Heveadapt: How can Thai rubber smallholders face global challenges?

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Heveadapt is a multidisciplinary project on the sustainability of Thai rubber farms, mainly smallholders, facing global changes. Examples of the ongoing studies show how biophysical factors interact with socio-economic ones to determine the risks faced by farmers, and the possible coping strategies. The shortage of manpower and low rubber price could be answered by Low Intensity Tapping Systems (LITS) increasing the return to labour and by diversification, such as agroforestry. It is difficult to reduce tapping frequencies because farms are small and hired tappers are paid by crop-sharing. Contracts would have to be renegotiated and tappers work for several farmers. Moreover access to other sources of income could be limited. Permanent agroforestry systems (AFS) are present in southern Thailand, associating timber, fruit trees or vegetables to rubber. Despite their interest for income resilience when rubber price is low, they are not widespread. Manpower issues, access to market and to information seem determining. The higher biodiversity in AFS could also limit the overall decrease in soil quality that we showed after repeated rubber monoculture on the same land. Our first results based on soil functions (Biofunctool) showed that the understory coverage was the main factor to keep soil biodiversity and quality. However this coverage depended less on the system (AFS or monocrop) than on management practices. This may also explain the higher erosion under rubber than maize observed in Northern sloppy areas, as farmers tend to weed rubber inter-row intensively. Increasing rubber genetic diversity, better knowledge of resources use and adaptation to coming stressful climatic conditions are also key challenges for rubber clone selection. Our ongoing studies show large genetic variation in water use and adaptation to water constraints. The next phase of the project will be to synthesize these observations through integrated diagnosis, modelling and participative innovation platforms.