

## Telecoupled land use change in North-East Madagascar under conservation interventions and cash crops booms: impacts on human well-being and forest dynamics

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Land use change is increasingly driven by distant processes, leading to telecoupled situations, where external factors come to outpace local determinants of land use dynamics. Implementation of biodiversity conservation schemes managed by international conservation NGOs or increasing flows of international trade on land-based commodities are two such dynamics. Understanding how these processes affect forest cover, and how in turn this influence local well-being is key to devising sound conservation and sustainable development interventions.

We conducted both land use change and well-being assessments in two forest-frontier landscapes of Northeast Madagascar. The region is a global biodiversity hotspot, which has led in last decades to implementation of several externally-funded protected areas to curb on-going deforestation processes. Furthermore, the region is also a hub for production of vanilla and clove in Madagascar, cash crops traded in the international market, and currently under a price spike.

We developed a participatory mapping approach drawing on very high-resolution satellite imagery, mapping workshops and intensive field walks, yielding annual land use change maps for the past three decades. For the well-being assessment, we conducted eight focus group discussions and 100 household-level interviews, which were analysed through the capability approach.

Our results show that implementation of protected areas, on a first stage, encouraged on-going deforestation processes, while in a second stage, they, together with transfer of management rights for their buffer zone to local communities, managed to halt forest loss. Regarding the on-going cash crops boom, while it is encouraging farmers to intensify their land uses, it is also putting pressure on forests, as shown by the increasing conversion of forest to cash crop fields. Implications for local well-being are contradictory, as these dynamics lead to trade-offs between capabilities, which also present a bundle character, where changes in one capability trigger changes in a whole set of them.