

## PARTICIPATORY TREE CROPS DEVELOPMENT: INSTITUTIONAL AND GROUP DYNAMIC ANALYSIS

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### Abstract

An initial program of farmers' livelihood development through ReGrin Project in West Aceh and Nias was initiated to increase farmers' interest and benefits through strengthening farmer institutions. Through this project, supported by EU funding, three activities were implemented to enhance human and institutional capacity using participatory development approach. Farmer organizations and capacity enhancement activities were carried out to develop and empower farmer groups towards more productive rubber and cocoa based farming. Four sub-districts in West Aceh and three sub-districts in Nias were selected as pilot project sites. Sampled villages per sub-districts were then determined and a group of farmers was established in each village. Through farmer training and support, production of quality planting materials of rubber and cocoa was made possible in local villages at both individual and group nurseries. This activity was considered very productive. Focused farmer trainings on rubber and cocoa cultivation and group dynamics were provided to the farmers to enhance farmers' knowledge, skills and attitude in tree crop cultivation.

An evaluation of the performance of farmer institutions showed that there was a significant difference between groups. Some farmer groups (in Kubu and Rimba Langge villages) performed well and produced rubber clonal planting materials as planned, and planted in their rubber farms and also to expand rubber nursery activities. But many groups did not perform as expected. Individual attributes and socio-cultural aspects are identified as main constraints affecting their group dynamics. Efforts to improve individual attitudes and conducive environment for group cooperation should be provided continuously to develop and promote farmer institutions in West Aceh.

### Introduction

*Hevea* rubber, palm oil, cocoa, coffee, coconut and areca nut are important tree crops for household income and local economy in West Aceh, both before and after the tsunami of December 2004. The tsunami caused some damage to standing trees. But the major damage to the tree crop sector was through the damage on transport and marketing systems. In addition to technical support to develop these tree crops, improvements in farmer institutions and market channels are necessary for their longer term recovery and development. Therefore, an initial program of farmers' livelihood development through ReGrin Project in West Aceh and Nias was initiated to increase farmers' interest and benefits they can get through strengthening farmer institutions. Significant development in most agriculture development programs can be achieved through such farmer organizations.

The activity of farmers in managing their farms, processing and marketing the products will involve other related actors or institutions. To enhance farmers' bargaining position in working with other parties, farmers need to work together in the form of a group of farmers. More over, many on-farm activities can be effectively completed if farmers work together. So efforts to develop and strengthen farmers' organizations need to be carried out prior to the farming activities.

Under the project Rebuilding Green Infrastructure (ReGrIn) in West Aceh and Nias major effort was put into activities: (i) establishment of farmer organizations and their capacity enhancement; (ii) production of quality planting material of major tree crops through group and private nurseries; and focused farmer trainings on tapping, grafting, nursery management, silviculture and group dynamics, post-harvest processing.

Farmers' groups were established in West Aceh in mid 2006. At the initial phase, 10 farmer groups were established in 10 villages of four sub-districts. A total of 120 farmers participated in these groups. Technical trainings were conducted later in 2006 to increase farmers' knowledge and motivation in adopting recommended rubber-replanting technology, especially in developing rubber nurseries. To enhance the capability of farmers in working together in the form of farmers' organization, basic of farmers' empowerment training was also provided. Rubber nurseries were developed in early 2007 under the management of these groups. The nurseries and farmer groups were provided necessary technical support until recently. The maintenance of farmer group interest has not been easy (Supriadi, *et al*, 2001). There are many challenges in sustaining and enhancing the function and activities of the groups. To evaluate the dynamic of the groups and to assess the performance of group managed rubber nurseries, an evaluation study was carried out in 2007 and 2008.

### **Methodology**

The study was carried out to evaluate the development and dynamics of farmer groups and their rubber nurseries in West Aceh. Farmer group dynamic was assessed using indicators suggested by Mortiss and Chamala (1990). The evolution (or devolution) of farmer groups and participations of member farmers and their cooperation were monitored. In the rubber nurseries, performance/growth of budwood (source of buds of clonal rubber) and rootstock, weeding and other nursery operations were studied.

The study was carried in July 2007; it covered eight villages in four sub-districts in West Aceh: Arongan Lambalek, Samatiga, Johan Pahlawan, and Meurebo (Table 1). The respondents were selected from the members of the rubber nursery groups. Data and information were gathered through individual and group interviews, Focus Group Discussion (FGD), and direct field observations. Growth measurements of plants in the budwood nurseries were taken from randomly selected 30 stumps for each plot of rootstock and budwood gardens.

### **Results and discussion**

#### *Rubber Nurseries*

Out of eight groups only five continued to manage their rubber nurseries; the remaining had stopped managing their nurseries. In general these five groups were also not managing their nurseries very well. The rootstock germination and growth was low, about 16% (14-27% range) that is far below expected 60-70%. One reason for this low survival and growth is the replanting by some groups in summer when seeds are affected by water stress. Survival of budwood plants was better, around 54%. Groups of farmers generally did not weed their groups nurseries. Consequently, the budwood nurseries were in category "dirty" and moderate, below acceptable level.

Farmer group in Gunung Kleng village could not manage the garden properly so there was no root stock and budwood garden any more. Rootstock garden in Paya Lumpat and Penaga cot ujong were damaged by wild pig, monkey and buffalo. Wild pig and monkey usually eat endosperm and cotyledon of the seed. The pest damage is usually serious where the rubber nursery is close to forests and far from village as farmers cannot monitor

and guard the nursery well. Some effort had been made to protect the nurseries by fencing with barbed wire.

Unfavorable climate also affected the rootstock. The delay of seed fall in North Sumatra resulted in delayed planting seeds. Most seeds were replanted in April 2007 when the summer time in Aceh was started. As a result, many seeds suffered water stress and the growth of rubber trees was hampered. In fact, this problem can be solved by farmers by watering the garden everyday, because source of water was available around the plots.

#### *Group Member Participation*

A group needs to have a minimum set of agreed norms and regulations for an effective functioning organization (Chamala, 1995; Mortiss, 1990). This may include some penalty for non-obedience and misconduct. The farmer groups established under ReGrIn project did not have any formal written rules although some groups developed rules, albeit unwritten. In Rimba Langgai, an absentee at five consecutive group activities can be replaced by another villager. In Seunebok Teungoh, the same rule applies, for absence in six consecutive group activities. However, it was observed, that the rule has not been strictly applied.

The growth of group members and members' participation in group activities is another indicator of group dynamics (Chamala, 1996). The study indicated less than 50% participation during group activities. Interviewed respondents included only active members (47%). The main reason of low level of participation was farmers' busy schedule, mainly for paddy cultivation and off-farm activities (mainly construction). Active members included group leaders, village leaders and other farmers who believed in the prospect of rubber nursery agribusiness.

Socio-cultural factor of Aceh community and the on-going development change in the post-Tsunami and post-conflict period in Aceh. Farmers in Aceh Barat are not been accustomed to work together in rubber cultivation. Rubber trees are still considered as naturally regenerating rather than actively improved plant. In West Aceh most rubber gardens are still in the form of 'jungle rubber', planted generations earlier, and requiring little care. In the post-Tsunami emergency and development work in Aceh, there was much competition for farmers' participation in innumerable development projects. Seeds, fertilizers, tractors were provided free through "Tsunami" aid; local people were paid for almost all "participation" – planting seeds in the own field, weeding. Local people, often could choose from different meetings depending on how much they were paid for their participation. The "over aid" syndrome was a particularly major constraint for programs, including the ReGrIn project, that did not pay for local participation.

Even though many groups did not perform well, some promising results were observed. Some groups were able to produce quality planting materials. The farmer group in Kubu Village produced 2050 grafted plants in polybags; the group in Rimba Langge Village produced 1050 plants in polybags. Some groups were able to sell surplus budwoods as in Peunaga Cot Ujung (676 m), Kubu (330 m), Paya Lumpat (57 m), Suak Nie (50 m) and Aloe Raya (20 m). Some farmers in some villages are very interested in continuing to develop rubber nursery business. The important point for them is that the source of germplasm of good quality clonal rubber is now available locally.

#### **Conclusion and suggestions**

In general, the objectives of the project to test farmer group approach in capacity building and establishing local sources of good quality rubber germplasm have been partially achieved. The participation of local farmers in the group management of nursery decline

gradually. Several causal factors were identified for the low participation. However, the development of individual private nurseries, inspired by the group nurseries, is interesting and highly pertinent. Support to private nursery initiatives in the villages could be extended in parallel to working with farmer groups. Perhaps in a post-disaster context, local participation for tree nursery development and management is not a feasible soon after the disaster. Both internal and external factors affect level of participation, hence success of such programmes. Experience and assessment of farmer groups in Aceh Barat indicate that for group nursery work it is important to have regular visits and guidance to farmers and farmer groups by facilitators, timely technical support; good and able facilitators based in the field; engagement of farmers in productive activities; selection of genuinely interested farmers; clear and rigid rules and regulations for group activities and for absentees.

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