

Chapter-1

Rubber Enterprise: The Conceptual and Ecological Input

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Rubber is one of the successful histories about a foreign tree been introduced to a new continent. In less than fifty years after its introduction in Southeast Asia, the latex from rubber trees became an important economic source not only for local governments but for a large number of small producers who discovered in rubber an important source of continuous cash flows.

Now a days, rubber becomes a major crop for smallholders in India and it is still vital for the welfare of millions of small farmers around the region and it can be found as part of different production systems. These production systems can be rather complex in terms of diversity (biological and economical) with jungle rubber on one extreme, or much simpler in the form of pure rubber stands.

HISTORICAL BACKGROUND OF RUBBER PLANTATION:

Rubber (*Hevea brasiliensis* Mull.Arg. family: Euphorbiaceae), a native tree species to Amazon forests, has been successfully introduced as a cash crop in many developing countries, especially in Southeast Asia. Rubber

cultivation has been so successful that whereas Southeast Asia produced just 1 per cent of the world's rubber in 1906, it produced more than 75 per cent just 15 years later (Keong, 1976 cited in Dove 2002). Currently in Southeast Asian uplands, there is an agricultural transition underway from shifting cultivation-based subsistence production to commercial production based mainly on small-scale rubber cultivation (Liu *et al.* 2006; Bhagwat and Willis 2008; Manivong and Cramb 2008). Holders of small-scale rubber plantations in this region, with average landholdings of less than 2ha, produce more than 70 per cent of the world's total rubber (Somboonuske 2001). Being a highly profitable investment, rubber can be seen as having considerable potential for poor upland farmers in line with government policy for stabilizing shifting cultivation and supporting new livelihood options for poverty reduction (Manivong and Cramb 2008). Many of the upland areas in Southeast Asian countries that have been converted to rubber are associated with shifting cultivation (Padoch *et al.* 2007; Ziegler *et al.* 2009). In the Southeast Asian uplands, there is an agricultural transition underway from subsistence production based on shifting cultivation to commercial production based mainly on small-scale rubber (*Hevea brasiliensis*) cultivation which supports the stabilization of shifting cultivation and provides livelihood options for poverty reduction.

Rubber plantation agriculture has evolved as an estate-based system in the tropical Asian countries since the early 1900s, mostly under the patronage of Western colonialism. Though rubber is grown in more than 20 countries now, four countries (*viz.*, Indonesia, Malaysia, Thailand and India) who were also the pioneers in commercial rubber plantation development,

continue to dominate in area (77%) and production of rubber (79%) in the world. In India, it was introduced in 1873 but commercial cultivation started in 1902. Globally, India stands 5th in area, 2nd in productivity, 4th in production as well as in consumption.

Rubber Plantation in North East India

India ranks fourth in world production of natural rubber. A large chunk of its domestic demand (nearly 97 per cent) is met from domestic production. Rubber is traditionally grown in India in the hinterlands of the South West Coast comprising of the state of Kerala and adjoining Kanyakumari District of Tamilnadu. This tract is, however, now reaching a level of saturation for rubber cultivation and the scope of further expansion of the crop is very much limited. Considering this fact, the expansion of rubber cultivation, which is of prime importance for setting up rubber production, has to take place mainly in non-traditional areas. Non-traditional areas so far identified as almost fully or marginally suitable for rubber cultivation are Arunachal Pradesh, Assam, Manipur, and lower reaches of hills of Meghalaya, Mizoram, Nagaland and Tripura excluding the other state of India.

Although the North Eastern Region lies far outside the traditional rubber growing zone, the agro-climatic conditions obtained here are unique in as much as near tropical features are experienced in most parts owing to low elevations, exposure to monsoons and other moderating influences. The positive results obtained from trial plantations undertaken in early 1960s in the then undivided Assam and Tripura, commercial scale plantations were raised by Government Forest and Soil Conservation Departments. Public Sector Corporations set up later joined rubber planting endeavours on

extensive scales. Thus while in Assam and Tripura, Public Sector Corporations are leading in the rubber plantation sector, in Meghalaya, Manipur, Mizoram and Arunachal Pradesh the role has played by the State Forest and Soil Conservation Departments. Individual growers are also contributing to fast growth of rubber cultivation in this region.

Another worth mentioning feature is that most of the tribal populations in the N.E. Region practiced shifting cultivation following the Slash and Burn method, locally known as 'jhum' cultivation causes serious soil erosion and other ecological problems. Rubber cultivation, which has already attracted large-scale participation of tribal, is proving to be an effective means of weaning away the 'jhum' cultivation.

Rubber Plantation in Tripura

Initiation: Rubber plantation was raised for the first time in Tripura in 1963 by the State Forest Department. Rubber Board responded by opening its first (one-man) office in NE at Agartala in 1967. Tripura Forest Development & Plantation Corporation Ltd. (TFDPC), a State Government Undertaking established in 1976, adopted rehabilitation of degraded forests through rubber plantation as its primary objective. Rubber has been identified as one of the thrust areas in Tripura, in view of its suitability to the terrain and the acceptability amongst the people. Studies have shown that about 1,00,000 hectares of area in the state can be brought under rubber plantation. The area under rubber cultivation at present is estimated to be about 26,500 hectares, which is the second largest, after Kerala. The yield per hectare and the quality of rubber are also comparable to Kerala's

plantations. In fact, Tripura is now considered the "Second Rubber Capital of India" by the Rubber Board.

Rehabilitation through rubber: TFDPC implemented a project for rehabilitation of 100 tribal shifting cultivators through rubber plantation at its Warangbari Plantation Centre in West Tripura under a centrally sponsored scheme. The families worked on payment of wages for establishment of their own plantation with the hope of a good earning from sale of latex on maturity. The project caught the imagination of the planners as well beneficiaries. The Warangbari experience was the precursor for establishment of another public sector undertaking, Tripura Rehabilitation Plantation Corporation Ltd. (TRPC) in 1983. It was set up with the primary objective of economic rehabilitation of tribal shifting cultivators (*jhumias*), tribal landless and small farmers mainly through rubber plantation. This rehabilitation model was utilized *mutatis mutandis* by the Tribal Welfare Department, Tripura Tribal Areas Autonomous District Council (TTAADC) and finally by the Rubber Board is its highly acclaimed Block Plantation scheme. Presently rubber plantation is mushrooming at substantial rate due to high market value and continuous flow of income and it has become a vital source of livelihood of thousands of poor famers.

Rubber the most important Plantation crop in Tripura: Rubber has now attained the status of the most important plantation crop in Tripura not merely because of its commercial success, but more so due to its innovative application for economic rehabilitation of shifting cultivators, which delivered generally a degree of success in a manner hitherto not experienced in any rehabilitation package on un-arable uplands. Tripura is now second

largest rubber growing state in India with 33.7 per cent of the potential area under rubber.

Benefits of rubber plantation

Socio-economic benefits

- Gainful self-employment and sustainable livelihood for youth.
- Generate direct employment-around 1000 man days per hectare during immature phase and permanent job for 7 persons per 10 hectare in mature phase.
- Indirect employment-nursery, production and distribution of plantation inputs, intercropping, rubber dealers, processors, rubber wood cutting, sale and processing and marketing.
- Ancillary income through honey, rubber seeds etc.
- Effective in shifting cultivator settlement of programme.
- Potential export of NR/ rubber goods to neighbouring countries when production increases.

Ecological benefits

- Provides a green leguminous cover and green umbrella above the soil.
- Rubber tree has almost all the attributes of a forest species.
- Purifies atmosphere through carbon sequestration.
- Improves soil properties through adding of organic matters, keeps the soil cool, and enriches soil fertility, porosity and water intake capacity.

CONCEPT AND APPROACHES OF THE STUDY

Socialization also refers to the development of the individual from infancy upwards; it is intertwined with the educational system, whether through

formal education in schools, through non-formal programmes, or through informal education such as family upbringing. It is intrinsically based upon the right to education and hence the maximization of the potential of the individual in the process of development. Two basic questions are of interest to this study. First, to what extent does technology contribute to the socialization process in general, particularly in the educational system? Second, to what extent does technology help to promote human rights education in particular?

Socialization is nothing more than the educational process by which we learn everything and thus socialization impacts on each and every one of us. It is a process provides the individual with the skills and habits necessary for participating within their own society; a society itself is formed through a plurality of shared norms, customs, values, traditions, social roles, symbols and languages. Socialization is thus 'the means by which social and cultural continuity are attained'. (Clausen, 1968).

Socialization, however, is not a normative term, it describes a *process* which may or may not affect the reflexive agent, and which may or may not lead to desirable, or 'moral', outcomes. Individual views on certain issues, such as race or economics, may be socialized (and to that extent *normalized*) within a society. Many socio-political theories postulate that socialization provides only a partial explanation for human beliefs and behaviours; that agents are not 'blank slates' predetermined by their environment. (Pinker, 2002).

Scientific research provides strong evidence that people are shaped by both social influences *and* their hard-wired biological makeup (Dusheck, 2002;

Carlson, N. R. *et al.*, 2005; Ridley, 2003 and Westen, 2002). Genetic studies have shown that a person's environment (socialization) interacts with their genotype to influence behavioural outcomes. (Kendler and Baker, 2007).

A number of theories exist to explain how people become socialized and develop a sense of self. The looking-glass self refers to the interactive process by which we develop an image based on how we imagine we appear to others. Other people act as a mirror, reflecting back the image we project through their reactions to our behaviour. According to Mead, seeing ourselves as others see us is only the beginning. Eventually we not only see ourselves as others see us, but actually take on or pretend to take the roles of others. This act of role-taking forms the basis of the socialization process by allowing us to anticipate what others expect of us.

This Chapter broadly deals with the described conceptual framework used in this study in order to provide a theoretical base for the empirical investigation and guidance for the selection of relevant predictor variables as well as to envisage a set of hypothesis for testing.

1. The Conceptual Framework of the Study

A. Technology and Transfer of technology: Problems and Scope

Technology is the summation of techniques and it is used by every human kind to create an environment which would be more suitable than the previous one. Thus, it has been a human character to create and apply it continuously with the change of need, environment and culture.

The nuances are rendered more complicated by the unsettled notion of technology transfer. Four tendencies are visible from the documentation

available (Santikarn, 1981). The first suggests that there is a transfer of technology "when it is used effectively in a new environment.

The second tendency is based upon whether "the local work force is able to take charge of the imported technology and to do so efficiently." By contrast, according to the third tendency, technology transfer takes place "when technology spreads to other local productive units in the recipient economy," such as through sub-licensing agreements. Finally, the fourth tendency emphasizes a process of indigenization, i.e. technology transfer takes place when "imported technology is fully understood by local workers, and when these workers begin to adapt the imported technology to the specific needs of the environment."

B. Technology-Society Interface: Problems and Scope

Main problems	Description
Lack of comprehensive approach	Job creation aspect has been largely exaggerated. Too much emphasis on maintaining traditional occupational patterns
Lack of future orientation	Entire thrust is towards dealing with immediate problems. Little or no consideration for future solutions.
Emphasizing the tool and not the problem	The technology selection process ignores some vital aspects of the problems, such as the image of modernism created by the powerful demonstration effect
Lack of people's participation	Every appropriate technology must start with and be implemented by people who need it. What is appropriate can only be determined by the people themselves.

Source: UN (ESCAP), Technology for Development (1984), p. 85.

C. Technology and Socialization

Many a time we make mistake in understanding the differences between concept and commodity, need and devices to meet the need. A bag of fertilizer thus presents some inputs, not the concept of nutrient management for getting desired yield, a tractor, on the other way, is just a machine to harrow the land, not exactly in the concept to get the drudgery eliminated substantially and done the work with less of error.

Then what is left is the socialization process that would combine the concept with commodity, techniques with tools, technology with culture. After having a technology socialized we can expect a complete social process in place. This kind of commodity inflow into a social system through acculturation is called **crealization**.

Acculturation has been happening to every farm families with any exotic technology has been attempted to be diffused in a social system. Once a technology is being introjected, one may adopt, reject or reform it and in the passage of its subsequent adaptation, one may discontinue or reinvent it. This whole lot of process undergoes, again, a **social osmosis process**.

Technology socialization processes logically include all possible outcome or responses to technology prescription, i.e. **adoption, rejection, discontinuance, reinvention and elimination too**. These all being done by a farmer (or by any individual in this world) to get his existence adapted to the change process through a perfect thought process and concluding in the most intelligent manner as well.

In understanding the technology socialization process, some of sociological terms need to be conceived interalia.

Socialization: It is a process to provide an individual with skill and habits necessary for participating within their own society; a society itself is formed through a plurality of shared norms, customs, values, tradition, social roles and languages.

There are different types of socialization:

Primary socialization: Primary socialization occurs when a child learns the attitudes, values, and actions appropriate to individuals as members of a particular culture.

Secondary Socialization: Secondary socialization refers to the process of learning what is appropriate behaviour as a member of a smaller group within the larger society.

Development Socialization: Development socialization is the process of learning behaviour in a social institution or developing your social skills.

Anticipatory socialization: Anticipatory socialization refers to the process of socialization in which a person “rehearses” for future positions, occupation and social relationships.

Re-socialization: Re-socialization refers to the process of discarding former behaviour patterns and accepting new ones as part of a transition in one’s life. This occurs throughout the human life cycle.

Re-socialization can be an intense experience, with the individual experiencing a sharp break with their past and needing to learn and be exposed to radically different norms and values.

Gender Socialization: Gender socialization is the learning of culturally defined gender roles.

Racial Socialization: Racial socialization refers to the process of learning ones culture and how to live within it, but refers more specifically to the socialization of ethnic minority group.

Natural socialization occurs when infants and youngsters explore, play and discover the social world around them.

Planned socialization occurs when other people take actions designed to teach or train others - from infancy on. Natural socialization is easily seen when looking at the young of almost any mammalian species (and some birds). Planned socialization is mostly a human phenomenon; and all through history, people have been making plans for teaching or training others. Both natural and planned socialization can have good and bad features: It is wise to learn the best features of both natural and planned socialization and weave them into our lives.

Positive socialization is the type of social learning that is based on pleasurable and exciting experiences. We tend to like the people who fill our social learning processes with positive motivation, loving care, and rewarding opportunities.

Negative socialization occurs when others use punishment, harsh criticisms or anger to try to "teach us a lesson;" and often we come to dislike both negative socialization and the people who impose it on us.

Agents of Socialization

Agents of socialization are the people and groups that influence our self-concept, emotions, attitudes, and behaviour.

- i. The Family. Family is responsible for the youth and other things, determining one's attitudes toward religion and establishing career goals.
- ii. Education. Education is the agency responsible for socializing groups of young people in particular skills and values in society.
- iii. Religion. Religions play a major role in socialization, in that context often synonymous with 'indoctrination'.
- iv. Peer groups. Peers refer to people who are roughly the same age and/or who share other social characteristics (e.g., students in a college class).
- v. The Mass Media.
- vi. Other Agents: Work Place, Public institutions.

Technology Socialization: the analogy and application.

Primary socialization	Farmers start learning the benefits of a technology.
Secondary Socialization	Farmers start splitting the general benefit of the technology in terms of his own farm situation.
Re-socialization	Farmers reject a conventional technology to adopt a better alternative and get ready to absorb the shock of change.

E. Farmers have legitimate reason for non adoption (Vanclay, 2004).

The reason given by farmer for not adopting new technology can be categorized into legitimate reasons for non adoption (further developed from Vanclay, 1992):

- i. **Too complex.** In general terms, the more complex the innovation, the greater the resistance to adoption.

- ii. **Not compatible with farm and person objectives.** Farmers are more likely to adopt innovations that are compatible with other farm and personal objectives.
- iii. **Not flexible enough.** Many new management practices reduce farmer flexibility. Farmers like flexibility because it means that they can change commodities in response to market and climatic condition.
- iv. **Capital outlay is too high.** In addition to the economics of innovation in term of whether or not the innovation will increase profit, it is necessary also to consider the capital required to adopt the new technology
- v. **Risk and uncertainty is too great.** Risk is usually associated with commercial innovation because it refers to farmers' concerns that the capital and other resources invested in adopting the technology will not result in any benefits.
- vi. **Lacking of social infrastructure.** The social infrastructure refers to the social network of farmers, which provide a knowledge bank for farmers to utilise.

F. Axiomatic Structure for Socialization Process

The whole of the theorization process as well as approach has such been structured as to accommodate the following axioms:

Axiom-1	Post-adoption behaviour could be delineated as the most important and crucial part of the discourse rather than the adoption process itself in providing logical support to describe ' socialization of technology '.
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Axiom-2	The elements as included in the echelon of the so-called adoption process in the form of awareness, interest, evaluation, trial, adoption are not only skeptic or discrete but also get somewhere confusing or inappropriate while the entity the adoption behaviour in terms of technology dissemination is in concern.
Axiom-3	An all-comprehensive or resilient concept like ‘ socialization of technology ’ is an alternative paradigm in itself to include and encompass all possible pre-facto and post-facto psycho-social events to analyse the human behaviour while it is being exposed or rendered interactive with a technology option or basket of techniques.

The present study is logically based on the empirical elements of technology socialization process and all the post-adoption phenomena like rejection, discontinuance, reinvention etc., had comprised the crucial conceptual elements towards esteeming the socialization process as a whole; rather it is not a conventional way of studying technology gap, adoption gap, adoption level and the stuffs like.

SCOPE AND OBJECTIVE OF THE STUDY

The present study was carried out in some selected place of Tripura in order to investigate the cognitive process like value towards adoption, rejection, discontinuance and cultural practice like reinvention and several barriers relating to rubber plantation. Besides few researches have been conducted on the issue pertaining to technology socialization of rubber enterprise and factors involved in socialization.

The general objective of this study was to investigate, using literature review and field data collection, the level of socialization among the rubber growers.

The specific objectives of this study were:

- i. To study background and general status of rubber growers.
- ii. To study the spectrum of relationship and interaction among and between the dependent and independent variables to elucidate the whole nature and characters of socialization level of rubber growers.
- iii. To identify the constraints and challenges face by the rubber growers.
- iv. To derive some strategic implication out of the empirical studies for future approach.

LIMITATION OF THE STUDY

No research work possible in this world can go without limitation. This is also true for this study.

- i. Excess of homogeneity among the rubber growers of the locale of the study.
- ii. The respondents are not responsive against the questions being asked. Thus it has hampered in acquiring concrete data from some respondents.
- iii. Resource rich information could not be collected as majority of the respondents are very new in the arena of rubber plantation.
- iv. More time should have been devoted to generate crystal information.
- v. Today's farmers are not that ready to 'donate' without any expectation .That sometimes creates a barrier.

PRESENTATION OF THE STUDY

For analytical convenience the thesis is organized into seven chapters. Initial chapter encompasses the introduction, the scope and the objectives of the study. Chapter two presents a critical and concise review of the available research literature relating to the topic under study. Chapter three covers the research setting and source of data while chapter four presents methodology used in the study. Chapter five is concerned with results and discussion of the study; chapter six presents the summery and conclusion of the study and last chapter presents the list of literature referred for the study.