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Reconstruction of Forest-based Society by Conservation and Rehabilitation of Peat Land with the Introduction of People's Forest in Riau, Indonesia

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In order to understand the wise use of peatlands, inter-disciplinary study is needed. Our team consisted of sub-teams considering social economy, biomass production, bio-diversity, hydrology, and conservation. This paper shed light on the social economic aspects of peatland degradation, and rehabilitation.

People in the surveyed village have their own survival strategies, such as occupational multiplicity. From the planting point of view, or land use, people also employ the strategy of diversification. One of the ways of diversification is to increase the number of land plots. On average, a household has 2.9 plots of land, and some of the households have many plots, for example 6 plots, and many of them are quite large, for example 5 ha, or 2 ha at least.

As the background of this strategy of diversification, we can see the fragile base of agriculture in the peatland, with sinking, acid character, and so on. Differentiation of land productivity is one expression of fragility. We found substantial diversification of land productivity both for oil palm cultivation and rubber planting. The peat land factor, whether the land is peatland or not, is important for determining land productivity for the oil palm, however, for the rubber tree, the peat land factor is not significant as a productivity determinant. We checked many factors that are potentially determining productivity, and as a result, discovered the age factor to be the meaningful determinant.

Age factor means that the older the tree, the higher the productivity. We can see that trees free from fire can grow, and bring high productivity. In contrast, a burned tree cannot be productive.

Fire is an important factor that hinders the people's strategy. The 52 surveyed households have 613 ha of land in 151 plots. Among them, 103 plots are peatland, and 15 plots are mixtures of peatland and mineral soil. Among all 151 plots, 106 plots have been burnt so far. Frequent fire makes people tired, wastes money, and encourages them to give up planting at the land. Presently 43 plots are abandoned. This is caused mainly by fire. Among the 43 plots, 35 plots have been burnt.

There are many factors that lead to frequent fire. Making the peat swamp dry is the basic reason why so many fires appear. Use of herbicide is a factor that we found in the field, because killed dry weeds stand vertically for a long time, and burn easily.

Based on our findings in the field, we propose people's forestry as a way to rehabilitate the abandoned peat land, and the way to bring income to local people. This people's forest will enhance the function of conservation, and also enhance the income of survival strategy driven small farms. Environmental conservation can be promoted by local people who feel benefits from this conservation oriented program. This is a win-win solution for conservation and survival strategy. Companies can also make use of this idea of people's forest to enhance the protection zone among the HTI forest. A path of production growth without sacrificing survival strategy (household economy), and conservation factor (rehabilitation of peatland) is likely, and moreover, satisfying the conservation factor is likely to promote the production of biomass both of small farms and companies over the long term. This path can be called the sustainable forest sphere.