



Master of Science Program
Environmental Protection and Agricultural Food Production

Master Thesis

Changes in traditional cultivation and use
of maguey (*Agave* spp.) and nopal (*Opuntia* spp.)
in the Upper Mezquital Valley of Mexico:
Relevance for sustainable livelihoods.

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Summary

A large share of the inhabitants of the Upper Mezquital Valley in the Mexican central highlands belongs to the Nāhñu group, the fifth largest indigenous group of the country. In this semi-arid and highly marginalized region, livelihood strategies have since prehispanic times been closely intertwined with the cultivation and use of maguey (*Agave* spp.) and nopal (*Opuntia* spp.), turning these natural resources into intrinsic features of the population's cultural identity. However, traditional cultivation and resource-use patterns have been increasingly disrupted particularly since the mid-20th century due to the displacement of traditional and locally produced items by industrial products. The absence of local markets in combination with growing structural inequalities has led the inhabitants of the region to search for alternative livelihood strategies.

By applying the sustainable livelihoods approach (Chamber and Conway 1991; Scoones 2009) this study explores the changes of traditional maguey and nopal cultivation and use during the last two decades in the Nāhñu community of San Andrés Daboxtha, as well as the drivers of change. The perceptions of the community members related to livelihood outcomes represent a further focus of this work.

Field research revealed a growing neglect of maguey and nopal cultivation since the early 1990s, resulting in the further deterioration of the resource base through the strong decline of maguey and nopal stocks. This neglect was explained through mass migration to the United States and the associated flow of remittances that turned traditional resource-use patterns into seemingly obsolete livelihood strategies. The lack of local markets, the sale of maguey leaves for 'barbacoa', the infestation of maguey with the agave snout weevil, changing climate conditions, and education were named as further reasons for this development.

In contrast, the cooperative 'Milpa Maguey Tierno de la Mujer' producing maguey syrup has enabled its mainly female members to maintain and enhance their livelihood resource base through the creation of a slowly growing market and the continuous access to reforestation programs, among others. The cooperative was reported to represent a real alternative to migration.

Increasingly difficult conditions in the United States have recently led large numbers of migrants to return to the Upper Mezquital and try to add value to the raw materials available in the region. Formerly neglected agricultural practices have thereby served as safety net for these migrants to return to. The reversal of migratory flows bears both opportunities and challenges; overexploitation of maguey was indicated to represent a major concern.

Departing from the outlined findings, this work finally discusses the promotion of agroecological practices as a strategy to contribute to the sustainable use of maguey and nopal as means of securing local livelihoods.