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Rubber planting subsidy in India: objectives, achievements and challenges in the era of market integration

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Background

The introduction of Replanting Subsidy Scheme (RSS) for natural rubber (NR) in 1957 was a milestone in the evolutionary growth of India's rubber plantation industry for its well-articulated objectives and desired outcomes over time. The two important objectives of the RSS were: (i) providing technical and financial assistance to the rubber growers for undertaking replanting of old and uneconomic trees as more than half of the existing stock had out-lived their economic life; and (ii) to popularize the HYV planting materials since around 80 per cent of the area under the crop was planted with unselected, low yielding rubber trees (Rubber Board, 1956). Under the scheme, replanting was carried out in 53605 ha and the total financial assistance provided was Rs. 19.35 crore during the 23 year period from 1957 to 1979 (Rubber Board, 2014). The cumulative impacts of the financial assistance and the statutory provisions on the choice of planting materials under the RSS led to a remarkable growth in the share of area under HYV planting materials and it increased to 84.38 per cent during the year 1980-81. The introduction of the New Planting Subsidy Scheme (NPSS) in 1979 to promote extensive cultivation of NR and its subsequent merger with RSS led to the emergence of the Rubber Plantation Development (RPD) scheme in 1980. The RPD scheme gave equal importance to replanting and new planting and has been consistent with the perceived objectives of achieving self-sufficiency and import substitution under a protected policy regime. The outcomes had been encouraging as the share of area under HYV planting materials increased from 21 per cent in 1955-56 to 99 per cent in 2003-04 (Rubber Board, 2005) and the annual average yield registered a more than 5 fold increase from 353 kg/ha in 1955-56 to 1841 kg/ha during 2011-12 (Rubber Board, 1983 & 2013). The domestic production of NR also had been revolving around the self-sufficiency mark since 1970-71 except for the widening gap in the recent years. In sum, the planting subsidy had been one of the critical components of the comprehensive

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In a comparative sense, magnitude of the achievements made in the NR production sector through comprehensive policy packages become more evident in relation to the performance of countries like Indonesia blessed with an equatorial climate and an earlier R&D initiative (George, 2011). However, validity of the twin objectives of rubber planting subsidy schemes has been increasingly challenged by the growing imports of NR under the liberalized policy regime since 1991-92. Functionally, the emerging challenges on the rubber planting subsidy schemes have two dimensions, viz., (i) a conceptual dimension questioning the objective of self-sufficiency in NR production in the context of increasing dependence on NR imports; and (ii) the technical dimension related to the financial constraints of the Rubber Board in providing the planting subsidy as the accumulated arrears to be disbursed to the growers is reported to be more than Rs. 40 crores during the year 2013-14. More precisely, the conceptual contours and sources of finance of the planting subsidy have become redundant and therefore to be redefined from a long-term policy perspective. This proposition assumes relevance due to the need for ensuring sustainable internal sources of supply given the strategic commercial importance of NR to the Indian economy and the widening gap between production and consumption of the commodity. In this connection, the proactive initiatives by China for expanding NR cultivation within the country and abroad during the past one decade are illustrative. The three Chinese state farms, viz., Hainan, Yunnan and Guangdong acquired rubber plantations in Laos, Cambodia, Myanmar, Malaysia and Thailand either through joint ventures or by leasing under the 'Going Global' strategy initiated since 2002 (Zhang *et al.*, 2009). The internationalization of Chinese NR production base was institutionalized with the establishment of China Natural Rubber

Association in 2007. The Chinese strategy of direct government interventions in minimizing the dependence on NR imports assumes relevance in the context of India's growing deficit in the production and languishing rubber planting subsidy scheme. Hence, the study was undertaken with the objective of suggesting revival strategy for NR Planting Subsidy Scheme based on (i) the status of planting subsidy in the past and present; and (ii) the strategies followed elsewhere.

Pivotal status

The planting subsidy schemes accounted for a significant share in Rubber Board's expenditure since the introduction of RSS in 1957. Although the share of subsidy had been declining after reaching its peak level during the 1980s (48.52%) its average share during the 55 year period from 1958-59 to 2012-13 was 22.31 per cent. The trends in planting subsidy and its share in Rubber Board's total expenditure under the four phases, viz., Phase I (represents the period prior to the introduction of the RPD scheme), Phase II (denotes the pre-reforms period), Phase III (first leg of the post-reforms phase characterized by growing uncertainties with unprecedented fall in NR prices) and Phase IV [witnessed higher prices with wider fluctuations (Chandy *et al.*, 2010)], are summarised in Table 1.

Table 1. Share of planting subsidy in Rubber Board's total expenditure

Period	Expenditure under planting subsidy (Rs million)	Total expenditure of Rubber Board (Rs million)	Share of subsidy in the total expenditure (%)	Growth rate (%)	
				Subsidy	Total expenditure
Phase I (1958-59 to 1979-80)	129.92	328.92	39.55	10.94	15.25
Phase II (1980-81 to 1990-91)	873.69	1800.78	48.52	18.26	19.01
Phase III (1991-92 to 2002-03)	1671.34	7552.26	22.13	4.84	11.75
Phase IV (2003-04 to 2012-13)	2262.93	12456.20	18.17	11.20	5.96
Total	**4937.89**	**22137.72**	**22.31**	**11.09**	**13.81**

Sources: (1) Finance & Accounts Department, Rubber Board, (2) Indian Rubber Statistics (various issues)

During Phase I the share of planting subsidy was 39.55 per cent and then it peaked to 48.52 per cent during Phase II. Thereafter, the share of planting subsidy in the total expenditure had been steadily declining in the subsequent post-reforms phases. Despite the contrasting features of the two phases the share of planting subsidy had been declining and it plummeted to the level of 18.17 per cent during Phase IV.

The decline in the share of expenditure on planting subsidy could be due to steady increases in other sources of expenditure and the staggered replanting. Alongside, the expenditure on planting subsidy had been marked by a lower growth rate compared to the total expenditure except during the Phase IV. The aberration from the observed pattern during the Phase IV was mainly on account of an unprecedented expansion of area under NR cultivation in Northeastern region (137%) and the resultant growth rate in subsidy disbursed in the region (20.61%). The area expansion in the region had been triggered by buoyancy in NR prices till recently. This observation is loaded with important policy implications and therefore, deserves closer scrutiny from a policy perspective. More precisely, the observed higher growth rate of planting subsidy during the Phase IV was essentially an outcome of new planting of NR in Northeastern region and during 2013-14 more than 62 per cent of the planting subsidy was disbursed in Northeastern region (Rubber Board, Personal communication 2014a). This point is underlined by increase in the share of new planting in total planted area which increased during Phase IV to 67.84 per cent from 55.66 per cent during Phase III.

Nevertheless, the planting subsidy schemes had been effective in popularizing the HYV planting materials (Fig. 1) and extending area under NR in the non-traditional regions.

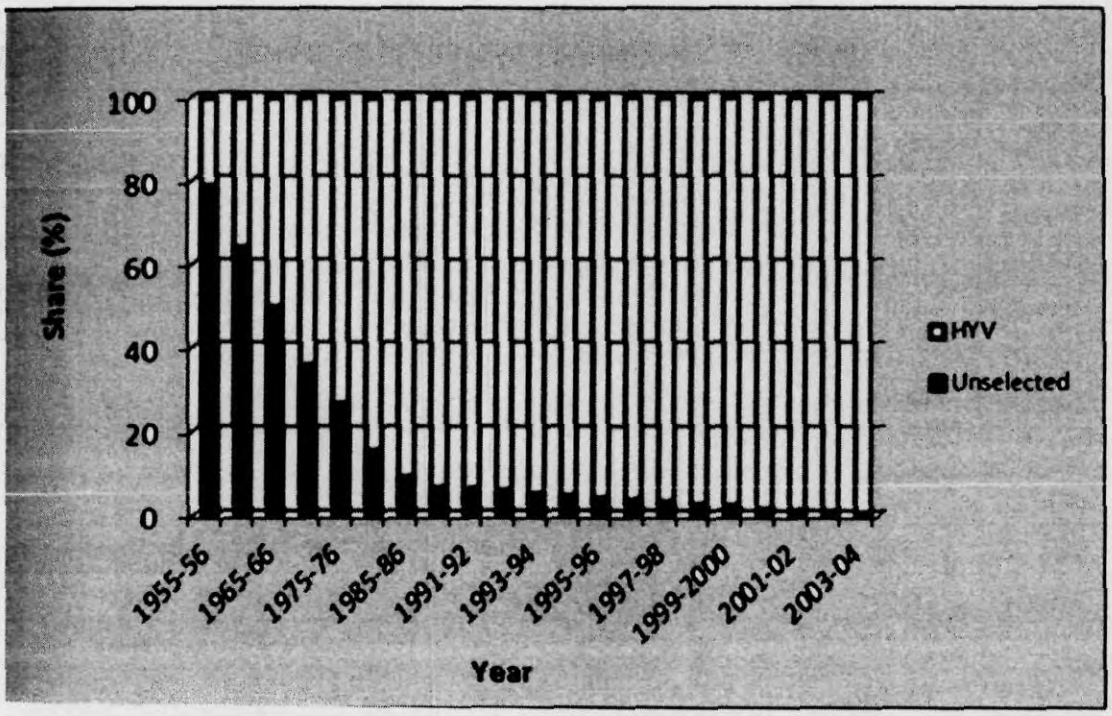

Fig 1. Share of unselected and HYV planting materials in total area planted

In fact, the share of area under non-traditional regions increased from 1.28 during 1961-62 to 23.87 per cent during 2011-12 (Rubber Board, 1987-88 & 2013) and the share of subsidy disbursed in non-traditional region (including NE region) increased from 42 per cent (2004-05) to 67 per cent (2013-14) during the past 10 years (Table 2).

Development cost and planting subsidy

Conceptually, apart from promoting the adoption of HYV planting materials and the prescribed agro-management practices the planting subsidy has been expected to provide a certain extent of relief to the growers during the cash-strapped immature phase spanning around seven years. Though the rates of planting subsidy had been revised with the increase in the estimated development cost over time the recent trends are disappointing. Table 3 shows the trends in the estimated development costs and rates of planting subsidy in the traditional regions since the introduction of RPD scheme.

While enhancement in the rate of planting subsidy in the traditional regions marked only a fivefold increase, the estimated development cost recorded a 16 fold increase during the 34 year period from 1981 to 2014. The most disturbing trend has been the decline in planting subsidy as a proportion of development cost from 25.51 per cent in 1981 to 8.00 per cent during 2014. The share ranged from 6.24 (2012 & 2013) to 25.51 (1981) with an average share of 18.03 per cent during the period.

Though the basis of the periodical revision in the rate of planting subsidy by the government has been the development cost estimates provided by the Rubber Board, the recent trends are indicative of serious changes in the perceptions on planting subsidy with important policy implications. In this context, the strategies pursued by Malaysia and Thailand assume importance (Table 4). In Malaysia, for replanting, growers are provided with a replanting subsidy at the rate of US $ 2859.80

Table 2. New planting/Replanting subsidy sanctioned

Year	Amount (Rs - million)			Share (%)	
	Traditional	NT including NE	Total	Traditional	NT including NE
2004-05	79.30	57.42	136.73	58.00	42.00
2005-06	108.55	65.50	174.05	62.37	37.63
2006-07	107.75	87.67	195.43	55.14	44.86
2007-08	120.94	108.39	229.33	52.74	47.26
2008-09	133.97	167.14	301.11	44.49	55.51
2009-10	140.08	193.03	333.11	42.05	57.95
2010-11	146.62	210.28	356.90	41.08	58.92
2011-12	197.41	277.66	475.07	41.55	58.45
2012-13	133.79	310.75	444.55	30.10	69.90
2013-14	138.61	279.96	418.57	33.12	66.88
Total	**1307.03**	**1757.80**	**3064.83**	**42.65**	**57.35**

NT: Non-traditional region; NE: North-east region
Source: Unpublished data on planting subsidy, Rubber Production Department

Table 3. Trends in estimated development cost and rates of planting subsidy in traditional growing regions (Rs/ha)

Year	Estimated Development cost	Planting subsidy	Share (%)	Year	Estimated Develop-ment cost	Planting subsidy	Share (%)
1981	19600	5000	25.51	1998	72000	18000	25.00
1982	24000	5000	20.83	1999	72000	18000	25.00
1983	25900	5000	19.31	2000	72000	12000	16.67
1984	26500	5000	18.87	2001	72000	12000	16.67
1985	27400	5000	18.25	2002	86000	20000	23.26
1986	27700	5000	18.05	2003	86000	20000	23.26
1987	30000	5000	16.67	2004	86000	20000	23.26
1988	30500	5000	16.39	2005	86000	20000	23.26
1989	31900	5000	15.67	2006	86000	20000	23.26
1990	35000	5000	14.29	2007	97500	19500	20.00
1991	40000	5000	12.50	2008	97500	19500	20.00
1992	46000	5000	10.87	2009	97500	19500	20.00
1993	46000	8000	17.39	2010	97500	19500	20.00
1994	50000	8000	16.00	2011	97500	19500	20.00
1995	55000	8000	14.55	2012	312583	19500	6.24
1996	62000	8000	12.90	2013	312583	19500	6.24
1997	72000	18000	25.00	2014	312583	25000	8.00
						Average share (%)	18.03

Sources: (1) Cost Accounts Division, Rubber Board, (2) Finance & Accounts Department, Rubber Board, (3) Rubber Growers' Guide (various years)

(RM 9230) per hectare in Peninsular Malaysia, US $ 4337.72 (RM 14,000) per ha in Sabha State and US $ 4182.80 (RM 13,500) per ha in Sarawak State and in Thailand the planting subsidy amounts to 2200 US dollar per hectare whereas the planting subsidy in India amounts to only US $ 410 per hectare. Apparently, in both Malaysia and Thailand the rate of planting subsidy not only compensates a substantial portion of the development cost but implicitly it is also considered as an indirect income transfer so as to ensure sustainability of NR cultivation.

Trends in planting subsidy

The plight of planting subsidy becomes more

Table 4. Replanting subsidy in major NR producing countries

Country	Replanting subsidy
Peninsular Malaysia	US $ 2859.80 (RM 9230)/ha
Sabha State	US $ 4337.72 (RM 14000)/ha
Sarawak State	US $ 4182.80 (RM 13500)/ha
Thailand	US $ 2200 US /ha
India	US $ 410/ha

Source: Rubber Board, Personal communication, 2014b

explicit based on an analysis of trends in its real value since 1957. The rate of planting subsidy was Rs. 988/- per hectare during 1957 and it has been subjected to periodical revisions. The latest revision was in 2014 with an enhancement in the rate to Rs. 25000/- per hectare. Since the values expressed in nominal terms do not take into account the effect of inflation the real values were worked out to contain the effects of changes in general price level over time and the resultant effect of inflation on the rates of planting subsidy. Time series data on nominal and real values of planting subsidy (NP/RP) since 1957 are given in Table 5.

Table 5 is illustrative of the decline in the real values of planting subsidy despite the upward revisions in the nominal rate during the 58 year period from 1957 to 2014. In a comparative sense, the nominal values of the planting subsidy grew at a rate of 5.10 per cent whereas in real terms it recorded a negative growth rate of 2.27 per cent. More precisely, the real value of the planting subsidy declined from Rs. 988/- per hectare (1957) to Rs. 491/- hectare (2014) in absolute terms. In effect, the revisions in the rate of planting subsidy had not only been inadequate but also it declined to the extent of more than 50 per cent. Hence, the emerging trends underline the need for a paradigm shift in the approaches towards planting subsidy from a long-term policy perspective.

Policy options

The analysis clearly illustrated four points: (i) a steady decline in the share of planting subsidy in the total expenditure of the Rubber Board; (ii) a steep fall in the share of planting subsidy in the estimated development cost; (iii) more than 50 per cent decline in the real value of planting subsidy since its inception in 1957; and (iv) the need for reconstructing the conceptual basis of planting subsidy in the emerging scenario. Functionally, the worst–hit victims of the emerging scenario are the small rubber growers with a share of 93 per cent in total NR produced in India.

Although the perceived objectives of self-sufficiency and import substitution under a protected policy regime have become redundant in the era of market integration the sustainability of NR cultivation assumes paramount importance for its strategic commercial importance. Therefore, it becomes imperative to rediscover policy options for subsidising NR cultivation in the country. Conceptually, rubber cess is imposed on rubber produced in India at the current rate of Rs. 2 per kg. Hence, it is only logical to pay back the

Table 5. Trends in nominal and real values of planting subsidy

Rate of planting subsidy (Rs./ha)					
Year	Planting subsidy		Year	Planting subsidy	
	Nominal	Real		Nominal	Real
1957	988	988	1986	5000	642
1958	988	949	1987	5000	594
1959	988	915	1988	5000	55 3
1960	2471	2144	1989	5000	514
1961	2471	2140	1990	5000	467
1962	2471	2093	1991	5000	410
1963	2471	1928	1992	5000	373
1964	2471	1773	1993	8000	550
1965	2471	1557	1994	8000	489
1966	2471	1347	1995	8000	453
1967	2471	1335	1996	8000	433
1968	2471	1296	1997	18000	933
1969	2471	1220	1998	18000	880
1970	2471	1185	1999	18000	852
1971	2471	1122	2000	12000	530
1972	2471	980	2001	12000	512
1973	2471	753	2002	20000	825
1974	2471	697	2003	20000	782
1975	7500	2079	2004	20000	735
1976	7500	2039	2005	20000	704
1977	7500	1938	2006	20000	668
1978	7500	1936	2007	19500	621
1979	7500	1653	2008	19500	552
1980	5000	932	2009	19500	548
1981	5000	852	2010	19500	500
1982	5000	813	2011	19500	459
1983	5000	756	2012	19500	427
1984	5000	710	2013	19500	403
1985	5000	680	2014	25000	491
Growth rate (1957-2014)				5.10	- 2.27

Sources: Rubber Growers' Guide (various issues); Reserve Bank of India Monthly Bulletin (various issues)

cess collected as planting subsidy for replanting. This proposition assumes added significance as the estimated share of senile plantations in the total mature area is more than 49 per cent during 2013-14 (Jacob and George, 2008). Hence, it is necessary to initiate a scheme of differential rates of subsidy for replanting and new planting. While the prevailing rate may be applied to new planting the basis for fixing the rate of replanting subsidy shall be the life cycle yield reported for the most popular clone. Accordingly, the current rate of planting subsidy may be fixed at the rate of Rs. 68500 which is the amount derived by multiplying the rate of cess with the life cycle average yield of RRII 105. This proposition is fully justified as unlike tax a cess is exclusively earmarked for spending for the purposes specified in the respective Acts.

The current rate of replanting is 11000 ha (2012-13) and the estimated amount required to meet the same is Rs. 75.35 crores whereas the total amount required is Rs. 58.75 crores for new planting 23500 ha. Hence, the total amount required for planting subsidy is Rs. 133.83 crores during the year 2013-14. The total rubber cess collected by the Rubber Board was Rs. 116.87 crores and the estimated rubber cess CVD on imported rubber was Rs. 72.06 crores during 2013-14 (Siju and Joseph, 2014). In sum, the total value of the cess amounting to Rs. 188.93 crores is more than adequate to cover the expenditure in the proposed scheme of planting subsidy.

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References

Chandy, B., George, K.T. and Raj, S. (2010). Trends in farm income and wages in the rea of market uncertainty: an exploratory analysis of natural rubber sector Kerala. NRPPD Discussion Paper No. 5, National Research Programme on Plantation Development, Centre for Development Studies, Thiruvananthapuram. 22 P.

George, K.T. (2011). From Control to Decontrol: The Evolution of Rubber Propagation Policy in India (1949-1986). Working Paper No. ER/5. Rubber Research Institute of India, Kottayam, India. 44 p.

Personal communication (2014a). Information gathered from F&A Department, Rubber Board, Kottayam, India.

Personal communication (2014b). Information gathered from S&P Department, Rubber Board, Kottayam, India.

Reserve Bank of India (various issues). *Reserve Bank of India Monthly Bulletin*, Various issues from 1963 to 2014, Reserve Bank of India,Mumbai.

Rubber Board (1956). Replanting Scheme. *Rubber Board Bulletin*, Rubber Board, Kottayam.
Vol. 4(1):8-11.

Rubber Board (1983). *Indian Rubber Statistics*, Rubber Board, Kottayam, India, Vol. 17, p. 18.

Rubber Board (1987-88). *Indian Rubber Statistics*, Rubber Board, Kottayam, India, Vol. 18, p. 3.

Rubber Board (2005). *Indian Rubber Statistics*, Rubber Board, Kottayam, India, Vol. 28. p. 9.

Rubber Board (2013). *Indian Rubber Statistics*, Rubber Board, Kottayam, India, Vol. 36. p. 2 & 7.

Rubber Board (2014). *Rubber Growers' Guide*. Rubber Board, Kottayam, India. p. 108.

Rubber Board (various years). *Rubber Growers' Guide*, Rubber Board, Kottayam, India.

Siju, T. and Joseph, J. (2014). Cess on imported natural rubber: Legality and dilemmas in revenue appropriation. *Rubber Board Bulletin*, Rubber Board, Kottayam. Vol. 33 (1): 4-9.

Zhang, D, Guohua, F. and Zhiyong, L.(2009). Issues on Natural Rubber "Going Global" Strategy of Three State Farms in China and Cooperation with ASEAN Countries . ICS Working Paper No.2009-13. Institute of China Studies, University of Malaya, 50603, Kuala Lumpur, Malaysia. 13 P. ■