# Preserving food environments and livelihoods: Transitions and challenges for the Ca Dong people in Vietnam

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## Abstract

The food environments of the Ca Dong people have changed dramatically since they were resettled from ancestral lands for the construction of the Dak Drinh hydropower reservoir in 2013. Food environments have shifted from traditional hunting, wild harvesting, and swidden agriculture, to low-income commodity production, leading to a decline in forests and the loss of traditional food plants and animals. Through transdisciplinary approaches, we engaged eight groups of stakeholders including local party leaders and forest-dependent communities to explore options for supporting diverse and sustainable food environments. We report on the participatory exploration of forest food availability and diversity, and the potential of reforested areas to restore traditional food environment practices. We use satellite image analysis (http://rung-ray-ruong.org/) to assess policy-level land-use planning to understand the transitions from forests to farmlands and their implications for food environments and forest ecology. Expected changes follow an environmental Kuznets curve - conversion of diverse forests to monoculture commodity production has resulted in a loss of ecological resources as well as traditional ecological knowledge and customarily governed forest harvests, affecting food choices and livelihoods - the future of these complex forest systems is unclear. The intertwined issues of forests, food environments, poverty, cultural preservation, and sustainable resource protection highlight the complex challenges faced by indigenous communities undergoing resettlement and changes in their food systems. Together we set out to identify and model possible solutions, including agroforestry interventions in productive zones. However, to be a realistic alternative, these interventions need to provide equivalent income to cassava planting (roughly 20 million VND per ha/yr). Our work aims to contribute to the understanding of these challenges and develop evidence-based solutions that balance economic development with ecological and cultural sustainability. By collaborating with local stakeholders and incorporating local ecological knowledge, we hope to support interventions for sustainable diets, biodiversity conservation, and livelihood security in the changing landscapes of Vietnam's highlands. As we further identify and describe forest foods, the next phase of the work will be to test selected species for nutrition and field sites for the potential of growing in homegardens.

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