

Decline in international prices of NR: Apart from the accumulation of surplus in the domestic market and its depressing effect, the downward trend prevailing in the international market, accentuated the fall in the price of NR experienced in the domestic market. The price of NR in the international market shows a declining trend with marginal ups and downs. The average price of RSS3 grade in Kuala Lumpur market was 5030 per quintal in 1955. Since then the price declined steadily to touch the low of Rs. 2644 in 1999 although improved slightly in 2000 with the average of Rs.3007. All along the nineties, the domestic market price of NR was moving in tandem with the international price although the latter was slightly lower than the former. As the global recessionary trends are likely to stay for some more time the NR prices may not show any improvement in the short run. The lower international price hindered the export of NR as route to improve the domestic price.

1.5.5.2 WTO Implications

Natural rubber is not covered under WTO Agreement on Agriculture (AoA) thereby making the commodity ineligible for availing the softer provisions of the agreement. Prior to the removal of QRs April 2001, the import of NR was through the following routes:

- Against a license issued by the Government of India or in accordance with a public notice issued on this behalf with the rate of duty as fixed by the Government of India;
- Advance License, a facility available to exporters of rubber products who can bring in rubber equivalent of the quantity of rubber in the products exported (This is banned from February 1999);
- Special Import License (SIL), a facility which has been withdrawn;
- Import in the Export Promotion Zone and by Export Oriented Units;
- Under OGL in accordance with the SAARC agreement; and
- Under the Bangkok agreement with a duty concession of 5 per cent.

With quantitative restrictions completely removed, NR can be freely imported in to the country at will by the manufacturers as it comes under OGL. Unrestrained imports can, and do, depress the domestic market price of NR affecting adversely the livelihood security of the rubber growers who are overwhelmingly small holders.

Thus the removal of QRs and free access to domestic market is the single most important impact of WTO as far as NR is concerned. Other dimensions of WTO implications do not appear to be of significance to the NR production in the country. India is not an exporter of NR of consequence in the international market although the country exported a little over 13,000 tonnes during 2000-01 and nearly 7000 tonnes during 2001-02. NR production increases, at the same time did help curbing imports considerably thereby conserving foreign exchange when it was relatively scarce. Rubber products however have been an export earner (more than Rs.2150 crores during 2001-02) although only a small fraction as the Indian export. Sanitary and phytosanitary measures as it is not very threatening although certain stipulations are brewing which can impinge upon the

demand for NR the world over, but not restricted to India alone (this aspect will be discussed later).

1.5.5.3 Challenge and opportunities

Need for sustaining rubber cultivation: India ranks third in production and fourth in the world in consumption of natural rubber (NR) with 630,000 and 631,000 tonnes respectively. In India NR constitutes 79% of the rubber consumption against the global pattern of 59%. Automotive industry is the largest single consumer of NR with a little over 46% followed by cycle tyres and tube industry with 13% and the footwear nearly 13%. The rubber industry with a turn over of approximately Rs.15, 000 crores, annually producing over 35,000 products ranging from the tiny rubber band to the massive truck and aviation tyres, and employing nearly 400,000 workers is significant strategically and economically. The sustainable development of this industry depends upon on reliable supply of NR, the vital and critical raw material.

Given the present growth trends, both in NR production and dependent industry, the deficit in the availability of NR from internal sources, is estimated at 229,000 tonnes (ranging one fifth to one quarter of the consumption) against a production of 781,000 tonnes and consumption of 1,010,000 tonnes of NR by 2010-11.

The growth rate in NR production in the world has not been maintaining the same rate as in the previous years. Globally short supply of NR is forecasted in the years to come. One of the big league producers, Malaysia is moving away from the rubber sector. Production of NR has come down from the peak production 1.53 million tonnes in 1980 to 615,000 tonnes in 2000. (India overtook Malaysia in 2000 with a production of 629,000 tonnes). Thailand also is likely to follow the same trend. Indonesian production is hovering around 1.5 million tonnes during the second half of the nineties. Between these two countries 55% of the world production in NR is accounted for. Short supply in India and globally is forecasted. There are other factors also which contribute to these countries shifting away from rubber. The global trend in production and consumption indicates that chances of NR prices going down to very low levels are very limited and it is very likely that price regime will improve in favour of growers in the medium to long run.

Imperatives of continuing rubber cultivation in Kerala: For a number of reasons continuance of rubber cultivation is imperative for Kerala state. Majority of the land put under rubber, which incidentally is agronomically the most suitable for rubber cultivation being highly productive, is ecologically the most sensitive land in Kerala. By and large these lands are located in the foothill of the Western Ghats (the Malayoram agroecological zone). The physiography is highly dissected and endowed with very high rainfall (over 300 cm annually), incidence which together render these land highly vulnerable to soil erosion. Only perennial crops, which do not require seasonal and annual tilling alone, can be cultivated safely and sustainable, as disturbance of surface would result in severe soil erosion. Both coconut and pepper, the other two alternative crops, failed in this zone due to the incidence of diseases, root-wilt in the former and quick wilt in the latter. In addition, market for these commodities is far more vulnerable and unstable than rubber. Further, long term investment on a perennial crop can be economically attractive, if only a steady and secure return is inherent and ensured. Only rubber fits in with these criteria in this agroecological zone of Kerala. Another factor, which is significant environmentally, is that with the current level of replanting, 1 million cubic meters of rubber wood is produced annually in the process, which is

equivalent to having at least one half on million hectares of land under forests or wood/timber plantations. How significant this contribution to the environment and the economy in a country, which is extremely short of timber and short of land to put under forests, needs no elaboration. At present rubber cultivation provides livelihood security for over 9 lakh families who are overwhelmingly small and marginal growers and in addition 3.7 lakh workers. Every one lakh tonnes of import of NR tantamount to import of unemployment for one half of one lakh workers. Reference has already been made about the contribution to the state exchequer from this crop. All these reinforce the imperative of sustaining rubber cultivation in the state for the socio-economic stability of Kerala.

Providing a level playing field for the NR growers: Expectation of a reasonably stable income flow is crucial in taking investment decisions on perennial crops. Stability in market, both in terms of price offered and assurance of the quantity demanded is basic to providing stable income. Like the seasonal and annual crops, production adjustments either through acreage shift or productivity changes, in tandem with the market environment, is not possible in the short and medium and in the long run prove costly because of the long term nature of the crops (gestation period to start production and optimum use of the production potential) in the perennial crops. Sustainability of rubber cultivation in Kerala primarily depends upon ensuring a remunerative and relatively stable (free from uncertainties and vagaries of the market, especially in the domestic market) price regime, which was the key input in establishing rubber cultivation a success story in the country. For reasons of transient benefits of profits for the industry and the complacency arising from the present buoyancy of foreign exchange (when foreign exchange is short every tonne of additional NR production is equivalent to foreign exchange earned) should not be allowed to erode the strong base painstakingly built up over the past five decades since independence. Already the warning signals are there in this sector. The depressed price since 1997 have led many farmers to neglect cultivation, and even a few have been compelled to venture in to shifting their land to other crops. The annual replanting that averaged 7000 hectares all through the boom years of the nineties has dropped to 4500 hectares in 2000-01. Similarly new plantings declined from around 10000 hectares to 4000 hectares.

1.5.5.4 Strategies

The strategy therefore proposed is to ensure a relatively stable income to natural rubber growers in order to continue to stay in this enterprise by providing a level playing field vis-à-vis the international competitors by:

Firstly, securing a breather till the Kerala rubber growers are enabled to face the challenges in the future by making use of the provisions under WTO; and

Secondly, enhancing the competitiveness in the domestic market and even globally through:

Cost-effective productivity increases; and

Enhanced income through improvement of quality and value addition to the product

1.5.5.5 Recommendations

Short and medium term

1. **Raising Bound rate of tariff:** Reasonable stability in the domestic market for NR was largely made possible in the past due to import restrictions, and occasional market interventions through the operations of STC of the Government of India. With the removal of the QRs under the WTO regime and relative ineffectiveness of STC procurement operation under open licence regime (at best it could temporarily help hold the price-line but price tumbled because of the periodic off loadings which are necessary to get rid of old stocks rendering the, domestic market more vulnerable). The immediate remedy is to make imports of NR less attractive by making it more costly making use of the provisions available under AoA and WTO regime. But there are some constraints, which need to be overcome.

Steps should be taken by the Government of India to negotiate with the member countries to raise the Bound Rate of tariff for processed dry forms of NR (specified as smoked sheets and technically specified rubber) from the present rate of 25% (which is also the Applied Rate for import) to 40%. It remains inexplicable that the country agreed to a Bound rate tariff of 25% instead of 40% which should have been the bound rate, if the principle of duty structure that prevailed as on 1st January 1990 (60%) is taken the criteria for fixing the bound rate for industrial products, was followed. There are a number of convincing and justifiable arguments for putting at international negotiations, in favour of raising the Bound rate of NR. Most important is that the countries such as Thailand, Sri Lanka and China tariff lines for NR is 'Unbound', and in Indonesia and Brazil higher bound rates prevail. Within our own country-applied rate for latest is 70%, bound rates for synthetic rubber and reclaimed rubber is put at 40%, and higher bound rates (100-150%) and applied rates as well (40-45%) are put on other plantation crops such as tea, coffee and cardamom. Increase in the bound rate would definitely help making import more costly and thereby ensuring a level playing field to the growers.

2. **Recategorisation of NR category:** Mention has been made earlier that NR is classified under WTO regime as an industrial product and not an agricultural commodity. Concurrently with the efforts to achieve higher Bound rates of import tariff of NR, the first strategic intervention should be to bring NR under the AoA regime so that it is subjected only to relatively softer provisions as well as rendered eligible for protection that are applicable to agricultural commodities. (This proposal is discussed and argued at length in para 1.5.5.6 and hence not repeated. Further, this is one concern the Commission has suggested to the GOK to take up with the GOI for negotiation at Cancun). To sum up, considering the agronomic, managerial and socio-economic aspects of NR production there is a strong case to argue for re-categorizing this commodity as an agricultural commodity and bring it under the AoA. Plantation crops such as tea, coffee, pepper etc. are classified as agriculture commodities and the protection on account of this is relatively better. Consensus will have to be arrived at first with the NR producing countries especially the major players (Thailand, Indonesia and Malaysia together contributing three fifths of the world production), and subsequently with other members of the WTO. Further, in general the domestic industry is enjoying certain degree of protection and it is known that WTO Agreement on Subsidies and Countervailing Measures (ASCM) is not very kind to the domestic support extended. As NR is considered as an industrial product it is subjected to this rigorous treatment unlike an agricultural commodity, which is eligible for some protection under AoA.

3. **Use of WTO measures to protect from NR imports:** WTO regulation can also be used to provide protection the production in the country through measures such as imposing countervailing duty in lieu of the cess, imposing antidumping duty, imposing stringent quality inspection measures, insistence on importing only designated ports for the entry of the material to keep track of imports, are all could protect. There is pressure from the rubber-based industry, to include more ports for import, which has to be resisted in support of the domestic production on of NR.

4. **Participatory buffer stocking operations:** Market intervention operations through procurement and buffer stocking operations by the STC did make positive impact during the period prior to the removal of QRs. Holding the excessive stock temporarily from 3-6 months should be helpful to minimise a glut in the market and thus minimise the chances of a price fall. Given the relatively longer shelf life (rubber can be stocked for 6-12 months under normal storage facilities). The net-work of Rubber Producer's Associations, the cooperative marketing organisation and other farmers organisation are mobilised and brought into a consortium with support of the State Warehousing Corporation, the ETC, NAFED and financial institutions such as the Cooperative and Commercial banks it should be possible to organise a participatory buffer-stocking system which is economically viable and sustainable. (Refer to para 1.5.9.2 for more details).

5. **Export of NR:** It has already been argued at length that it is the transient surplus in the market created through imports has been responsible for the depressed price regime with adverse consequences to the livelihood security of the small and marginal NR growers. Given the oligosponic consumers (few consumers, especially the less than a dozen auto tyre manufacturers who account for nearly one half of the NR used in industry) who exercise command over stocks through centralisation at distribution points, small surpluses disastrously influence the price obtained by the growers. This is proved by the production-consumption balance prevailed during price depression period since 1997. Although consumption kept pace with production increases with only marginal surpluses of less than 10,000 tonnes (less than 2% of the production) in any year since 1997-98, the domestic price of NR did not recover from the precipitous fall after November 1997, primarily because of the annual imports of 20-30 thousand tonnes of NR. In order to strengthen the bargaining power of the grower's vis-à-vis the industry and to safeguard the manipulative elements in the market and thereby to provide a level playing field, the growers have to find a stable outlet. That is possible only though export of NR to the extent of 10-15% of the production (between 50-75 thousand tonnes) every year. It is true that India is not a traditional exporter of NR and all the traditional markets are already occupied by the major producers (Thailand, Indonesia and Malaysia). But there are several small NR consumer countries especially in Africa and Latin America, which should provide opportunities. Recent efforts, though desperate and belated, and with support from the State Government, and the Rubber Board, the Rubber Marketing Federation, have succeeded in exporting over 13,000 tonnes in 2000-01 and 27000 tonnes of NR during 2001-02 (till September).

6. **Continue the incentives for export of NR offered by the GOI:** Government of India have started a scheme to provide incentives for export of NR since 17th September 2001. This is to compensate the cost incurred for transportation, quality upgradation, quality certification, packaging which are all within the permissible support

under the WTO regime. The rate of incentive offered include is Rs. 3.50 per kg of sheet rubber, Rs. 4.50 per kg wet weight for latex, Rs. 5.00 per kg for crumb rubber. The above incentives are available to all exporters including those in the private and cooperative sectors. This incentive should be continued till the country is able to secure a stable footing in the export market so as to serve as leverage in stabilising the internal market prices.

7. Direct income support measures for NR: Kerala Rubber growers have responded handsomely to government efforts to increase rubber production. NR Production tripled not only through area expansion but also more commendably through productivity increase. One of the incentives has been making available a remunerative but also reasonably stable (fluctuating within largely seasonal fluctuations) and substantially compensating the commensurating cost of production increases through market interventions by the government about which a reference has already been made. The success episode of rubber is a contradiction in development experience. Notwithstanding significant productivity increases (nearly doubled within two decades) applying available technology, Kerala rubber growers are not able to compete with counterparts from major producing countries. That signifies that no just increasing production alone will not help to be competitive but cost-effective production would be. The much concern generally shown with high labour wages prevailing in Kerala does not fully explain the inability to compete as the labour wages in major producing countries. Thailand (33% of global production) and in Malaysia (8%) are very much high. Apart from the favourable biophysical resource endowments, especially rainfall distribution, one major factor that enables these countries to compete with India is the direct support extended to NR producers in those countries. For instance Thailand offers still substantial support for replanting. They are keeping the tariff rates unbound. Indonesia has kept the bound rate at the higher rate of 40%. On the contrary that the support extended as an incentive for adoption of technology for rubber has been scaled considerable from almost 100% in the late fifties and early sixties to 16% at present. The Indian NR producers are thus denied the level playing field. The Commission strongly urge that the support given for NR production should be continued. Similarly the reduction in replanting subsidy should also be restored. Resource crunch should not stand in the way in continuing this vital support. The needed resources could be found from the Cess collected by the Rubber Board, which is currently being used largely for production enhancement (and much of it is being under-utilised). The sector generates a cess of Rs.80 crores annually which has to be ploughed back for supporting scientific development during the post WTO regime. The burden of this cess falls ultimately on farmers although it is collected from the industry. The support for replanting can be interpreted a support for ecological preservation in a sensitive area. It could also be justified under WTO. It should be considered some thing like a capital investment support for industry or a substitute for infrastructure support extended to food crops.

8. Monitoring the support mechanism available with WTO regime: It is a fact that the developed countries have been subsidising the production sector heavily, particularly for infrastructure development, research and extension to achieve the present level of growth standards in an impractical time frame and adopt the polices prescribed by WTO. The predominance small holders in NR production are another justification for extending direct support measures as a compensation for imports that deprives them of income security. Direct measures are restricted and discourage under the WTO regime. This however does not mean that the Indian rubber plantation sector should be left on their own to fend for themselves, once QRs are removed. Definitely there is a chance of the marginal farmers being subjected to vagaries of fluctuating prices for which a

mechanism through interventions at appropriate stage have to be evolved. However there is need for relentless follow-up considering the fact most of the plantation crops are now dominated by smallholdings. Assistance is required for the small holding sector, considering the socio-economic relevance for building up of infrastructure to meet quality standards for which provisions do exist under the WTO regime too. One needs to closely examine the safeguard measures, which are available for protecting the domestic industry.

9. **Safeguard measures under WTO:** Safeguard measures can be applied to sectors, which are importing in excess of 5 per cent of the domestic production and rubber qualifies to be considered under this category for the safeguard measures. These provisions could be studied and gainfully utilised by coffee, tea and spices. Rationalisation of tariff and QR will definitely impact the industry. Even today though one is not extremely sure about the impact of this on a macro scale one can see definitely the challenges ahead.

10. **Ensuring participation in income security measure of the GOI:** Though WTO is not inclined to producer support schemes there are provisions under WTO agreement on Agriculture (Article 7 of Annexure II), which provides for government finance to participate in 'income assurance' and 'income safety net' to be exempted from calculations on AMS in the event of 30 per cent of income loss incurred by growers. The Commission takes note of the income assurance programme for the plantation crops proposed by the GOI and urge the Kerala Government to do everything necessary ensure the widest participation of the small and marginal rubber growers in the state.

11. **Creation of a price fluctuation fund:** It will be difficult to push up the prices by local measures alone when it is possible for the industry to import above a particular domestic price level. It may be possible only to bring about a price situation corresponding to the landed cost of imported rubber or marginally higher. It will be worthwhile to explore the possibility of a rubber prices fluctuation fund raising the corpus from the trade and industry as an additional measure or by earmarking a portion of the cess collected by the Board or from Government of India grants for the purpose. Similarly the state government can allocate some portion of purchase tax or surcharge for the fund to be used for support operations when justified. Kerala Government could be direct beneficiary as the revenues go up if the prices are pushed up.

12. **Do away with announcing Bench Mark prices:** The Government of India have been fixing Benchmark Prices of natural rubber from time to time. The latest benchmark price fixed was at Rs.3405 in September 1998. There is no mechanism available with the GOI or its arm the Rubber Board to ensure the Bench Mark Price when the NR prices goes below. That was the situation until April 2002. But it is possible that the dealers can be liable for legal action if a higher price is offered. Therefore the growers have not gained in any way. The Commission does not find any logic in continuing the exercise by the GOI and dispensing with this exercise be considered.

13. **Promote group action through Rubber Producers' Societies:** Though the small and marginal farmers dominate the sector, with the support of the Rubber Board, grass root level organisations the Rubber Producers' Societies (RPS) have already been formed covering about 30 per cent of the rubber growers. They are small groups of rubber growers registered under the Registration of Societies Act. They are largely self-help groups engaged in input supply, collection and marketing of latest, small scale

processing etc. The coverage has to be expanded and federated enabling to undertake more locally value adding activities, storage warehousing and marketing. They are to be developed as an alternative to the current oligopolistic market structure, which dictate terms to the buyers despite very favourable demand-supply situation in favour of the producers, which may not be continuing. Given the high level of education of the growers and the reasonable progress achieved in the institutional development at the grass root level, a better quality management process can be ushered in thereby meeting international standards and gaining entry into the international market. All possible support has to be extended by the State and the Rubber Board in addition to what is currently being done for human resource development, infrastructure development and investment needs in modernising the existing processing plants, value addition, storage, packing and also having access to information and getting established in the international market. Incidentally the support which the Government of Kerala is extending for facilitating procurement and subsidising handling charges by the cooperatives could be more productivity and sustainably used in assisting the RPS in building capability as an alternative to enter the market in areas identified above. The resources available for agricultural development the local self-government institutions (grama panchayaths and block panchayaths) especially those covering in the predominantly rubber growing areas are substantial which should also be canalised in support of institution building for rubber development. Considering that the production base involves a large number of small holdings sustainable development models need to be evolved with the involvement of all stake holders in a participatory mode, participation not only in decision making and policy formulation, but also in contributing to the investment for various activities to modernisation of the sector.

14. **Impact on the sector through import of rubber products:** The serious injury, which may be caused to the domestic industry perhaps, is through import of rubber products rather than raw rubber. This indirectly can bring down domestic consumption and affect the producing interests. Here again domestic industries need to improve quality and competitiveness to match international standards not only to avoid import of cheaper goods but also to maintain or increase its share in the international market.

15. **Strategic market information support:** Studies involving marketing strategies and providing market information will have to be augmented. Information generation, trend analysis and in general market 'watch' is required both raw rubber as well as rubber products and there is a compelling need for the Board not only to generate this information but for sharing this with all concerned and this would require strengthening the infrastructure for marketing and economic research available in the Board.

16. **Labour welfare to be seen in a positive way:** The labour welfare measures established in the state to be seen in a positive way as increasingly low labour wage advantage of the developing countries is being threatened with non-tariff measures with interpretation as abuse of labour. At the same time there is need to arrive at a consensus on bringing about commensurating cost-effectiveness for the NR production enterprise by competitive especially for the small producers to play in a level playing field. Similarly the management skills also need upgradation. The complacency, which has been prevailing needs to be shed, and all stakeholders in the enterprise have to become more professional.

Long-term measures

17. **Potentials and constraints for productivity enhancement:** In spite of the commendable increase in the overall productivity per unit of land there is still un-tapped reservoir of production potential. The technology gap has to be bridged as the potential is there is for increasing productivity by about 40 per cent at least, if not more. At least one fifth of the mature area yield less than a tonne per hectare. To make good the high cost of production further increase in productivity have to be achieved. Moreover for meeting the long term NR demand in the country, productivity increase is inevitable. There are limitations in productivity increase which depends on adoption of proper agricultural practices and in times of low price farmers are generally unwilling to invest further even for improving productivity. It also has to be recognised that a good percentage of the rubber growers are employed in other areas and rubber production is a part time activity for many of them.

18. **Cost-effective production:** Productivity increase would only partially helpful in facing the challenges of competition. Equally or increasingly significant is cost-effective production to compete in the market is capable of facing the challenges of competition. While NR production should receive support, the production should be cost effective for which research on cost reduction methods will have to be augmented. Rather than material inputs it is the agronomic and other management practices that are more rewarding in cost-effective production. Hence the Commission recognises that labour has an important role to perform in bringing about cost-effectiveness in NR production. The growers have to take labour in to confidence and recognise their role and contribution as a stakeholder, and the management has to be less confrontational and work towards enlisting workers cooperation through motivation and persuasion.

19. **Quality improvement for export competitiveness and augmenting income:** Improvement in quality along can bring about 10-20% higher realisation of price. About 40 per cent of the Ribbed Smoked Sheets (RSS) produced in the country belongs to 'upgraded quality'. The case is true for latest as well as Technically Specified Rubber (TSR). Growers have to move away from the conventional post harvest system leading to internationally acceptable standards. Far more infrastructure development and institutional building a required in the field for mobilising such activities considering the fact that the sector is predominated by small holders. Let more emphasis has to be given in modernising the existing processing plants, value addition, storage, packing and also having access to information and getting established in the international market.

20. **Increasing net farm income:** Competitiveness can be indirectly enhanced by increasing income from rubber plantations. By and large the opportunities available during the immature period through inter cropping a range crops from pineapple banana to tapioca and ginger are extensively utilised. Utilisation of rubber a by-product after completing one cycle of production is another opportunity for augmenting income. Commission's proposals are presented a little later in the discussion. During the mature phase attractively profitable inter cropping and under cropping are yet to be development and popularised. Apiculture is proved to be a profitable venture. A mature plantation is capable of generating 182 kg of honey per hectare that can yield a net profit of Rs.5000 per hectare. Despite such attractive profitability not even 2% of the area is utilised. Commission considers that it a priority to undertake a study to find the critical constraints in the widespread adoption of this practice so as to take remedial measures. Similarly it has to be examined why opportunity provided through production f rubber seed oilcake are not taken advantage of.

21. **Investment in productivity increase and cost-effective production:** Productivity increase and cost-effective production demand substantial investment both in the generation of the technology strategic areas such as reduction in immaturity period, enhancing the economic life span of the rubber tree, breeding for disease, pest and stress resistance to save on cultural practices. Far more aggressive replanting programmes have to be undertaken. Marginal areas have to be left out. The sector generates a cess of Rs.80 crores annually which has to be ploughed back for supporting scientific development in replanting.

22. **Promoting rubberisation of roads: Kerala to set an example:** One of the strategies for ensuring stable prices is to find new uses and establish demand of some massive scale for NR. One such opportunity is provided in road rubberisation. Use of bitumen mixed with 2-3% or rubber has been accepted the world over as quite useful for extending the life of the roads. The savings in maintenance more than compensates the extra cost of laying roads using rubberised bitumen and repair costs and roads are better in quality. The Commission has been informed that despite the instructions of Central Government to all States and national road making authorities to rubberise at least 10% of the road, none has accepted it. As Kerala has vested interest in the promotion of NR use, the Commission strongly urge the Government of Kerala should to set an example and demonstrate the potential to others by getting this instruction accepted and implemented by its own Public Works Department. Accepting the instruction thereby any one though lot of discussions have taken place there has not been any attempt from Kerala PWD to take up this.

23. **Competitive rubber industry: Imperative for sustaining NR production:** More serious injury is caused to the domestic industry perhaps is through import of rubber products rather than raw NR. This indirectly can bring down domestic consumption and affect the producer interests. Domestic industries need to improve quality and competitiveness to match international standards not only to avoid import of cheaper goods but also to maintain or increase its share in the international market. Concurrent with the increase in NR prices over time, the SR prices and NR based product prices grew at a faster pace. Therefore the argument that the rubber based industrial products becoming non-competitive because of the increase in NR prices is not justified.

24. **Promotion of Rubber wood as construction timber:** Rubber wood is a by-product as trees are to be felled after the economic life span of about 30 years, which in a way is perpetual so long as Kerala continues with rubber cultivation. More than one million cubic meters of rubber wood is annually available from the rubber plantations at the current level of cutting for replanting. Promotion of rubber wood as an eco-friendly material by reducing the strain on our depleting forests should receive priority. Rubber wood is extremely suitable for furniture and interior works and has a good market in USA, Japan, Europe etc. Therefore much of the effort in promoting rubber wood is currently focussed on high end uses such as high value furniture and fancy wood panelling. It is true that value addition is tremendous in this segment of the market as much as 1500% if we go by the experience of Malaysia in this area. Relatively this market is restricted in relation to the potential supply of rubber wood and the priority demand for wood in this country. The mass market lies in the area of construction timber (frames for doors and windows and other attendant uses for buildings both institutional and individual). It is to meet this demand that our limited forest resources (as well as that other developing countries in Asia and Africa who depend upon timber for earning foreign exchange thereby making our own contribution to the fast dwindling

irreplaceable tropical forests) have been put under great stress. It is in this vacuum that rubber wood should and can get in and ecologically make a valuable contribution. Then only on the one hand rubber wood performs an essential ecological function and an economic function of augmenting the income of the farmer. At present much of the massive use of rubber wood lies in low value earning packaging. Processed rubber wood can compete with most of the hard wood varieties available in the market for construction timber. A lower level of processing might be adequate to meet this demand and hence cost effective unlike high end uses which needs visual appeal requiring high-tech and expensive processing. Processing rubber wood for timber demands only low level of technology and low capital investment and hence can be location ally widespread and hence accessible spatially to a larger population of rubber growers. As rubber growing is spread through out the state, Kerala can capitalise on the locational advantage unlike other rubber-based industries. This is an area farmer groups such as the Rubber Producers' Societies can engage and help augment income. Then only Kerala can be the timber valley of India, which has to make substantial import of timber to meet its requirements. There is also need for measures for mitigating the social problems emerging in rubber wood extraction which if allowed to continue can stall one possible potential income enhancement opportunity for the rubber grower

25. **Develop value addition capability in Kerala:** Though India has one of the highest rubber industries of the world, (the position varies from 4th to 5th) and Kerala accounts for 94% of the NR production, the state hosts only 14% rubber-based industries. Kerala should develop its value addition capability in processing as well as in manufacturing activities. Domestic market also does not pick up and industries started, about 60 in number, are mostly sick. They do not have the required investment and expertise to penetrate the local or the world market. Kerala Government should examine the causes and devise measures to stimulate investment in rubber related value addition activities. Additional support to processors to improve quality and to obtain BIS/ISO 9000 certification will have to be provided and the support is to be given for both private as well as those in the co-operative sector. Studies on evolving marketing strategies and providing market information will have to be augmented.

Co-operatives engaged in trading and processing activities can be encouraged to take up manufacturing activities and funds from NCDC are available for this purpose. The interest of NCDC loans gets subsidised by the share capital contribution of the State Government. Special training programme and marketing support will have to be provided. Research and testing support are available from the Rubber Board at nominal costs. An all our programme for rubber based industrialisation with thrust on products for export containing more natural rubber than synthetic rubber is desirable. Malaysia has been doing it.

1.5.6 Tea

1.5.6.0 Tea in Kerala's economy

Kerala has a long tradition in tea production dating back to colonial times. Production of tea in Kerala is concentrated in the two high range districts of Idukki and Wayanad. The tea plantations are located in isolated and relatively remote areas as they are established in the high altitude areas of the Western Ghat. Substantial part of the estates are on government land (originally *sholla* forests and grass lands) and are on long term lease varying from 30 to 99 years. Kerala with an area of 37,000 hectares and 68,590 tonnes

of production in 2000 accounts for 8% of the area as well as production in the country. The estate sector predominates tea plantations in Kerala. The estate sector above 200 hectares accounts for 75% of the area and contributes 86% of the production in the state but constitutes only 2% of the production units. Around 4000 small growers having less than 50 hectares control only around 10 percent of the area under tea. Tea plantations provide daily employment to 98,000 workers and livelihood security to 10,000 small growers. Tea plantations employ relatively high proportion (50%) of women workers especially those on daily employment. Labour for working in the tea plantations, especially in the Idukki district are from outside the state, the neighbouring districts of Tamil Nadu traditionally and mostly resident.

Impact of changes in the national and global scenario: Even though the state's share in area and production of tea with around 8% is not very significant, Kerala's tea plantation industry cannot escape some of the basic transformations that are occurring in the tea plantation industry within the country, and the implications of global changes. India was reputed as the largest producer, consumer and exporter of tea in the world till the eighties. Tea was the largest foreign exchange earner for the country. Though not in quantity, the relative share of exports to total tea production in the country declined during the last two decades, from 40% in 1980 to nearly 24% in 1999. At the same time, the proportion of consumption increased from 60% to 76% (346 to 650 million kg). Export of tea declined from 224 to 190 million kg relegating India (13%) from the 1st to 4th position, only after Sri Lanka (21%), Kenya (19%) and China (18%) in that order. Tea thus is becoming increasingly a domestic market dependent commodity rather than an export oriented product of the past. On the one hand with the collapse of the Socialist countries, Indian tea industry lost a fairly sheltered market (even in 2001, India's share in tea imports to Russia and CIS countries was sizeable at 46% though declined from 53% over a decade), and on the other the switch over in trade from barter to currency, placed increasing pressure on quality improvement and competitiveness. Even though South India contributes only less than one quarter of the production, its share to export is more than one third. Put it in another way, South India exports one third of its tea production. North India exports only one fifth. Kerala's share in tea exports from South India is reckoned at 40 percent. About 44% of the tea produced in Kerala is exported. Naturally the survival of State's tea industry depends upon the quality improvement and greater competitiveness.

1.5.6.1 Crisis in tea plantation industry

Price fall: All through the first half of the nineties, between 1990 and 96, the price of tea (Cochin auction price as the standard) hovered around Rs. 40 per kg fluctuating within a range of Rs.35 and Rs. 45 per kg. The price rose to Rs.62 in 1997, peaked at Rs. 73 in 1998 and then started to decline to Rs. 62 in 1999 and Rs. 52 during 2000 and 2001. It declined further to Rs. 42 in Jan-Jun 2002. Thus even after one decade, the price of tea remained the same with all ups and downs during the period.

The rise and decline in price of tea during the second half of the nineties is a national and international phenomenon. The price of North Indian tea declined from 119 to 94 points (Base year 1995=100). South Indian tea prices also fell from 105 to 77. Even though the latter prices are always lower than the former, the South Indian tea fell by 12 points while that of North Indian tea only by 6 points.

The international price of tea (auction price) of all the nations increased from the base year (1995) and peaked in 1998 and then declined. But only the price of Indian and

Indonesian tea declined below the 1995 level. The price of tea of two major producers Sri Lanka and Kenya stabilised at 10 and 14 points respectively above the 1995 level, while that of India and Indonesia by 12 and 8 points respectively below.

Magnitude and nature of the crisis: While the prices were declining from Rs. 73 per kg in 1998 to Rs. 53 in 2001, wages increased from Rs. 59 to Rs. 76 so also the cost of other production inputs. There has been closures, failures in payment of wages, default in the payment of statutory obligations such as the remittance of provident fund, default of payment to financial institutions, owners abandoning estates, neglect of tea garden even refusal to harvest, demonstrations demanding relief, all signs of unprecedented distress in the plantation sector especially in the tea plantations which are better organised and better endowed. Plantation owners attribute drastic fall in income due to the drastic decline in the price (from a peak in 1998 to the level of 1990) and the increase in wages from the 1998 level by 30% more in 2001 to the failures in the plantations.

Crisis in the tea plantation industry was brewing: The crisis in the tea sector of the plantation industry in the state has been brewing for quite some time. It did descend suddenly. In productivity level Kerala is 20 years behind Tamil Nadu. The productivity of tea gardens is low which is around 1900 kg per hectare, while that of Tamil Nadu is around 3000 kg. Yield per hectare increased only by 26% during two decades, from 1481 kg in 1980-81 to 1865 kg in 2000-01. During the corresponding period productivity in Tamil Nadu increased by 50% from 2000 kg to 3000 kg. Apart from that the base production level itself is above 500 kg. In absolute terms the increase in Tamil Nadu is 1000 kg against Kerala's 500 kg. The poor state of agro management in the Kerala tea plantations is evident from the slow increase in productivity.

1.5.6.2 WTO implications

Tea along with coffee has been brought under the purview of AoA of the WTO. From April 2001, quantitative restrictions on the import of tea were removed. The bound rate for tea is 150%. The applied rate is increased to 100% (as on 01.03.2002). Prior to that import duty including surcharge was 44.13% plus Rs. 2.30 per kg. Provisions of PFA (Prevention of Food Adulteration) Act are being imposed on imports. Import of tea is restricted to the two designated ports (Kolkata and Cochin) under FTA (Free Trade Agreement) with Sri Lanka.

1.5.6.3 Challenges and opportunities

Inherently low productive land resource: The agroclimatic factors in the state, especially high rainfall and its uneven distribution with long periods of drought and steep terrain are inherently unfavourable to high productivity in tea. The undue stress on tea bushes arising from uneven rainfall and long drought lead to higher incidence of pest attack and its control adds to the cost of production. The inherent poor agro-climatic factor does not fully explain the differences in productivity increase in the slow growth in productivity.

High vacancy ratio: The vacancy percent in Kerala tea plantations is found between 20-30%, which is the highest in the country. The net effect, apart from soil erosion, long drought and of low density of bush population, is lower yield per hectare.

Over-aged tea bushes: Tea bush is the greatest asset in tea plantations being a crop with a long productive life span that extends to more than five decades. Kerala's relative

share of tea bushes which have surpassed the productive age (50 years and above) is 73%, against 42% of Tamil Nadu, 48% of West Bengal and 32 % of Assam. The problem of over-aged tea bush is further exacerbated in the Idukki district, which accounts for 68% of the tea area and is home to some of the largest plantations that exist in the state where the ratio is as high as 79%. Age of the plant is a crucial factor in obtaining due response to yield increasing inputs and scientific management. Bushes beyond 50 years of age respond poorly to quick yielding measures such improvements in pruning, plucking, balanced manuring and application of growth promoters, and even to medium term measures such as rejuvenation pruning. It is unfortunate that long-term measures such as replanting, modernisation of factories, augmentation of fuel-wood or other sources (solar energy) for processing, did not attract sufficient investment even during the days when the going was good. A NABARD study covering a sample of 24 estates found that replanting accounted for only 2% of the of total capital expenditure during the 10 year period between 1973-83. The cumulative effect of by passing/postponing the replanting/ replacement requirements are now manifesting and certainly exacerbating the present crisis.

Higher cost of production: It is true that the unit cost of production of tea in Kerala is higher than other states. Partly because wages are higher in Kerala in comparison with other competing tea growing states in the country and partly due to the low productivity per unit of land put under tea.

Value addition and packaging: The primary processing and marketing of tea have a very crucial role in achieving higher realisation of the price to the producer. Traditionally and legally (according to the provisions of Tea Act) tea produced in the estates are sold at periodical auctions held at designated centres. Cochin, Coimbatore and the Coonoor are the auction centres through which the tea produced in South India is disposed of. Apparently it is a transparent system with the participation of both growers and traders. Tea is sold to consumers in two forms, 'loose tea' and 'packaged tea' only (40%): the latter consumed by the low-income mass consumers and the latter by middle and higher income groups. Even though the 'loose tea' market is larger (about 60%) than the 'packaged tea' market (about 40%) it is the latter set the price. Because in the former a large number of traders are involved while only a few established big players are operating in the latter. In a sense monopsonic situation exists in the 'packaged tea' market. More than half (55%) of the market for packed value added tea is controlled by just two giant companies. Quite often the marketing companies have substantial interest in production also as they own large plantations. The price differential between consumer price and what the producer gets is very substantial between the two markets. In case of loose tea the consumer pays about 70%, while in case of packaged value-added tea between 120-300 percent, more than of what the tea producer gets.

Direct marketing: A recent experience is revealing. Making use of the interim period from court injunction in 2001, some producers got engaged in direct marketing (a system practiced by many big estates until the sixties with their own brand images such as the Kannan Devan Hill Produce Co. Ltd.) who were able to secure a much higher share of the consumers' price. This indicates that direct marketing can help increase income (the loose tea market is a great potential opportunity and secondly the need for abrogating the Tea Control Order of 1984 that restricts the sale of tea only through auction centres only. This can help only a few of those participating in the tea auctions while a vast number of traders are not participants.

Quality improvement and factory modernisation: At the auctions, Kerala tea fetches the lowest price in the country on account of poor quality compared to tea from other states. While tea from some of the modern factories in Kerala commands the highest price in the auctions indicating the potential advantages associated with quality improvement and high returns to investment in factory modernisation. Factory modernisation is expected to serve three purposes: increasing net out-turns of 'made tea'; reduction in cost of manufacturing by adapting latest technology, and increasing installed capacity.

Primary processing and value addition: The strategy for the primary processing and value addition for Kerala tea has to be designed in the context of a growing domestic market with stiff competition and niche market for the value added forms such as the packet tea, tea bags and instant tea. Already a few leading companies in the state have started producing value added forms of tea both for the domestic and export markets. However, the entry cost for brand development is prohibitively high for individual estates to bear. Therefore a consortium approach is imperative to even out the cost of marketing.

Institutional constraints: Apart from the agronomic and economic problems of tea plantation industry in Kerala, there are also quite a number of institutional constraints which include those related to taxation both in incidence and collection, land policy that inhibits diversification in the context of restructuring and access to fuelwood which imposes limitations on processing, ecology of the fragile lands in which the plantations are established, labour management and productivity, supply of electricity, access to credit especially the terms, and the absence of an effective mechanism that can liaison with the various agencies of the State governments whose policy decisions are very critical to the long term sustainability of the tea plantation industry in the state.

Import for reexports and loss of market for Indian tea: Even though India produced over 846 million kg of tea and exported nearly 205 million kg, the country imported 13.4 million kg in 2000 at an average unit value of nearly Rs. 56 per kg against the domestic price of Rs 62 and export price of Rs. 92. In 2001 the import increased to 16.6 million kg at a unit price of Rs. 63 kg against a domestic price of Rs. 62 and export price of a little over Rs. 89 when the country produced nearly 854 million kg and exported nearly 180 million kg. Indonesia, Vietnam, Kenya and Sri Lanka are the principal countries from which tea was imported. Among the countries Indonesia's share of import increased from one third to one half while Sri Lanka's share declined from one third to one quarter. The imports constituted only 1.5% of the production 7% of the exports in 2000, and 2% of the production and 8% of the export of tea in 2001. Hence imports apparently may not have had an adverse impact on the domestic prices of tea in India. Import of tea was being allowed even before the removal of quantitative restrictions for the specific purpose of reexports and earning foreign exchange through value addition (euphemism for simple repackaging). In the absence of any minimum limits for value this provision is being misused by trading interests through importing cheap and low grade tea from other countries and after 'value addition' is reexported to India's traditional markets where Indian tea holds a premium. The adverse implications are two fold. First, the Indian tea Industry is finding it difficult to dispose of the surplus. Second, the dumping of low quality imported tea, as Indian tea would lose permanently India's market, which has been built painstakingly over the years. It is in this context it is significant to note that in the international market Indonesian tea is quoted one quarter to one third of the Indian tea and hence must be of lower quality. And India's import of tea (lower quality tea) is on the increase.

1.5.6.4 The Problem and the Strategies

The Problem: The emerging picture of tea industry in Kerala with the highest cost of production in south India is entangled in a vicious circle of low productivity, low income and low investment. The inability of the tea plantation industry to compete in the domestic as well as international market, as a consequence on the one hand due to the inherently low productivity and ecologically vulnerable resource base, and other the shrinkage on income as a result of the squeeze between high cost of production and low prices.

The ownership of the plantations is mostly vested outside the state, in the colonial times with sterling companies and subsequently with Indian companies registered outside the state. The basic organisation structure and ownership pattern impose constraints on the manoeuvrability and limitations on the leverage of the state for interventions when called for as it is happening with the continuing crisis through which the tea plantations are undergoing. At the same time the state government is called upon to carry the burden and liabilities that fall out from the crisis.

Strategies: In order to redeem the tea plantation industry in Kerala from the abysmal crisis to which it has fallen, an integrated strategy consisting of both short term and long-term measures is called for. Immediately remedial measures are to be taken to provide relief to the workers, and support by the governments of the state and the centre. In the medium to long term, marketing reforms are needed to ensure a greater share of the consumer's price and replanting and rehabilitation to increase productivity. The Commission is convinced that tea plantation industry in the state should not be seen just as another economic activity or land use. It has to be seen as a social and ecological commitment considering the sole dependence on the livelihood security of a large number of workers and their dependents of the present generation and the extreme deprivation, their forefathers have undergone to establish and sustain them; and the ecological protection this endeavour to an extremely sensitive and fragile ecosystem.

1.5.6.5 Recommendations

1. Immediately workers and their dependants engaged in the tea plantations should be given direct food relief under the Sampooran Grameen Rozgar Yojana, which can partly be adjusted as wages. The same can be used for rehabilitation of the plantations in taking measures for improving the land by undertaking soil and water conservation measures and gap filling by planting in vacant spaces.
2. The owners of tea estates are given debt relief support by the institutional financing agencies including commercial banks by way converting short-term loans to medium term loans and postponement of long-term loans.
3. The debt relief measures should include support to pay up the commitments due to the workers including payment of wages, statutory obligations such as remittance of provident fund and for which the Government should give guarantees to the financial institutions.

4. Explore the possibility of increasing income to the estates including tourism so that the decline in income from tea production could be made good. Such initiatives are recommended by the Commission not at the cost of tea production through diversion of land and retrenchment of workers, but only as a supplementary source of income and employment.
5. Government should extend tax remissions as well as leisure payments, to the estates (something like a debt swapping) that are willing to fulfil the obligations to the workers, and commit investment in rehabilitation and replanting of plantations.
6. The operation of the Section 17 of the 1984 Tea Control Order should be stalled until at least there is reasonable improvement in the tea prices; and modify and if possible abolish the order so that the producers have the freedom to sell their produce in whatever manner they find it profitable to dispose of so that a greater share of the consumers price could be secured. Given the kind of monopsonic situation with dominance of a few tea packaging and blending companies prevailing in the tea market, only the traders can benefit and not the producers. (The price leadership of the packers and blenders adversely affect the producers in the loose tea segment of the market).
7. The tea producers especially the small ones should be encouraged and supported institutionally and financially in undertaking ventures which enable them to market tea directly to the consumers through small tea traders and provision store owners.
8. The Commission takes note of the recent initiative of the GOI in creating a mechanism for the price fluctuation experienced in the tea industry.
9. Of late tea imports have increased and much of them for reexport. Considering the fact that such reexports cut into the tea market of India abroad and only helps the trading interest at the expense of the nation and not that of the producers. Urgent measures should be taken to prevent abuse of this provision. Having QRs removed under the AoA, no import restrictions are possible. But the duty regime can be used effectively to restrain imports by making it uneconomic. One such measure the Commission suggests for action by the GOI is to make such imports by insisting that value addition is not less than the applied rate of prevailing import duty. Another measure is to insist on quality of the tea used for exports, which are comparable to Indian tea. Further, quality assessment should be given to the officials of the Tea Board instead of the current practice of inspection being done by the officials of the Customs department. The former are better equipped and more experienced than the latter in assessment of quality sensitive commodities such as tea. Given the buoyancy in the foreign exchange reserve the nation can afford to forgo such miniscule accretions to foreign exchange earnings of the country.
10. Government of Kerala in collaboration with the Tea Board and the financial institutions especially NABARD should take the initiative in setting up a Rehabilitation Revolving Fund for making available long term credit for the relief and rehabilitation of the estates and renovation of the tea factories so that on the one hand it would help improve the productivity directly and indirectly as well, by enabling the tea bushes to give higher response to yield enhancing agronomic measures such as pruning; and on the other improvements in quality. (The latter is important, as the quality of tea processed in the state needs considerable improvement to fetch better prices). As in the case of Rubber Board a part of the Excise and other duties levied on tea should be set aside and also enlarging this fund by the GOI. Tax reliefs given by the State Government could be

tied up to rehabilitation and replanting as an incentive. Assistance available under various land and water conservation and management, and forestry programmes of the government could also be pooled to enhance the resource pool of this fund.

11. The tea plantations should either be considered as either an industrial or agricultural enterprise. At present these enterprises are at the receiving end of both. If it is considered as an agricultural activity (which it is but for the organisation in terms of the extensive hired labour) it should be eligible for concession for inputs such as the electricity and credit at the rates levied to agriculture. If industry it is only legitimate that taxes are levied as applicable for industries. Being still a significant foreign exchange earner, tea plantations should be made eligible for all the support given to such enterprises, which earn foreign exchange.

12. Increasingly at a faster pace the compounding of agricultural income tax should be implemented. This will on the one hand would alleviate much of the hassles involved with tax compliance and on the other, will provide as an incentive to increase productivity and income as incidence this tax would be treated as yet another item of fixed cost (comparable to share rent and fixed rent under tenancy).

13. The Central and State government including the local self-government bodies together should take a second look at the taxation structure and the incidence of taxes on tea plantation enterprise. The tax system and its incidence should facilitate and induce investments in this sector, which is badly in need of.

14. The basic fact remains that the productivity of Kerala's tea plantation is low, the productivity growth is slow; and the response to productivity enhancement measures in the short and medium term is low, because of the very high proportion of bushes as much as nearly two thirds is past beyond the productive age. The low productivity syndrome have to be seen in the right perspective while analysing the causes of the present crisis which is deepening day by day, in order to help take sustainable mitigation measures. The issue of enhancing labour productivity and introducing productivity-linked wages do not imply any operational level significance unless commensurate increases are achieved in yield. The State Government should take the initiative to bring together the workers and owners in this sector to arrive at a consensus on mutually matching obligations and commitments on the measures required for increasing the productivity of land, management and labour and cost reduction for the long term sustainability of the tea plantation enterprise in the state.

1.5.7 Coffee

1.5.7.0 Coffee in the economy

Coffee in India: India accounts for about 4 percent of the world production and export of coffee. India's coffee production stood at 301 thousand tonnes in 2000-01 of which two thirds constituted Robusta variety and one-third Arabica. Coffee production increased by one third from 223 to 301 thousand tonnes during the last five years between 1995-96 and 2000-01. Production of Arabica is almost stagnant at 104 thousand tonnes during this period while that of Robusta increased by nearly 60% from 120 to 197 thousand tonnes. Arabica fetches a premium price of one quarter to one third over Robusta, both in the domestic and international markets. Arabica is used for direct consumption while Robusta is preferred as a blend and value addition processing such as

instant coffee. Most of Robusta produced in India is exported while Arabica is preferred for internal consumption. India exported 247 thousand tonnes of coffee valued at Rs. 1377 crores in 2000-01. Though export declined during 2001-02 to 209 thousand tonnes valued at Rs. 1033, still coffee continues to be a significant foreign exchange earner.

Kerala's share: Kerala's share comes to nearly a quarter of country's production of coffee with 71 thousand tonnes in 2000-01. During 2000-01 coffee occupied about 84 thousand hectares in Kerala against 340 thousand hectares in the country. In Kerala coffee is grown mainly in the Wayanad district, which accounts for 80% of the area and production and the rest is mostly in Idukki district. Robusta variety of coffee accounts for 95 percent of the area under coffee, and 94 percent of the production in the state. Productivity of coffee in Kerala increased phenomenally from 278 kg in 1991-91 to 833 kg in 2000-01 per hectare narrowing the gap with Karnataka from one half to a quarter.

Coffee in Kerala a small growers crop: Coffee is predominantly a small growers crop in Kerala. In 1990-91 about 93 percent of the 76400 coffee holdings in the state accounting for 89 percent of the 68300 hectares under coffee, was two hectares and less. Only 134 holdings with the average size of 55 hectares were above 20 hectares then, which together accounted for only 11 percent of the area. The situation is unlikely to have changed since then.

Coffee exports: During the second half of the nineties, export accounted for 77 to 84 percent of the production. Coffee is a highly export dependant crop and hence is susceptible to the vicissitudes of the international market both in demand and supply, especially the latter.

1.5.7.1 Price fall and crisis in the coffee economy

Price fall: The domestic price of coffee in the country steadily increased from Rs. 27.85 in 1990-91, jumped to Rs. 79.79 and ruled high to reach the all time high of Rs. 95.37 in 1997-98. Since then the decline has been continuous, between Rs. 10-20 per year, and paused around Rs. 49.83 during 2001-02. The fall in price of coffee was far more devastating in Kerala and causing far greater distress as the Robusta prices are always lower by 20-25% than Arabica. The price of coffee received by growers in Kerala declined to Rs. 59.91 in 1999 precipitously to Rs. 28.54 in 2001 and further to Rs. 26.36 during the first half of 2002.

The primary cause for the drastic decline in Indian coffee prices is attributed to the fall in world prices of coffee experienced during the period, as coffee being a predominantly export market dependent commodity. The world prices of coffee 'Other Milds' declined from the high of US\$ 1.85 per pound in 1997 to US\$ 0.62 in 2001. For Coffee Robusta the price of around US\$ 0.82 per pound that prevailed during 1996-98 period, declined drastically to US\$ 0.28 in 2001. One of the reasons for the decline in world prices is the increase in production from nearly 96 million bags (5.8 million tonnes @60 kg per bag) in 97-98 to 115 million bags (6.9 million tonnes) in 1999-2000, even though declined to 109 million bags (6.5 million tonnes) in 2001-02. What is remarkable has been the emergence of Vietnam as a major player within a short period of four years from a production of 6.7 million bags in 97-98 to 14.8 million bags in 2000-01, accounting for 11.5% of world production, overtaking Columbia (10.5 million bags). (Brazil still is the leader, accounting for 26% of the world production). The drastic rise in price in 1997 was also due to the decline in production of Brazil from 27.6 million bags in 1996-97 to 22.7 million bags in 1997-98. And the drastic decline since 1998 has been due to the

Brazilian recovery from 22.8 million bags in 1997-98 to 36.6 million bags in 1998-99. Although India is not a major player in the world coffee market with relatively a small share of around 4 percent in production, country's heavy dependence on exports (three quarters to four fifths of the production) renders it highly vulnerable to the international market.

1.5.7.2 Implications of AoA

Along with tea and cardamom, the AoA covers coffee. Quantitative Restrictions on imports (QRs) have been removed since April 2001. The tariffs on coffee imports have increased to 100% since March 2002. The PFA standards are being imposed on imports.

Strategy

1.5.7.3 Challenges and opportunities

Combined impact: Almost all coffee produced in Kerala being Robusta and much of it is exported, Kerala's coffee is more vulnerable to the international price regime. It is one commodity in which the price fall has been dramatic to the extent two-thirds of the peak level (from 1998 to 2002). The predominance of small growers, sensitivity to seasonal climatic conditions (occurrence of timely pre-blossom showers is very critical to yield) and the fragility of the resource base of the coffee growing areas, aggravate the distress and erosion of livelihood security of coffee growers, arising from the price fall.

Devastation of the inter-crop pepper: Small growers of coffee sustained the livelihood and farm income through intensive use of land resources at their command. Coffee is grown on the slopes while the valley bottoms are converted to paddy lands. Inter cropping of coffee with pepper, a mutually compatible system, is quite extensively practiced in Wayanad following the devastation of oranges due to the spread of citrus die-back disease. Many coffee growers have put the valley-bottom land to arecanut, and some to cardamom. (Off late extensively banana is grown, if already the land is brought under any perennial tree crop such as arecanut). The incomes generated from these crops supplemented substantially the farm income of small coffee growers. The devastation of the pepper consequent to the spread of Quick-Wilt (Phytophthora foot rot) disease of pepper, and the fall in pepper prices as precipitously as that of coffee from around Rs. 190 per kg in 2000 to Rs. 70 in 2002 per kg, have greatly dented the income levels of the coffee growers. Almost concurrently with the decline in coffee prices, Betel nut (processed arecanut) prices also fell drastically from around Rs. 104 per kg in 1999 to Rs. 35 in 2002 per kg, which further accentuated the distress of the coffee growers in the state. The rising cost of production including labour wage, which is substantial in coffee production, especially in picking; and declining product price have put tremendous squeeze on the farm incomes of coffee growers.

Demand for coffee: Unlike tea, the mass consumption of coffee is confined to the southern states especially, Karnataka and Tamil Nadu. Domestic demand for coffee might increase to the extent of population increase in the southern states and to income and urbanization in the northern states. Value adding enterprises such as instant coffee have already come to stay in the Indian market. The other possibility of expanding the demand is that of finding out more products based on coffee such as toffees. Active promotional efforts in this direction might yield some beneficial results in increasing the consumption of coffee.

1.5.7.4 The strategies

Bridging the supply-demand gap: The basic challenge facing the coffee plantation industry in the country and in the state as well, is that of managing the surplus in production. Two options need to be considered: first reducing production, and second expanding the demand for coffee. In the immediate context, it would not be possible to reduce production either by minimizing material inputs and agronomic management practices, as such interventions would have deleterious impact on future yield, and the cost for subsequent recovery would be higher. Reduction in acreage is not immediately possible being a perennial crop. By increasing domestic consumption, and enhancing export by acquiring a greater share in the international market, demand for coffee could be increased. Domestic consumption of coffee could be increased in traditional coffee consumption areas by reducing the price and in the non-traditional areas through promotional efforts. Considering that coffee price has touched the rock bottom, further reduction in price is not possible. On the export front also, lowering the price further does not appear to be feasible for sustaining coffee production in the country. Almost all coffee produced in Kerala is Robusta, which is used for blending and manufacturing products like instant coffee. Hence there could be some possibility of expanding export to the world market with appropriate promotional efforts.

Improving total income of coffee plantations: The alternative available for supporting the livelihood security of the coffee growers, is to increase farm income by enhancing productivity through cost effective measures, and augmenting income from land under coffee through intensification as well as diversification of land use. In either case, both are medium to long-term measures.

Diversification: For the long-term sustainability of coffee production in Kerala, coffee has to be made competitive. A major intervention proposed is to confine and promote coffee production only to highly productive areas. Coffee areas and lands within the areas, marginal to economic production should be taken out of coffee cultivation. Lands so released could be put to diversified uses for which the coffee areas which are mostly located in the mid-altitude zone of the Western Ghat region in the state. Already dairy production based on high yielding crossbred cattle has taken strong roots. Land that could be released from low yielding coffee production is highly suitable fodder for production. In combination with high yielding crossbred cattle, fodder production can sustain cost effective milk production in these areas. Organic coffee production could be added to the product basket. The cool subtropical climate offers excellent opportunity for the production of winter vegetables, the demand for which is largely met currently from supplies far distant from the consuming centers of the state. The cool and high altitude sunshine provide ideal environment for the production of subtropical flowers including roses. With international airports located within 100 km quick access for export of flowers is facilitated.

1.5.7.5 Recommendations

The crises coffee and tea production facing in the state have several similarities in production. They include supporting resource base (both occupy areas under similar physiographic characteristics, rainfall but for a change in the altitude the former occupying higher altitudes and latter lower elevations but endowed with relatively cool subtropical environment), agronomic management (perennial and mono crops), production organisation (significant employment of wage labour), marketing (public auctions), etc. Both are managed by Commodity Boards of the GOI. Research,

development and extension are outside the mandate of the State government. Major difference is that tea is domestic market oriented while coffee depends significantly on export markets. The crisis in coffee is far deeper as the price fall has been far steeper. Growers engaged in coffee production are predominantly small and hence they are far more vulnerable, and their reserve and holding power against economic adversities are relatively weak. Therefore the recommendations and remedial measures proposed are comparable except that they be tailored appropriately to suit the specific context of coffee production. Briefly they are recapitulated.

1. Direct food relief under the Sampooran Grameen Rozgar Yojana, immediately to workers and their dependants engaged in the coffee plantations which could be used as part wages and undertaking land improvement, rejuvenation, rehabilitation and replanting;
2. The owners of coffee plantations be given debt relief support by the institutional financing agencies including commercial banks by way of converting short-term loans to medium term loans, and postponement of long-term loans and enable them to fulfill statutory obligations to workers;
3. Support for promoting of ecotourism as part of augmenting income and not replacing coffee production.
4. Grant of tax remissions and relaxed payments tied to fulfilling obligations to workers and commit investment in rehabilitation and replanting of plantations.
5. The Commission takes note of the recent initiative of the GOI in creating a mechanism for the price fluctuation experienced in the plantation industry, which is also applicable to coffee.
6. Creation of a revolving fund as proposed for tea production with the participation of the GOI through Coffee Board, NABARD and the GOK with commitment for annual replenishment. The fund could be used for long term investment for rehabilitation, replanting, diversification and facilities for processing of berries into beans;
7. A systematic rehabilitation of coffee plantations taking the entire land resource of the coffee grower as a unit to maximize sustainable income, which might include activities:
 - Gap filling
 - Replanting old, unproductive, moribund, diseased, low productive (which not amenable to yield increasing management practices) coffee bushes with disease tolerant and high productive planting materials;
 - Intercropping with pepper or other appropriate crops;
 - Diversification of land marginal to coffee production limited to agricultural production such as
 - fodder based dairy livestock production;
 - sub-tropical vegetable production;
 - Subtropical flower production; and
 - Agroforestry trees for timber, pulp and fuelwood.

8. Special projects for dairy production, sub-tropical vegetable production and sub-tropical flower production integrating coffee production might be formulated and implemented.
9. As proposed for tea production, coffee plantations should be considered either an industrial enterprise or agricultural enterprise for all purposes including extension of support services and taxation.
10. Compounding of agricultural income tax be extended to cover all coffee sizes of plantations.
11. Review of the taxation system as proposed in case of tea on the same logic;
12. For the long term sustainability of the coffee plantation enterprise in the state it is recommended that the Government of Kerala might take the initiative in bringing together the workers and coffee planters owners to develop a consensus on mutually matching obligations and commitments on the measures required for increasing the productivity of land, management and labour and cost reduction.
13. Withdrawal of the Coffee Board from the development activities has created a vacuum in the extension support system in the coffee growing areas. No alternative extension system has been put in place. This vacuum might be filled by including coffee in the mandate of the Department of Agriculture and assuming responsibility for extension and development activities for coffee in the state. Support services could be extended by the local self-government institutions also in coffee areas (Wayanad and Idukki districts).

1.5.8 Cardamom

1.5.8.0 Cardamom in Kerala's economy

Cardamom in Kerala, at least a substantial part, is grown on lands, which were once forests and known as Cardamom Hills Reserve, administered by the Department of Revenue, found in the present day Idukki district. The government granted forestlands on long-term lease to growers. They were given the right to cultivate cardamom but with the obligation to retain the tree vegetation. Trees provide the shade, which is considered vital for the healthy growth of cardamom. Cardamom cultivation in Kerala is concentrated in the high ranges spread over in the districts of Idukki (80% area), Wayanad (10%) and Palakkad.

Kerala with an area of 41,000 hectares and 7555 tonnes of production in 2000-1 accounts for 56% of the area and 72% of the production of cardamom in the country. Karnataka with half the area and one-fourth production of that Kerala is the other major state engaged in cardamom production. Kerala's productivity with 130 kg per hectare is almost twice as that of Karnataka, although considerably lower than the major cardamom producing country in the world, Guatemala.

Estate sector is very significant in cardamom cultivation. There is concentration in the ownership of cardamom plantations. There are 154 estates above 20 hectares, which account for one third of the area (15,356 ha) under cardamom; while 15,307 units, which

are below 2 hectares with an average size of 0.82 hectares accounts for less than one third of the area (15,307 ha). Medium sized units numbering 3932 ranging in size between 2-20 hectares cultivate one third of the area (15,656 ha). There were 20,003 units in the state engaged in cardamom cultivation, which together covered 44,237 ha in 1994-95. The pattern of ownership may not have changed significantly since then.

It is estimated that besides the large number (about 20000) of small holders, about 17000 workers are also employed in cardamom cultivation.

1.5.8.1 Price movement

Cardamom is the only one among the plantation crops, which did not experience price fall since the mid nineties and consequent distress for growers engaged in cardamom production. Between 1996 and 2002 the price of cardamom doubled from Rs.309 to Rs.688 per kg.

During the past two decades, cardamom moved from an export dependent to a domestic oriented crop. During the late seventies and early eighties India produced between-4000-4500 tonnes of cardamom and the export ranged between 2300-2900 tonnes. The proportion of exports ranged between 50-60 percent of the production. By late nineties not only the proportion declined to 10 percent but also in quantity to 100 tonnes even though production increased by half to about 7000 tonnes. India's only significant competitor in small cardamom is Guatemala. Not only that, Guatemala is currently producing 50 percent more of India's production. Currently Guatemala accounts for ninety percent of cardamom exports in the world.

1.5.8.2 WTO implications

Along with the other plantation commodities tea and coffee, cardamom also has been brought under the purview of AoA of the WTO. From April 2001 quantitative restrictions on the import of cardamom has been removed. The bound rate for cardamom is 108%. The applied rate is placed at 70% (as on 01.03.2002). On the basis of the performance of cardamom in production and marketing, the obligations under AoA do not call for any serious concern for cardamom in the short run, as the ruling prices are attractive, and both production and productivity have increased.

1.5.8.3 Challenges, opportunities and strategies

In spite of the high prices export is expected to increase. The boom may last a couple of years more until at least Guatemala production recovered. Even if Guatemala recovered, demand may not be a restraining factor as the domestic market is expanding. Production potential is far greater than the current levels. Productivity can even go up to 1000 kg/ha against 300 kg/ha of the present.

In the long run there could be difficulties not as much due to market factors as due to ecological factors. Firstly, cardamom plantations occupy one of the ecologically most sensitive area, the slopes and highs of the Western Ghat. Secondly, most of the cardamom plantations, especially the larger ones, are located on the original forest areas. Cardamom is grown under shade of trees after clearing the under-growth. Plantings are done after clearing the under-growth. Subsequently under-growth is kept in check as part of controlling weeds. While doing so not only the shrub and grass vegetation are destroyed but also the later generations of tree community which provide the shade and

protection to cardamom plants, as well as the much needed fertility building and moisture retaining organic matter also. Such continuous cultivation lasting decades has nearly deprived the land of the younger generation tree growth, which is expected naturally to grow and replace the older ones as they get aged. In the absence of replacement, the original tree growth has become moribund and dead leaving wide gaps. The result is lack of protection from sun, and exposure to the fury of rainfall and consequent soil erosion and resource degradation.

The situation is compounded by the land tenure system of long-term lease under which the lessee has no obligation to maintain the productive potential of the land including regeneration of trees. Obligation is limited to preservation of the trees.

This area is also home to several tribal communities. Natural forests and wild life sanctuaries about on to these lands. There are several competing claims on these lands.

Cardamom provides several advantages to Kerala. The state is dominant in cardamom production in the country. The other players are Karnataka and Tamil Nadu. Productivity is relatively higher in Kerala. It is a crop of promise as the domestic market is substantial and expanding. Productivity levels are low leaving enormous scope for improvement.

1.5.8.4 Recommendations

1. Notwithstanding the boom both in demand and price, investment in improving productivity through replacing moribund and diseased plants, and replanting high newer high yielding and disease tolerant clones, is needed. An intensive and time bound programme has to be put in place for the rejuvenation and replanting of cardamom plants.
2. Top priority should be given for a programme for restoring tree vegetation in cardamom plantations. Restoration of vegetation and measures to sustain the productivity of land should be made obligatory while leasing land for cultivation.
3. Technologies that take a holistic view of the cardamom land ecosystem rather than just cardamom plant per se as is currently focussed, are to be evolved. Evolving agro-forestry techniques in support of cardamom cultivation on the cardamom lands is a priority area of research.
4. Environmentally safe technologies (less pesticides, fungicides and weedicides) are to be promoted and encouraged especially in the context of increasing export prospects. Promotion of vanilla as an opportunity may be encouraged. Solar driers be popularised to improve quality of cardamom.
5. The Telecherry Extra Green Bold (TEGB) cardamom is unique to Kerala. Immediate steps be taken to get it identified under geographic indicators.
6. The inadequate extension support may be made good by bringing cardamom also under the mandate of the Department of Agriculture.
7. A holist review of the institutional frame work including leasing, management, control and regulatory mechanism, legal status, technology, development for the sustainability of cardamom lands, whatever be the form of public domain, is urgently

called for. Conservation, preservation and sustainable use of the cardamom lands is a developmental imperative for the state from economic (a crop of opportunity), social (dependent 20000 holdings and 17000 workers and their livelihood) and most important of all ecological security (sensitive and fragile resource base, land and natural vegetation, upper catchment of major river basins).

1.5.9 Livestock products

1.5.9.0 Livestock in Kerala

Kerala sustains a livestock population (Data refers to 1996 Livestock Census to which only data are accessible) of 55.76 lakhs, of which cattle counted 33.96 lakhs, buffalo 1.65 lakhs (bovines together 35.61 lakhs), sheep and goats 18.66 lakhs and 'others' 1.49 lakhs; and in addition a poultry population of 269 lakh birds. In 1998-99 the state produced 24.20 lakh tonnes of milk, nearly 40000 tonnes of meat and 2044 million eggs ensuring per capita per day availability of 208 gm of milk equalling the national average of 207 gm, 9.9 gm of meat and 64 eggs per capita per year surpassing All- India average of 31 eggs. Main feature of the livestock population in Kerala is the predominance of cattle among bovines as the buffalo population is relatively small (0.5% against 2.9% of Indian average 1992 Livestock Census). In 1961 buffalo constituted 6.5% of bovines. Cow is the main source of milk in Kerala as against All India pattern of cow milk 42% and buffalo milk 54%.

Significant features of the cattle population of Kerala are the predominance females and high proportion of crossbreds. Females constituted 89% among the cattle in Kerala in contrast to 50% of All India, and 79% in buffalo. Even as early as 1961 the proportion of female cattle was 67% while the national average was 45%. Female domination in the cattle population of Kerala indicates that cattle are primarily reared for milk while male cattle dominance in the rest of India is indicative that cattle is to provide substantial draught power also. For one hectare of gross cropped area (perennial tree crops excluded) Kerala has 0.15 pair of work animal (both cattle and buffalo) against the Indian average of 0.22.

Kerala has low per capita cattle population. One bovine for 10 people against 3 of All India. However density of bovine per km of geographic area though lower but is not much different, 87 for Kerala as against 94 of All-India.

Significance of animal production as compared to crop production is that the former brings in greater equity. Landless and other resource poor people secure livelihood security through animal husbandry activities, especially milk production. A quarter of the households in the state keep bovines with 2.42 heads per such households.

1.5.9.1 Implications of WTO

The provisions of the AoA cover animals and animal products. Quantitative restrictions have been removed on the import of live animals and animal products including milk in accordance with the AoA stipulations since January 1995. Import tariff by and large for the range animal products is bound at 100% and applied at 30% as on 1st March 2002. India has no significant presence in international trade of animal and livestock products. The problem Indian farmers facing with respect to livestock products is not as much the low tariff rates but the heavy subsidies given to farmers in the developed countries

especially the EEC countries who have huge surpluses to dispose of. Dumping by these nations is the greatest threat to the Indian producers of animals and livestock products including milk and milk products.

1.5.9.2 Challenges, opportunities and strategies

Shortage of biomass palatable to bovines: In spite of the high apparent biomass production capability on account of high rainfall and temperature of the tropics and manifested in the greenery seen all around, availability of biomass palatable to livestock (grass vegetation) in Kerala is limited largely to straw from paddy lands which accounts for only 16 per cent of the gross cultivated land. Paddy straw is supplemented with whatever grass naturally grown in the interspaces of coconut and cashew gardens for livestock fodder. Other major crops such as rubber, pepper, coffee, tea, and cardamom, do not support any undergrowth. All the perennial tree crops which together accounts for 65-70 percent of the cultivated land, leave no fallow period to allow grass to grow like seasonal and annual crops. All types of fallow land do not exceed 0.5%. Kerala has 7.6 bovines to feed per hectare of foodgrain area against the Indian average of 2.4. Availability of biomass palatable to livestock is under stress. Even decades ago the situation was not very much different. In 1961 one hectare of paddy land had to support 4 heads of bovine.

Coping up mechanisms: Farmers adopted many mechanisms to cope up with at least partly, the inherent shortage of feed for livestock. Firstly livestock population growth is kept under check. Between 1961 and 1996 bovine population increased only 12 % from 31.7 lakhs to 35.6 lakhs. (In fact population declined from 37.5 lakhs of 1987). The increase during the corresponding period at the national level was 28%. Second, with drastic reduction in paddy cultivation as much as 40% in four decades, the biomass production declined. Instead of reducing the population, farmers changed the sex composition favourable to female by systematically eliminating male cattle; thereby the same amount of feed could be used more profitably for milk production. Between 1961 and 1996, male cattle population declined from 55% to 11%. Correspondingly the shift at national level was only 55% to 50%. It is through such mechanisms that the state has built up the capacity for milk production that equals national per capita availability. Despite such economic and productive use, limited biomass availability will continue to be a major limiting factor in cost-effective production of milk and milk products, and thereby eroding the competitiveness of Kerala's livestock producers against their counterparts in other states, especially in the neighbourhood.

Biomass supports goat rearing: Even though the availability of biomass palatable to bovine livestock is limited, there are many tree species such as jack (and related species) which are abundant and grow under every agroclimatic conditions obtaining in the state, and offer opportunities for goat rearing. Utilisation of this potential is seen in the growth of goat population in the state which increased by 18% between 1987 and 1996 from 15.8 to 18.6 lakhs and that of male goats by 38% from 3.5 to 4.8 lakhs, when the bovine population declined by 1%. Substantial number of households, about 8.3 lakhs, rear goats.

Limitations in live animals and meat export: Kerala does not have surpluses in milk and milk products or poultry and poultry products for export except to some niche products. Given the resource limitations for livestock production at present, Kerala's livestock products are not cost-competitive. But Kerala has a facilitation advantage in the export of live animals, and meat and meat products to West Asian and Gulf countries.

There are technical barriers however, as the phytosanitary measures, which need to be overcome by maintaining hygienic conditions and preventing the incidence of animal diseases. Failure to enforce strict implementation of sanitary and hygienic measures, and to adopt improvements in the slaughtering and processing of animal have stood in the way of capitalising on this opportunity. The less than humane way of transporting and slaughtering of animals would be no less a significant barrier in promoting Kerala's meat exports, especially to sensitive EC countries.

Opportunities in live animals and meat export: The state has a network of slaughtering facilities with capacity where 11 lakh animals are slaughtered annually. What is required is modernising the slaughterhouses and upgrading and updating the slaughtering and processing facilities, as the quality standards for meat and meat products are very rigorous. The Kerala Agricultural University in its Meat Technology facility has developed quality standards and testing procedures. There are no cultural inhibitions against the handling and processing of animals for the production of meat and meat products.

Biodiversity in livestock: Biodiversity found among livestock is yet another asset, which the state has to fully explore. Kerala is home to the world renowned 'Vechchoor cow'. Short stature, high fat content in milk, quick digestibility of the milk due the smaller size of the fat globules and easy management are some of the unique features of this breed. A similar small-size cattle breed has been located in Kasaragod. Among goats the 'Malabari' and 'Attappady Black Beagle' are two distinct breeds endemic to Kerala.

Wastage of crossbred male calves: According to 1996 Livestock Census there were nearly 44000 crossbred male calves between the age group of 1.0-2.5 years, against a little over 111,000 of below 1 year of age, indicating that three fifths of the male calves below 1 year lost while reaching 1.0-2.5 years of age. In contrast a little over 460,000 female calves survived in the age group of 1.0-2.5 years against over 378,000 of female calves below 1 year. The trend is the same with male calves of the indigenous cattle even though attrition rate low, a little over one third. More or less the same phenomena could be observed in the 1987 Livestock Census also. The premature death of crossbred males is a loss of great potential for meat production. If their survival is ensured and fattened it could be an assured source of raw material for high quality meat production. A chain of well planned and organised and strategically located meat processing facilities could act as an assured market for the fattened calves and ensure enhanced income to farmers.

1.5.9.3 Recommendations

1. Determined efforts are to be made to utilise the market opportunities, infrastructure facilities and technological capabilities in order to promote live animal and meat exports to gulf countries. In support slaughterhouses are to modernised, hygienic conditions imposed to meet the quality standards and humane way of transporting and slaughtering insisted. To ensure disease free status livestock disease free zone be created and maintained.

2. Sources of raw materials (animals) in support of the meat exports have to be developed locally; instead of sourcing them from neighbouring whose quality cannot be assured. The male calves of crossbred animals at present under-utilised if not wasted is

one potential source for meat production. Cost-effective ways of rearing the calves for slaughter are to be evolved and promoted.

3. Kerala's competitiveness in milk production has to be enhanced by promoting locally produced biomass. One possible way is to foster the symbiotic relationship between crops and livestock in the farming system by integrating fodder production in the existing farming systems. What is lacking is not resources or knowledge but the integrated delivery of support and services by the concerned development agencies of the government to the farmers.

4. Urgent steps are taken to protect the Intellectual Property Rights utilising the geographic appellations attributed to Vechchoor cow, Kasaragod cattle, Malabari goat and Attappady Black Beate goat. The Kerala Agricultural University be given adequate support for its efforts in conserving these breeds, which are endemic to Kerala.

1.5.10 Marine Products and Fisheries

1.5.10.0 Fisheries in Kerala

Fisheries, marine and inland, provide livelihood security to 10.54 people constituting 3.3% of the state's population (2000-01), spread over the coastal areas of the state in 222 marine fishing villages and 113 inland fishing villages. Fishing and related activities provide employment to 2.26 lakh workers (1999-00) of which 1.85 lakhs in the Marine sector and 0.41 lakhs in the Inland sector. They are engaged in a variety of activities. Among them 13% is classified as 'beach workers' who are engaged in direct fishing operations, 41% 'small scale fish distributors', 13% 'fish curers', and 27%, 'peeling shed workers'. Women workers are in majority (52%). In certain related activities as peeling (66%), fish curing (66%) and processing (59%) women are in overwhelming majority

Kerala's coastal line stretches to 590 km. Continental shelf (0-100 fathoms) extends to nearly 40,000 (39723) square km. Potential fisheries resources estimated at 11.50 lakh tonnes in the marine sector of which 5.70-lakh tonnes in 'inshore' areas and 1.80 lakh tonnes in 'off-shore' deep-sea fishing. Potential demersal fishery resources are estimated at 1.45 lakh tonnes and sustainable yield at a little over 87,000 tonnes. Against a minimum sustainable yield of 5.7 lakh tonnes the fish landings from the inshore area has already crossed 6.0 lakh tonnes posing the serious threat of the setting in of resource depletion. The state's territory contains 3.6 lakh hectares of inland water spread of which two thirds (2.43 lakh ha) constitutes 'brackish water lakes, backwaters and estuaries', and the rivers 0.85 lakh ha. Inland fish production potential is estimated at 1.5 to 2.0 lakh tonnes. Potential for cost-effective culture fishery is placed at 65,000 ha inland water spreads.

Since the beginning of the nineties fish production in the state is growing but at a very slow pace, if not stagnating. Production of marine fish increased from 5.99 lakh tonnes 1990-91 to 6.18 lakh tonnes in 1999-00, while inland fish though small (6% to 11% of the total) at a faster pace doubled from 0.36 to 0.74 lakh tonnes. By quantity, among the marine fish landings, sardines (among them over four fifths oil sardine) constitute the largest species accounting for one third (33%), mackerel 16%, prawns 9%, and perches 8%. Among the inland fish the largest single item is prawns 26%, and tilapia follows next with 16%.

In 2000-01 nearly 89,000 tonnes of marine products valued at Rs. 1046 crores were exported from Kerala. Even though exports of marine products have been increasing steadily from nearly 51,000 tonnes in 1990-91 to nearly 89,000 tonnes, Kerala's share in the country declined 37% to 20% in 2000-01. Similarly value of exports though increased from Rs. 414 crores to Rs.1046 crores but state's share declined from 34% to 16%. Frozen shrimp constituted the largest item of export (36%), followed by canned and dried shrimp (34%), frozen cuttle (24%) fish and fillets (17%) and frozen squids (16%). The proportion of frozen shrimp declined steadily from 59% 1990-91 to 36% in 1998-99 though not much in quantity, which ranged between 30-36 thousand tonnes. During this period, export of fish and fillets increased from 7% to 17% and frozen cuttle from 9% to 24%.

Enormous increase in fishing crafts and gears was registered during the nineties. Crafts increased from a little over 34,000 in 1988-89 to nearly 55,000 in 1999-00, which consisted of 4200 mechanised crafts, 28800 motorised crafts, 21800 non-motorised crafts. The largest increase was in 'motorised' crafts, which increased by 190%. Similar increase in gears also registered. In 1996 nearly 22,000 fishing gears were in use, of which trawl nets (5200) and gill nets (4900) accounted a quarter each, and the rest dragnets 3300, cast nets 3100 and others 5100.

1.5.10.1 WTO implications

Fish do not come directly under the purview WTO's AoA. It is considered as a primary industrial product under the WTO parleys. More than the WTO many other institutions are involved in managing internationally the fishery production and trade. Such a treatment has both advantages and disadvantages. It can be expected that tariff for imported fish products would come down, as it is seen largely as a raw material for the processing industries in the developed countries. For those who really add value, relatively lower tariffs may make exports very competitive. This is considered good for the processing industries.

However, it is significant that indirectly WTO regulatory mechanism is imposed through the Sanitary and Phytosanitary (SPS) measures) in AoA. These measures stipulate considerable amount of precautionary measures, which include that the fish should arise from disease free area, contain minimum permissible chemical residue etc. When it comes to disease free area it is not an objective condition as it is very difficult to establish norms for this. The clause for setting SPS standards, which are above internationally accepted norms like CODEX can be misused and such clauses, should be removed. The country could agree to adhere only to the code of conduct stipulated by international organisations such the FAO. Domestically the state has to move towards international standards of product hygiene.

The WTO Agreement on subsidies and countervailing measures have only little impact, as in our case subsidies are low. One unique factor is significant that India's fish processing industry is competing with other developing countries, which have very little subsidy provisions in their fisheries. There is the possibility therefore that the subsidy issue could be raised as a non-tariff barrier.

WTO concerns are not confined to just exports alone, but the regime encompasses the total fisheries production system, which includes harvesting, processing and export.

Today a narrow approach with focus on exports is taken which was appropriate during the 1970s but not any more given the way the WTO is evolving.

1.5.10.2 Challenges, opportunities and strategies

Threat to the sustainability of the resource base: The most disturbing and cause for great concern is the stagnation of production in the marine sector that has set in since early nineties, despite substantial increase in crafts and gears both in numbers and capacity. It is a signal that the state has reached its inshore potential. Marine fisheries are the sector of the economy in the state where the application of latest technologies has been realised and attracted capital investment in support, which began since early sixties. This has resulted in phenomenal growth in the sector. The over capitalisation and under-utilised capacity in crafts and gears for harvesting and in processing facilities, generate irresistible urge to expand fishing operations further, despite serious warnings on resource depletion and the impending socio-economic disaster that follows. The urge for utilisation of the under utilised facilities for fishing especially by the neo entrants who were till recently denied of opportunities to share the bounty of a common resource (the phenomenal increase in motorisation of traditional crafts for instance as result of the affirmative actions initiated and sustained by the state by itself a positive development in ensuring equity), the scramble for this depleting common resource, the use of which unfortunately is poorly regulated, will only be accentuated. Conservation of the marine resources and its sustainability are very critical for the very survival of a sizeable section of the state's population who are historically backward economically and socially, and endowed practically with no alternative opportunities for ensuring their livelihood security. For this state development of the marine fisheries sector is not only to increase the availability of fish protein for the diet and earn foreign exchange for the nation, but more importantly at least in the long run, is for the improvement in the livelihood security of the people who depend on fisheries. It is time for the state to consider the introduction of aquarian reforms that would restrict the use of marine resources for those who primarily dependent them such as the traditional fishers (men/women), a measure comparable to land reforms. This can lead to arresting the over exploitation of fisheries resources and conserving them by ensuring sustainable use.

Monsoon trawling ban: Kerala Marine Fishing Regulation Act has demarcated inshore area falling within 50 meters depth range for fishing by traditional fishers using country crafts, and the area beyond this limit in the economic zone to be utilised by mechanised boats and large vessels. As this delimitation is not being followed strictly, monsoon trawling has been banned as a conservation measure. The ban is in force for the last 14 years since 1988-89.

Implications of environmental concerns: In future years environmental concerns demanding drastic steps would figure in the international negotiations including the WTO deliberations as well as in the policies of the Government of India. Many of them will have serious implications. The recent Ministry of Environment's ban of over 150 species of sharks and related species of marine origin is an example. This blanket ban has affected adversely the livelihood of a vast majority of fishers in the state. It is also not unlikely that such decisions whether national or international, lack knowledge about the local situation, and the conditionalities put forward are not backed by adequate information or proof, but just based on hunch. The threat of pollution from outboard engines is another case in point. Such directives without sufficient consultation with affected people and adequate compensation by way of mitigation and remedial measures

would result in the erosion of the already fragile livelihood security of communities like the fishers.

Concerns to be converted into opportunities: At the same time, such crisis could also be converted into great opportunities to create awareness, and community education on the issues of the need for resource management. Similarly some of the non-tariff barriers such as poor hygiene standards, labour exploitation, etc., can be used as an advantage for Kerala. For instance, the alleged disadvantage/disability for the Kerala marine product exports to compete due to increased arising from the provision of basic facilities for workers in the processing establishments, contribution to welfare measures (the cess on exports to augment the Fisher men/women welfare fund etc.) and so on, can be transformed into opportunities in the context of non-tariff barriers being put up against Indian marine exports. The social security measures introduced by the Government on the industry in the state should be used as an advantage and not to be lamented upon as an imposition, in the context of setting standards of this nature by the international community increasingly in the long run. But it is also necessary to insist upon the application of such rules and levies, not only to investors from within the country but by investors from abroad as well so that the former can operate on level playing field.

1.5.10.3 Recommendations

1. One of the most important aspects, which render marine fisheries vulnerable and unsustainable, is that fish harvesting is unregulated. One of the implications is the conflict as to who should have the access rights. It leads to the conclusion that the nation and more so this state can't move to a context of unbridled private property rights in the sea. Mercantile orientation predominates in all aspects and all levels in activities connected with marine fisheries. Institutional regulatory arrangements are highly inadequate. Social conflicts are not adequately addressed. All the stakeholders the fishers, traders, the processors, the exporters and the state have to jointly evolve and demonstrate a long-term vision. A multi-stakeholder study may be undertaken on all aspects of fisheries including conservation and management of resources, sustainable utilisation, and support services by the state. The emphasis should be on the livelihood security of poor fisher families. The gender dimension of management should receive particular attention, since women face several health hazards, as for example in peeling prawns. A code of conduct for responsible fishers should also be popularised.
2. Ecologically sophisticated traditional knowledge should be used for selective fishing techniques. Urgent steps be taken to identify, document, validate and promote traditional knowledge in the utilisation and management of fisheries resources.
3. Local self-governments at the Panchayat level be increasingly involved in the conservation and management of fisheries resources including mangroves.
4. It is time for a second look the whole mechanism of support services including subsidies extended by the state and state sponsored institutions. Subsidies should not be granted for investment on augmenting production. Instead, they should be redirected towards the management of resource as the state suffers from over capacity in the marine sector.
5. The role of the institutions, state as well as national such as the MPEDA (Marine Products Export Development Authority), need to be redefined in the changed context of resource limitation and increasing international regulations. A shift from promotion of

production and exports, and reorientation towards the regulation and conservation of marine resources and ensuring livelihood security of the dependent population, are imperative. Similarly fishing bureaucracy of the state government has to move from the production mode to the management mode.

6. In order to capitalise on the human skill that the state possesses in fisheries, the export of fishery labour to other countries after providing them with the adequate training, and ensuring security, be promoted.

7. At present there are a large number of players operating in the export trade. The present competition between the Indian players to gain market abroad is likely to benefit the foreign buyers rather than Indian entrepreneurs. A coordinated effort through pooling of resources would improve the bargaining power of the exporters. Common effort such as the promotion an Indian logo for marine products could be one such area of joint effort.

8. One of the major impending threats to the marine exports from the state is increasing stipulation by the importing countries, which happens to be developed nations with sophisticated consumers, on sanitary and phytosanitary measures including the setting of standards for containing the presence of salmonella as in the EEC countries. Quality improvements are to be insisted not only for exports but also for domestic consumption. Significance of enhancing the quality and the environment for fish production by improving the sanitary conditions in the processing plants and peeling sheds should be emphasised and institutionalised. There is the urgent need to launch a quality literacy movement. Fisher families and all others involved in trade in this sector, should become aware of sanitary and phytosanitary measures and *codex alimentarius* standards. Elected members of panchayaths and the others opinion makers could be given short-term training and educational resource materials, including training modules, which should be prepared in Malayalam. Technical assistance from FAO and WTO in adopting SPS measures be sought.

9. The basic problem of quality arises from the perishability of the commodity and the consequent high potential product loss. A good catch that irradiated is known to kill all the pathogens, which then will be acceptable to importing nations including the EEC countries. The possibilities of irradiation technology in ensuring the biological quality of fish and fish products and preservation is widely recognised and approved by international agencies including the FAO and WHO. The Ministry of Health of GOI has also approved the technology and procedures, and has laid out the safeguards. Permission allowing irradiation process for fish and fish products and chicken meat a host of other products is granted for both domestic consumption and exports. Department Atomic Energy (DAE) of the Government of India has evolved cost-effective technologies and designed low investment facilities for irradiation of food. The DAE has commissioned two irradiation units, one at Nasik and the other at Vashi, New Mumbai, both in Maharashtra, and are in operation. The possibility of installing such a cost-effective facility in the major fish processing centres in the state be explored.

10. One major lacunae in maintaining hygienic conditions and quality improvement, is the lack of resources for maintaining infrastructure facilities such as fish landing centres. Even though these facilities do generate income by way of service charges but that goes to the general pool from which retrieval through budget allocations to meet the needs is often far from adequate to keep the facilities in good repair. At least part of the resources generated could be specifically earmarked for maintaining and improving the

facilities. Further, the management of these facilities be entrusted to a consortium of the stakeholders in a given locality so that they will have a commitment to maintain them.

11. When it comes to measures for quality improvement, protection of the environment and resource conservation, etc., the burden always falls on the state exchequer. Gradually mechanisms be evolved for sharing the burden by all the stakeholders involved, by taking them into confidence. The system should pay for itself. Both the producers and consumers should be made to pay the cost, as ultimately they are the beneficiaries. Such a mechanism is also necessary to build a stake for all involved in sustaining such efforts.

12. There are a number of concerns that require proactive action related to conservation and preservation of biodiversity in fisheries including protection from potential threats from alien species through import of species (as happened in the case of carnivorous catfish) and introduction of diseases through imported feed and seed materials; and the preservation and expansion of mangroves for the conservation of prawn resources, and the immediate environment.

13. Studies be initiated to identify and determine the magnitude of the incidence of the occupational diseases among women workers who constitute the majority of workers engaged in fisheries related activities, in order to help design appropriate measure to mitigate and eliminate them.

14. There is tremendous gap for information in a usable format. Special support be earmarked for generation of the needed information to concerned institutions.