictable processing characteristics than NR, while retaining NR’s good properties. Industrialists in India in a bid to topple MNCs, is copying their technologies. The use pattern of NR:SR in India is at present 79:21 whereas in advanced countries it is 60:40. There is a threat of substitution of NR on the grounds of technological upgradation unless some policies are formulated globally in favour environment protection.

Since SR production is oil based, a hike in oil prices shows a substitution effect and an income effect in relation to NR. When oil prices are up SR becomes dearer and NR is substituted for SR. But rise in oil prices raises general cost of production in the industry
and reduces incomes and slows down industrial growth which affects rubber consumption.

Liberalisation policies have favoured SR imports. Globally there is an emerging complementarity instead of compartmentalisation in SR production and consumption. There is a possibility of India and China emerging as great SR powers.

Tab 3.1:- Production and Consumption of NR and SR

<table>
<thead>
<tr>
<th>Year</th>
<th>PRO</th>
<th>DUCT</th>
<th>ION</th>
<th>[000]</th>
<th>CON</th>
<th>SUMP</th>
<th>TION</th>
<th>[000]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NR</td>
<td>SR</td>
<td>Total</td>
<td>Growth</td>
<td>NR</td>
<td>SR</td>
<td>Total</td>
<td>Growth</td>
</tr>
<tr>
<td>95-96</td>
<td>506.9</td>
<td>68.2</td>
<td>575.1</td>
<td>7.4</td>
<td>525.5</td>
<td>134.1</td>
<td>659.6</td>
<td>8.4</td>
</tr>
<tr>
<td>96-97</td>
<td>549.4</td>
<td>64.6</td>
<td>614.0</td>
<td>6.8</td>
<td>561.8</td>
<td>142.8</td>
<td>704.6</td>
<td>6.8</td>
</tr>
<tr>
<td>97-98</td>
<td>583.4</td>
<td>72.0</td>
<td>655.8</td>
<td>6.8</td>
<td>571.8</td>
<td>160.9</td>
<td>732.7</td>
<td>4.0</td>
</tr>
<tr>
<td>98-99</td>
<td>605.0</td>
<td>67.6</td>
<td>672.6</td>
<td>2.6</td>
<td>591.5</td>
<td>156.4</td>
<td>747.9</td>
<td>2.1</td>
</tr>
<tr>
<td>99-00</td>
<td>622.3</td>
<td>60.3</td>
<td>682.6</td>
<td>1.5</td>
<td>628.1</td>
<td>167.2</td>
<td>795.3</td>
<td>6.2</td>
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<td>00-01</td>
<td>630.4</td>
<td>65.5</td>
<td>695.9</td>
<td>1.9</td>
<td>631.4</td>
<td>170.6</td>
<td>802.1</td>
<td>1.1</td>
</tr>
<tr>
<td>01-02</td>
<td>631.4</td>
<td>69.6</td>
<td>701.3</td>
<td>.73</td>
<td>638.2</td>
<td>174.5</td>
<td>812.7</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source:- Indian Rubber Statistics,(2002)

In India production of SR showed a 5.6 percent decline between 1995-96 to 1996-97. Then between 96 to 98 it increased by 11 percent and then declined by 6 percent in 1998-99. This was due to decline in production of Styrene Butadiene Rubber (SBR) possibly on account of domestic capacity shortage and increased imports.

The consumption of SR increased by 6.5 percent between 1995-1997 and by 12.7 percent between 1996-1998. But it declined by 2.8 percent by 1998-99. In 1999-00 it has showed a rise of 11 percent. Though the relative pattern of NR: SR averaged during the period to 78:2: the threat of substitution in the future booms large in the minds of the growers.

Sec 3.3:- The Substitution Effect of Poly urethane

It is said that the price crash hit the latex market the worst. The main consumers of latex are foam bed manufactures. Figure 3.3 shows the trends in latex prices.

Price differential was 46.88 percent in 1989-90. It in the next year it almost doubled to 97.8 percent. It stayed around seventies till an average till 94-95. After 1995 the range hovered between 40-50 percent. The substantial difference in the price of latex and sheet rubber had made many cultivators switch over to latex. The global threat of Aids meant
more business in gloves, condomn manufacturing etc. In Indian market the automobile seat Industry has completely captured Poly Urethane in the manufacturing technology. Big companies like Bajaj is now using only Poly Urethane for seat manufacturing. The manufactures of Poly Urethane are big multinational companies like Bayer, Union Carbide, Ohlin, Enicher shell, Rom Paulank, Arco etc.

Price differential of sheet rubber and latex ranged above 75 percent between 1989-1995. In 1995 it came down to the level of 40-50 percent. The substantial price differential and global aids scare and glove boom led to the switching over from sheet to latex. Switching back is extremely difficult as it necessitates search for finance, construction of rollers, smoke houses etc which brings an added cost of RS 3-4 in the total cost of production.

Ammoniated latex has minimal storage life, so stock procurement is ineffective. The working pattern of Amul and Milma had encouraged the Board to setup a collective processing marketing chain which is threatened by shutdown.

The sharp climb to Rs.78.48 is in tandem with the general rubber price rise in 1995 with import duty cuts, in prices were on a free fall after 1995. At present the price differential is Rs 11.43.

Sec 3.4:- Industrial recession

During 1991-92 and subsequently in 1992-93 industrial production suffered a setback. During 1991-92 the general index of industrial production for the first time in recent years recorded zero rates. The relationship between rubber prices and industrial sluggishness is an established fact when one follows the views of many expert economists in the news papers and articles.

But an interesting contradiction is seen here. On an average the early 90's i.e. (1990-1995) the overall rate of industrial growth remains short of 5 percent but rubber prices showed progressive rise. During the same period. When industrial growth picked up after an adjustment phase between 95-97, rubber prices also rose very high but had its great crash in 97 when industrial growth rate was at a robust 12 percent. This result shows that the relationship is a spurious correlation.

Based on the experience of the seventies, during Indo Pak war and the formation of the OPEC, some analysts conclude that rubber prices and a country's GDP are unrelated.
But even then there was surplus production and this excess of which amounted to 26424 tonnes was exported due to the efforts of STC. This excess of 26424 tonnes is about 20 percent of the annual production during that time phase. It is therefore equivalent to the present excess of 120000 tonnes.

Tab 3.2:- Industrial growth and growth in Rubber consumption in the post liberalisation Decade

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial growth</th>
<th>NR consumption growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-91</td>
<td>8.2</td>
<td>1.86</td>
</tr>
<tr>
<td>1991-92</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>1992-93</td>
<td>2.3</td>
<td>16.03</td>
</tr>
<tr>
<td>1993-94</td>
<td>6.0</td>
<td>.73</td>
</tr>
<tr>
<td>1994-95</td>
<td>8.4</td>
<td>24.86</td>
</tr>
<tr>
<td>1995-96</td>
<td>12.8</td>
<td>34.30</td>
</tr>
<tr>
<td>1996-97</td>
<td>5.6</td>
<td>-6.18</td>
</tr>
<tr>
<td>1997-98</td>
<td>6.6</td>
<td>-36.89</td>
</tr>
<tr>
<td>1998-99</td>
<td>4.0</td>
<td>-19.57</td>
</tr>
</tbody>
</table>

Source: Rubber Feb 2000, IRS, CSO

In 1991 industrial growth rate fell from 8.2 percent to 0.6 percent. In 93 and 94 also the growth rate was sluggish and this period was temporary. Indian industry needed time to adjust to the changed circumstances. There was also the time required for reshuffling the technology in main production units. This recession was reflected in rubber consumption. Average rubber consumption in these 3 years was 6.6 percent from 1993-94 to 1995-96 the average industrial growth rate was 9.1 percent whereas the average growth rate in rubber consumption was 8.3 percent. If we take the average from 1997-01 the industrial growth rate was very low at 5.4% and the corresponding rubber consumption rate was proportionately low at 4.0 percent.

The table 3.2 reveals that the ultimate influence on prices in the post liberalisation depends more on external influences from ROW [rest of the world]. Internal policy decisions are greatly offset by factors like opening of China gate and South East Asian Crisis 1996-97 can be seen as a year in which both internal and external forces were negative.
The main demand influencing factor of truck is in the goods transport sector. Goods transport sector in turn depends on industrial agricultural growth rate for the transport of raw materials industries like petroleum, cement, steel chemicals and fertilizers, coal, paper, furniture, textiles etc depend road transport.

Commercial vehicles are needed for the transport of raw materials and machinery factories and also for the transport of final products from factories to end uses. Thus only under conditions of industrial prosperity will there be existence of conditions of demand for truck tyres.

1) Original equipment demand or continued increase in the production of trucks. This constitutes only 7% of the total production of truck bus tyres.

2) Replacement demand or continued increase in the movement of trucks. This constitutes 73% of the total production of truck, bus tyres.

Though the replacement demand is increasing with the years, the annual growth rate is seen to have a steep fall from the year 1996-97. This was mainly due to the sluggishness in goods transport which reduced the wear and tear of tyres. Also, retreading of tyres became wide spread instead of changing tyres frequently.

Power cut has also emerged as a major villain accentuating industrial recession. Kerala having hydro electrical power base, is always faced with the bottle neck of power shortage in summer months. At an all India level there was power shortage in 96-97. There were situations of 40 percent power cuts in North India states where the factory users of rubber are concentrated. Rising inflation led to lock outs arising from labor disputes. The cost of credit as a result of credit squeeze measures of the RBI is said to be affecting the industry hard. Most units are not prepared to go in for production with the borrowed money forcing them to pay over 20 percent interest per annum.²

Sec 3.5:- Unnecessary imports

Government is accused of submitting to industrial lobbying. According to this view; the cause of rubber crisis is the continuous and totally unnecessary in flow of rubber and rubber products over and above import requirements.
<table>
<thead>
<tr>
<th>YEAR</th>
<th>PRODUCTION IN TONNES</th>
<th>CONSUMPTION IN TONNES</th>
<th>IMPORT IN TONNES</th>
<th>EXPORT IN TONNES</th>
<th>PRICE RS. PER 100 KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985-86</td>
<td>200465</td>
<td>237440</td>
<td>41431</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1986-87</td>
<td>219520</td>
<td>257305</td>
<td>45356</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1987-88</td>
<td>235197</td>
<td>287480</td>
<td>53685</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1988-89</td>
<td>259172</td>
<td>313830</td>
<td>59835</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1989-90</td>
<td>297300</td>
<td>341840</td>
<td>44445</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1990-91</td>
<td>329615</td>
<td>364310</td>
<td>49013</td>
<td>-</td>
<td>2129</td>
</tr>
<tr>
<td>1991-92</td>
<td>366745</td>
<td>380150</td>
<td>5070</td>
<td>5834</td>
<td>2141</td>
</tr>
<tr>
<td>1992-93</td>
<td>393490</td>
<td>414105</td>
<td>17884</td>
<td>5999</td>
<td>2550</td>
</tr>
<tr>
<td>1993-94</td>
<td>435160</td>
<td>450480</td>
<td>19940</td>
<td>186</td>
<td>2569</td>
</tr>
<tr>
<td>1994-95</td>
<td>471815</td>
<td>485850</td>
<td>8093</td>
<td>1961</td>
<td>3638</td>
</tr>
<tr>
<td>1995-96</td>
<td>506910</td>
<td>525465</td>
<td>51635</td>
<td>1130</td>
<td>5204</td>
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<td>561765</td>
<td>19770</td>
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<td>1997-98</td>
<td>583830</td>
<td>571820</td>
<td>32070</td>
<td>1415</td>
<td>3580</td>
</tr>
<tr>
<td>1998-99</td>
<td>605045</td>
<td>591545</td>
<td>29534</td>
<td>1840</td>
<td>2994</td>
</tr>
<tr>
<td>1999-00</td>
<td>622265</td>
<td>628110</td>
<td>20213</td>
<td>5989</td>
<td>3099</td>
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<td>2000-01</td>
<td>630405</td>
<td>631475</td>
<td>8970</td>
<td>13356</td>
<td>3036</td>
</tr>
<tr>
<td>2001-02</td>
<td>631400</td>
<td>638210</td>
<td>49590</td>
<td>6995</td>
<td>2793</td>
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<td>2002-03</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>


A 3 percent deficit is clearly not responsible for the Rs 14 downfall of price to Rs 36 from Rs 54 during 1996-98 period.

Between 1995-00 the total exports were 11973 tonnes. Based on this import requirement is calculated as 59865 tonnes; But statistics reveal an import of rubber during the past five years at 1.36 lakh tonnes or in other words, an unnecessary duty free import of 11.194 tonnes of rubber. This import was made at a time when the import duty required for tyre manufacturers is 60-65 percent and that of NR was 45 percent. Loss to the government as a result of this concession is estimated to be Rs 125 crore.

During 1994-95, rubber industrialists had demanded duty free import of one lakh tonnes to overcome production deficit by citing the industrial growth rate which was at a robust 6 percent. The Rubber Board had recommended the import of mere 20,000 tonnes of rubber and the Commerce Ministry had allowed 70,000 tonnes. This was reduced to 40,000 tonnes on account of wide spread protests from the growers. This 40,000 tonnes is included in the total import of 1.36 lakh tonnes. Growers who subscribe to this theory
argue that if there were no imports, the excess stock would have been domestically consumed.

Of the total consumption more than 65 percent is used up for the manufacturing of tyres, tubes and retreads for motor vehicles and cycles of the total rubber consumed in the manufacture of truck tyres, 93 percent is accounted for by NR. 4

Tab 3.4.- Import of Tyres [Quantity in nos]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>CAR AND TRUCK BUS</th>
<th>TR A</th>
<th>C T O R</th>
<th>C Y C</th>
<th>L E</th>
<th>MOTOR AND</th>
<th>CYCLES SCOOT ERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>'90-'91</td>
<td>6879</td>
<td>8</td>
<td>524</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>'94-'95</td>
<td>37721</td>
<td>39</td>
<td>1314</td>
<td>12</td>
<td>236800</td>
<td>295547</td>
<td>10847</td>
</tr>
<tr>
<td>'95-'96</td>
<td>12811</td>
<td>120</td>
<td>1906</td>
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<td>24691</td>
</tr>
<tr>
<td>'96-'97</td>
<td>46781</td>
<td>40264</td>
<td>3452</td>
<td>6611</td>
<td>310301</td>
<td>72650</td>
<td>10469</td>
</tr>
<tr>
<td>'97-'98</td>
<td>165668</td>
<td>30894</td>
<td>2881</td>
<td>2013</td>
<td>161485</td>
<td>11164</td>
<td>31944</td>
</tr>
<tr>
<td>'98-'99</td>
<td>265599</td>
<td>19436</td>
<td>8830</td>
<td>-</td>
<td>202256</td>
<td>115751</td>
<td>20126</td>
</tr>
</tbody>
</table>


The Import of tyres have increased almost 25 fold between 1990-91 to 1998-99. Import of tubes of Car, truck/ bus increased from a mere number of 8 tubes to 19436 no's. Tractor tyres have registered nearly a 17fold increase. Tractor tube, cycle tyres and tubes, motor cycle/scooter tyres and tubes rose from zero level of imports to gigantic amounts as shown in the table. But it is argued that though absolute level of imports have risen in the past years, such high levels of consumption need not be taken as an indicator of domestic off take of NR 5

If we take the import statistics, imports show the highest in 1998-99. Altogether 17211 truck/Bus tyres and 398673. Car tyres were imported to our country. Without considering the limiting factor of consumption requirements, the above figure would seem huge.
Tab 3.5:- NR Consumption Requirement

<table>
<thead>
<tr>
<th>Types of tyres</th>
<th>Per tyre NR requirement (kgs)</th>
<th>Total imports 1990-01</th>
<th>NR requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus / truck tyre</td>
<td>25-29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small truck tyre</td>
<td>5-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car tyre</td>
<td>1.6-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>918237</td>
<td>25818.32</td>
</tr>
<tr>
<td>Motor cycle tyre</td>
<td>0.9-1.4</td>
<td>1620228</td>
<td>223.60</td>
</tr>
<tr>
<td>Scooter tyre</td>
<td>0.6-0.7</td>
<td>110517</td>
<td>154.72</td>
</tr>
<tr>
<td>Cycle tyre</td>
<td>0.2</td>
<td>20387</td>
<td>324.05</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>2669369</td>
<td>26520.69</td>
</tr>
</tbody>
</table>

Source:-Worked out from IRS.Rubber,( Feb, 2000)
Using the formula
NR requirement = no. of tyres × Per tyre requirement/1000

In short, if there were no imports at all only 1,400 tonnes of NR would form as additional consumption. Even when we account for the additional domestic consumption of 2000 tonnes for the import of non tyre products, a mere total of 3400 tonnes emerges as additional consumption. The argument that an increase in domestic consumption @ 1400 tonnes could have avoided rubber crisis is found to be weak on the basis of consumption requirements. If we extend this logic to the five year period 1994-1999, we see that additional consumption requirement in the absence of imports is less than 15,000 tonnes. Clearly this is not adequate to remove the excess glut which was nearly 2 lakhs in 1998-99

Sec 3.6:- The Bench Mark prices

From 1986 onwards the Central government has been adopting a policy of fixing only Bench mark price of natural rubber. Cost Account Department of the Union Finance
Fig 3.4 - Rubber Benchmark Prices

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Price (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb-86</td>
<td>16.5</td>
</tr>
<tr>
<td>May-87</td>
<td>17</td>
</tr>
<tr>
<td>Sep-87</td>
<td>17.8</td>
</tr>
<tr>
<td>Jan-91</td>
<td>21.45</td>
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<td>Feb-93</td>
<td>23.45</td>
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<tr>
<td>Feb-94</td>
<td>24.9</td>
</tr>
<tr>
<td>Sep-98</td>
<td>34.05</td>
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</table>

Source: The Hindu
Ministry was entrusted with the task of revising the benchmark price at intervals taking into account the cost factors after conducting a thorough field study on variables such as increase in salary and wages and increase in other factors involved in the cultivation of rubber. Accordingly BMP was revised for rubber in the years 1987, 1988, 1991, 1994 and 1998. The floor price for rubber stood at Rs. 1,650 per quintal in 1986. Thereafter three revisions the floor price climbed to a level of Rs. 2,345 per quintal by 1993. The upper band of the price stood at Rs. 2,395 per quintal while the lower band was Rs 2,295 per quintal. In February 1994 the benchmark price was revised to Rs. 2,490 per quintal. The upper and lower price is Rs. 2,540 and Rs. 2,440 per quintal respectively.

Commerce Minister V.B. Ramaiah’s claim that the growers are getting a fair price. Since they are getting 4250/ quintal which is much above the 1994 fixation of benchmark price.

Tab 3.6:- Fair deal

<table>
<thead>
<tr>
<th>Effective From</th>
<th>Fair price</th>
<th>Upper band</th>
<th>Lowerband</th>
<th>Avg price</th>
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<td>1998</td>
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The benchmark price is the guideline price and in theory the minimum price below which the rubber cannot be traded and not the minimum price which the grower should get. In actuality, however there is no mechanism to ensure that the rubber is traded only at a level matching or rising above the BMP. And the grower themselves are the culprit rather than the victims of such violations. Whenever they needed money, they would not mind under cutting the industry norms and disposing of their stocks for lower prices.

It was said that when the BMP of NR was fixed at Rs. 24.80/ kg in February 1994 average productivity per hectare was 1286 kgs. It went up to 1505 kgs in 1996-97 and has
achieved new heights in 1997-98. Considering the productivity increase, the cost of production has obviously come down nullifying justification for any upward revision of BMP.

In 1998, based on the estimates of the Finance Ministry study the fair price of NR would work out to be Rs. 42.48. The findings of the study of finance ministry are not in tandem with the level of BMP announced. This provided a base for the accusation that BMP level fixation is unrealistic.

Sec 3.7:-The accusation of State government’s neglect

Kerala’s political scene and rubber plantations have close relation. Many notable political leaders have emerged from the ancient Syrian Christian families of the estate sector. Political parties whether Left or Right are unanimous when it comes to the issue of rubber crisis. Each one competes with the other to take up the propaganda to the centre. Both UDF and LDF blame each other for bringing about a difficult situation for the grower. But the state government is accused of being inactive and irresponsible on the following grounds.

As per the State Economic survey (1998), the rubber production was over 5,40,000 tonnes. If we calculate at Rs.25 per Kg. the earnings for the state economy is Rs.1,355 crore. If the price in the early months of 1996 is considered state should get more than 3000 crore rupees. This is more than the earnings from all the cash crops from Kerala. The crisis had upset the economic base of 13 lakh Keralite families of which 9 lakh constitutes small growers. Such an attitude amounts to the total neglect of the growers who constitute more than 1/5th of state’s population.

In 1997, state is said to have lost about Rs 100 crores by way of state income tax collection and about Rs 150 crores by way of sales tax collection. The major weapon to fight rubber crisis in the hands of the state government is its right to collect sales taxes. Rubber is included as the 110th item in the first schedule of the sales tax law. As per Kerala state sales tax law, sales tax should be collected at sale point in some instances and at purchase point in some circumstances for cash crops like rubber, pepper, ginger, tax is collected at purchase point. The main intention here is to exclude the farmers from liability. Sales tax for rubber is charged at 10 percent plus 1 percent surcharge. In effect the tax is 11 percent. It is laid down that the last purchase should give the 10 percent
sales tax for rubber bought inside the state. From 1994 onwards for rubber purchased from outside states has 10 percent sales tax for the first sale inside the state. This is not applicable to those who produce rubber products which are imported like tyres. In short it means that if domestic price and imported price are the same, imported goods have a 11 percent price advantage. So for tyre manufacturers import was profitable.

It is said that the statistics about rubber production is collected by Rubber Board after considering the figures got from the check post, figures of the industrialists etc. It was pointed out that it is a known fact to every one that mass quantities of rubber is regularly going to North Indian states through the districts like Trivandrum and Kasargode. Rubber smuggling is not included in the statistics. Because of that generally quoted statistics of rubber production will be less than about 20,000 tonnes. But the root cause of import pressure from industrialists, is the unnecessarily high purchase tax rate.

There should be a measure from the Kerala government to initiate steps for the unification of sales tax rate. In Tamil Nadu and Karnataka it is only 4 percent. Either their rates should be raised to 11 percent or our rate should be lowered.

Out of the total loss due to rubber procurement incurred by STC, 7 percent is accounted by purchase tax liability to the state government. State budgets during the price crash period were non supportive. Concessions, if given were insignificant and superficial in effect.

The export of centrifuged latex or cenex whose international price was higher than domestic price would have been a way out. Here again the state government is accused of standing in the way of small growers. From 1995 onwards latex is subject to state sales tax of 11 percent. To sell latex outside, central sales tax should be paid over state sales tax. But at the same time the 11 percent purchase tax does not apply to the big companies who process latex in their estates.

It is accused that short term public notices like SRO 601/97 and SRO 693/97 were able to serve little purpose as there was no perceptible market change as the time span of the orders covered only a maximum period of three months.

Another demand raised strongly was that the state government should bear the loss in the export of excess rubber at the international rate. Little progress was made in the export field as our export opportunities are not fully exploited.
State government accuse that while the centre insisted on the withdrawal to state sales tax, the cess for rubber (or excise duty in rubber) was increased by 50ps to 1.50/Kg on 1-9-98 to provide for the increased expenses for the working of the Rubber Board. It is also accused that the Board cites the impressive 20 percent growth in productivity to justify its non productive research activities while nothing has come to the field in effect since RRII 105 was developed in the 70's. Thus the ball of blame continued to be shifted from one court to another.

Sec 3.8:- The Stock Procurement

The State trading Corporation (STC) was the main agency for rubber import and export till liberalization. In April 1992, rubber was removed from the banned list but STC still retained its power over exports. The major accusation against STC was that it misused or neglected this power and was insincere in its attempts to procure and export rubber.

On 8-5-97 the then Commerce Minister R.B. Ramaiyyah ordered STC to procure 10,000 tonnes of rubber @ Rs. 42/Kg. In November 97 40ps subsidy per kg of procured rubber was announced. 6

Procurement chain

District co-operative society → State Co-operative society→ RUBCO→ State Warehousing Corporation→ RUBMARK→ STC

Rubmark a state run agency was to be given an advance of Rs. 2 crores 40 Lakhs on the decision of the State Ministerial order for the fund grant which put Rubmark in difficulty. In Sept. 97, sales tax cut of 11 percent for procurement agencies were announced giving a cost advantage of Rs. 4 over that of dealers. 7

The fund granted to Rubmark was less than Rs100 crores and it had no independent means of finance. There was no support to Rubmarks effort through a centrally sponsored scheme. By the end of 1997 only about 4000 tonne rubber was there in the godowns of Rubmark and export performance was only 500 tonnes. In October 97, STC was directed to procure rubber @ 200 tonnes per day. If procurement had gone at that pace at least 20000 would have been procured. But STC procured only 10,000 tonnes by 97 end. 8
RUBCO with an estimated capital of Rs 62.8 crores didn't reach its target and procured only 10,000 tonnes. In February 98 RUBCO extended its procurement and within less than two months it procured 10,136 tonnes worth Rs 29 crores.

On 11-2-98 State government high-level committee met and decided to procure 20,000 tonnes at Rs 2 more than market price plus the handling charge of 40ps per kg. In March 98, the state government directed the procurement of additional 8,000 tonnes to RUBCO due to inability of KSWHC following a severe cash crunch.

By April 98, STC had 10,000 tonnes and Rubmark 7000 tonnes of NR. Rubmark has exported 690 tonnes at a loss and the state government is yet to give Rs 27 lakhs for this deal to Rubmark. Another 2 crore rupees was due to Rubmark for procurement on behalf of STC. To raise the share capital of Rubmark an assistance of Rs. 15 crores was asked from the state Govt. and no promising decision has been made. As a result RUBCO had decided on the release of part of the procurement and it was said to create instability in the Government fixed BMP level. A sale of 2000 tonnes by RUBCO to industrialists resulted in lowering of North Indian demand in 1998.

As a second phase of market intervention the Union Agricultural Minister announced that STC will procure 20,000 tonnes of rubber from June 98. RUBCO sale was made after this announcement. As price went below Rs. 34/Kg, STC restarted its buying operations. One cannot judge whether RUBCO movement and STC operation has any direct association.

It is accused that STC rejects about 10 percent of the load on the grounds of low quality. But STC is helpless in this case. The buyers are generally not happy with the STC rubber quality. Due to heavy rainfall, humidity and longer periods in go downs 60 percent of the stock has deteriorated. Kerala High Court allowed STC to sell in auction 7250 tonnes of damaged rubber in the open market @ Rs 20/kg in August 1999 without inviting public tenders. Original procurement was @ Rs 40/Kg in 1997. Such a sale would entail a loss of Rs 14 crores to the Centre and the STC.

Had the STC made purchases at the fixed prices of Rs 34/kg and allowed the RUBCO and Rubmark to procure rubber at the ruling market price when it is low enough to accommodate their operational charges and tender small growers rubber to STC itself, it would have helped the market for RSS to remain at least Rs 1.50 below the
procurement price. This margin would have helped the agencies to meet their operational expenses.

Again, dealers and the procurement agencies are not prepared to deal with STC for fear of rejection and loss on account of wasted effort transport and loading. There are several delays and procedural formalities before the deal is clinched. Dealers are required to register with STC after giving bail deposit of Rs. 10,000. Payment to the dealers is made at the day's market price and that too in installments.

It is alleged that Rubmark was given only 56 minutes to clinch a deal. The order was cancelled by STC on the grounds of delay in Rubmark’s response. It is also accused that STC directs a cooperative society from mid Travancore to download the stocks at godowns in northern areas, so that by the time load reaches their destination (after one or two days) the market prices would have fallen further. Since STC tenders at the prevailing market price, this means losses to the societies and profit to STC.

A procurement of 20,000 tonnes @ 100 tonnes per day all take 200 days. In that time the excess stock in the market would increase and affect prices.

In December 1999 Rubco and Rubmark announced that they would together procure 50,000 tonnes and independently procure 30,000 and 50,000 tonnes respectively. @ Rs50 above market price plus Rs50 handling charge. But it is alleged that to make such a promise when State treasury in empty and Rubmark godown is glutted is done only create a panic rise prices so that it becomes easier for Rubmark to release of stocks.

The STC in November 1999 claimed to have suffered a loss of 56 crores out of which 8 crores is the purchase tax paid to the State. On 17-11-1999, government withdrew sales tax as a response.

On 10-12-1999 Rubco exported 15000 tonnes of rubber from Cochin port of Singapore. This measure was seen as an emerging ray of hope. The export of NR increased from 5989 tonnes during 1999-00 to 13,356 tonnes during 2000-01. However it declined during 2001-02 to 6995 tonnes.

In the second phase of procurement, STC procured 19,831 tonnes during the period September 1998 to October 1999 and sold the entire quantity to exporters of rubber goods in lieu of import against Advance License. In order to prevent large scale import of NR using Advance License the Government of India imposed a ban on the...
import of NR against Advance License w.e.f. 20th February 1999. As an alternative arrangement exporters of rubber goods have been allowed to purchase NR from STC at the international price. Since global rates are Rs 8-10/Kg lower than the domestic prices, STC would bear the difference and get it reimbursed from the government. STC would also after credit facility of all types of rubber up to 150 days at London Inter Bank offer Rate (LIBOR) plus 0.75 percent per annum. 17

Despite these incentives, procurement continues to be sluggish. The industry is not keen to purchase rubber directly from the STC and seemed to be happy with the existing arrangement of reimbursement of the price differential between domestic and international markets on their domestic purchases against advance License. Since Advance License has a normal validity for 18 months after issue and can be extended twice for duration of six months each, import of NR continued after the imposition of ban. The third phase of procurement operation which started in March 2000, STC lifted a quantity of 20,000 and sold the entire quantity to advance license holders. The fourth phase had set the target for another 20,000 tonnes but the actual procurement was only 5,260 tonnes. A part of the rubber purchased by STC in the first phase of procurement and the entire quantity purchased during the second third and fourth phases were sold to the advance license holders at international prices. During 2001-02, the government of India notified the statutory minimum prices for nr at Rs 32090/kg for RSS4 and Rs 3079 for RSS 5 effective from 12th September 2001 with the fixation of minimum price, which is based on import parity price for trading in natural rubber, procumbent through STC was stopped

Prevalence of relatively lower price in the inter national market made exports less attractive during 2001-02. In October 2001 the government of India approved a scheme for export promotion of NR by providing financial incentives to exporters of NR for quality improvement, certification, packaging and transportation. The Government of India has approved a proposal from the Rubber board for the export of 20.00 tonnes of NR by Kerala State Cooperative Rubber Marketing Federation with an outlay of Rs 1740 crores to be shared by the Government of India and the Government of Kerala.
Sec3.9: Business Sector

The business sector in the case of rubber plantation industry consists of the group of industrial end users. The major off take is by the tyre industry.

The case against the tyre industry as cited by various plantation interests goes thus.

1. Tyre industry is in the form of collusive oligopoly against disorganised growers.

2. Sales of the tyre companies together more than double the sales of 13 lakhs rubber growers. Comparatively tyre companies are economic giants which naturally gives them funds for political and media influence.

3. Tyre companies have from time to time used their lobbying power on the govt to suit their needs.

4. The liberalisation is made to benefit the tyre companies and when entry of MNCS became a threat suitable protection was provided to them.

5. Industrial recession has not hit the tyre industries badly as the Association of Tyre Manufactures (ATMA) points out.

6. In 1995 World supply exceeded demand there was excess stock. But prices were high proving an exception to the traditional demand theory. For some, cause for this was the growers expectations regarding future price rise as global demand has showed upward trend. As expectations rode high, the grower was willing to keep more stocks. It was accused that the tyre companies used their influence on the newspapers to create an artificial fear about down sliding prices thereby forcing the grower to release his stocks and glut the market. One newspaper in Kerala is owned by a tyre company and has emerged as the main media for grower interests. This saviour attitude of the paper is accused to be based on ulterior motives.

Industry Basics

There are about eight or nine major tyre companies in the tyre sector. These include JK Tyres, Vikrant which was taken over by JK in 1997, MRF, Ceat, Apollo, Modi, Birla, Good year others including TVS Srichakra and others.
There are 29 tyre companies and their installed capacity is 37 Million tonnes. The percentage of capacity utilisation is 90 percent. Taxes and duties paid by these companies are nearly 2700 crores and value of export is nearly 900 crores.

There are 13 different categories of tyre in the country. These include Truck and bus tyres (HCV), Passenger car, Jeep, Light commercial vehicles (LCV), Tractor front, Tractor rear, Tractor Trailer cart tyres, scooter, Motor cycles, moped, Industrial, off the road tyres (Aero tyres).

Of these truck and bus segment ranks top both in terms of weight age and value. The passenger car tyres come second followed by LCV, two wheelers and tractors.

It was the steady flow of demand from the replacement market that helped the tyre producers stay afloat even during the declining trend in the commercial vehicles segment in 1997-98 and 1998-99.

India exports tyres to 51 countries and they even enjoy a premium status in the United States market. The market share of US in India's exports is almost 30 percent. Asian countries account for 29 percent followed by the Middle East at 20 percent. The rest is accounted by Pakistan and African countries. World tyre market requirement is posted at 1,600 million units with Indian exports forming 0.13 percent of this.

During the last decade tyre exports have grown at an annual compounded rate of 27 percent. The export performance over the last couple of years was affected on account of the economic crisis in the South East Asia and mounting competition from China. India primarily exports cross ply tyres, which is no longer produced by global majors. However, the South East Asian economic crisis led to considerable capacities in these regions going idle. The producers in the countries were forced to concentrate on exports for survival. This in turn affected the export prospects of Indian producers.

But it is the revival of the South East Asian economies that resulted in an improvement in exports from India. The tyre exports between April- Sept. 1999 posted a 12 percent growth compared to the 10 percent decline in the year ended March 1999. The truck and bus tyres exports posted a 13 percent rise during this period.

There are also fears of China upsetting the Indian apple cart in the fiercely competitive international market for truck tyres. At present China's presence in International market is much larger than ours viz Rs. 1, 800 crores worth of tyres.
Fig-3.5 Tyre production in India

Source- Automotive Tyre Manufacturers Association, New Delhi
Fig-3.6 Skid row of tyre exports

Source-CAPEXIL, Kolkata and Council for Leather Exports, Chennai
We are able to sustain due to the quality of our tyres. But quality comes at a premium. Indian tyres sell in the US market at about Rs.5 more than the Chinese tyres. What's more, Chinese tyres are improving in quality constantly. Secret of low priced Chinese tyres is not known as no reliable statistics were available from China. It is estimated that not less than 100 tyre manufacturing units exists in Peoples Republic.19

Between 1997-2001, the growth rate of tyre industry was 7 percent on an average. This was due to increase in production in the two wheeler segment. Production of Heavy Commercial Vehicles registered a 10 percent slump in 1998. Production of Light Commercial Vehicles was relatively less affected. Its production fell only about 1.5 to 2 percent. Major causative factors for the fall in production were 1) imports of car radial s from South Korea to the extent of 11percent of international demand 2)lock out at one of Apollo tyres plants due to labour manager strains20

A history of Lobbying

It is said that clever strategic policies of the tyre lobby is decades old by citing the example of an incident in the sixties. By the end of 1966 the rubber price was Rs. 3.50. At that time govt influence on the tyre prices were comparatively less. All of a sudden rubber prices leap frogged to Rs. 7.50. This was the result of the stock policies of the tyre lobby who in their turn raised tyre prices by 60 percent.21

After five or six months they cited the cause of shortage and started pressurising for NR imports. Within no time they were able to reduce NR prices back to the old level of Rs. 3.50. But no change what so ever was made in the price of tyres. Industrialists are accused of continuing this policies even now.

In the early days Dunlop used to buy rubber for all industrialists. Due to grower agitation for fair price in 1968, minimum price was raised to 5 rupees by the government. STC was directed to procure 10,000 tonne as a response to growers demand. Such procurement policies were found harmful to their interests by the industrial lobby. They refused to buy the rubber procured by the STC. The reason they gave for this was STC procured rubber is of bad quality belonging to grades RSS 1 and 2 grades which causes damage to their machines. They claimed that they usually buy only high quality grades. Following this, an examination of the earlier bills of the industrialists showed that they
had always bought grades RSS 4 and 5. When the guilt was proved, tyre monopolies were forced to buy STC's rubber.

For the first time in this decade stock of dealers crossed 40,000 mark by 94-95 year end. It was in early 95-96 that the industrialists raised hue and cry that they do not have enough rubber for even two weeks stock. On the basis of applications to the government 40000 tonnes was imported. This was in addition to import under Advance licenses. This lobbying pressure overcame the rubber Board recommendations of import of 20,000 tonnes. In 95-96 there was a historic excess stock of 32000 tonnes. (In 1995, the total imports was 59000 tonnes).

International price differential is usually cited as the cause for imports. The industrialists have to pay a no of taxes on the rubber bought from India at market rate. 11 percent purchase tax, 4 percent CST with CST (c) forum, 10 percent with out CSI (C) forum, cess of Rs. 1.50. If market price is Rs 50 the industrialists in India have to pay Rs 59 by way of taxes. Apart from this there is transportation charges to the factory, Insurance, loading and down loading charges etc. This will raise the price to Rs.62.

Under duty free imports there is no taxes or cess. But there is cost on insurance and freight (CIF) plus loading and down loading charges and transport charges from port to factory. If we add the expenses under these heads to the market price of Rs 50 the total would amount to Rs. 53.50-54.50. It means that when Indian and international prices are in parity, duty free import under Advance licenses would yield a profit of Rs. 6.50-7.50/kg.

Sec 3.10:- The International rate Puzzle

According to the growers the international rates are used as a smokes screen to favour the industrialists. They say that rubber is made available indigenously international rates. But tyre is not available at international price. International rates seem to be applicable only to rubber producer. Those who quote international price level and argue for international price parity are conveniently forgetting the international rates of subsidy which is almost 90 percent in major rubber producing countries like Malaysia and Indonesia.
The Union Government has imposed restrictions on the import of used tyres even if the material is available at throw away prices, the duty imposed price should not be less than $25 for car tyre and $175 for truck tyre. At the current exchange rate of Rs. 42.40 dollar, a used car tyre would cost Rs. 1,060. Freight and insurance would come to about 6 percent of the price making the landed cost of Rs. 1,124 per tyre. Charges on unloading at the entry port, retreading etc are some of the additional cost. All these would put the cost of an imported used tyre at Rs. 1,500 per unit. At the same time brand new radial car tyre would be available in the country around this price. Now the question raised here is will anybody be interested in buying worn-out old tyre?

The Rubber Board chairman K.J Mathews has stated "That generally Indian prices are higher than international prices". Indian rubber prices in March 1999 were Rs24.25/kg and Kuala Lumpur price were 28.26. If 11 percent purchase taxes were added to this Indian prices would be Rs 26.92. Cost on freight, insurance, brokerage, port clearance charge, loading charge at the port etc together add 8 percent to the landed cost of imported rubber. Inclusion of this makes the price of imported rubber 30.51 making the current argument of Industrialists that imports are more profitable now, meaningless. The 8 percent additional cost factor is cited as an obstacle for export of rubber to China but conveniently forgotten in the case of import of rubber. This clearly reveals the buyers intention to hammer the local market.

Grower activists say that the Chairman's statement rubber growers have always got a price Rs 5-10 above international prices can only be termed as a daydream. As per the IRSG statistics, not once in the past decade the 5 rupee difference above international level was broken.

It is alleged that international rates applies only to NR and not SR. Only NR price is forming as an obstacle in the path of achieving international competitiveness the almost double prices of SR domestically is ignored by industrialists to suit their ends.

SR fetches double the international prices. Over this there is 18 percent excise duty and 2 percent surcharge. SR imports are 80,000 per year and consumption is almost double this figure.
Sec 3.11: Stock management

1. Non-observation of stock norms

Rubber Board prescribes stock norms to the industry and has powers to take strong actions, if it is not kept. Previously, consumers in North India needed time for transport, that was how stock formula originated. Today, truck loads can reach any corner of India within 8 days. As a result, the time period for stock formula was reduced to two weeks. Some times companies adopt speculative strategies and do not even keep two weeks stocks.

2. Quoting prices; Joint buying strategy

The policies for price crash is made under the frame work of collusive oligopoly. Every week tyre company representatives would meet in Ernakulam and come to an understanding about the quantity and the price at which rubber is to be bought. If prices were to pushed down, all the companies would together quote low prices. In order to avoid the accusation of cartel behavior they would decide small variations, upward or downwards, beforehand and quote the same.

3. Joint invisibility

They would cite general industrial problems and disappear from the market for one or two weeks. Then the growers would be forced to clear their stocks at a lower price. The accusation finds a statistical base when we look at the company wise share in production, MRF and CEAT together account for about 40% of the market. If these two companies stay away from market for just one day there would be a glut of 260 tonnes in search of a buyer. Once the prices have lowered to the company targets they would buy rubber and reap profit. While NR prices are declining continuously tyre prices are ever on the rise. Great loss of the growers has become a gold pot to the industrialists.

4. Artificial rise to fillip stocks

If the industrialists find that their stocks are limited single entry itself would raise general prices. So they hold their existing stocks and start joint buying till prices increase by 2 or 3 rupees. Then they would adopt joint invisibility policy till prices fall to the profitable level of inventory procurement.
5. Managing the timing of policy announcement

Lobbying interests are always keep to make the govt announce their intention to import just before the most productive seasons. In Sep-Jan when the market is flush with supply, import threat would suit their ends by lowering prices. If and when they fail to influence the government to make favourable policy decisions their next aim is the people at the operational level viz officers. Bribery and corruption would work towards the non implementation of policies against business interests. Policies like imports was banned on 1999 Jan 25th. At first there was a price rise of Rs 3/kg but it later declined.

Imports ban was announced at a time when there was least buying pressure even in domestic market. Better grades were available in plenty in the internal market at that time. Even the channelised demand failed to raise prices due to excess stock. Tyre-crum industrialists say that prices have fallen despite import ban and so ban should be altogether done away with.

6. Managing STC and Procurement

Another weapon is refusal to take the procured rubber like in the 1960's. They cite reasons like low grades, coolie problems, etc. It has become a custom to visit STC go downs unpack the stock and reject them. About 7250 tonnes procured by STC were rejected thus. A good deal of official time of the Rubber Board and STC was wasted on negotiations with the business sector. Since stocks can be kept for long as there is the threat of degradation, STC was in a vulnerable position. Then STC agreed to tender rubber from the new stock. It was even agreed to transport rubber from STC go downs to the factory yard. The buying price for the factories was fixed on par with international market rates. STC agreed to ignore the importing expenses. A further incentive was the loan of at international rates (at 6.5 percent ) for five months. Thus a situation was created whereby it became more profitable to buy from the domestic market than importing the same from international market. Thus the power given by a few thousand tonnes of import is used to get the 6 lakhs tonne of domestic rubber at throw away prices. Even then there wasn't much off take. Finally under the threat of ban of import licence, they bought a mere 3000 tonnes. 25

To make delays and make procurement ineffective, the officials are influenced. There are instances when prices below market rate is quoted when procurement was
going on at the market rate. Market rates itself are various, namely Kottayam price, Kochi price Rubber Board price. Dealer price different papers publish various prices. Through media influence, higher price is directed to be given in papers and rubber is bought at lower prices. Then rubber is sold to the procurement agencies at a certain prefixed higher percentage. (the officials can reap the margin profit). Grader is bribed and bad quality rubber is given to the procurement agencies under the label of first grade rubber.

If by any chance procurement is showing signs of propping up prices, then the rubber won’t reach STC godowns. Officials would be manipulated, delivery notes would be taken to the godowns and certified “rejected” on the basis of low standards. Thus no one will be blamed that way.
Sec 3.12  Looking through the eyes of the tyre manufactures

The tyre industry is highly raw material and capital intensive, cash hungry business characterized by relatively low profit margins. The operating profit margins both for Indian producers and global majors hovers around the 10 percent mark. Also the need to provide credit and maintain a minimum level of inventory of both the raw materials and finished products results in a significant outlay of funds towards working capital. Raw material costs account for close to 46 percent of the total turnover, the principal raw material being e’R, SR, carbon black and tyre cords. NR constitutes about 24 percent of the total input cost. Abundant production and carry forward stock has helped the softening of NR input prices. Nearly 60 percent of the other inputs viz SR, carbon black nylon cord are petro based. The recent upward spiral in crude oil prices to the present level of around $23 per barrel is likely to push up these input prices.

The prices of carbon black account for 12 percent of the total cost. SBR and nylon cord together account for 26 percent of the total cost. Import tariffs for these key imports attract a duty of close to 40 percent which is the same as the import duty on finished products. Added to this an antidumping duty has been recommended on the imports of SBR and nylon cord which would result in the rise in their price too. All this would compound the problems of domestic tyre majors. There has been a 2-3.5 percent hike in tyre prices in 1999-2000. While this would negate the present hike in input costs, crude oil prices are continuing a firm trend. 26

Tyres are put under OGL after liberalisation. Tyres attract an import tariff of 40 percent while imports from Korea enjoy a concession of about 10 percent by virtue of the Bangkok Agreement. Imports from South Korea are picking up gradually and if the present duty structure were to prevail, the domestic producers would find it difficult to sustain their profit margins which are already wafer thin. With the full enactment of WTO provisions, and resultant slash in duties on line with global trends the domestic major would have to face import onslaught though at present import of tyres have not assumed alarming proportions. 27
Radial Vs cross ply

Based on the technology, automotive tyres can be broadly classified into the traditional cross ply tyres and the technically superior radial tyres. In the absence of modern model of car, Indian manufacturers were making cross ply tyres in the pre liberalization period. Radials constitute about 50 percent of the total market for passenger car tyres. However the usage of radials is negligible in other segments. 28

Globally the cross ply tyre is a fading concept characterized by relatively low value addition. In the export market cross ply tyres have been Indians forte. Radial tyre production involves highly technology intensive process. As a result the price of a radial tyre is about 30 percent more than the cross ply. But they have greater strength and quality.

After liberalisation, cars having world standard like Ford, Opel Astra, Ceilo etc entered Indian market. Realising the growing importance and preference for radial tyres domestic majors are gearing up to exploit the opportunity. Many have started already on an experimental basis. Before they were able to secure their footing tyre imports were liberalised. Indian manufactures have to compete with tyres from foreign countries where raw materials like rubber, carbon black electricity are comparatively cheaper.

The entry of MNCs is yet another threat. Until a couple of years ago, global tyre majors, except for the US based Good Year tyre had negligible presence in the Indian market. Post liberalisation zest in the automobile sector attracted many MNC to Indian market. Competitive dynamites will change with the entry of global majors. While Bridge Stone has commissioned its production facilities, Continental is set to graduate from the status of a mere technology provider to an equity partner. The other global player-Michelin is mulling the possibility of setting up a plant in Karnata. So also Kumho, which is toying with the idea of setting up a plant in Tamil Nadu.

MNC tyre technology is most modern. It is not easy for Indian tyre manufacturers to compete with them. Foreign tyres are longer lasting so replacement demands would decline in the future. Since MNC’s export Indian made tyres to other countries they can import rubber duty free under Advance licence facility. MNCs also have lakhs of acres of rubber plantations in countries like Africa. They can utilise the cheap labour in these countries and reap benefits of comparative cost advantage. These MNCs can afford to be
independent of NR supply which will puncture Indian prices to a flat. Outlook shows tough competition for Indian manufacturers. Shutting down of many Indian companies is on the cards in the absence of cost reduction and quality upgradation. These companies were Big fishes in the Indian river swallowing up grower interests. At the point when the river opened up to meet the sea, it looks as though MNC whales will swallow them up.

Moreover MNCs use more SR relative to NR. Competition forces Indian companies to mimic the foreign technology. If foreign brands of tyres establish themselves in the Indian market, the rubber growers would lose what demand share they had in the automobile sector. On top of this comes the permission to import second hand tyres. Second hand tyre imports would result in good tyre imports in effect through bribery. WTO cannot insist on the import of waste products to any country as opined by MRF sources. It was also stated that in 1950's, Indian rubber production was only 20,000 tonnes. Of that 25 percent was imported at that time. Now the production has increased to 6 lakh tonnes and import has decreased to 3.5 percent. It is the increase in domestic demand that led to production increase and high prices import of tyres would reduce domestic off take and would accelerate rubber price decline.

Out of second hand tyres reclaimed rubber was made after retreading. In effect foreign tyres would invade the retread market. It was on this consideration that industrialists stayed away from the market reducing their stocks. Though tyre companies succeeded in their agitation in fixing a minimum price for second hand tyres the danger is not completely wiped off. Protectionism goes out of date with WTO regulations. In view of such factors, it may be contended that as the tyre companies have to be competitive to face a global market where the guiding rule is "survival of the fittest". They may be justified in their action as a Big fish to growers. Competition is the key word in the global village and it applies to growers also as the operational environment and its conditions show no favouritism to anyone.
Sec 3.13: Foreign Sector

The operational environment in the foreign sector related to natural rubber include IMF conditions, GATT, WTO, SAARC, Non commodity agreements, South East Asian crisis, Breakup of INRO etc. To analyse their interactive influence, a focus on each of these is necessary.

Sec 3.14 IMF conditions:-

The debate among economists on the role that a government can usefully play by manipulating market forces had been going on at least since Adam Smith divined the working of "invisible hand" in the market. In more recent years the leading opponents of government interference have been the group of monetarists who have closely followed Milton Friedmans "laissez faire" economic philosophy and also some international organisations notably the IMF and the World Bank. On the other hand a large number of Neo Keynesians concerned with development problems have tended to emphasise the positive role of the state and advocated the same through UNCTAD and through regional commissions of the UN.

Also, erstwhile Soviet Union, Eastern Europe, India etc have developed what can be called "plan weariness" and Economic reform is the key phrase. So when there was a severe cash crunch in the wake of the Gulf war 1991 India resorted to IMF loans subject to conditionality of "laissez faire". The license Raj has been done away with and thrust was given to the creation of a more competitive environment for improving the systems productivity and efficiency. Planning assumed an indicative role. New economic policies were formulated in all key sectors.

Sec 3.15: Globalisation and GATT

General Agreement of Tariff and Trade (GATT) as we know, is an institutional decision making body on international Trade set up in 1948 to promote free trade by reducing trade barriers and discrimination, increase competition and efficiency and thus assist the growth and development of all member countries.

The 8th round or the Urgency round of the GATT (1991) touched on new areas such as Agricultural subsidies, Trade Related Intellectual Property Rights (TRIPS); Trade
Related Investment Measures (TRIMS) and General Agreement in Trade in services (GATS) etc.

It has brought into focus on the "Most Favoured Nation" MFN clause to discourage bilateral trading. The principle of MFN implies that tariff preferences given by a country to another must be extended to all others with which it has trade relations.

Market access is ensured by abolishing non-tariff barriers as well as by reducing tariffs. It requires the countries to cut tariffs on industrial goods and farm goods by about 37 percent and to reduce domestic support viz export and import subsidies. As a part of the package of liberalisation and on the recommendations of the Chelliah committee, India has promised to reduce basic duty by 30 percent over a period of six years and is to cover raw materials, intermediates and capital goods. However, this does not include agricultural products, fertilizers etc.

Since India's share in world trade is less than 3.25 percent and per capita income is less than $1,000, she is exempt from the prohibition of export duties.

Agreement on Agricultural subsidies

The Dunkel act postulates that "Domestic Support programme" (subsidies) for farm products should not exceed 5 percent of the value of agricultural produce. Besides 10 percent product-specific subsidies, subsidies on fertilizers, irrigation, power, seeds etc should also not exceed 10 percent.

Special and differential treatment alias Green Box treatment is given to developing countries like India which needs to reduce subsidies for values greater than 10 percent only over a period of ten years. But it is laid down that all countries have to provide access opportunities to import at least 4 percent of their total consumption except for those primary commodities which are considered as staple in the diet of a developing country. For non-staple commodities including rubber, access opportunities would have to be increased annually over six years. Developing countries are required to reduce general tariff rates by 24 percent over six years. Other measures like Multi-fibre Agreement is concerned with the lowering of tariff on textiles. TRIPS is concerned with intellectual property rights and patent protection for new inventions. GATT provides protection to plant Breeders under which new range of seeds, bio-fertilizers, bio-pesticides and successive generations of the protected variety will be under patent
protection. This means that, for sowing the next crop the farmer cannot use farm saved seeds of protected variety automatically. He has to obtain the approval of the Breeder who are generally Giant MNCs or pay compensation for the use of the seeds. It is obvious from this that there a threat and opportunity for research in Rubber.  

TRIPS has relevance in the rubber scenario in view of "national treatment clause" under which foreign investor shall be given the same right in the area of and magnitude of investment. Quantitative restrictions on imports and exports will be abolished. Performance obligations like usage of local materials and equipment, technology transfer etc. will be eliminated. It is through this gateway that MNC grants in tyre industry is going to come in. Exceptions are allowed to countries having BOP difficulties.

On the whole Indian agriculture- a non commercial activity- should not attract GATT rule which are relevant for commercial production and trading activities. Since India is not a significant agricultural exporter, the controversy among the big countries does not really affect us. Since developing country is generally faced with BOP problems, it can easily avoid tariffication. The Aggregate measure of support (AMS) which is designed to calculate the extent of protection the country enjoys, is negative in the case of Indian agriculture which means that the domestic price of most commodities is less than their international price and therefore would not require the removal of subsidies. As per the calculations by the Commerce Ministry, the non product specific AMS works out to be 2.9% which is obviously less than 10 percent. For most product specific AMS, the support is negative except for rubber and oilseeds which have positive AMS. It might require the reduction in the protection in the long run. The long run can be very long on the grounds of BOP difficulties. In the case of rubber planting subsidy increased from Rs.8,000 to Rs.18,000 in 1997 in order to meet the increased cost of production. (So the argument of the leftists that liberalisation and GATT sowed the seeds of rubber price crash has little ground). However these hiked rates were lowered by 1/3rd in March 2000 from RS18,000 to RS12000.

As the duty on latex foams is unbound under GATT, the Government of India raised its basic customs duty from 35 percent to70 percent w.e.f 1st March 2002.
Sec 3.16: World Trade Organisation

The successful conclusion of the Uruguay Round of the GATT paved way for its successor, a new world trade organization in 1995. Globalisation and liberalisation are the key words in achievement of the WTO.

To enable India to take advantage of trade liberalisation, some WTO provisions need to be taken up for further negotiations. Priority should be given to agriculture and textiles. Before the formation of the WTO, though GATT applied to trade in agriculture, there were various exceptions to the use of non tariff measures and subsidies. India has hopes for boosting agriculture exports under WTO. For the realisation of such hopes government should take measures like,

1) Reaping comparative cost advantage of land and labour through technology upgradation, land reforms, optimal use of fertilisers and irrigation.

2) The government should look into the price formation of several agro products. Due to high price realisation from exports, cultivation of such products may replace those not much in demand abroad and may even distort food production.

3) There is an imperative need for better understanding of the politics and economics of trading Blocks in agriculture. For instance, an increased understanding of the Common Agricultural Policy (CAP) will go a long way in increasing agricultural exports to Europe. In the Textile case, Developed countries like the US and the EU are not willing to do away with MFA on the pretext that imports from their low cost counter parts may cause "Market Disruption" to their domestic industries and have resorted to stern anti dumping action.

4) India has made a beginning in Export Oriented Units (EOUs) in agriculture. Further foreign collaboration would ensure quality of EEC which virtually created milk and butter lakes through enormous subsidies, professionalism and ready acceptability abroad.

5) Research on AMS must be made so that of protection in Indian agriculture can be quantified. This would create data base which would be useful for India in trade negotiations and in the settlement of disputes.
6) Since agriculture is a state subject, role of state governments becomes important. State can create conducive conditions for farm projects with foreign collaborations. India marginally improved its world trade during 1996.

Indian imports which were around 20 percent of GDP during 1994 and 1995 was down to almost 12 percent of the GDP. But this was due to the South East Asian Crisis. The anticipated benefits from this largest ever multilateral trade Agreement are so enormous that no developing country can remain out of it. There are several steps required to be taken by member countries within the stipulated period of ten years (1995-2005) called transition period. India too has lots of unfinished jobs like amendment of patent laws; acceleration of tariff dismantling, liberalisation of financial services etc.

When WTO comes into existence it would be unrealistic to agitate for protectionist policies like procurement, announcement of support prices etc. Market distortions are likely to be wiped out and only the most efficient units can stay on. Market price will rule whether it is for rubber or for tyres. Existence would depend on the utilisation of or the discovery of areas of comparative cost advantage as the weapon of Antidumping measures cannot be used at all times and in all cases. The main problem in the case of NR is that it is included under industrial rawmaterial and other important plantation crops like tea, coffee, cardamom, and pepper which have been categorised as agricultural commodities and coming under agreement of agriculture (AoA). In India the bound rate for tea is 150 percent, coffee and pepper is 100 percent, and that of solid forms of NR is as low as 25 percent. Hence the country cannot raise the import duty unless the bound rate is fixed at a higher rate. The Government of India in its initial negotiating proposals for agriculture submitted to the WTO, had stressed the need for rationalization of the product coverage of the agreement.
Sec 3.17: South East Asian Economic Crisis

The Asian crisis began on 2 July 1997, when the Thai government allowed its currency, the baht, to fall freely after a large scale shifts of funds out of the domestic financial markets. As a result, the baht fell sharply by -20 percent. This has resulted in further competitive devaluations by Asian currencies. By the end of August 1998, the currencies compared with June 97 were Singapore dollar - 19 percent, Yen -21 percent, Won -32 percent, Baht - 38 percent, Peso -38 percent, Ringgit -40 percent and Rupiah -79 percent.

Asian Currencies relative to the US Dollar.

The crisis started because the fast economic growth in Thailand and other countries in this region attracted floods of inward foreign investment, which pushed up land and asset prices. Helped by poorly regulated financial systems and spurred on by the decline in global interest rates, private capital surged into these countries and percolated through their domestic banks from the early 1990s. At the beginning of 1997, investors pursued a quest for higher yielding alternatives to their own currencies, e.g. the Malaysian ringgit rose sharply in January. In Thailand, lending increased sharply with many loans politically connected and an investment banks from the West rushed in. That encouraged the companies to borrow, often in unhedged foreign currencies and through short term lending. There were some increases in infrastructure projects, but most investment went into housing and other unproductive projects.

The trigger for the crisis was the export slow down in 1996. Most South East Asian currencies were pegged, to the US dollar, which had appreciated against the Yen in recent years. This caused the exporting sectors of these countries to become increasingly less competitive. Asian export growth slumped to 2.5 percent in 1996, compared with 9.5 percent previously in the 1990’s. Slower export growth threatened the inflow of foreign capital badly needed to sustain current account deficits. This led to market concerns about exchange rates, bringing pressures on them and leading to their eventual collapse.

After an average increase of more than 4 percent per year during 1994-97 the total world elastomer (NR&SR) consumption is estimated to have risen by only 0.7 percent from 16.52 mill tonnes in 1997 to 16.64 million tonnes in 1998.
The slow down cause by the Asian crisis which began in July 97 affected rubber consumption towards the end of that year and throughout 1998. Despite the lowest growth rate since a decline of -4.1 percent in 1993, consumption has nevertheless broken the record for the fourth consecutive year.

World total elastomer consumption did not decline because of quite high growth rates in the European Union (EU) and North America where the Asian crisis had little effect on elastomer consumption. In UK there was only a slight decline in economic growth due to strong Pound. Japan was worst hit because trade wise Japan depends on Asian countries more than Asian countries depend on Japan. The year long crisis in Asia has put pressure on the seven-year slump in the Japanese economy. Japanese accounts for 17 percent exports from South East Asian countries combined together and 40 percent of Japan's exports go to these countries. Japan is also the largest provider of Foreign Direct Investment in these region. So in a way its a vicious circle.

But while Asia/Pacific may have shown increasing dominance in rubber consumption, North America and Western Europe are still dominant in terms of rubber "absorption" ie consumption of rubber end products. This is important in terms of global rubber off take and increases the significance of the vehicle industries in the industrialized countries. In the USA, the general trends of marginal increases in vehicle registration and production have continued.

World NR consumption from 1997 to 1998 grew almost 2 percent while SR consumption only marginally. SR share of world consumption fell from 60.7 percent in 1997 to 60.3 percent the lowest level in 32 years since the 56.9 percent recorded in 1963 when the SR share was rising rapidly. The result is not surprising in the wake of price competitiveness of NR.

World NR output is estimated to have increased for the fifth year in 1998. From 6.41 million tonnes in 1997 to 6.41 million tonnes NR production increased by 2.5 percent, slightly more than NR consumption and as a result NR stocks have continued to decline but at a slower rate than the latter part of 1997.

Despite falling international prices, NR production in Indonesia and Thailand increased quite sharply because of higher revenues in terms of domestic currencies.
Those countries whose currencies were still overvalued have been facing intense pressure to devalue in the South Asian crisis era eg Indian Rupee, Chinese Renminbi, Russian Rouble, Canadian Dollar, Mexican Peso, the South African Rand and Pakistani Rupee. Some countries like India and Russia have raised interest rates to defend their currencies. In India we were able to contain rupee depreciation with in 8 percent.

Between June 1997 to March 1998, variations in rubber prices in terms of American Dollar, Malaysian Ringgit, Indian Rupee were -44 percent, +3 percent, -28 percent respectively.

The Columbo based Srilankan Rubber Traders Association analyses that it will be a great loss to Srilanka if they lower price by even about 30 percent, since they won't be able to meet the cost of production. In dollar terms even if we lower price by 44 percent in Malaysian currency we get 3 percent more than before raising Malaysian price competency. In Srilanka, domestic consumption is only 35 percent, So Srilanka is forced to lower its price.

In Malaysia domestic consumption is only 33 percent and in Thailand and Indonesia it is only 8 and 9 percent respectively. The rest is exported causing a rubber flood at competitive prices internationally. India is the worst hit because of its strong manufacturing group production is never enough in most years. The Asian crisis reduced export prospects; increased the propensity to import at a time when the waves of Asian recession was accelerating the domestic recession.

In Indonesia, the government has adopted rubber cultivation as means of settling unemployment population. Government allots the land for cultivation and provides credit for entire planting and maintenance operations at concessional rates with longer repayment periods. Domestic use of rubber is only 10 percent of production. Labour wages are low since most growers are themselves tappers. So the currency crisis has become a blessing for rubber growers.

Sec3.18:- Break up of the International Natural Rubber Organisation (INRO)

The INRO was set up in 1980 under the auspices of the United Nations Conference on Trade and Development (UNCTAD) to stabilise world rubber prices. It was formed on
the basis of INRA; the International Rubber Agreement which was a price agreement for price stabilisation.

As its webpage puts it, INRO's main purpose has been to stabilise world rubber prices by buying when prices drop sharply and selling when prices surge. Each member country has a different number of votes, depending on the size of their exports or imports. Contributors to the organization are based on the number of votes each member carries.

There are seven pre-specified price levels. There is a floor and ceiling and between them is a reference price. The area below the reference price is divided into three bands by two other price levels, a lower intervention price or a "May buy" price and the lower trigger action price or "Must buy" price, calculated respectively at 15 percent and 20 percent below the reference price. Similarly the area above the reference price is divided into three bands by the upper intervention price or "May sell" price and the upper trigger action price or the "Must sell" price calculated respectively at 15 percent and 20 percent above the reference price.

These price levels are denominated in INRO DMIP, or the Daily Market Indicator Price which is the weighted average of the fob prices of RSS1, RSS 3 and TSR 20 in Kuala Lumpur, Singapore, London and New York expressed in Malaysian/Singapore cents/kg and is published daily by INRO.

The stabilisation mechanism consists of an international buffer stock with a maximum capacity of 5.5 lakh tonnes, a normal level stock of 4 lakh tonnes and a contingency of 1.5 lakh tonnes. The idea is to maintain prices within a predetermined range by purchasing at depressed prices and selling at higher levels.

In 1995 February there was a revision of reference prices. Under the UN-brokered International National Rubber Agreement III, effective from February 97, there was only a 4 percent increase from the previous reference prices. Reference price was raised from 206.68 Malaysian/Singapore (M/S) cents to 214.95 M/S cents. May sell level was fixed at 247 M/S cents. May buy level was determined at 258 M/S cents. May buy level was determined at 183 M/S cents and must buy level at 172 M/S cents.

In short, maximum fluctuation of rubber prices will be in between 258 M/S cent - 172 M/S cents under the INRO scheme of things.
But the international agreement didn't come to save rubber when prices stooped in the wake of South East Asian Crisis. If we assume that one Ringgit was worth Rs 15 before its devaluation the reference price of 214.95 M/S cent can be translated into about 32 Rupees. If India were an INRO member the fair price in India would've been Rs 32. After devaluation the value of one Ringgit fell to Rs 10. Then value of reference price of Rs 214.95 M/S cent dwindled to about Rs. 21.5. But market prices didn't fall to that level.

The buffer stock at the end of the year 1998, is estimated to be in the region of 80,000 tonnes. The failure of INRO to take up significant tonnage with the DMIP in the May buy zone and to intervene to defend the price when the must buy level was breached was unprecedented in the history of INRO. It was ascribed to a lack of funds resulting from member governments not meeting the call-up for funds within the allotted 60 day period.

Trapped in severe economic crisis Malaysia devalued its currency. In effect it also lowered the value of international natural rubber agreement. When the Agreement was formulated, had the reference price been fixed in terms of dollar or yen, South East Asian Crisis would not have affected the fruitfulness of INRO. It is said that the reference price was fixed in Malaysian Ringgit at the insistence of Malaysia. At that time Malaysia could not have foreseen the Economic crisis. But the end result was that, despite considerable price decline in dollar terms most of the times the DMIP was within the neutral zone.

Now that Ringgit is fixed to the US Dollar, the movement in the DMIP is partly influenced by the value of the US dollar. The INRO DMIP measured M/S cents and US dollar started to move together in 1998, after diverging sharply in the second half of 1997.

Although Thailand was the first to state that it would leave INRO, only Malaysia took positive action and announced its withdrawal at the October 98 Council. While the two biggest producers flooding markets, there was precious little the INRO could do by way of fire fighting. In August 1999 Srilanka also decided to withdraw with this decision. INRO is left with only Indonesia, Ivory coast and Nigeria as producing members. Effectively only Indonesia, being the second largest producer, can make any impact on the global world scene. The presence of the other two is negligible. But INRO
is unlikely to exist without Thailand which supplies about 40% of INRO's contributions from rubber producers.

In the light of the withdrawal of three exporting countries INRO's acting executive Director Mr. Gerard Loyen announced the decision to prematurely terminate the INRA 1995 w. e. f. October 13, 1999. Original termination was scheduled at early 2001. Its extention or replacement by a fourth agreement looks increasingly unlikely. The concerned countries were of the view "After all, if there is another organisation with the same structure, same agenda, the same members, What's so new about it?" 37

INRO's decided to complete the sale of its 1,26,314 tonnes rubber stocks @ 34,000 tonnes per quarter by the end of June 2001, INRO was to be dissolved when liquidation of the rubber stocks was completed INRO will transfer all the existing studies and projects to another international rubber organization, International Rubber Study Group (IRSG).

The year 2001 saw the creation of the International Tripartite Rubber Organisation(ITRO) when Thailand, Indonesia and Malaysia joined together for stabilizing the global price of NR in July 2001. The long term aim of ITRO is to reduce rubber out put by 4 percent and export by10 percent starting from January 2002.

Sec 3.19: ANRPC as a saviour? Possibility of OPEC model cartel

The Association of Natural Rubber producing countries (ANRPC), set up in 1970, is an inter governmental organisation. The objectives of the ANRPC are (1) to bring about co-ordination in the production and facilitate cooperation in marketing of NR to promote technical cooperation among members.[2]To bring about remunerative and stable price for NR. ANRPC member countries account for over 86 percent of the world supply of NR.

During the price crisis ANRPC suggested the formation of a price cartel in the model of OPEC for natural rubber. But the major bottleneck here is that it is not possible to control production in the lines of OPEC which is an organized body of few. Rubber cultivation is mainly dominated by small holders and for some it is the main source of living. Many rubber producing countries are poor developing countries. As such they cant reduce production for a long term rise in production. As Keynes puts it "In the long term
we may all be dead.” Even for the medium term, reduction is not possible by the price
vulnerable small grower.

Measures like utpadan hartal were undertaken by some small growers as a protest
against price crash. But production cut were for only a few days and helped little to serve
the cause.

ANRPC meetings showed lean attendance with member countries enthusiasm
brought down by the South East Asian crisis and lean production. In the wake of INRO
break up, Malaysia is urging support for a producer run price stabilization scheme
through ANRPC. This would involve a withholding scheme to limit production, a
marketing system to keep supply below demand and a private sector-led consortium to
stockpile rubber in periods of over supply.

On 1st March 2002 a rubber consortium based in Thailand was formed for price
stabilization in the model of OPEC was formed.

Sec 3.20:- Emergence of new demand sources

Relaxation of some of iron rules of China had led to the increase in Chinese
demand. Some economists attribute the opening up of China gate, as the main reason for
the sudden rise in world prices in the mid nineties. During 1980-95, the price rise was of
a sustained type.

When prices rose, there was excess capacity utilisation in Malaysia and Thailand
resulting in glut. This coupled with South East Asian crisis caused the rubber price crisis.

But future demand prospects are high. Globally the US is the first consumer
followed by the EU China and Japan. Globalisation means interdependent fortunes. That
is the reason why the US is spending crores in South East Asia to remove their recession.
The recovery of South East Asian Tigers and Japan is not an optimistic hope but an
optimistic possibility. Already they are half way on the path.

The emergence of economic union has created a contending force to the US which
had been enjoying the role as the sole super power in the wake of Soviet Disintegration.
Both are top NR consumers. In 1993 India concluded a new cooperation agreement with
EU on the pattern of what is known as “third generation agreement” which will increase
Indo-EU trade. There is also the possibility that the government might take up
Prof. Jagdesh Bhagwathi's suggestion that India should strive to get associate member status with EU and enter into a trilateral agreement. All there may have far reaching implications in the rubber demand scenario.

Sec 3.21: South Asian Association of Regional Cooperation [SAARC]

The world economic scene shows a preference towards free trade at the same time there is protectionism through regional blocks. Some economists attribute the increase in world trade in the past years to WTO but to the growing strength of regional trading blocks and improved trade relations among the developing countries.

Sixth summit of the SAARC set up a high level committee on economic cooperation to look into Sri Lanka's proposal forming a South Asia Preferential Trade Area by 1997. Thus the momentum for eventual setting up of South Asian Economic Community was set.

Sri Lanka is a major producer, and exporter of rubber and Pakistan and Nepal being rubber importers, the setting up of a free trade area has great significance on rubber. On Dec 28, 1998 as a part of the future integration, India and Sri Lanka entered into bilateral free trade Agreement. The agreement provides for three year and 10 year phase out of all tariffs by India and Lanka respectively. The negative lists and zero customs duty lists were to be finalised with in 60 days. It was said that rubber and tea were at first put under concessional duty list. But India withdraw its offer later on bowing to immense pressure from domestic producers and put these items under the negative list. It is notable that the threat of competition from a major producer and exporter of rubber arose at a time when rubber prices were only staging a marginal recovery. From August 1998 onwards NR can be imported duty free from SAARC countries.

Sec 3.22: House Hold Sector

In the traditional macro economic theory, when postulating the circular flow of income and expenditure, the household sector is defined as the owner of all the factors of production viz land, labour and capital. This sector receives income by selling the services of these factors to the business sector and spends it by buying the output of product of the business sector. In the rubber scenario our attention is focussed on
different members of household like a grower, tapper and dealer. In same cases these
three roles lose their demarcative significance. Often we find a grower who is himself a
tapper. Just as often as we find a grower who is also a dealer. But when there is no
interactive roles, these three members of the rubber household sector act as adversaries,
each intent on striking a better deal for themselves than the other.

Analysis of existing operational and causative factors with reference to household is
very much important for understanding the real problems in the rubber arena. Household,
as we knew is the main cause for consumption and economic activity at the micro level
which pave the way for macro level economy dynamics. So the crisis causing factors
arising from the household sector rate equally with the global causative factors.

Sec 3.23:- Paucity of Labour-The White Collar Effect

Kerala has many economic peculiarities. As against the situation of trade off
between agriculture and industry seen in the stages of development in many other
countries and states, in Kerala the trade off is between agriculture and service sector. It
does not mean that there is no trade off at all but that the trade off is marginal
comparatively. Lewis theory exists in a diluted form. The increased absorption of people
from the farm sector has created labour shortage. A class of people discriminated
previously on the base of caste as lowly labourers, now have reservation in the
government sector, thus reducing the availability of blue collar workers.

Thus a great number of people are absorbed away from agricultural sector by white
collar jobs and those who are unabsorbed by the industrial and service sector prefer to
stay unemployed and absorbed by the fascinating hope for white collar job.

The end result of the absorption whether real or imagined is acute scarcity of labour
which inevitably raises the bargaining power of the existing blue collar workers. The
industrial wage rate and cost of living become reference points in their bargain.

All these factors have led to the rise in tapper wages from 15 ps/tree in 1990-91 to
30 ps/tree.
Estate Vs Small holders:- The infight

Small growers are Big in number only. When it comes to bargaining power estates are real Big. The small grower do not enjoy the advantage of efficient organisation like the estates. Estates have their own smoke houses and as a result they can store their produce to take advantage of the high prices. For the poor farmers building a smoke house worth almost Rs 25000 just to smoke 4 or 5 sheets is unimaginable and highly impractical. Without proper facilities for smoking there is the danger that his produce may rot. Some farmers cannot indulge in speculation since income from rubber is his main source of livelihood. On the other hand large estate holders have other sources or revenue so they can hoard their produce and speculate to get higher income. Such policies make estates the dominant sector who is the price maker and small growers the price taker. Growers have to follow the lead even at a loss.

Shortage of tappers is the a major problem faced by grower and estates alike. Available tappers are monopolised by the large estates attracting them away from small holders with even higher pay. This forces the small grower to pay similar amount to get a tapper, the tapper usually comes late, only after the tapping in estates is over. Early morning tapping which yields best is reserved for estates. Late tapping reduces yield and life span of the tree. Hence again quality of bargaining strength defeats its quantity.

Small holders smallness is a bane in one more aspect that it makes cartelised behaviour impossible. ANRPC suggestion of OPEC model cartel fails on the grounds of small scattered ness. During the price crash, many suggestions were made for “Utpadan Hartal” or production strike. But the decentralised characteristic of decision making units made it impossible to implement strong and uniform policy decision. Among small holders almost 98 percent belong to the group of 2 hectares and below. In such a case the growers relative poverty is their weakness. Some growers have to earn their daily bread through rubber sales.

If there had been better cooperation among small growers or estates or among the small grower themselves the crisis in prices could have been avoided or managed in a better fashion. It was suggested that a reduction of 30 tapping days by all the growers or that just ten days of non production could lift the grower out of the rut. Such suggestions were not taken up. There was some form of protest in Pathanamthitta District where
about a campaign of felling about 100 trees in each plot was started. Needless to say it remained as a model of protest.

Sec3.24:-Rubber dealer villain or Victim?

Rubber dealer is often seen as a villain by small growers. 90 percent of the growers produce is being marketed through private trade channels like licensed dealers. Since this channel is monopolising their trade scene, they say that exploitation is possible by deliberately downgrading the quality of their produces as rubber grading is taken place in the form of visual grading. Grower also say that dealers finance the growers in times of difficulty against the assurance that the growers will sell their rubber in future at the terms specified by them. By helping the growers to tide over difficulties the dealers try to create a psychological bondage leading to moral exploitation of the growers.

When rubber prices crashed, farmers sold rubber in a panic without keeping any stock to the dealers. In the hope of future price rise the dealers bought all these panic sales and they were forced to release their stocks at throwaway prices. Stock keeping for more than six months will lower the grade of rubber. 10-15 percent of the 10,000 licensed dealers is said to have terminated their transactions.

The hike in sales tax to 11 percent early 1998 led the dealers to more difficulties. If tax is not paid, the tax department would not give delivery note to the companies and without it companies won't transact. The increased tax liability for tyre companies is estimated to be Rs. 1000 per one load. On an average, daily 10-15 loads are transacted in Kachi. Companies are prepared to pay the excess tax for current transactions but not for earlier deals. If tax is levied for earlier deals some companies would have to remit crores of Rupees on this account.

When the cess was levied there was a doubt whether it should be levied from the dealers. As a result there was Supreme Court Ruling that it should be levied only from end users or Rubber manufactures. Since such a ruling was likely to be contended by the tyre manufacturers, the Supreme Court has specified the liability of the tyre manufactures. Such favourable decisions are necessary for solving the problems of rubber dealers though it took almost two decades to decide over the issue of the cess inclusion. Government should come forward to solve dealers problems.
In the post price crash period, a small scale dealer who invests a capital of about 3 lakhs rupees to enter the rubber dealing scene, can get only about Rs2000 if he does business in the straight forward way. So they are vulnerable to the promises of brokers who act as a link between the dealer and big manufacturing companies. The broker cleverly sinks the stock tendered by the dealer in a black deal. He sometimes delays payments and reaps interest benefits. 38

**Sec 3.25:- The Income effect of Rubber price crash**

Rubber is a source of income for about 13 lakh household in Kerala. Of this nine lakh is accounted by small growers alone.

It was said that there was a general spurt in effective demand when rubber prices were high. This led to increased industrial activity especially in the rubber belt ie central Kerala in Towns like Kottayam and Kanjirappally, it was a common sight to see a rush in dress and jewellery shops. Markets were packed and buzzing with activity. Price crash changed the situation and it is said that car finance companies were the first to realise the change in winds. They suddenly discovered that it was not so easy to make a living. Prior to the crash three out of every 10 Maruties were sold were in the rubber belt. Maruti had even sent sales promotion officers to Meenachil Taluk to take a list of growers who doesn't own cars. After the crash many sold these cars. Some cars were dumped in their sheds because there isn't enough money for petrol. A part of the increased income caused by rubber boom was invested in the education of children outside the state in the form of capitation fees given to secure a medical/engineering or a nursing seat. Education outside state also increased movement of people and transport. The relation ship between rubber prices and general economic activity is direct and immediate.

The dilemma of an out of state nursing school is reported. The institution named ‘Khat prabha’ is in Belgam in Karnataka state. This school had got establishment and prosperity solely out of the purses of the Kerala rubber growers who sent their daughters to join their course in view of the rising demand and salary of nurses in countries like the USA and the Gulf.

Worse still is the plight of people who were myopic about the sudden hike and frantically resorted to loans from banks and other financial institutions to buy the plot at a
time when land prices were high for new planting. Their hopes for better future returns crashed simultaneously with rubber price crash. Now they face not only low returns but high input prices as well.

But there exists an other side of the coin. It is reported that "We Tamilians can exist without Keralalites but you Keralites cannot exist even a day without Tamilians. A single days hartal in the track transport sector would double rice and vegetable prices and drain a keralites pocket." Vegetables worth 600 crores are daily brought to Kerala from other states. For rice we are dependent on Andhra and for wheat, on Punjab. Some economists are of the view that rubber cultivation has led to the highly skewed agricultural growth in Kerala. It enjoyed the highest rate of subsidy and was treated as an "elite" among agricultural crops. General cost of living rose as a result of hike in the price of goods most necessary for subsistence. Land prices were up due to high rubber prices. Some writers even accuse that the profitable factor in rubber cultivation went only to increase conspicuous consumption. According to them, the main factor behind the agitation for highest prices is that growers have got used to their luxurious life style and laments that they can't continue as before. They accuse further that many growers have alternative employment provisions and is not as worse off as they pretend. A majority has inherited the land or bought it years back at cheaper rates. A grower's main problem when prices fall, is high wages since plant protection measures can be postponed for rubber without much harm in the long run unlike some annual crops. Though, it is true that increase in rubber growers income shows multiplier effects, it is still lesser compared to the multiplier effect which would have been achieved by general increase in real incomes owing to low cost of living.

Sec 3.26: Social implications of rubber price crash

Among rubber grower's, literacy is very high, family members are often employed in alternative occupations (often out of Kerala). The support from religious institutions and fraternities is strong. Another interesting aspect pointed out was that there is an increased leaning towards religion as the crisis intensified. It is a common sight to hear priests taking up the cause of the growers. Hence the heavy rise in suicides witnessed in Tamil Nadu in the wake of the coffee price crash was averted here."
Sec: 3.27: SWOT Analysis

Strengths
1. Geographical suitability which makes rubber cultivation highly suitable.
2. Indian industrial climate is showing signs of revival. A good crop period and the resultant income effect is expected to increase goods movement leading to increase in original and replacement equipment demand.
3. Government of India has banned import under license against public notice after 1995-96. Import under Special Import License (SIL) is discontinued from April 2001. Also Li Advance Licensing scheme was banned from February 20, 1999. This shows that state role is effective even after liberalisation.
4. Long gestation lag and initial high investment which ensures commitment from growers.
5. New innovations in tapping which would double the productivity of existing trees viz; inclined upward tapping developed by Scientists.
6. India exports tyres to 51 countries and they even enjoy a premium status in US market. The market share of US in Indian exports is almost 30 percent. Though tyre export growth fell by 10 percent in 1998, it is fast picking up.
7. Revival of South East Asian economies since globalisation means interdependent fortunes countries like the US is taking keen interest in investing for South East Asian revival.
8. Under GATT, developing countries like India enjoy “Green Box Treatment” under which India need to reduce subsidies for values greater than 10 percent only over a period of 10 years. Since India’s share in the world trade is less than 3.25 percent and per capita income is less than $1000, she is exempt from the prohibition of export duties. Bop difficulties can be cited to prolong the time span for tariffication.
9. High level of cooperation and grower awareness in the wake of crisis which led to industrial venture in some areas.
10. Since India is a “Developing Country”, rise in demand for tyres and other end products a sure certainty.
11. High level of literacy and alternative employment among small growers enabling them to bear short term price fluctuations.
12. Strong religious, institutional and political support. Rubber votes being a deciding factor for both parties and hence their causes are actively taken.

13. Rising population trend would add an extra dose of purchasing power each year.

Weaknesses

1. Smallness of 95 percent of growers reduces economies of production. Small holders do not enjoy the advantage of efficient organisation like estates. In the absence of smoke houses, go downs etc they cannot hoard and speculate to get higher incomes. Estates thus become the price maker and the growers the price taker.

2. Absence of a strong and transparent supply chain from grower to dealer and to the producer.

3. Linkages between rubber related small industries are weak.

4. Lack of cooperation among estates and small holders make it impossible to adopt production control measures in the wake of price crisis, along the lines of OPEC model cartel. Since small growers are vulnerable to price fluctuation, they cannot afford to adopt measures like production cut or stock keeping.

5. Since rubber is a perennial crop, capital investment is for long term and it becomes impossible to form rational expectations about future. They can respond with respect to cropping pattern, cropping intensity and productivity. But they are unable to change acreage in the short run, since it would take another 6-7 years and the then price situation is obviously impossible to predict.

6. It is said that rubber cultivation has led to a highly skewed agricultural growth in Kerala. It enjoyed the highest rate of subsidy. As cultivation of subsistence crops were neglected, general cost of living rose. Income proceeds from rubber were frittered away in conspicuous consumption with no productive reinvestment in rubber related industries. Though increase in rubber incomes had shown multiplier effects, it is lesser when compared to the multiplier effects which would have been achieved by general increase in real incomes owing to low cost of living.

7. In countries like Indonesia and Malaysia, rubber cultivation is considered as a means for removing unemployment. So it enjoys 90-95 percent state subsidy. Both India and these countries face equal level of international prices, but different levels of domestic...
support. As against India, in these countries devaluation would work towards increasing exports as domestic consumption is less than 20 percent.

8. State Trading Corporation (STC) proved to be a “weak player” in the procurement scene. There were delays in ministerial order for fund granted for procurement. Fund granted was also inadequate. There was no support to Rubmarks efforts through a centrally sponsored scheme. Lack of coordination and cooperation between STC and the procurement agencies viz Rubco and Rubmark. Procurement was for a time span of 100 days in the first phase and 200 days in the second phase. By that time period excess stock accumulated and accentuated the glut. As far as latex was concerned, no procurement was done since ammoniated latex has minimal storage life. State sales tax of 11 percent stood in the way of STC procurement till it was withdrawn in 17-11-1999. STC lost Rs 8 crores in this account43. Delay and procedural formalities with STC, fear of rejection of stocks on the basis of quality, delayed payments etc. created frequent frictions between STC procurement agencies, rubber dealers.

9. There is no price support procurement mechanism to ensure that the BMP is maintained at the fixed level. A lot of calculations and government efforts goes into the fixation of BMP. Whenever they are short of money, the growers themselves would ignore BMP level and sell at levels below it. BMP being partially protectionist in effects. It cannot be relied upon particularly in the WTO era.

10. Breaking up of INRO as a price stabilising agency made international prices weak. As the intervention price was pegged in terms of Malaysian currency, its devaluation resulted in the pegging of intervention price level below the “Must Buy” level. Though, it was later linked to the US dollar, there was lack of cooperation among member countries resulting in fund shortage and breakup of price stabilisation scheme.

11. Since domestic demand had always been sufficient to absorb the excess production until recently, there wasn’t any necessity to expand basic infrastructural facilities for export. We are unable to offer a steady supply for longer periods. Quality of our products is not known internationally. We cannot offer forward market rates in the absence of a well developed forward market system. This makes exporting away of surplus production difficult.
Opportunities

1. Crop Substitution is impossible in the present agricultural situation of Kerala as all crops are suffering badly. There is no crop viable enough to substitute rubber. The other option is sale of land. But land prices show a proportionate relationship with rubber prices. Due to the growing disinterest among Gulf based NRI to invest in the real estate sector, registered land deals have come down. So opportunity for rubber cultivation is still alive in Kerala.

2. Green box provision in WTO will boost agricultural exports.

3. GATT provides protection to plant breeders under which new range of seeds, biofertilisers, bio-pesticides and successive generations of plant variety are protected. This provides an opportunity for further research in rubber.

4. To reap the benefits of trade liberalisation under WTO, government should take measures like.
   a. Technology upgradation, land reforms, optimal use of fertilisers and irrigation.
   b. Analysis of price formulation of agro products and taking steps to avoid distortion in food production.
   c. Maintaining Export Oriented units in agriculture with further foreign collaboration.
   d. Research on Aggregate Measure of Support (AMS) to quantity protection in Indian agriculture.
   e. Formation of Trading Blocs and Common Agricultural Policy among developing countries.
   d. Conducting state agricultural projects with foreign collaboration.

5. Central government is taking measures to expand export opportunities in rubber. Rubber Board has set up Export Cells for technological specification and information. A rubber park is proposed to be set up in Trivandrum in Perumbavoor. This would set up additional small scale rubber related industries with better linkage.

6. Rising demand for rubber wood

7. Road rubberisation is emerging as a new source of demand supported by state governments.

8. Rubber honey is emerging as a new source of additional income to growers.
9. It was the emergence of new demand sources like opening up of China gate, which had led to the sporadic rise in prices in 1996. Again, the emergence of Economic Union as a contending force against the US will increase competition in the rubber market since both the EU and the US are top NR consumers which might lead to future rise in prices.

10. There is a possibility of signing up of a “third generation agreement” between India and EU which will increase Indo-EU trade and prop up rubber prices.

Threats

1. Though imports through Advance Licensing Scheme were banned since February 1999, imports continued. Since Advance License has a normal validity for 18 months after issue and can be extended twice for duration of six months each, imposition of ban didn’t help much.

2. Liberalisation policies have favoured SR imports. Growth in SR production and consumption is showing steady increase since 1995-96. Since SR is petro based fall in oil prices can favour SR at any time. Indian industries are copying SR based foreign technologies to achieve price competitiveness.

3. Under TRIPS, the national treatment clause gives the foreign investor the same right in area and magnitude of investment. MNCs have entered the domestic scene and set up tyre plants. They have the advance licensing facility for making export related imports, while utilising cheap domestic labour. There is a threat of import of NR from African countries where labour is cheaper. TRIPS stipulate no qualitative restrictions on imports and exports and performance obligations like usage of local raw materials and equipments, technology transfer etc.

4. There is also the threat of import of second hand tyres. Lobbyism has succeeded in suppressing this threat for the present. Import of SR and its raw materials are protected by levying anti-dumping duty. But import of NR does not enjoy the same protection.

5. Lowering of import duty on Poly Urethane from 75 percent to 20 percent lowered the price advantage in latex production by 50 percent. This has prevented reaping the benefits of global aids scare and glove boom.

6. Since Kerala’s electricity is hydro based frequent power cuts upset industrial climate.

7. Domestic demand is insufficient for glut removal though it is always on the rise. If we take the per tyre requirements, of the total quantity of all kinds of tyres imported, less
than 15,000 tonnes would form additional consumption requirement in the absence of imports.

8. Business lobbying has always been a threat to stable rubber prices. Whenever rubber prices rises, industrialists raise tyre prices more than proportionately. Within months they would agitate for imports and bring down rubber prices while tyre prices would remain at the raised level. Tyre companies like MRF & CEAT which have about 40 percent share in rubber market cite various reasons and jointly appear or disappear from the market to manage prices. Bribery and corruption is used to formulate favourable policies at the government level. If they fail at this, they influence officers to prevent the implementation of such policies. They reject STC’s stocks citing low quality as a reason and influence STC officials to make procurement ineffective. Media is influenced to create false panic and lower prices. Due to development of transportational facilities time period of business inventory is reduced two weeks. Business lobbying resulted in imports for in excess of import requirements and is said to have resulted in the loss of revenue of Rs 125 crores.

9. Retreading of tyres have become popular reducing replacement demand for tyres.

10. China’s presence in the tyre export market is much larger than ours. India sustains due to quality which makes its exports costlier. Secret of low priced chinese tyres is not known.

11. Bangkok agreement provides 10% duty concession for tyre imports from Korea which makes sustaining of domestic profit margins difficult.

12. Psychological bondage towards white collar jobs has led to voluntary unemployment even though better paid blue collar jobs are available. This has resulted in artificial labour shortage and rise in labour wages. Trade Unionism prevents proportionate downward movements in rubber prices and rubber wages thereby reducing price competitiveness.

13. From August 1998 rubber can be imported duty free from SAARC countries.

14. Newer HYV could be evolved with sowing patents in other countries and they would avail protection under Plant Breeders Rights.

15. Kerala growers might favour a multicrop model of agriculture if the prices continue to fall.
16. Possible shifting of cultivation to North Eastern region due to rising labour costs as evident from increased interest taken by the Rubber Board in extension and development to North Eastern areas.

Road Rubberisation-SWOT Analysis

The patent for rubberised tar was taken by a scientist named Cantonberg as early as in 1898, but it caused delay in the continuance for further research efforts. In 1947 widespread rubberisation was done in Rufesior in Geneva. Following this, roads were rubberised on an experimental basis in European countries, major cities in the US, Malaysia, Australia, and New Zealand. It was found that rubberised tar increased the life span of the roads.

Strengths

A lot of experimental research has been conducted in the field. Major advantages may be summed up as follows.

1. Mixing of latex with tar changes the "thermo plastic" nature of tar to "Thermo elastic". The mixing is done at a temperature not less than 140°C and for at least half an hour. This procedure increases its strength in atmosphere temperature resulting an increase in road life span by about 60 percent.

2. Thermo elastic property raises the adhesive capacity of metal to tar in high temperature. Rubberised tar melts at 20 percent higher temperature than ordinary tar. The adhesive capacity of metal, sand etc. is also increased.

3. It absorbs comparatively smaller amount of moisture.

4. It increases the grip of vehicle tyres and ensures safety by reducing accident possibilities through skidding. It also increases the life span of vehicle tyres by reducing wear and tear.

5. Since the life span is extended, the time to reach critical reference value is also extended i.e. the state when roads are destroyed as a result of loss of viscosity of tar due to wear and tear. Raising the critical reference value means cost saving in Road transport sector.

6. According to NATPAC, the average speed of vehicles in our national highways is less than 60 kilometers whereas in developed countries it is above 150 km on an
average. This is mainly attributable to the low quality of Indian roads. Rubberisation raises the quality of roads and removes traffic jams thereby ensuring better speed, better movement of goods and overall increase in productivity.

7. Rubberisation sustains the shape and beautiful finish of new roads.

8. Rubberised tar is made in refineries so it ensures better product quality

Weakness

The major weakness is the cost hike. It is estimated that the required two percent mixture of latex with rubber increases the cost by 12 to 15 percent. But in the method of mixture which requires 4 percent of latex the increase in cost is only percent. Another cost estimate shows an increase of about 20 percent.

Opportunities

1. Because of the fluctuations in the price of rubber and ordinary tar, the cost may not be same all the time. If when price of rubber falls, the demand for rubberisation can prevent further price fall. Bitumen needed for road repairs is only 30-35 percent of the original costs for rubberisation.

2. Since rubberised roads absorb less moisture it is extremely suitable for rain fed states like Kerala. Due to rapid urbanisation there is widespread traffic blocks in Kerala. So an acute need for better urbanisation there is widespread traffic blocks in Kerala. On April 21st 1999, Central surface Transport ministry has ordered the use of rubberised bitumen in the repair of 10 percent of roads.

3. Global economic development trend is towards ecological sustainability. Since rubberised tar is heated and mixed in the refineries, there is less pollution during road construction making it environment friendly.

4. A research report found out that tar emulsions marketed by Ticky tar industries Bombay and Hindusthan Petroleum co-operation etc. is a better substitute for ordinary tar in road rubberisation. Since latex is an anionic emulsion it mixes at the required time with tar which is a cationic emulsion. If the ph value of latex is kept lower by using preservatives like formaldehyde. The major opportunity presented by the funding is.
1. Previously it was technically impossible to include more than 4 percent latex in rubberisation. Now using this process it is possible to mix up to 20 percent of latex in rubberisation with a higher degree and durability.  

2. Ordinary rubberisation uses kerosene and causes atmospheric pollution when it evaporates while tarring. Rubberised tar emulsions coins do not require heating prior to tarring and sets in atmospheric temperature. So it saves fuel and creates a better working atmosphere to labourers.

3. Crusade of Tamil Nadu Highway Research Station (HRS) to popularise road rubberisation could one day lead to the rubberisation of about 28 lakh kilometers of Indian roads. In Kerala state the government has already launched on a time phased rubberisation programme. 

Threats

1. The major threat to the rubber producing sector is that the prescribed off take is only 2 percent per kg of tar. So unless rubberisation is undertaken on a large scale and conducted rapidly there cannot much propping up of demand.

<table>
<thead>
<tr>
<th>Tab3.7:- Road length in Kerala</th>
<th>Length(km)</th>
<th>Total average area(sq m)</th>
<th>Estimated rubber requirement(tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Road Length</td>
<td>145215</td>
<td>575051.4</td>
<td>33,472</td>
</tr>
<tr>
<td>National Highways</td>
<td>1011</td>
<td>4003.56</td>
<td>233</td>
</tr>
<tr>
<td>PWD Roads</td>
<td>22,273</td>
<td>88201.88</td>
<td>5133</td>
</tr>
<tr>
<td>Panchayath Roads</td>
<td>1,09,058</td>
<td>327174</td>
<td>25,137</td>
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<tr>
<td>Municipality Corporation Roads</td>
<td>8627</td>
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<td>1988</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>4246</td>
<td>16814.16</td>
<td>978</td>
</tr>
</tbody>
</table>

Data source on Road length - NATPAC.

Table 3.8 shows that total road length in Kerala is 145215 kms. The average breadth of roads in Kerala is 3.96 metres. For village roads it is 3 metres. Based on this the total
average area of each type of road is worked out. Given that tar requirement per metre is 2.91 kg we can workout the per kilometre requirement as 11523.6 kg. Rubber requirement at 2% of tar requirement works out to be 230.5 kg. On this basis the total rubber requirement worked out to be only about 34,000 tones as shown in the table. When the market glut is estimated to be around 2,00,000 tonnes, this is a meagre figure. A one time shipment of 15,000 tonnes by RUBCO to Singapore failed to cause sustained price rise. So it is unrealistic to expect that the off-take in various phases of 34,000 tonnes can save rubber growers from price crisis. The political assurance has thus been economically disproved.

2. Excepting a few research institutes there is inactivity in the case of rubberisation research on the part of the rest of the institutes.

3. State governments are either not aware or inactive with regard to rubberisation.

4. It is the vested interests of some contractors who want to stay on in their business that roads repair become frequent. These interests would do all they can to prevent adoption of rubberisation.

5. Major tyre companies would act against rubberisation and consequent rise in rubber prices.

6. Delhi PWD department is using 12 percent mixture of TBM super, a synthetic substitute in the place of 2 percent rubber latex. Studies conducted by HRS show that mixing of TBM super lowers road quality. Mixing is done on road sides and therefore environmentally hazardous. TBM super is made by chemical treatment of powdered old tyres and costs about Rs30,000 per tonne. The foreign agencies offer of attractive commission for imports is the inducement for the use of TBM super.

Sec 3.28:- Rubber Related Industries SWOT

Strengths

1. Strong governmental and institutional support. A Centre-State government joint venture initiated by Rubber Board and Kerala Industrial Infrastructure Development Corporation (KINFRA) has laid the foundations of a “Rubber park” in Airapuram in Ernakulam district on October 7th 1997.
2. Strong employment potential since enterprises like rubber band industry, balloon industry etc requires less technical skill and is more labour intensive. The estimated employment potential is about 4 lakh.

3. Kerala ranks first in the terms of manufacturing units and second in terms of consumption. Off take in other states is showing an increasing trend.

4. Techno economic survey undertaken by Rubber Board.

Weaknesses

1. Lack of diversification in rubber products.

2. Absence of Entrepreneurship Development Programme (EDP) resulting in lack of confident and risk taking entrepreneurs.

3. Absence of a Quality Control Board issuing quality certificates.

4. Stepchild treatment given by financial Institutions to Kerala's entrepreneurs.

Opportunities

1. AIDS scare is increasing the demand for latex all over the world. There is scope for further development along Malaysian model.

2. In Russia, Doctors recommend the use of rubber based balloons to cure baldness. Though such balloons can be made out of silicon, it raises cost of production by at least 10 fold.

3. Balloons have conquered a fashionable place in all the religious and family festivities. Their demand has a positive relation with rise in population and urbanisation. 84 percent of the balloon units are concentrated in Maharashtra and Gujrat. One balloon unit consumes an average 300 metre latex. If the existing 130 units has 300 working days they would consumes 117 lakh litres of latex on one year. But the no. of balloon units in Kerala is only 32. In view of the easy availability of raw material in the home state, it can be said that balloon industry has a good future in Kerala.

4. Tamil Nadu Industrial Development Corporation (TIDCO) has set up a Rs 50 crore rubber industrial complex in Kanyakumari District with integrated small and medium units.
5. Coir Board has developed rubberised coir carpets with better flexibility and durability.

6. India exports and imports rubber bands simultaneously. The trend is towards decline in imports of rubber bands from countries like Japan, Germany, and UK, and increases in exports of rubber bands. The export income was Rs. 71 crores in 1980-81. Out of an export of 1.9 meter tonne, it increased to an export of 67.60 tonnes of export in 1995-96 earning an income of worth 7192 crores.

7. Indian chappals are becoming increasingly popular in the international market owing to their superior quality and durability. There is huge export potential in this sector, especially in the Gulf where the openly major competition is China. Rubco has entered the chappal producing scene in 1998, it is producing light weight slippers with technical collaboration from Malaysian company called High tech setters.

8. Rubco has also laid foundations for a treat rubber factory and an automobile tyre factory.

Threats

1. Fluctuations in rubber prices causes fluctuations in price realisation of industrial units.

2. Absence of unified marketing chain leads to exploitation from middlemen.

3. Reduction in demand in certain rubber related industries viz rubber band industry faces low demand due to substitution by polythene bags, cello tape, stapler pins etc.

4. Highly literate Keralities are also highly environment conscious. It is a wide spread belief that rubber based industries are a threat to the ecosystem.

5. High labour costs in Kerala compared to other states raises the variable costs of the factory. Strong bargaining power of the labourers in Kerala often leads to strikes and lock outs even in tiny units.

6. Lack of adequate power supply and procedural delay in getting electrical connection to factories forces entrepreneur to choose those products whose products requires minimal amount of electricity.

7. Lack of encouragement given by of industry related officers at the government level forcing the entrepreneurs to shut down and exit in some cases.
8. High population density in Kerala creates scarcity of land for large scale industries.

Opportunity

Plantation Corporation has bagged latex export orders from countries like Mexico, Sweden and Russia. Export loss if any is guaranteed by the government. Export will be made attractive with new improved modes of packing. Plantation Corporation has also undertaken the establishment of a glove factory which on completion is estimated to earn an export income of 6 1/2 crores of foreign exchange per year. A nine crore project for construction of conveyor belt factory with export orientation is also under consideration.

Sec3.29:- Rubber wood-SWOT

Strengths

1. Developing countries are faced with 16.8 deci lakhs of forest destroyal. Destroyal of forests is taking place at a faster tempo than forest conservation. This is thought to create serious ecological unbalances world wide. At present the idea of replacing lost rain forests with artificial forests viz commercial tree plantations is acquiring great relevance.

   Full utilisation of rubber wood amounts to forest conservation of about 9 lakh hectares globally. In India the equivalent figure is about 20,000 hectares every year.

2. Perennial nature of rubber cultivation induces commitments from growers. Shift in rubber cultivation favouring small growers which are comparatively hard up induces further commitment towards the exploitation of commercial possibilities of rubber wood.

3. Free availability of eco friendly technologies based on impregnating wood with borax-boric acid treatment in vacuum pressure impregnation chambers and seasoning in conventional kilns or the hithe computerised vacuum drying.

4. Existence of 61 rubber processing units. 17 units in Furniture and furniture parts, 13 units in door and window frame, paneling products, 11 units in floor tiles, brush handle, table top, black board etc. 9 units 545 materials (rectangular panels) and 11 units in toy making, ice cream spoon, guitar photo frame, household articles etc. All the 61 units together have a total processing capacity of more than 61,000 cubic
metres. About 40 of these 61 units functions in Kerala and out of them were established in the early nineties.

Weaknesses

1. Rubber Board survey points out the case of low value addition. A major chunk export of rubber wood is mostly in the form of surface four side planned (S4S) materials. This shows that value addition is taking place in destination countries like Japan, EU and the Gulf. It is stated that there is a possibility of domestic value addition of about 1500 percent. But at present only about 296 percent of value addition is made. This is reflected in the low export income of less than 10 crores from rubber wood exports.

2. The commercial exploitation pattern of rubber woods reveal that almost 58 percent is used for packing case manufacture. The next largest consumer is plywood manufacturing industry consuming about 28 percent. Match box manufacturing and other uses claim 3 percent each of consumer share. The 61 units producing products with commercial importance gets only 12 percent of the total production.

3. Unscientific tapping, insufficient panel protection especially in small holdings results in the loss of 50 percent of the wood during processing. Unscientific cultivation also results in low girth of trees and reduces the rubber wood productive capacity of modern holdings.

Opportunities

1. The export of rubber wood products in 1995 was worth 2840 crores. Under conditions of proper research effort, and governmental support, new processing units with modern technical know how can be set up in India, leading to production of export quality rubber products which would enable India to capture a major share of global demand.

2. Domestic demand potential is even stronger. The growing stock of rubber wood in India was estimated at 43 million cubic metres which was a significant resource in a timber deficit country such as India with an increasing requirement of about 70
million cubic metres of timber by 2000. The National Commission of Agriculture is reported to have put the rising imports at Rs. 4,000 crores annually.

3. The wood products from tropical rain forests are expected to be progressively banned by 2002 by several European countries. Recently many importers in Europe require Ecolabelling and the world wild life fund and SGC had already set in motion these certification programmes for sustainable managed plantations.

4. There is a better future for Indian rubber wood industry as rubber production in Malaysia and Thailand is declining due to scarcity of tappers as they shifted to oil palm industry in the wake of price fall. In Indonesia rubber plantation is not scientifically and systematically looked after.

5. According to Indian Rubber Wood Task Force (IRWTF), rubber wood has a potential to corner a big share of over $35 billion American furniture market.

6. Kerala State Road Transport Corporation (KSRTC) has initiated steps for manufacturing bus body out of rubber wood; thereby creating a new hitherto untapped demand for rubber wood.

7. World wide rubber market is worth$1.5 billion but Indian export is only $3 million. Rubber at present meets only 2 percent of the timber needs.

Threats

1. Signing up of WTO has led to the possibility of massive imports of rubber woods and rubber wood products at international rates if cheaper.

2. Direct positive relation ship between rubber prices and rubber wood prices has lowered the replanting tempo. As a result the wood availability is reduced. This may in turn be a cause for imports.

3. Lower price realisation by growers due to middlemen. The market price of one rubber wood is Rs 800 but the grower gets only 55 percent of this i.e. Rs450. From this down loading charges (higher if the holding for slaughter tapping) will be deducted if the middle men has under taken the holding for slaughter tapping the price realisation of the grower is even lower. All this coupled with low rubber prices may lead to shift towards multi crop farming.
4. Unhealthy competition among existing units as they are producing identical products leads to destroying of small units by large units.

5. Existing units are facing financial difficulties. This makes adoption of new expensive technical know how viz small dimensions timber technology impossible.

Sec3.30:- Rubber futures market in India SWOT analysis

Futures trading are widely prevalent internationally. There are 4 major organised NR markets viz Kuala Lampur, Singapore, London, New York and other market including Tokyo, Kobe, Paris, Hat Yai, Jakarta and Columbo.

In India on the basis of forward contracts Act 1952, a forward market commission was set up in 1956. Forward markets were established for pepper, oil seed, coffee, cotton, potato, turmeric and others. The possibility of establishing a futures market for NR is now under consideration.

Futures are contracts for the purchase or sale of a fixed quantity and grade of commodities for delivery some time in the future on an organised exchange as against physical trading in exchange for cash. Futures market allows the growers to hedge in the market. Hedging is covering of the risk i.e. of not getting estimated income at the time of investment. It is the transfer of price to other market participant viz speculators will to bear those risks.

Strengths

1. Futures market has a high tech information centre which provides statistics on goods availability, demand stock transport facilities, imports exports, value of foreign exchange interest rates etc. Existing statistics are often incorrect and leads to inaccurate decision making by producers and consumers.

2. It brings greater visibility and liquidity in monopsonic markets faced by rubber. It increases price elasticity of rubber. In direct trading, price is determined on the basis of direct negotiations, adjusting a reference price to changes in quality, processing location etc. Direct trade is often bilateral and secret which means that rubber is increasingly bypassing open market. Producers are not always fully aware of market
conditions and they lose out as they have little bargaining strength. Futures market with high tech information increases grower’s awareness and bargaining power.

3. Since production is scattered, consumers face high discovery costs and high transportation costs. The futures price equals the statistical expectations of the spot price which will prevail at the maturity of the contract. Since information is an important stabilising device, efficient futures are stabilising. Futures trading causes rational expectations about stocks, cost of production, just in time raw material supply. Better production planning is possible for producers as quality goods supply are ensured at a prefixed time period at a prefixed rate. Thus it stabilises production process since price discovery is an important factor for the planning production, distribution and processing of commodities. As knowledge provides efficiency and extra insurance, production is stimulated and as profitability increases consumers may be prepared to absorb goods at a higher price.

3 Futures trading help the dealers also in decision making which increases their efficiency and leads to better profit sharing along with growers and consumers. Dealers lost interest income on account of inventory stocks and stock keeping also leads to risk on account of price fluctuations. Warehousing facility in the futures market leads to culmination of risk bearing by the dealers. They also facilitate stock holding because the forward premium which is the price of storage acts as a guide to inventory control and may be interpreted as a return on hedge stock. It can thus reduce inventory holding and inventory costs. It also reduces other wasteful expenses on coolie charges, expense on bribery etc. Dealers can also speculate in the futures market at a low risk level due to close contract with the merchants.

4. A future market with a good warehousing facility would induce financial institutions to give loans at low rates of interests on the basis of rubber stock. At present loans against stock are not easily available for the grower. If at all it is got, it is available at high rates of interests and involves procedural delays since in the absence of a futures market, it takes time to exchange goods, determine their price, grading and selling etc.

5. Futures market will standardises unit (as 100 kg, 500 kg, 1000 kg units) to facilitate transaction and also determine quality grades. This will help to stabilise growers
income. Also regional markets would become more efficient as standardization reduces inter market differences.

Weaknesses

1. Futures contracts must be in conformity with conditions in the underlying physical market to limit the possibilities of price distortion.

2. Though futures trading reduce price variability it also requires sufficient price volatility for its efficient functioning. If there is low volatility in the physical market there is little need for hedging as the cost of hedging would outweigh its benefits in terms of risk reduces excess short term volatility in the prices of a futures contract can also make hedging transaction more difficult to execute and more expensive.

3. Futures trading require well developed financial legal and communication system in which India is a long way behind. Financial facilities are needed for payment of margins and contract settlement to futures merchants. In the absence of strict legal enforcement, price distortive activities of speculators cannot be checked.

4. Futures market must be liquid both the transaction volume and the number of buyers and sellers should be large enough to ensure maximum liquidity. It would not work under oligopsonic market structure as a high degree of vertical integration. Globally natural rubber production is dominated by a few countries and consumption is also similarly dominated. Globalisation of course ensures more liquidity. But under conditions of globalisation, two steps need to be taken.

1. Contracts must be linked to various centers.

2. There should be centralised markets in one or two locations trading globally on a world contract on a 24 hour basis and clearing centrally. Such a setup is at best a slow possibility in our country. In India at the legal and practical level; till recently the ideal of futures market has been viewed with suspicion.

5. Suggestions of Khusro Committee ( ) on futures contract Regulation Act has not been enforced so far. There is a need to improve the communicative facilities of existing commodity exchanges; fix capital adequacy norms, globalise the markets, strengthen the vigilance, arbitration committees as pointed out by the Kabra Committee (1956)
which was also formulated to suggest recommendations to make forwards contracts act 1952 more efficient.

6. There is need to diversify the financial instruments of trade as in foreign countries viz Commodity Bonds, Commodity loans range forward contracts etc. Existing transaction is narrowed to Non Transferable Special Delivery contracts (NTSD) and Transferable Special Delivery Contracts (TSD)

Opportunities
1. Overall increase in volume of trade as profit possibilities of the grower dealer and the consumer is ensured.
2. Efficient futures market can be a way out of the rubber crisis.
3. Global trend towards free market without government control is irreversible. The producers are now facing less stable prices and need good reliable reference prices for their physical trade deals.
4. Futures prices are determined by spot prices. Futures prices can be in turn determined by physical prices by becoming official reference prices of the market. It may be used as future indicators and physical prices would adjust to it slowly. Thus it brings stability in the system.
5. Competitive price discovery is possible in futures market. Price determination in futures market is close to market competition since it reflects the views of a large number of buyers and sellers on the supply and demand situations on the physical as well as futures market.
6. Private commercial stock holdings by speculators have a stabilising effect. They will narrow the range between upper and lower ceiling limits of the INRO buffer stock. Free market operation is the most effective means to bring down excess volatility as speculators would buy in times of surplus thus pushing the prices up and sell in times of shortage depressing the price.
7. Speculative stock holdings can substitute INRO buffer stock. INRO operated on past information in contrast to futures market. It also interferes with laissez fair system. Coexistence between INRO and futures markets implies that the capital requirement
of buffer stocks is reduced, it being the major bottle neck causing failure in INRO's operation.

Threats

1. Major threat is speculation. Speculation based on inaccurate expectations leads to the same type of trading at the same time. Since transactions involve commodity stocks rather than financial instruments, panic buying or selling when prices are below the floor or above the ceiling will result in exaggeration of price swing.

2. There should be balance between trade related buyers and non trade related speculators. Speculation should form only a small proportion of the overall volume of trade. Otherwise there is a serious threat of price distortion and malpractice.

3. Globalisation has resulted in the increase in the volume of speculative funds moving in the international system. It has thus increased the potential for destabilizing movement of speculative funds into or out of the futures markets.

4. On the face of such destabilising movements capital requirement of buffer stock in the fashion of INRO could be larger.

5. Increasing importance of world rubber demand in Asia/Pacific region and the saturation in consumption in North America and Western Europe has accentuated the trend of destabilising movements.

6. Increasing trend towards bilateral trade agreement and price controls will prove a threat to the efficient functioning of futures market.

Sec3.31:- Rubber plantation development in the North Eastern Area- A special focus

Traditional rubber growing areas comprises the South west coast of India viz Kerala, Kanyakumari District of TamilNadu. The laterite soil conditions and the prevalence of both the South West and North East monsoons make this track ideal for rubber cultivation. But further development possibilities are limited as far as area is concerned in the traditional area. However productivity improvement is actively
campaigned by the Rubber Board through replanting of old and low yielding areas and better agro management of mature plantations.

Non traditional areas so far identified as almost fully or marginally suitable for rubber cultivation are hinter lands of coastal Karnataka, Goa, Konkan region of Maharashtra, hinterlands of coastal Andhra Pradesh and Orissa, certain areas in the Northern parts of West Bengal, Assam, lower reaches of hills of Meghalaya, Mizoram, Manipur, Nagaland and Arunachal pradesh and Andaman & Nicobar islands.

North Eastern region comprising of Tripura, Assam, Meghalaya, Mizoram, Manipur and Nagaland, Arunachal pradesh stands out among non traditional areas in that the agro climatic conditions prevalent is unique. A near tropical climate and monsoons are experienced there. Early plantations in these regions were undertaken in the 1960’s in Tripura & Assam and encouraged by its successors, commercial scale plantations were raised by Government Forest and Soil Conservation Departments. Later on, extensive cultivation was undertaken by Public Sector Corporation in Assam and Tripura. In Manipur, Mizoram and Arunachal Pradesh State Forest and Soil Conservation Departments took the lead in rubber cultivation.

The traditional cultivation practice the tribals in the NE region in jhum cultivation. A type of shifting cultivation following slash and burn method. Jhum cultivation is causing serious soil erosion and other ecological problems and therefore the interest of state forest soil conservation departments towards rubber cultivation as a means of weaning the tribals away from jhum.

The welfare Department of the Tripura government considered rubber as one of the ideal crops to rehabilitate the nomadic tribals. It is notable that the same reason was the behind the development of rubber in Indonesia.

Increase in area in North Eastern States

Prior to 1975, cultivation in North Eastern areas was almost non existent. From a mere 0.03 percent the area increased now averages around 7 percent. Area of small holdings which was only 0.01 percent in 1975-76 rose up to 6.1 percent in 1998-99. Estates area during this period shot up from 0.96 percent to 19.1 percent. There is the likely chance of small holdings overtaking the estates in magnitude, a repetition of Kerala
trend. The total production at the end of 1998-99 in North Eastern Regions in 12183 tonnes though only 2 percent of the total is a sure indicator for future growth.

Rubber Board had initiated a project for Accelerated Development of Rubber Plantation from 1984-85 to 1989-90 Development infrastructure composed of Boards offices, Nuclear Rubber Estate Training Centre (NRETC), District Development Centre (DDC) and Tappers Training Schools (TTS) of adequate scales was also established under the project.

In addition to this Rubber Board provides comparatively concessional assistance in non traditional areas. Rollers are supplied free of cost to voluntary organisations. There are special schemes for irrigation or rubber, and fencing of rubber plantations in non traditional areas. Tripura which accounts for 52 percent of the total planted area of North Eastern region. The development cost in NE region 15-20 percent less than what it would be in the traditional areas. As a result, there has been considerable expansion in area as shown in table 3.11.

Tab 3.8:- Percentage increase in area in North Eastern States.

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Holdings</td>
<td>0.01%</td>
<td>0.07%</td>
<td>0.8%</td>
<td>4.4%</td>
<td>4.8%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Estates</td>
<td>0.96%</td>
<td>6.2%</td>
<td>12.9%</td>
<td>21%</td>
<td>22.82%</td>
<td>19.1%</td>
</tr>
<tr>
<td>Total</td>
<td>0.3%</td>
<td>1.6%</td>
<td>3.05%</td>
<td>7.19%</td>
<td>7.4%</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

Area- include Tripura, Assam, Meghalaya, Nagaland, Mizoram, Manipur, Arunachal pradesh

Source:- Compiled from IRS

Majority of the small growers are illiterate and financially handicapped. The labour cost share in rubber cultivation is around 66 percent. Lower size holdings generally depend as family labour. This makes cultivation in North Eastern regions economic. Better awareness programmes will lead to scientific agro management practices and will increase yield. If at all tappers are hired their wages when compared to that of Kerala wages are low.

There is the threat of Estate holders buying land in NE region by way of following the principle of not putting all the eggs in one basket. They may reap the cost advantages
and realise better profits. In the era of globalisation efficiency being the key word will be welfare aspect of labour conditions or inflation doesn't count much in policy making. Governmental agencies will also be forced to follow the general trend.

In the future a great chunk of rubber cultivation may shift to NB region shifting of cultivation might regain competitive conditions in the traditional areas. But what is the critical level which restores competitiveness and what are its far reaching implications on traditional areas cannot be predicted. Agitations against price fall surely have justifications on the basis of growers and tappers welfare. But in the WTO era only market conditions and considerations rule roost and all the rest is ruled out.

Foot notes
1. Rubber Page - 3 February 2000
2. Business line dated 8th March 97
3. Malayala Manorama dated 8-5-97
4. Deepika 27-11-1997
5. Chandrika dated 11-12-1998
6. Business line dated 31-7-1999
7. Chandrika dated 9-5-1997
10. ATMA press release on 10-11-1998 in Business line
11. Deepika dated 12-6-1998
12. Malayala Manorama dated 12-10-1999
15. Deepika dated 16-11-1999
16. Business line dated 10-12-1999
17. Business line dated 31-7-1999
18. ibid
20. ibid
22. Deepika dated 7-4-1999
Deepika dated 7-4-1997
23. Rubber september 1999
24. Malayala Manorama 6-8-1997
27. ibid
28. ibid
30. ibid
31. Financial express 12-3-1998
33. ibid
34. Rubber Statistical Bulletin - IRSG March 2000
35. Rubber March 1998
36. International Rubber Digest - IRSG May 2000
37. Business Line dated 21-12-1999
38. Mangalam dated 10-8-1998
39. Kerala Koumudi dated 5-6-1998
40. Deepika 18-7-1999
41. Financial Express Aug. 24 1959
42. Business Line 28-11-1998
43. Desabhimani dated 4-5 1999
44. Report Submitted to the Transport Ministry by Dr. Soodh and Dr. Jain of central Road Research Institute December 1999.
47. Report of Tamil Nadu High way Research Institute - February 2000
48. ibid
49. Business Line dated 21-4-1999
50. Research Report by Dr. Rani Joseph and Jashy Mathew, Dept. of Polymer Science Cochin University (1999)
51. ibid
52. NATPAC (2000)
53. Business Line 12-3-1999 - Estimates of Food and Agricultural Organisation
55. Statistic of Malaysian Timber Board 1999