

Appropriate Technological Development Guidelines for Rubber Plantation for Community Economic Development Using Local Wisdom in Northeastern Thailand

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Abstract: Problem statement: The agriculturists in northeastern Thailand had more rubber plantations. They faced the problem for high investments from using the new technologies. The purposes of the study was to examine appropriate technological development guide lines for rubber plantation for community economic development using local wisdom. **Approach:** As a qualitative research, documentary and fieldwork were carried out using a survey, interviews, observations and workshop. The research data were analyzed descriptively. **Results:** As each plantation owner expand his or her land for rubber trees, it was necessary for them to used appropriate technology handling the soil preparation, selecting the rubber saplings, spacing between rows and individual rubber tree, maintenance, fertilizer, pesticide and equipment needed for good quality rubber sheets. The rubber plantation owners realized that they needs appropriate technology and understanding to handle their own problem; They should know about the water drainage underneath each plot of land; the rubber stocks that could resist diseases and droughts and give more substance. Each rai of land should grow 76 rubber trees with 50×50×50 centimeters of each tree bed. The air flows for the plants should be calculated; homemade fertilizer, pesticide, equipment, the sipping and rubber sheets making should also be fully applied. **Conclusion/Recommendation:** The farmers developed the technologies for community economic development using local wisdom by improving the soils and adjusted to the climate and the geographical feature. They cooperated with the officials who support them to learn how using the appropriate technologies.

Key words: Appropriate technological development guidelines for rubber plantation, community economic development, using local wisdom in northeastern Thailand

INTRODUCTION

Due to today 's development of technology mass media and global telecommunication, traditional farming was forced to change and began a no sustainable agriculture emphasizing single rather than multiple crops. The wood land or forest areas in the northeastern Thailand were replaced by rubber plantations. Only Chanthoppet, Mu 9 Saitho 9 North alone, 12,198 rai were covered with rubber trees from 2007 onward. Since the rubber Plantation has been new to the area, the Isan people had to adjust themselves but also all related technology, such as, fertilizer, pesticides, equipment and more. It was suggested that if the owner of each rubber Plantation wanted more from the Plantation as the output, he or she had to put in more of their investment. Very few

Plantation owners could probably try such a method. Most Plantation owners, however, preferred traditional to modern way of running a rubber Plantation. It was interesting to study how the Isan farmers used Appropriate Technology in running their rubber plantation for family as well as the community economic development making the impact to the nation's economy especially the amount of the rubber exported^[1].

MATERIALS AND METHODS

Area of the study: Ban Chanthoppet, Mu 9 Saitho 9 North, Amphoe Bankruad, Buri Ram Province. As a qualitative research, documentary and fieldwork were carried out using a survey, interviews, observations and workshop. The 47 sample included the owners of the

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rubber plantation wage workers, factory owners, factory renters truck owners, rubber sapling growers, officials from the offices of Provincial Agriculture and Support Fund, Members of Tambon Administrative organization, Bank of Agriculture and Co-operatives and Community Rubber Central Market. The research data were analyzed descriptively.

RESULTS

The background of Chanthoppet community Mu 9 Saitho 9 North: Chanthoppet community was established in 1965. At the beginning its residents migrated from Saithagoo community, Amphoe Ban Kruad, Buri Ram Province. Later on, its new comers came from many Northeastern provinces. such as, Nakhonratchasima, Surin, Srisaket, Yasothorn, Ubon Ratchatani, Kalasin, Maha sarakham, Roi Et, Khon Kaen and UdonTani. Their ethnic background were Thai-lao, Thai-Khmer, Suay (Kui) and Thai Korat. The name of the community was derived from the name of a mountain pass located between Thailand and Cambodia.

Geographically, the community was surrounded by hills. The soil, as derived from the mountain rock-sandstone, was fertile. Natural water resources were numerous creeks, such as, Okranop, Fai Mai, Baibag, Thangkor, Namsap and Thakao. The people depended upon those creeks for fish. Each family their had 15 rai, allotted by government, to live on. Based on an ecological approach, the community background was divided in to 3 periods^[1]:

- The period of wild forest. (Before 1965). The people, who later were its residents, came from all over the Northeastern Thailand. They looked for a better place for living-water and food resources. They marked and took over the public land without fear of government authority. It was a wild period of settlement
- The period of the forest opening. (1965-1982). It was the time the people cleared the wooded land or the forest for crop growing. In 1970 the government declared that several districts were dangerous due to communist insurgents, such as, Ban Kruad, Lahan Sai of Buri Ram Province. Tha Praya of Prachinburi Province;Karp Choeng of Surin. The mountain, such as, Phanom Dongrak and Bantat ranges were also covered by this announcement

For security reason and keeping the wooded land and forests, the people were for bade from entering

such areas for whatever reasons. The forest under the control of communist insurgents were not spoiled as much as the ones that were not. After the abolishment of the Communist Party of Thailand in 1982, the government allotted 15 rai of land for each family. The people then set up a “self-help” community where beliefs, rites and traditions were fully practiced again.

The way of life of the people at Chanthoppet community during the forest opening, to a large extent, depended on outside resources, especially the market. The people turned to growing market crops, such as, jute, cassava, sugar cane and corn rather than the popular food crop, such as, rice. It was not too long before they learned that their actual income from such a practice was far less than they expected. They spent a lot on day-labor, machinery fertilizer, pesticide and commercial goods and services. Many people turned to paid jobs in main cities nearby or in Bangkok:

- The period of forest conservation (From 1982-the present) as the community depended on outside influence, the peoples way of life and community economy became uncertain. The prices of their produce were ups and downs and were uncontrollable. The people soon learned that instead of running after producing crash crops they should step back and look around to see if there was anything they could do to bring natural surroundings back closer to the levels they once were. It was there their basic necessities were collected

The shift from growing jute and cassava to rubber trees: Rubber trees were introduced to Isan in 1978 Mr. Kanchanasit Meesuk, who was then director of Kantonlee Rubber Tree Experiment station (Surathani Rubber Research Center) Some rubber trees were planted at the self-help community of Amphoe Ban Kruad, now was Social Development, Center; Buri Ram Province.

The sapling plants used were rubber RRIM 600 planted on 15 rai in 1977. Nine years later the rubber trees grew well and gave the amount of raw rubber as expected. People of several communities in Amphoe Ban Kruad decided to grow more rubber trees on different plots of land. Mr. Sang Woraput (Chum Chon saithree 6), Mr. Sang Sungwon. (Chum Chon saitho 9 North), Mr. Nid Saoplai.

(Chum Chon saitho 1 North), Mr.Chat Meenongwa (Chum Chon saitho 8 south) and Mr. Sanga Dangkratoke. In 1989 the Office of the Rubber Fund allowed its 90 members to go ahead with growing rubber trees on 1,000 rai of land. The participant

members were all aware that their with participation was part of an experiment for the rubber trees growing in the Northeast.

The Office of the Rubber Fund pushed its goal further for raising the farmers, income. Mr. Kham Raksakoon, 77 years old and lived at 115 Mu 9, Chum Chon saitho 9 North, was the first person to grow the RRIM 600 and PB 251 on his 25 rai land in 1990 That same piece of land was used for jute, Sugar cane and Cassava growing. In 2007 there were 12,198 rai of rubber trees giving 271 kg of raw rubber per rai per year with a market price of 25,000-30,000 baht per rai per year. As each plantation owner expand his or her land for rubber trees, it was necessary for them to used appropriate technology handling the soil preparation, selecting the rubber saplings, spacing between rows and individual rubber tree, maintenance, fertilizer, pesticide and equipment needed for good quality rubber sheets. Lacking such technology, experiences and understanding, the new rubber tree growers had defaulter handling their plantations; regular maintenance of the plantations was low; the rubber trees were not fully grown as expected.

At the time of the study, some rubber plantation owners realized that they needs appropriate technology and understanding to handle their own problem; They should know about the water drainage underneath each plot of land; the rubber stocks that could resist diseases and droughts and give more substance. Each Rai of land should grow 76 rubber trees with 50×50×50 cm of each tree bed.

The air flows for the plants should be calculated; homemade fertilizer, pesticide, equipment, the sipping and rubber sheets making should also be fully applied^[2].

DISCUSSION

The study found that the decreasing investment for product capital to plant rubber were improving the soils by using the bio-chemical and planting the grasses for cattle and covered the lands. The rubber plantation concentrated on the spacing between the rubber trees than the rubber rows. It was the suitable methods for the plain and planted the corn and peanut while waiting for the rubber product to get more income^[3].

And the farmers accepted the new knowledge from the officials who promoted them to learn and adjust themselves to the climate and the geographical feature for the rubber plantation instead sugar cane and cassava^[4]. The using local wisdom technology for rubber plantation applied to plant the crops by using

the bio-chemical, improving the soils and planting on the plain.

CONCLUSION

Their trial and error had taught the rubber plantation owners valuable lessons by using appropriate technology and understanding how to run rubber plantations effectively so that Isan could be economically developed in the future.

Suggestion: It was suggested that appropriate technology should be applied in running rubber plantation in the Northeastern Thailand. Organic fertilizer should be used in plantations. The fertilizer should be homemade with government support for cost cutting and reasonable profit.

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REFERENCES

1. Suthep Soonthornpasuch, 2005. Esan Village During the Cold War Sociology on the Northeast. 4th Edn., Matichon, Bangkok, Thailand, ISBN: 974-323-457-8, pp: 20-21.
2. Nopporn Sayampon, Rewat Lertreutaiyotin, Rangarit Kaweeta and Sontichai Chanprem. 1999. The Economic Crops. 1st Edn., Kasetsart University, Bangkok, Thailand, ISBN: 974-553-616-4, pp: 471.
3. Vitoon Panyakoon, 2001. Farming for the Future: An Introduction to Low-External-Input Sustainable Agriculture. Papyrus, Bangkok, Thailand, ISBN: 974-87937-9-6, pp: 368(630)
4. Pramuan Sati, Jaruwan Dhamawat, Preecha Pratepha and Sampan Rittidech, 2005. Changes in the conscious mind in applying technology for growing rice at the Chee river basin in Northeastern of Thailand. *J. Soc. Sci.*, 1: 172-177. <http://www.scipub.org/fulltext/jss/jss13172-177.pdf>