MARKETING EFFICIENCY OF NATURAL RUBBER BY ORGANIZED AND UNORGANIZED SMALL GROWERS IN TRIPURA - AN ANALYSIS

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This study examines the price spread of sheet rubber in Tripura *vis-à-vis* small rubber growers organized under the Rubber Producers Societies (RPS) - Block Planting Scheme (BPS) network and unorganized growers. The study was based on primary data collected from 305 small rubber growers and 39 market functionaries. The net price of sheet rubber received by growers in the organized sector was about 90 per cent of the buyer's price. Conversely, the growers' share in the unorganized sector was found ranging from 83 to 86 per cent. The better marketing efficiency of growers organized under the RPS-BPS network over the unorganized growers has been reflected in terms of lower price-spread, higher efficiency index and increased growers' share. The study suggests appropriate institutional interventions for more coverage of the small rubber growers under RPS.

Keywords: Block planting units, Marketing efficiency, Natural rubber, Rubber producers societies, Tripura

INTRODUCTION

The Rubber Board in collaboration with the state government agencies has been making concerted attempts to promote rubber cultivation in Tripura during the past four decades. The achievements in rubber cultivation and production are widely acknowledged and the dedicated efforts have transformed the agricultural sector in the targeted regions from traditional shifting cultivation (Jhum) to settled mode of income intensive rubber cultivation (Dey, S.K., 2009). Although there were systematic attempts to analyse the achievements in the cultivation and production of natural rubber (NR), no such attempt has been made so far to

evaluate the status of primary processing and marketing in the state. Apparently, the growers outside the ambit of Block Planting Scheme (BPS) - Rubber Producers Societies (RPS) network are exposed to unscientific methods of processing and exploitation by the intermediaries (Rajeevan and Majumdar, 2005). Another important factor which underlines the need of a comparative study is the geographical isolation of the state (Barah, 2007; Birthal, 2010) and its implications on marketing of NR by the organised *vis-à-vis* the unorganised growers covered under the institutionalized support mechanisms. Moreover, the unorganized small and marginal farmers are ignorant

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about the price trends, changes in market structure and the prevailing market imperfections. In fact, with the expansion of rubber production in the state, there was a spurt of local traders to take advantage of the inadequate transport and infrastructural facilities (Viswanathan, 2008). In this background, the present study was undertaken to understand the differences in the marketing costs, marketing margins, price spread and marketing efficiency of growers organized under institutionalized set up *vis-à-vis* individual growers from a policy perspective.

Rubber Producers Societies/Block Planting Scheme

The initial phase of NR cultivation in Tripura had been dominated by the public sector agencies. Simultaneously, attempts were also made to ensure active involvement of the local peasantry with region-specific institutional interventions and support programmes (Joseph *et al.*, 2009; Sharma *et al.*, 2011). Among the various promotional schemes targeted for the promotion of NR across the targeted groups, BPS and RPS are unique. The BPS/RPS schemes have motivated the local peasantry to involve in all spheres of operation right from tapping, processing to marketing. The BPS is a collaborative project of the Rubber Board and Government of Tripura introduced in 1992 exclusively for the rehabilitation of Scheduled Tribes and Scheduled Castes. It is a comprehensive scheme with the characteristic features of group/community approach in all the spheres of operations up to primary processing & marketing and family labour participation as wage labour during the immature phase of the plantations spanning six years. Finally, the regular monitoring and supervision by the agencies concerned and active involvement

of the beneficiaries have lent credibility and popularity to the scheme across regions and among the targeted communities within the state during the past two decades. At present there are 49 mature and nine immature block planting units with 3423 beneficiary families. The involvement of RPS in primary processing and marketing of NR operating in a compact area of 2 to 3 km radius with membership ranging from 50 to 200 have provided adequate strength to group approach. At present, there are 59 RPS with group processing facilities. The institutions also provide a platform for effective implementation of extension programmes and linking the local peasantry to main stream development process.

MATERIALS AND METHODS

The present study was conducted in west and south districts of Tripura (recently, these districts are further divided into 5 districts, *viz.*, West Tripura, Khowai, Sepaijala, Gomati and South Tripura, for administrative purpose) as more than three fourth of the area under NR in the state is concentrated in these two districts. The database of the study consisted of information gathered from two categories of growers, *viz.*, growers organized under RPS-BPU network (189 beneficiaries) and 116 individual growers not covered by RPS-BPU network. Altogether, 305 small rubber growers were covered for accessing the marketing of natural rubber in Tripura. The survey also covered 39 intermediaries consisting of dealers, Manimalayar Rubbers (a Rubber Board promoted trading company) and village traders/ sub agents of the dealers. The relevant primary data were collected by personal interview method during the year 2011-2012. The secondary data for marketing of natural rubber by

RPS/BPU were collected from respective RPS/BPU and from the regional offices of Rubber Board.

The data were collected from selected growers, dealers, trading company and village traders about their costs of marketing sheet rubber. The scope of the present study is limited to the primary marketing of NR within the state. The following analytical concepts and tools were utilized for the analysis:

Analytical tools

Farmers' net price: The net price received by the farmers was estimated as a difference between gross price received and sum of the transaction costs incurred. The farmers' net price was expressed in Equation (1):

$$NP_F = GP_F - C_F \ \dots (1)$$

where,

NP_F = The net price received by the farmers ($₹$ kg^{-1})

GP_F = The gross price received by farmers ($₹$ kg^{-1}), and

C_F = The sum of transaction costs incurred by the farmers during marketing ($₹$ kg^{-1})

Marketing margins: The margins of market intermediaries include profits and returns, which accrue to them for storage, the interest on capital and establishment. The general expression for estimating the margin of the intermediaries is given below:

Intermediaries margin = Gross price (sale price) – {Purchase price (cost price) + Cost of marketing}

Net marketing margin of dealer/ sub agent of dealer is given mathematically by equation (2):

$$MM_D = GP_D - \{GP_F + C_D\} \ \dots (2)$$

where,

MM_D = Net marketing margin of the dealer ($₹$ kg^{-1})

GP_D = Gross price (purchase price of consumer) ($₹$ kg^{-1})

C_D = The marketing cost of the dealer ($₹$ kg^{-1})

The definition of GP_F is same as given in Equation (1).

In the marketing chain, when more than one dealer is involved, *i.e.* if there are primary dealer/ sub agents, secondary dealers, *etc.*, then the total marketing margin of the dealer's is the sum of the margins of all the dealers. Mathematically, (Equation 3)

$$MM = MM_{D1} + \dots + MM_{Di} + \dots + MM_{Dn} \ \dots (3)$$

where,

MM = Total marketing margin

MM_{Di} = the marketing margin of the ith dealer.

Similarly, total marketing cost (MC) incurred by the producer/seller and by various intermediaries was calculated as per Equation (4):

$$MC = C_F + C_D \ \dots (4)$$

Marketing efficiency: Most commonly used measures are conventional output to input ratio, Shepherd's ratio of value (price) of goods marketed to the cost of marketing (Shepherd, 1965) and Acharya's modified marketing efficiency formula (Acharya and Agarwal, 2001). The formula was expressed as Equation (5):

$$ME = \frac{NP_F}{MM + MC} \ \dots (5)$$

The definitions of NP_F, MM and MC were the same as in expressions (1), (3) and (4).

RESULTS AND DISCUSSION

Marketing practices and channels

The marketing of sheet rubber through four main supply chains under organized and unorganized sectors in the study region has been depicted in Fig. 1. All the supply chains exhibited a four-tired structure except the supply chain IV. The buyer at the end of the supply chain is primarily big dealers procuring NR on behalf of consuming industries located outside the state. A small portion is purchased by indigenous consuming industry. Around 83 per cent of sheet rubber in organized sector was marketed through supply chain I while 72 per cent of sheet rubber in the unorganized sector was marketed through supply chain III. It was observed that the growers in the organized sector (RPS/BPU) sold their produce as smoked sheet rubber whereas growers in the unorganized sector sold as unsmoked sheet rubber.

Price spread of sheet rubber

The price spread through four main supply chains of sheet rubber has been worked out in the study. The price spread in supply chain I (Grower – RPS/BPU – Trading Company - Buyer) is discussed in depicted in Table 1. The growers supply latex at the collection center of the society (Group Processing Centre). These societies process the latex into smoked sheet rubber (commonly called ribbed smoked sheet) which is sold to the trading company. The supply chain shows an organized set up starting with individual growers backed by group processing and marketing efforts of the societies. All the post-harvest expenses *viz.*, processing, grading, packaging, transportation, loading/unloading and supervision, were collectively incurred by the member growers/society. A perusal of the Table 1 reveals that net price received by the grower was ₹ 211.83 per kg which was 91.13 per cent of the buyer's price. The expenses borne by the societies were ₹ 5.22 per kg which was 2.25 per cent of the buyer's price. The processing and development fee (supervision, construction & maintenance of the GPC *etc.*) were the major expenses incurred by RPS/BPU. The margin of the Trading Company was 2.41 per cent. Although the trading company was found incurring various fixed expenses *viz.*, establishment cost, store house expenses, staff salaries *etc.*, for procurement and sale of sheet rubber the company does not incur

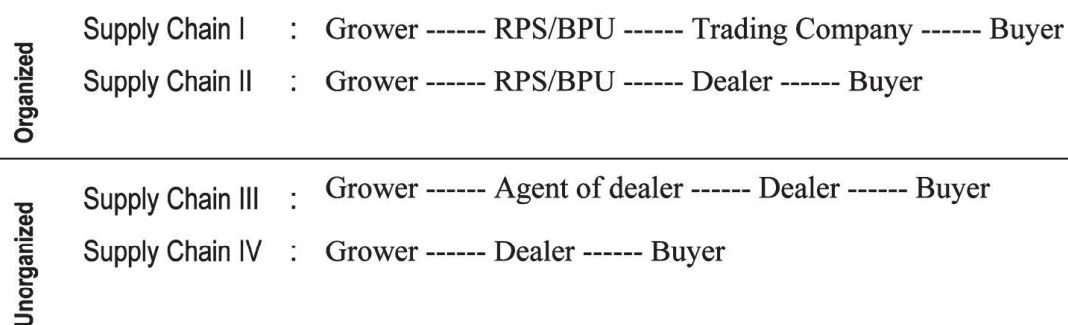|		
Organized	Supply Chain I	: Grower ------ RPS/BPU ------ Trading Company ------ Buyer
	Supply Chain II	: Grower ------ RPS/BPU ------ Dealer ------ Buyer
Unorganized	Supply Chain III	: Grower ------ Agent of dealer ------ Dealer ------ Buyer
	Supply Chain IV	: Grower ------ Dealer ------ Buyer

Fig.1. Supply chains of sheet rubber in Tripura

Table 1. **Price spread of sheet rubber in Tripura (2011-12) supply chain I: Grower-Society (RPS/BPU)-Trading company- Buyer**

Sl. No.	Particulars	₹ kg⁻¹	Percentage share in buyer's price
1	Net price received by Grower/ Society (RPS/ BPU's) purchase price	211.83	91.13
2	Expenses borne by RPS/BPU		
	i. Processing cost and development fee of society	4.48	1.93
	ii. Transportation	0.66	0.28
	iii. Loading/Unloading	0.07	0.03
	iv. Others	0.01	0.00
	v. Sub total	5.22	2.25
3	RPS/ BPU's sale price / Trading company's purchase price	217.05	93.38
4	Margin of the trading company*	5.61	2.41
5	Trading company's sale price / Buyer's purchase price	222.66	95.79
6	Expenses borne by the buyer		
	i. Transport	5.18	2.23
	ii. Loading / Unloading	0.15	0.06
	iii. Tax @ 2%	4.45	1.92
	iv. Sub total	9.78	4.21
7	Landing cost for buyer	232.44	100.00

*For procurement and sale of sheet rubber the trading company doesn't incur any transportation cost

any variable cost. The Manimilayar trading company is sponsored by The Rubber Board and Rubber Producers Societies. The expenses borne by the buyer was ₹ 9.78 per kg which was 4.21 per cent of buyer's price (₹ 232.44/kg⁻¹).

The price spread of rubber in supply chain II (Growers- BPU/RPS - Dealer -Buyer) is given in Table 2. Supply chain II reveals the organized set up under instutianalized support of RPS/BPU wherein the sheet rubber was sold to the NR dealers after group processing and marketing. The net price received by the growers was ₹ 203.73 per kg which was 89.19 per cent of the buyer's price (₹ 228.41 per kg). The growers were not incurring the post-harvest expenses *viz.*, processing, grading, packaging, marketing *etc.* All the post-harvest expenses were incurred by the society. The expenses borne by the society were ₹ 5.75 per kg. The expenses borne by the dealer was ₹ 0.42 per kg. The dealer margin was ₹. 2.56 per kg which was 1.12 per cent of the buyer's purchase price. The expenses incurred by the buyer were high in supply chain II as compared to the supply chain I because the tax on the transaction through dealers was five per cent.

The price spread of sheet rubber in the unorganized sector (individual growers) is given in Tables 3 and 4. The supply chain III (Table 3) reveals that net price received by the growers as ₹ 184.74 per kg which was 83.38 per cent of the buyer's price (₹ 221.57 kg⁻¹). The growers were found selling the produce as unsmoked rubber and agents/dealers were found smoking,

Table 2. **Price spread of sheet rubber in Tripura (2011-12) Supply chain II: Grower-Society (RPS/BPU)-Dealer-Buyer**

Sl. no.	Particulars	₹ kg⁻¹	Percentage share in buyer's price
1	Net price received by grower/ society (RPS/ BPU's) purchase price	203.73	89.19
2	Expenses borne by RPS/BPU		
	i. Processing cost and development fee of society	5.52	2.42
	ii. Transportation	0.13	0.06
	iii. Loading/Unloading	-	
	iv. Others	0.10	0.04
	v. Sub total	5.75	2.52
3	RPS/BPU's sale price/ Dealer's purchase price	209.48	91.71
4	Expenses borne by dealer		
	i. Transportation	0.19	0.08
	ii. Loading/unloading	0.06	0.03
	iii. Others	0.17	0.07
	iv. Sub total	0.42	0.18
5	Margin of the dealer	2.56	1.12
6	Dealer's sale price/ Buyer's purchase price	212.46	93.02
7	Expenses borne by the buyer		
	i. Transport	5.18	2.27
	ii. Loading / Unloading	0.15	0.07
	iii. Tax @ 5%	10.62	4.65
	iv. Sub total	15.95	6.98
8	Landing cost for buyer	228.41	100.00

grading and packaging the sheet rubber into different grades. The margin of the subagents and dealers was ₹ 7.39 and ₹ 12.87 per kg, respectively, which were about three and six per cent of buyer's price. The expenses incurred by the buyer were almost equal to the buyer's expenses in supply chain II but higher than in supply chain I.

The price spread of sheet rubber in supply chain IV (Grower-Dealer-Buyer) is given in Table 4. The grower's sale price for sheet rubber was ₹ 185.56 per kg which is 86.81 per cent of the buyer's purchase price.

The growers were found selling unsmoked, ungraded sheets to the nearby dealers incurring only transportation expenses. The net price received by the growers was ₹ 185.29 per kg. The expenses borne by the dealer were about fifty paisa per kg. The margin of the dealers was about six per cent. The buyer was incurring an expense of ₹ 15.25 per kg.

Marketing efficiency of sheet rubber

Marketing efficiency shows the farmers share to that of expenses (cost and margins)

Table 3. **Price spread of sheet rubber in Tripura (2011-12) supply chain III: Grower-Village trader-Dealer-Buyer**

Sl. no.	Particulars	₹ kg^{-1}	Percentage share in buyer's price
1	Net price received by grower/ Village trader's purchase price*	184.74	83.38
2	Expenses borne by the village trader		
	i. Transportation	0.47	0.21
	ii. Loading/ Unloading	0.05	0.02
	iii. Others	-	
	iv. Sub total	0.52	0.23
3	Margin of the Village trader	7.39	3.34
4	Village trader's sale price/ Dealer's purchase price	192.65	86.95
5	Expenses borne by the dealer		
	i. Transportation	0.19	0.09
	ii. Loading/unloading	0.06	0.03
	iii. Others	0.17	0.08
	iv. Sub total	0.42	0.19
6	Margin of the dealer	12.87	5.81
7	Dealer's sale price/ buyer's purchase price	205.94	92.95
8	Expenses borne by the buyer		
	i. Transport	5.18	2.34
	ii. Loading / Unloading	0.15	0.07
	iii. Tax @ 5%	10.30	4.65
	iv. Sub total	15.63	7.05
9	Landing cost for buyer	221.57	100.00

* Purchase at farmgate

incurred in moving the produce to the consumer (buyer in present study). The higher ratio would indicate the higher marketing efficiency (better performance of the market). The marketing efficiency of sheet rubber under different supply chains (Table 5) showed a higher marketing efficiency ratio in the organized sector mainly due to higher price realization by the farmers on account of group marketing and lower marketing margins. The operational efficiency, measured in terms of cost of performing marketing activities, was highest in supply chain I due to the benefits accruing from the economies of scale (the cost advantages that enterprises obtain due to size, output, or scale of operation), procurement of raw material and sale of processed NR. The supply chain II showed second highest marketing efficiency under the RPS-BPU organizational arrangements linked to private dealers. However, the unorganized growers dependent on private dealers represented in supply chain III and supply chain IV showed lower marketing efficiency. The lowest marketing efficiency

Table 4. **Price spread of sheet rubber in Tripura (2011-12) supply chain IV: Grower-Dealer- Buyer**

Sl. no.	Particulars	₹ kg⁻¹	Percentage share in buyer's price
1	Grower's sale price/ Dealer's purchase price	185.56	86.81
2	Expenses borne by the grower		
	i. Transportation	0.27	0.13
	ii. Loading/Unloading	-	-
	iii. Others	-	-
	iv. Sub total	0.27	0.13
3	Net price received by grower	185.29	86.68
4	Expenses borne by the dealer		
	i. Transportation	0.19	0.09
	ii. Loading/unloading	0.06	0.03
	iii. Others	0.17	0.08
	iv. Sub total	0.42	0.20
	Margin of the dealer	12.52	5.86
5	Dealer's sale price / Buyer's purchase price	198.50	92.86
6	Expenses borne by the buyer		
	i. Transport	5.17	2.42
	ii. Loading / Unloading	0.15	0.07
	iii. Tax @ 5%	9.93	4.64
	iv. Sub total	15.25	7.14
8	Landing cost for buyer	213.75	100.00

in supply chain III was on account of more number of market intermediaries in the chain. Similar result was also obtained by Sharma *et al.* (2013).

CONCLUSION

The study on marketing efficiency of the four major supply chains dealing in sheet rubber in Tripura revealed that supply chain I opted by small rubber growers organized under RPS-BPU network is most efficient. The farmers share in buyer price was found highest in the supply chain I (91.13 %) and was the lowest in supply chain III (83.38 %). The higher operational efficiency as well as pricing efficiency has

Table 5. **Market efficiency of sheet rubber under different channels**

Sl. no.	Particulars	Supply chain I	Supply chain II	Supply chain III	Supply chain IV
i.	Buyer's purchase price (₹)	232.44	228.41	221.57	213.75
ii.	Price spread (₹)	20.61	24.68	36.83	28.46
iii.	Total marketing margin (₹)	5.61	2.56	20.26	12.52
iv.	Total marketing cost (₹)	15.00	22.12	16.57	15.94
v.	Net price received by growers (₹)	211.83	203.73	184.74	185.29
vi.	Marketing efficiency (%)	10.28	8.25	5.02	6.51

been reflected in lower price-spread, higher efficiency and growers' share. The study has demonstrated the benefits of community participation scheme with proper guidance and monitoring. This model of group processing and organized marketing system can be extended to

growers not covered under the RPS-BPU network in the state.

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