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TOWARDS A NEW PARADIGM FOR PLANTATION DEVELOPMENT IN INDIA
An Analysis of the System of Production and Innovation from an Inclusive Growth Perspective

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ABSTRACT

Traditionally, plantation sector in India has been regarded as a source of foreign exchange. Hence the system of innovation and production evolved over the years mainly at the instance of the state has been geared to enhance its international competitiveness. Though the role of plantation sector in the export basket of India declined over the years, the paper argues that the present role of plantation sector in India's national economy is more important than ever before. Today, plantation sector is a key sector in India's inclusive growth strategy being upheld in the 11th five year. This is on account of its significant contribution towards the livelihood of millions of plantation workers - especially women labour and marginalized sections - small and marginal growers, balanced regional development and addressing environmental concerns and global warming. Study also note that while there are many other sectors that foster inclusive growth there is hardly sector, on account of the liberalized trade regime, that is confronted with heightened international competition from "desperate exporting countries" with very limited domestic market like Vietnam. Nonetheless, the system of innovation and production system as it exists today with its focus on international competitiveness has been riddled with exclusion within the sector and for the sector as a whole. The paper locates varied spaces of exclusion and presents the broad contours of a perspective and action plan for the development of plantation sector to foster inclusive growth in India.

Introduction

It appears that "the Commodity Problem[1]" and "the Poverty problem" that baffled the economists for long are Siamese twins. An estimated 75 per cent of the world's poor live in rural areas of less developed countries and a large majority of them are engaged in commodity production (DFID 2004 Page and Hewitt 2001). For most of these developing countries, especially in Africa, green revolution still remains a distant dream and economic structure remains lopsided. Hence, the livelihood in general and the access to food and levels of poverty in these countries in particular depends on the fortunes of the export oriented commodities in which they are engaged in[2]. The vulnerability hits the roof when a single crop (or a few crops) accounts for even more than 50 per cent of their national export earnings[3]. In a context where

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1 It is often described as a combination of declining terms of trade and price volatility. Pioneering work was undertaken by Prebisch (1950) and Singer (1950). Later contribution, among others, include Spaos 1983, Bloch and Sapsford 1983, Gilbert (1999), Cashin and Pattillo 2000) Page and Hewitt (2001)

2 Even in India, notwithstanding the remarkable economic growth in the recent past and claimed food self sufficiency, the ramifications of commodity problem – unprecedented decline in the price of a number of commodities in the late 1990s immediately after WTO (Joseph and Joseph 2005) - got manifested in the suicide by thousands of farmers.

3 Consider the case of Uganda where coffee that accounted for 83% of the export earning and 76% of the people were poor (live on less than two dollar a day) in the early years of this millennium. In case of Ethiopia coffee accounted for 62% of the export earning and 81% were reported as poor and finally Burundi, share of coffee in export earning was 76% and 89% of the population were poor (see the Appendix table 1).

there is not even a distant sign of resolving the age old commodity problem, and economic history has no evidence of a country crossing the per capita income level of $500 by focusing on the primary production, inquiries into inclusive growth in the commodity producing countries can hardly afford to ignore the system of production domestically and the debilitating trading environment externally.

In India also, despite her remarkable growth performance in the recent past and fairly diversified economic structure, the commodity production in general and plantation sector in particular play a no less significant role. Given the importance of plantation sector in India as a source of foreign exchange, the varied innovations and institutional arrangements initiated mainly at the instance of the state evolved over the years have been geared mainly for enhancing their international competitiveness. The role of plantation sector, in the export basket of India, however, considerably declined over the years[4]. We are told that, despite our success in evolving a more diversified industrial structure, the agricultural sector continues to hold the key to our strategy for inclusive growth (planning Commission 2008). If so, what is the role of plantation sector therein? If the answer is in the affirmative can the innovations and intuitional arrangements evolved with a view to build international competitiveness breed inclusive growth? These are some of the issues that this paper addresses

The remainder of this paper is organized as follows; the second section provides an analytical context of the issues at hand. In the third section we locate the new role of plantation sector in the India economy as a key sector in India's inclusive growth strategy upheld in the 11th

4 With the emergence of relatively more vibrant industrial and service sectors, their share in merchandise at present is only a little over one per cent, down from almost 16 per cent in the mid sixties and presumably much higher in the early days of planning.

five year plan. The fourth section, locates important innovations and institutional arrangements initiated at the instance of state, highlights certain spaces of exclusion that stands in the way of inclusive growth and the final section concludes with a perspective for the future.

2. The Analytical Context

Drawing on the empirical evidence on economic growth during the recent past in select developing countries, it has been argued that the road to rapid growth, despite remaining rocky, is no more an unchartered terrain for the laggards in developing world. Based on the observation that 13 economies have grown at an average rate of 7 percent a year or more for 25 years since 1951, which is unheard in history, "The Growth Report" by the Commission on Growth and Development (2008) presents an optimistic future for the developing countries by identifying certain distinctive characteristics of high-growth economies that could be emulated by the laggards. High growth is possible, it has been argued, *inter alia*, because the world economy is now more open and integrated. Therefore, the division of labour is much less constrained today by the extent of market than at the times of Adam Smith. While the Commission acknowledges that "no generic formula exists", it indicates that for the developing countries, open world economy facilitates the import of ideas, technologies[5], and know-how from rest of the world. The Growth Report further maintains that, since learning something is easier than inventing it, fast learners can rapidly gain ground on the leading economies.

We have already been told by economists, regardless of their school of thought, from Adam smith and Karl Marx to New Growth theorists

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5 It is, however, important to note, "Technologies cannot be taken off the shelf and simply put into use anywhere. Without infrastructural investment in education, training, R&D and other scientific and technical activities, very little can be accomplished by way of assimilation of imported technologies" (Freeman 2011).

that technological change has a crucial role in economic growth. In a similar vein experience of developing countries like Brazil, Russia, India and China (BRIC), show that innovation performance is a crucial determinant of competitiveness and growth (OECD 2007). Today even the lay person is convinced of the comforts and conveniences that the technology and innovation brought into her daily life from the kitchen to office and from the farm to factory.

The past episodes of high growth, however, are found to be lopsided and that the returns to growth have been mostly confined to select sectors of the economy and sections of the society. Therefore, along with unprecedented rate of economic growth in select developing countries, we have also witnessed massive farmers' suicides in countries like India, that too at a rate unheard in human history (Mishra 2006 Reddy and Mishra 2009 Mohanakumar and Sharma 2006). As Freeman (2011) argued Structural adjustment induced growth has also been characterized by "crises of structural adjustment" because, there has also been growing unemployment, a main source of inequality and poverty, because of the mismatch between skills and institutions of the older technologies and those which are needed for new wave of technologies. The inevitable outcome in almost all the fast growing developing countries has been increasing marginalization and inequalities that coevolved along with higher GDP growth rates. In the Indian context, as observed by the Planning Commission (2008) and Vaidyanathan (2010) among others, notwithstanding an unprecedentedly high GDP growth rate of 7.7% during the 10^{th} plan (1992-97), growth of agricultural sector that accommodated bulk of the India's labour force remained almost stagnant at 2% and the country (also Vaidyanathan 2010) had to live with the largest number of poor, illiterates in the world. It also underscored the need to address the growing marginalization of women and minorities and steep inequities at different levels. Indian experience and that of many other fast growing developing economies, therefore, tends to confirm what Schumpeter rightly

maintained, aggregate statistics of GDP or industrial production can conceal as much as they reveal since they are the outcome of diverse trends in the economy.

Thus viewed, as in other select developing countries, in India also, the high growth has not been broad based, pro-poor or inclusive, to use the current fashionable term. It appears that while the recipe for high growth is presumably ready, what is missing is a credible cookbook for inclusive growth and therefore, despite the heightened interest on the issue at hand, our understanding on the ways to achieve inclusive growth at best remains rudimentary. In a context wherein the focus of policy pendulum is being shifted from growth to inclusive growth one ponders if the innovation breeds growth, could it also be instrumental for inclusive growth?

While the linkage between innovation and growth appears fairly straight forward, the issue becomes more complex when it comes to innovation and inclusive growth or its twin foundations – (in)equality and poverty. As argued by Cozzens and Kaplinski (2010) while innovation is of course not the only or even main influence on inequality, it is nonetheless often causally linked to poverty and inequality through many different economic, social, and political processes - but not in just one direction. Innovation and inequality co-evolve, with innovation sometimes reflecting and reinforcing inequalities and sometimes undermining them. The causality is also bimodal, with inequality sometimes influencing the nature and trajectory of innovation itself.

Economists have, since long, considered a dollar worth of potato chips as different from a dollar worth of microchips, implying that the product structure and sectoral composition do matter in growth (Passinetti 1981). Viewed in a similar vein, we cannot consider different sectors of the economy as equally positioned in nurturing the process of "innovation induced growth" vis a vis "innovating out of poverty and inequality". While some sectors, given their higher technological

opportunity (among others, on account of deep science base) and monopoly rent are growth boomers, the outcome may not be broad based. On the other hand, there are sectors where the growth cannot be but at snail's pace (*inter alia* on account of the nature of demand), the returns are more equally distributed. Given the variation across sectors in terms of their employment and income generation (therefore poverty reduction) potential on the one hand and income distribution outcomes on the other, sectoral focus matters in fostering inclusive growth. As remarked by Ianchovichina and Lundstrom (2009) inclusive growth has a distinct character focusing on both the pace and pattern of growth. Hence, the micro foundations of inclusive growth need to be explored at the sectoral level. Yet, very often, the policy makers while, denouncing the strategies and policies that assume "one size fits all approach", ends up, rather inadvertently, in the fallacy of composition error as they fail to "discriminate sectors" in terms of their potential for inclusive growth. Here lies the relevance of the current inquiry that focuses on plantation sector in India.

3. Plantations and Inclusive Growth

Let us begin by exploring certain characteristics of the plantation sector to establish that plantation sector is not just a foreign exchange earner but a "Key sector" in achieving inclusive growth as envisioned in India's 11th five year plan. More specifically, we examine, the role of plantations in livelihood by analyzing their contribution in employment generation especially women and income earning opportunities provided by the sector especially for the small and marginal growers. We also examine the bearing of the development of plantation sector in promoting balanced regional development as envisaged in the inclusive growth strategy of India by analyzing their regional concentration in backward areas. Finally in the context of heightened concern with environment and global warming in the discourse on inclusive growth we shall also examine, rather succinctly, the role of plantation sector in sustainable development.

3.1 Plantations & livelihood of workers

A major point of concern, despite remarkable growth performance in India, as in other emerging economies, has been on the quantity and quality of the employment being generated (Nagaraj 2000, Neethi (2008) Uma (2009) (Kannan 2007) Kannan (2009) and the rise in inequality beyond socially and economically tolerable levels (Sen Abhijit and Himanshu (2004a & 2004b) Himanshu (2007) Vaidyanathan 2010). In such a context, the Planning Commission of India (2008) underlined the need to ensure that growth is widely spread so that its benefits, in terms of income and employment, are adequately shared by the poor and weaker sections of our society, especially the Scheduled Castes (SCs) and the Scheduled Tribes (STs), Other Backward Classes (OBCs) and minorities.

Though the plantation crops in India account for only about 5 percent of the net sown area, it contributes to about 10 percent of the income from agriculture and accounts for about 13 percent of the agricultural exports. The estate sector alone is estimated to provide about 2.5 million days of employment and is a source of livelihood for almost an equal number of small and marginal growers for whom plantation crops are the only source of income. From the national perspective these figures may not look immensely impressive. But from the point of view of regional economies wherein the plantain sector is concentrated, it is a major source of livelihood for their populations. What is more, as is evident from table 1[6] in almost all the leading plantation crops, the women labour accounts for substantial share of total employment. For the sector as a whole, the women labour intensity increased from a little over 50 per cent in 1958-59 to 53.5 per cent in 2006 (table 1). In case of tea, one of the most labour intensive sector,

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6 Please note that the data presented in table 2 presents only a partial picture as it refers only to those plantations coming under the Plantation Labour Act (1951)

second only to Indian railways in terms of total employment generated, women labour force accounted for over 51 per cent of the labour force in the initial year and it increased to over 54 per cent in 2006. The highest "elasticity" in women labour intensity, however, was recorded in case of natural rubber where the share of women labour increased from a little over 25 per cent in 1958-59 to over 42 per cent in 2006.

3.2 Livelihood for Small and Marginal holders

One of the most disappointing features of the Ninth Plan in India, the Planning Commission (2008) notes, was the deceleration in agricultural growth since the mid 1990s. This, needless to say, would have had its adverse effect mainly on the small and marginal holders in the country where the average size of operational holding steadily declined to reach a level of little more than 0.5 hectare at present. Hence, 11th five year plan acknowledged that improved performance in agriculture is necessary if the growth is to be inclusive. In this context an examination of the role of small and marginal holders in plantation sector assumes importance to locate their significance in inclusive growth.

Going by the historical evidence, plantation industries in India have been in the hands of foreign companies and later on with the large holders (see Table 2). The plantation based production arose, as argued by Hayami and Damodaran (2004), in a context wherein virgin land had to be cleared and developed and physical infrastructure such as roads, irrigation systems, bridges and other basic facilities had to be constructed. Thus the need for lumpy investment in the context of poor infrastructure development was one of the key the factors that created the conducive environment for production of plantation commodities in large estates based systems. In addition, the agrarian reforms in states like Kerala is also attributed to have facilitated the perpetuation of estate based production.

However, with the establishment of infrastructure facilities and the development of hitherto underdeveloped plantation areas and large scale migration of farmer families along with promotional measures by the commodity boards, there has been a large scale participation of small holders in plantation commodities. The flexibility and economies associated with family based production has also contributed to the emergence of small holder domination in the plantation sector (Hayami and Damodaran 2004). The share of small holders in case of natural rubber steadily increased from 21.8 per cent in 1955-56 to over 85 per cent in 2005-06 (see Table 3). If the available evidence is any indication, during the last five years the share of holdings with less than two hectares further increased to reach the present level of over 90 per cent. When it comes to cardamom, though authentic data is not available, the available evidence is indicative of the increasing role of small holders thought not to the extent in natural rubber.

As expected, along with increasing participation of small holders, there has been a decline in the share of rubber estates with more than 20 hectares (Table 4). According to the estimates by the Rubber Board of India, the estate sector today accounts for about 10 per cent of the area and only about 7 per cent of total production implying and in inverse relation between farm size and productivity. The message for our discussion is that plantation is no more the forte of large estates but it is a source of livelihood for millions of small and marginal growers.

3.3 *Plantations and Balanced Regional Development*

India, being a country more diverse than most continents, balanced regional development has always been a concern of planners. With recent evidence of growing inter-state and intra state inequities, addressing spatial imbalance in growth, especially of the lagging regions in the North Eastern parts of the country, has been considered as one of the key agendas of inclusive development. In India plantations are concentrated in the backward states of Northeast and backward districts of states like

Kerala, Karnataka and Tamil Nadu. Hence, a strategy towards achieving spatial balance in development could hardly afford to ignore the plantation sector that is the main stay of development in some of least developed regions in the country.

Historically, plantation sector has been considered as an instrument of modernization, as it helped opening up of the underdeveloped areas and creation of social overhead capital. However, even today there is evidence to indicate that access to needed infrastructure in the plantation areas is limited and it leads to increased cost of production and stands in the way of enhancing international competitiveness. Viewed in the similar vein the infrastructure deficit also undermines the ability of plantation sector to withstand import competition in the context of removing various barriers to trade.

From the point of view of regional economies, they are a major source of livelihood for their populations in certain less developed regions. To illustrate, let us take the case of Tea plantations. In Assam, the tea production is concentrated in four districts viz: Dibrugarh, Sibsagar, Darrang and Goalpara. Going by the HDI index obtained from the State Human Development Report, Darrang and Goalpara are backward districts in Assam and these two districts (Table 5) together accounts for about 40 per cent share of total tea production in the State. Similarly, in Kerala, about 90 per cent of total tea production is concentrated in two districts namely Idukki and Wayand which are the least developed districts in the state. In Karnataka, almost all tea production is distributed in 3 districts (see Table 5). Among these three, Coorg is least developed district and the other two are moderately developed districts in the state. In case of Tamil Nadu, 80 per cent of the tea production is in Nilgiris district. Though it is one of the well-developed districts as per state HDI index, the areas where in tea cultivation is concentrated are not developed. Thus viewed, any strategy towards balanced regional development in India can hardly afford to ignore plantation sector.

3.4 Environment and Plantations

The plantation sector in the country is located mostly in the ecologically fragile locations. Therefore, there is a two way link between the ecology of these regions and the economy of plantations. There are indications to suggest that the productivity of plantation crops is influenced by the state of environment (Nair et al 1989) and hence the climate change. Studies have also shown that the coping up strategies of growers, like felling of shade trees for sale in coffee plantations for sustaining the revenue flows in the event of decline in prices, are having deleterious consequences on the environment (Damodaran 2002). Similarly, in cardamom plantations, felling of trees for firewood for cardamom curing is also having similar outcomes. This in turn has induced the Spices Board to replace the traditional fire wood based curing houses with modern curing facilities using electricity and/or gas. The adverse impact of excessive use of chemical fertilizers, insecticides and pesticides in plantations on the environment and health hazards' also has been a matter of concern. This could have adverse effect in the export market in a context of growing concern on environment and human/animal health. The unsustainable cultural practices and the consequent environmental degradation also adversely affected the land productivity. This has induced the commodity Boards to undertake new measures to make plantation production more environmentally friendly like, organic farming. Nonetheless the nexus between ecology and economy in the context of plantations is an area where we are confronted with number of issues on which our understanding at best rudimentary and calls for further research to facilitate inclusive growth.

Thus far we have argued that inclusive growth in general and poverty reduction in particular in less developed countries is contingent on the fortunes of millions of primary commodity producers and the workers engaged in this sector. This in turn is shaped by the international trading environment on the one hand and systems of innovation and

production in the domestic economy on the other. We have also argued that in the Indian context, there is enough empirical evidence to indicate that plantation sector is a key sector in India's strategy for inclusive development. While there are other sectors that promote inclusive growth, perhaps it is the only sector where the international competitiveness determines so decisively the ability to foster inclusive growth. This is because, the plantation sector, in the current open trade regime, faces intense competition from desperate exporting countries having very limited domestic market and that they have no option but to export for their very survival (Joseph 2010). To the extent that an inclusive system of innovation and production is a *sine qu non* for inclusive growth, we shall now proceed to examine how inclusive is the system of innovation and production in India's plantation sector.

4. System of Innovation and Production in Plantations

The origins of plantation agriculture in India could be traced to the pre independence period and has been an outcome of colonization of tropical region by European countries[7]. Plantations in Kerala, started with the conversion of Cardamom into plantation type agriculture along with Coffee, then moved into Tea and Rubber. It has however, been considered an instrument of modernization in the sense that it served to open up previously underdeveloped regions to open up and create the social overhead capital and monetized primitive economies. Hence the development of plantation sector was facilitated by the state in number ways that included provision of enormous surplus land and levying a very low or negligible land tax along with maintaining a very low wage rate (George and Tharakan 1985).

7 Cultivation of tea, for example, began in 1830s in Assam and North Bengal, Slightly later cultivation shifted to Nilgiris in Southern India. Hence the first phase of the development of South Indian tea industry was confined to Nilgiris. Later Chinese tea seeds seems to haw been planted in Kerala on a commercial scale in early 1850s (George and Tharakan 1985).

After independence, as in most underdeveloped economies plantation sector, given its role as foreign exchange earner, received greater attention of the state. This got manifested in a series of institutional innovations in the sphere of production, marketing (including trade) that were mainly geared to promote international competitiveness. This included, among others, the setting up of Commodity Boards and legislations empowering these boards to undertake various activities needed for plantation development. Thus the Coffee Board was setup by an Act of Parliament in 1942, Rubber Board under Rubber Act 1947, and Tea Board in 1954 with the tea Act on 1953, Cardamom Board in 1964. Later, by an amalgamation of Cardamom Board with the Spices Export promotion council, the Spices Board was formed in 1986 and all the 52 major and minor spices were brought under its purview. Though the agriculture is a state subject under Indian constitution, on account of their role in export earnings (and import substitution in case of Natural Rubber) these Commodity Boards were under the Ministry of Commerce of the Central Government.

There has also been a series of other institutional innovations in promoting the production of these commodities at the instance of the commodity board concerned that included among others replanting/ new planting schemes, certified nursery scheme, water harvesting and irrigation schemes along with institutional arrangements for financing these innovations (Joseph and George 1995 Joseph and George 2010). In addition, research institutes have been established under the respective commodity boards for undertaking R&D on all aspects of the crops of their concern along with an elaborate extension network for the diffusion of R&D outcomes among the growers. Various rules and laws for the regulation of marketing, and the behaviour of different actors involved in processing, and trade also came into being from time to time with a view to enhance international competitiveness of the one hand and to ensure a fair share for the producers in consumers' rupee. Given the instability associated with the price of most of the commodities the

market innovations were also aimed at ensuring stability in prices and income for farmers. Yet another institutional innovation related to labour market though the plantation labour Act of 1951[8].

The system on innovation and production, as discussed above, evolved in a context wherein plantation sector has been a key sector in India's export earnings. However, with the emergence of a vibrant service sector and growing manufacturing industries, the share of plantation exports in total merchandise trade declined significantly over the years. As per the study by Manmohan Sigh (1964), in 1951-52, tea, spices and coffee accounted for as high as 20.8 per cent of India's exports. Needless to say, the export earnings from the plantation sector played an important role in financing India's import substitution regime wherein foreign exchange was a major constraint. However, notwithstanding the remarkably high growth in the export of plantation commodities, their share in total export steadily declined to reach the present of only 1.4 per cent(Table 6). Today the export earnings from the leading IT firms like TCS or Infosys is nearly three times that of plantation sector. The issue of relevance here is, has the system of innovation and production evolved to build international competitiveness been fostering inclusive growth?

In what follows, we shall explore spaces of exclusion, both within the sector and the sector as a whole, with respect to organization, production, marketing, labour provisioning and knowledge.

4.1 Exclusion in Organization

As already noted, commodity boards are the key organizations set up at the instance of the State, with a view to deal all the aspects relating to production, processing, marketing and R&D in plantation crops. However, the constitution of these boards itself appears to be not adequately inclusive which in turn might be having its bearing on

8 For a discussion on varied state initiatives undertaken at the instance of commodity boards like rubber board and spices see Joseph and George (2010)

exclusion, if any, in the spheres of production, processing and generation of knowledge. Let us take the case of rubber board, known to be one of the most dynamic among different commodity boards.

The Rubber Board consists of 25 members, including the Chair person. Other members include; two representatives of the State of Tamil Nadu, of which one shall be nominated by the Government of Tamil Nadu and the other shall represent the large growers. There are eight members representing the State of Kerala[9] of which two are nominated by the Government of Kerala to represent the State. Three persons shall represent the large growers and three persons, the small growers in the state. Of the ten persons to be nominated by the Central Government, Government may make such consultation as it thinks fit before nominating the representatives concerned as members of the Board and four members represent the labour interest.

From the above, it is evident that, out of 25 members, there are four members representing large growers though they could be shown as in efficient producers accounting for 10 per cent of the area and only about 7 per cent of total production. Whereas the relatively more efficient small growers, who account for nearly 93 per cent of the production with 90 per cent of the area, have only three representatives indicating that there is an element of exclusion of the small growers built into the organization of rubber board. It is also to be noted that the growers from the non-traditional areas like the North eastern states, where the rubber cultivation is on an expansionary path and accounts for about 5 per cent of the total area, are also not represented in the Board. How such an institutionalized exclusion influences the innovation and production is an issue that needs more detailed inquiries.[10]

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9 Kerala accounts for 80.5% of the total area under cultivation and 91 percent of production.

10 It is understood that the membership structure has recently undergone change thanks to the intuitive made by Mr Jyotiraditya Scindia, MoS Commerce.

In case of Spices Board, which has the mandate to deal with 52 crops, there are 32 members of which only seven represent interest of growers. Of these four represent small cardamom, one each for large cardamom, black pepper and garlic/seed spices. It is evident that large number of crops, including chilly, the largest export earner, have no representation while cardamom has excessive representation. This cannot be justified because, cardamom is neither the largest export earner nor the one that generates the highest employment.

4.2 Exclusion in the Sphere of Production and Promotion

One of the unique characteristics of the plantation crops is that, being perennial crops, there is a gestation lag between planting and harvesting which vary from one crop to another. These crops are also characterized by a yield cycle that involves broadly four phases, though the duration of each phase varies from one crop to another. In general, there is an initial pre-bearing phase followed by an early harvesting phase wherein yield is positive and increasing with high variability. During the third phase (may be called peak bearing phase) yield reaches the highest level followed by the last phase wherein the yield declines. Since the age structure of the plants has a crucial bearing (along with other factors) on the yield and production, timely replanting is needed to maintain the age profile of the plantations in such a way that the share of old-aged plants is minimized. The planting subsidy scheme is a major innovation by the commodity boards to induce the growers to undertake timely replanting and to bring in new area under cultivation. The planting subsidy, both for replanting and new planting, is a fixed amount that varies from crop to crop and disabused in installments depending on the crop characteristics like the gestation lag and cost of production.

In the sphere of innovations for production and promotion, exclusion takes place at least at two different levels. First is in terms of selection criteria for being eligible to receive planting subsidy and second relates to the amount of subsidy. In case of selection, when it

comes to spices, planting subsidy is provided mainly for cardamom and to a limited extent to black pepper. Thus, large number of crops, wherein both small holder intensity and export earning is is known to be higher than cardamom, are excluded from planting subsidy altogether. Even in case of cardamom and black pepper, the subsidy could be provided only to those growers having lands with title deed. However, for historical reasons[11], large number of small holders in the major cardamom and black pepper growing areas are not having title deeds for the land they cultivate and are therefore excluded from the planting subsidy. In case of natural rubber, the Board has certain clearly laid out planting protocol for disbursing the planting subsidy. A major stipulation is that the grower should resort to mono crop culture and if, for reasons like spreading risk or other reasons, the grower chooses mixed cropping, she will be excluded from the subsidy scheme.

It appears that there is a conflict between the interest of the Board that aims at maximizing the yield per hectare and that of the growers whose interest is to maximize the income per hectare. Since the growers need not be keen on having his income only from growing rubber, there is every reason to believe that the growers might prefer subsidy per tree planted to the existing system of subsidy per hectare. Such a strategy might make the system more inclusive. While the yield per hectare is important from the narrow perspective of the Board, from a broader development perspective what matters is the total income of the growers and its stability.

The underlying objective of the subsidy scheme is to ensure the desired (high) production levels by inducing farmers to undertake planting or replanting on time. The subsidy provided compensates the growers for their loss of income during the pre-bearing period and thus acts as an inducement for planting. The present system of subsidization, however, is inimical to efficiency as it is fixed per unit of land area brought under cultivation, and not on productivity or other indicators of efficient or sustainable production. Since the farm size-productivity

11 See Joseph (1985) for details.

relation appears to be inverse, and the revenue for the subsidy is obtained from the cess (tax) collected on the basis of output, it could be argued that under the present system, the inefficient growers are subsidized by the more efficient small holders. The issue could be addressed if the present system of uniform subsidy is replaced by one wherein a base subsidy is provided to all as per planting area and top it with a performance based supplementary subsidy.

A crucial issue of policy relevance is whether the Boards are giving subsidy at all? Let us again take the case of natural rubber. Here the present subsidy in Kerala for example is Rs 20000 per hectare. Assuming that the tree provide yield for 18 years and the average yield is 2000 Kg per hectare, at the present rate of Rs 1.5/Kg of rubber, a grower will be paying an amount of Rs 54,000 per Hectare to the rubber board as cess. Even if we keep a rate of interest of 8% the grower fully repays the amount to the board during the life of the crop. The term sub subsidy is often used in a context where there is no return payment in her capacity as subsidy receiver. For example, unemployment allowance is a subsidy because the unemployed person doesn't make any payment in her capacity as unemployed. Where as in case of plantations, the grower receives an amount because he grows the crop and pays the cess because he is a grower. Hence, we need to be careful in using the term subsidy, perhaps advance payment could be a better term.

4.3 Exclusion in the sphere of marketing

Marketing innovations varied from one crop to another[12]. In case of cardamom, innovations in marketing took the form of an auction

12 In case of coffee, the market intervention in the earlier period took the form of monopoly procurement where only the coffee board was entitled to purchase coffee from the growers (Indira 1993). Incidentally, such market innovations have been adopted in other developing countries as well. In brazil for example, the Brazilian Coffee Institute under a high ranking Government Minister carried out the intervention; in Colombia, the Federation of Coffee growers has been the body which bought coffee from the producers. In Uganda, Kenya and Tanzania, like in India Government controlled marketing Boards were the sole buyers of coffee from producers (Mwandha et al 1985 as quoted in Narayana 1994).

system where the products offered for sale by growers are auctioned individually. The auction procedure as well as the entry of different actors in maket like auctioneers and bidders was regulated by the Cardamom (Licencing and Marketing) Rules (1977) of the erstwhile cardamom Board. It was, however, shown by studies that the auction system has not been effective in ensuring reasonable prices for all the growers as the price received by the small holders has been found significantly lower than that obtained by the larger holders (Joseph 1985).

With the introduction of the e-auction at the instance of the Spices Board, the situation seems to have undergone major change. An analysis of the price formation in e-auction using data from 34,564 lots sold in Puttadi (in Kerala) e-auction centre and 2569 lots sold through the Bodinaikannur (in Tamil Nadu) auction centre set up by the Spices Board indicates no evidence of such price discrimination. Surprisingly, price variation across different size of lots sold through action reduced considerably. For the whole data, the estimated model indicated that the price realized in the auction has negative (and statistically significant) relationship with lot size and a positive relationship (statistically significant) with the number of bids per lot (Joseph and Abraham 2010). Going by this evidence it could be inferred that the introduction of e-auction by harnessing Information Technology appears to have helped making the marketing system more inclusive.

Yet, exclusion still appears to prevail because of certain institutional constraints built into the Cardamom Marketing Rules that excludes the small growers from auction system and force they to the village traders. For example, the payment for the output sold is to be made only after 14 days[13]. This in turn acts as an entry barrier for the small holders without waiting power to enter the auction market. Another

13 We understand that one of the auctioneers, of late, has started spot payment.

entry barrier arises on account of the the practice of taking the fixed (500 grammes)[14] quantity of sample from all the lots, regardless of the size of the lot pooled for auction, as laid down by the Cardamom Marketing Rules. This in turn reduces significantly the effective price received by the small holders and they are forced to resort to the exploitative village traders for disposing their output. It is also to be noted that the access to e-auction is limited to those growers having cardamom registration certificate which is provided only to the growers having title deeds for the land that they cultivate. As already noted, a large number of small holders are not having title deeds for the land they grow cardamom and therefore are excluded from the e-auctions that are found to be efficient.

4.4 Labour market innovations and exclusion

The major institutional innovation in the labour market evolved at the instance Plantation Labour Act (PLA) of 1951 that provided for the welfare of plantation labour and regulated the conditions of work in plantations. The Act is administered by the State Governments and is applied to any land used as plantations, which measures 5 hectares or more in which 15 or more persons are working. The State Governments are, however, free to declare any plantation land less than 5 hectares or less than 15 persons to be covered by the Act. It was applicable to all the plantation workers whose monthly wages does not exceed Rs.750/- per month.

The Act stipulates that in every plantations covered under the Act shall provide medical facilities for the workers and their families as may be prescribed by the State Government. The Act also provides for setting up of canteens, crèches, recreational facilities suitable accommodation and educational facilities for the benefit of plantation workers in and around the work places in the plantation estate. Also there is provision

14 To get an idea of the loss to the farmers, it may be noted that the price per kilogram of cardamom has been as high as Rs.1800 in the recent auctions.

for woolen cloths in those plantations located in cold climate. The Act provides that no adult workers and adolescent or child shall be employed for more than 48 hours and 27 hours respectively a week, and every worker is entitled for a day of rest in every period of 7 days[15].

The commodity boards also have devised different welfare schemes albeit they vary from one board to another. Let us compare the welfare schemes of the three commodity boards namely, Rubber, Tea and Spices. The Rubber Board welfare schemes consist of stipend for higher education for the children of rubber tappers and other rubber workers. The Rubber Board also provides tailor made schemes for the North East Region, not only for higher education but also for primary education. In addition there is provision for merit awards for children of rubber plantation workers, who are able to obtain the prescribed level of marks in school examinations. Rubber plantation workers receive health and medical reimbursement and a reasonable housing subsidy with special focus on north east region These apart, there are subsidy schemes for SC/ST, sanitary and housing subsidy, group insurance and health insurance schemes run by the Rubber Board. Thus in effect, the Rubber Board has taken up the role of welfare provider in the rubber plantation sector. This has probably become necessary in the wake of the fact that nearly 95 percent of the growers are small growers who will not come under the ambit of the Plantation Labour Act. Also the small planters, who are tappers themselves, may require these welfare schemes for decent living as much as the workers require. When it comes to tea board the welfare provision is found more elaborate than the rubber board (Abraham 2010)

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15 The amended Act of 1960 also empowers the State Government to extend all or any of the provisions of the Act to Plantations, measuring even less than 5 hectares and employing less than 15 persons. The Plantations Labour (Amendment) Act, 1960 is also applicable to offices, hospitals, dispensaries, schools and any other premises used for any purpose connected with the plantations, but does not apply to any factory or the premises to which the provisions of the Factories Act, 1948 apply.

Contrast this with the Spices Board labour Welfare Schemes. The Spices Board, according to the Annual Report of the Board 2008-09, had only two schemes in operation, award of Educational stipend to the children of cardamom estate workers and Grant-in-aid to hospitals/ educational institutions. The grants were given for improvement of essential facilities in the hospitals, schools and colleges located.

There are a few aspects that need to be considered before coming up with the strategy for government sharing of social costs. Firstly, while the PLA has been legislated in the spirit of providing the most suitable welfare provisions for the workers, the implementation of the Act was with the planters, with an external inspector to ensure implementation. However, the very fact that the provisions of the Act have to be implemented by an agent whose self interest is diametrical to the provisions itself would ensure that these schemes are mostly neglected or at best poorly implemented.

For the planters, the social cost represents a double edged sword. On the one hand they have to incur additional burden to incur the cost of the social welfare. This certainly eats into their profits. On the other hand, the welfare provisions of education, health and other facilities would capacitate the workers and their families such that these workers and their next generation may not be ready to continue as plantation workers. Hence, this provision may act as a deterrent to continuous labour supply and deplete the existing stock of labour as well. Given these problems it is very likely that the PLA may not be implemented in 'spirit' though they may follow it in letter.

An appropriate analytical approach to examine the issue would have been to analyse the conditions of work and conditions of life of workers in the plantation sector. However in the absence of such data we resort to alternative approach. Let us look at the coverage of the PLA and its compliance levels in the estates. In 1999 there were 3814 estates covered under the PLA (Table 7). By 2006 this number increased to

4039. However, the number of estates submitting returns as per PLA during the same period has reduced from 2093 to 1888. In percentage share, the estates that reported returns declined from 55 percent to 47 percent. The decline was recorded in case of Assam, Himachal Pradesh, Karnataka and Kerala. In West Bengal too there was a decline during the period 1999 to 2003.

A preliminary inquiry tends to suggest that plantation labour in India in terms of human development indicators remain as outlier when compared to the human development in the state where they operate (Abraham 2010). This raises a doubt on the effectiveness of Plantation Labour Act implemented in India in accomplishing its objectives. This outcome needs to be seen in the context of an institutional innovation that enabled the state to shy away from its prime responsibility of ensuring the human development of plantation workers and entrusted such responsibility with the private estates for whom the provisioning of education, for example, is inimical to their own interest

4.5 Exclusion in the Sphere of Knowledge

Thus far we have dealt with exclusion within the sector. When it comes to knowledge the exclusion appears to be for the sector as a whole. Learning and generation of knowledge is an outcome of the process of interaction between different actors involved in the innovation a production system. Hence the nature and extent of interaction that exists in a sector is bound to have its bearing on the learning and innovation on the one hand and competence building on the other.

As already noted, there is no major plantation crop under the Ministry Commerce without an institute undertaking R&D. Each of these institutes is found engaged in basic research to applied research despite the possibility that universities might be having a comparative advantage in basic research while applied research could be better handled by these institutes. Notwithstanding the fact there is immense

scope for interactive learning and cost/risk reduction through collaborative research among them, such interaction hardly exists today. In context of limited resources, (Joseph and George 2010) the present strategy of spreading the limited resources too thinly across different activities along with limited commitment for interactive learning seems to have had the effect of plantation sector not being emerging as a vibrant and knowledge intensive sector despite having the access to world's largest pool of S&T manpower.

The suboptimal outcomes of research by these institutes could be better illustrated by taking the case of Cardamom[16]. The dream of cardamom planters in 1970s and 1980s, when India's yield per hectare was only around 70 kgs and competition from Guatemala was intense, was to achieve yield at the level of 300-350 kg per hectare, comparable to that of Guatemala at that time. Though the Indian Cardamom Research Institute developed different varieties to help growers realize this dream, today, the average yield in Kerala crossed 300 kg/ha (some growers even record yield levels as high as 600-700kg/hectare) thanks to a variety developed by a small holder through learning by doing[17]. This variety today accounts for over 85 per cent of the area under cardamom cultivation is Kerala.

Thus viewed, while the plantation has the potential to harness the science and technology system and knowledge base within the country to modernize the sector and emerge as a model for other developing countries, such initiatives are yet to form the key agenda of commodity boards. This in a sense led to the exclusion of the sector as it remains as a backward sector devoid of modernization. The challenge before the

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16 This is not to underplay the achievements of the research institutes under the commodity Boards. For example, thanks to the plant variety developed by the the Rubber Research Institute of India, the productivity of natural rubber in India is the highest in the world.

17 This variety, Njallani Gold, named after the small holder who developed it, accounts for over 85 per cent of the are under cultivation in Kerala. The Small holder, Joseph Njallani, was awarded innovation award by the National Innovation Foundation in the 2001.

commodity boards is to emerge as sources of ideas while the present role of being the source of objects being relegated to the back seat.

5. Concluding Observations

In his Nobel Lecture, renowned development economist of the last century Arthur Lewis argued that "the engine of growth should be technological change with international trade serving as lubricating oil and not as fuel". He continued "international trade cannot substitute for technological change, so those who depend on it as their major hope are doomed to frustration" (Lewis 1979). Yet, the policy makers in the developing world, inspired by the Washington consensus, have increasingly embraced trade as an engine of growth, the resultant growth has indeed brought along with it "frustration" as predicted by Lewis. The result, the policy pendulum in fast growing developing countries has swung from growth to inclusive growth.

Though the open trade regime has become the order of the day, there is not even a remote sign of resolving the age old commodity problem in the absence of green revolution that lies at the root of prevailing unacceptable levels of poverty in many of the less developed countries. There is also no evidence in economic history to show that a developing country could cross the per capita income level of $500 by focusing on the primary production of the type that prevails today. In such a context, any attempt at addressing the twin issues of "commodity problem and the problem of poverty" can hardly afford to ignore the domestic system of innovation and production on the one hand and the debilitating trading environment on the other. In this general context and the specific context of heightened concern for inclusive growth in India and other developing countries, the present paper raised the following issue of immense policy relevance; Can a system of innovation and production evolved over time with a view to facilitate growth and international competitiveness breed inclusive growth? We examined this issue by taking the case of India's plantation sector.

In a sense, the paper has been more successful in exposing our ignorance in the realm of inclusive growth and innovation than giving definite answers. Yet, one could glean a few tentative conclusions of relevance for general policy making and certain inferences regarding India's plantation sector.

We argued that the sectors do vary in terms of their capacity to foster inclusive growth. Furthering this argument, we have shown that the plantation sector in India is not just a foreign exchange earner but a key sector in India's strategy towards achieving inclusive growth as envisaged in the 11th five year plan. This is on account of its significant contribution towards the livelihood of millions of plantation workers, especially women and marginalized sections, small and marginal growers, its pivotal role in balanced regional development and addressing environmental concerns and global warming. It is important to note that while are many other sectors that foster inclusive growth there is hardly any sector, on account of the liberalized trade regime, that is confronted with heightened international competition from "desperate" exporting countries with very limited domestic market.

Nonetheless, the system of innovation and production system evolved over the years at the instance of the state with a view to build international competitiveness, while not explicitly recognizing its role in inclusive growth, has been riddled with exclusion within the sector and for the sector as a whole. The paper provided evidence of exclusion within the sector in the sphere of organization, promotion of production, marketing and social provisioning for labour. When it comes to knowledge and technology there are evidence of exclusion for the sector as a whole.

For addressing these infirmities, the paper calls for "replanting the plantation development" recognizing that competitiveness, though important, is only a necessary condition for inclusive growth. This will involve moving away from the existing system of factor intensive production to knowledge intensive production. The commodity boards

shall assume the new role of being the sources of "ideas" for the growers instead of being agents that distribute "objects" like subsidy. This will call for revamping of the research and extension system with greater interaction between the Boards to learn from each other and with the S&T system in the country at large. The existence of a 18th century production system in the plantation sector in a country that boasts of being the ICT superpower from the South(Joseph 2006) and getting ready to send man to moon cannot be justified any longer. The modern plantation sector cannot be conceived without a modern plantation infrastructure at all levels for post harvest operations like grading, processing, and marketing. Here much could be learned from the Spices Park set up by the Spices Board. Accomplishing these tasks call for setting up a Plantation Modernization fund of at least Rs 5000 Crores, if we are sincere to the inclusive growth strategy that we uphold.

In the new scenario, there is the need for revisiting the subsidy based promotional schemes like replanting and new planting. In fact, in cases like natural rubber cultivation it could be argued that there is hardly any subsidy given.[18] Since, the payment to the growers is made ex post, there is hardly any economic logic for giving capital subsidy. Instead, the Boards shall meet the interest cost of investment and that should be paid directly to the growers' bank account not through the extension offices. It is also worth considering a base subsidy for all growers on the basis of the planting effort and a supplementary subsidy based on her performance. This will help to move away from the current system wherein the efficient growers subsidize the inefficient ones. The plantation Modernization Fund shall be used for meeting the interest cost of all modernization initiatives including replanting and new planting. The modernization is not the sole responsibility of the state; the private sector shall be actively encouraged to participate including

18 Estimates show that the growers repay the whole amount received as subsidy with an interest of 8% in a period of 18 yielding years

through contract farming. The growers also need to contribute; let the cess shall be a proportion of the market price instead of the current system wherein it is fixed per unit of output regardless the price.

The twin foundations of a modern plantation development are development of modern infrastructure – physical, human and knowledge as outlined above – and ensuring a stable and remunerative price. Once these two are ensured the rest will follow. For price stabilization, there is the need for enhancing the Price Stabilization Fund which is grossly inadequate and that has not attracted any growers for obvious reasons. Given the important role of plantation sector in inclusive growth, the price stabilization fund shall be at least Rs 10,000 crores. This corpus, along with contribution from the growers, shall ensure a compensation of at least Rs 20,000 per hectare if the price falls below the threshold level. If these initiatives are implemented with sincerity and commitment, the plantation sector in the country will contribute immensely to the inclusive growth as envisaged by our Prime Minister and it will set a model for the less developed commodity producing countries to follow.

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Table 1: Trend in the share of women workers in plantation sector

Crops	Estimated No. of workers	Women workers	Share of Women workers in total (%)	Estimated No. of workers	Women workers	Share of Women workers in
	1958-59			1985-86		
Tea	766473	393201	51.3	612079	300531	49.1
Coffee	95700	43735	45.7	**	**	**
Rubber	11900	3048	25.6	24824	8961	36.1
Total	874073	439983.5	50.3	636903	309492.3	48.6
	1974-75			2006		
Tea	612079	300531	49.1	811854	440350	54.24
Coffee	**	**	**	105288	57603	54.71
Rubber	24824	8961	36.1	61270	25917	42.3
Total	636903	309492.3	48.6	978412	523869.9	53.5

Source: Occupational Wage Surveys-Report on Plantation, Labour Buerau (Various Reports)

Table 2: Concentration of area under tea in Kerala and Tamil Nadu by foreign controlled companies

	Kerala			Tamil Nadu		
Year	No. of Companies	Area under their Control (Hectares)	Area under Control as % of total Area under Tea	No. of Companies	Area under their Control (Hectares)	Area under Control as % of total Area under Tea
1925	5	19702.37	77.23	6	9427.12	59.23
1940	5	28071.58	73.69	6	15470.50	59.72
1950	5	27606.36	70.14	6	14021.10	53.05
1960	5	25248.86	63.29	6	13245.83	41.20
1970	5	22749.08	62.20	6	14778.46	41.17
1978	3	16778.54	46.90	5	10187.21	27.77

Source: Planting Directory of Southern India (Various Issues), UPASI, Coonoor as quoted in George and Tharakan (1985).

Table 3: Trends in area under small (<2 ha) holdings in rubber and estates in cardamom

Year	Rubber		Cardamom			
	Area	Share of <2 ha category	No. of Estates	% share of Total Estates	Area (Hectares)	% share of total area under Cardamom
1955-56	18289	21.81				
1960-61	38340	29.51				
1965-66	51433	31.22				
1970-71	68470	33.71				
1975-76	81938	36.51	18795*	67.53*	17144*	20.62*
1980-81	132650	47.7	19929	68.06	18216	21.21
1985-86	217150	58.79	22857	68.94	20923	21.76
1990-91	332401	83.63				
1995-96	375957	83.64				
2000-01	412574	83.29				
2005-06	455483	85.61				

Note: Figure with * refer to the year 1978.

Source: Rubber and Cardamom (spices) Statistics published by respective Commodity Boards in India

Table 4: Trends in area under estates in natural rubber

Year	Area under small holdings (ha)	Area under estates (ha)	%	Total Area (ha)
1950	27731	47184	63	74915
1960	90375	53530	37	143905
1970	149800	67398	31	217198
1980	215443	68723	24	284166
1990	397465	77618	16	475083
2000	495358	67312	12	562670
2008	595800	66200	10	662000

Source: Rubber Board, Rubber statistics, Rubber Board, Kottayam.

Table 5: District-wise planted area and production of tea in different states

District/States	Production '000Kgs	% share in total Production across states and district	Area (in Hectares)	% share in total planted area across states and districts
Darrang	80474	18.47	41300	15.2
Goalpara	5665	19.51	3643	1.34
Kamrup	4304	0.99	3460	1.27
Lakhimpore	8280	1.9	4873	1.79
Dibrugarh	178352	40.94	95118	35
Nowgong	10981	2.52	8135	2.99
Sibsagar	102192	23.46	77135	28.38
Cachar	38757	8.9	32149	11.83
North Cachar	4632	1.06	4032	1.48
Karbi Anlog	2012	0.46	1923	0.71
Assam	435649	48.79	271768	52.12
Kanyakumari	81	0.05	433	0.57
Tirunelveli	1454	0.89	800	1.05
Madurai	2306	1.41	972	1.28
Coimbatore	29417	18.05	11734	15.44
Nilgiris	129757	79.6	62039	81.65
Tamil Nadu	163015	18.26	75978	14.57
Palghat	2206	3.55	852	2.3
Trichur	1769	2.85	529	1.43
Trivandrum	441	0.71	965	2.6
Quilon	237	0.38	1348	3.63
Ernakulam	557	0.9	840	2.26
Idukki	44861	72.19	26893	72.47
Wayanad	12075	19.43	5504	14.83
Total Kerala	62146	6.96	37107	7.12
Chickmagalur	3755	66.81	1434	67.39
Coorg	823	14.64	299	14.05
Hassan	1042	18.54	395	18.56
Karnataka	5620	0.63	2128	0.41
Total India	**892965**		**521403**	

Source: Tea Board, *Tea Statistics 2003-04*, Tea Board of India, Calcutta

Table 6. Plantation crops in India's merchandise exports

Year	Exports of Plantation Crops (Rs Crore) *(Average)*	Merchandise Exports (Rs Crore) *(Average)*	% Share of Plantation crops *(Average)*
1970-75	233.394	2193.44	10.64
1975-80	583.087	5346.28	10.91
1980-85	762.134	8966.88	8.50
1985-90	1167.9	17382	6.72
1990-95	2025.11	56542.6	3.58
1995-00	4660.98	130917	3.56
2005-06	6595.47	456418	1.45
2006-07	8023.49	571779	1.4
2007-08	8992.3	655864	1.37

Source: RBI, Handbook of Statistics, different years

Table 7: Share of estates submitting returns to total number of estatescovered under PLA (%)

States	1999	2003	2006
Assam	88.2	72.8	71.6
Himachal Pradesh	47.4	22.7	40.9
Karnataka	22.8	36.5	15.4
Kerala	77.6	75.7	58.6
Tamil Nadu	73.4	82.5	81.7
Tripura	34.2	28.9	75.8
Uttrakhand	100	100	55.6
West Bengal	68.1	65.8	
Andaman & Nicobar	100		100
India	54.9	62.9	46.7

Source: Ministry of Labour and Employment, Govt. of India.

Appendix Table 1:
Countries dependent agricultural commodities for export earnings
(Annual average export data, US dollars, 1995-2000)

	> 50% of earnings	20-49% of export earnings	10-19% of export earnings
Countries in Africa			
Cotton		(81.0%) Burkina Faso (41%) (83.3%) Chad (37%) (75.3%) Benin (34%) (90.6%) Mali (34%)	(69.3%) Togo (17%) (81.9%) Central African Republic (12%) (96.6%)Tanzania (11%)
Tobacco	(76.1%)Malawi (59%)	(87.4%) Zimbabwe (29%)	
Coffee	(89.2%)Burundi (76%) (80.7%)Ethiopia (62%) (75.6%)Uganda (83%)	(90.3%)Rwanda (48%)	(83.3%)Madagascar (15%) (58.6%)Kenya (13%) (96.6%)Tanzania (16%) (79.5%)Congo, Dem Rep (11%) (81.9%)Central African Republic (11%)
Cocoa		Sao Tome and Principe (48%) (50.4%)Cote d' Ivoire (28%) (78.5%)Ghana (27%)	
Tea		(58.6%)Kenya (24%) (90.3%)Rwanda (21%)	(89.2%)Burundi (12%)

Vanilla Sugar	(82.9%)Gambia (87%)	(65.0%)Comoros (35%) (44.1%)Mauritius (23%) (44.1%)Djibouti (45%)	(81.0%)Swaziland (18%)
Cashew nuts	(77.9%) Guinea Bissau (83%)		
Countries in Latin America			
Cotton			Paraguay (12%)
Coffee		El Salvador (30%) Honduras (24%) Nicaragua (22%)	Colombia (15%)
Sugar		Cuba (36%) Belize (29%)	
Bananas		Ecuador (21%) Panama (23%)	Belize (16%) Costa Rica (13%)
Countries in Asia			
Tea			Sri Lanka (13%)

Note: Figures in the right brackets indicate share the commodity concerned in total export earning and Figures in the left brackets indicates people below poverty line during 2000-03 (below $2 per day)

Source: DFID (2004) from Page and Hewitt (2001) and updated using UNCTAD (2003).
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