

## Conclusion: Agrarian change

### A change for the better?

Terry Sunderland, Liz Deakin and Mrigesh Kshatriya

Perceived wisdom suggests that rural communities with better access to markets, transportation and intensive agricultural systems are better fed and fiscally better off than those in the proximity of more isolated, forested landscapes (cf. Levang et al. 2005). But is this really the case?

Historical evidence suggests the transition away from a forest-based economy leads to overwhelmingly better outcomes for poverty and human well-being (e.g. Sunderlin et al. 2007). From the early 1960s, pervasive growth-based theories of agricultural development based on technological change were promoted as a solution to persistent rural poverty (Mellor 1967). Yet local observers and village field researchers noted that rural development wasn't working as intended – the number of poor grew and some non-poor smallholders, fishermen and pastoralists subsequently became poor through loss of assets or common property resources. Overall health and nutrition benefits remained elusive. Larger farmers appropriated the land of smaller farmers, rural laborers were displaced by mechanization, and intensive farming depleted scarce water resources and affected soils. In short, as agricultural transformation takes place, there are inevitable winners and losers.

The results of the segregation of agriculture from forestry and other land uses has led to critical reflection as to how these seemingly conflicting land uses can be better integrated for improved outcomes (Sayer et al. 2013). As this book illustrates,

agricultural production in most tropical landscapes does not come from vast swathes of monoculture crops, but from complex landscape mosaics that are managed for multiple benefits and a broad suite of goods and ecosystem services (Padoch and Sunderland 2014). Although greatly under-estimated, the presence of forests and trees in these landscapes provides a framework for the integration of diverse cropping systems. They are also immensely valuable to the livelihoods and well-being of those that live in such environments.

Agrawal et al. (2013) estimate that over 1.3 billion people utilize forests and trees in some way and that forested landscapes generate significant income for those that reside in and around them. The findings of the tropics-wide Poverty and Environment Network (PEN), also suggest that rural households rely far more on income and other services from their immediate natural environment than previously thought. The PEN project found that over 25% of household income is sourced from natural resources; this represents a greater annual household income than that of agricultural production (Angelsen et al. 2014). Ickowitz et al. (2014), in a continent-wide study in Africa, found a correlation between the presence of forests and trees and dietary diversity. Thus, the synergies between agriculture and the wider environment are gradually being understood, and it is those synergies that this project is attempting to articulate. The development lexicon has certainly changed in recent years to reflect a broader systems (or landscape) approach to food production in the context of the wider environmental benefits (Foli et al. 2014). Yet systematic and empirically-focused research to enable us to actually implement this has been largely absent from the discourse (Reed et al. 2015).

At the end of 2015, the launch of the Sustainable Development Goals provided a unique opportunity to begin that process of integrating previously isolated disciplines into a more cogent development agenda, with a strong focus on landscapes as the convening factor (van Vlanen et al. 2015). In addition, the preamble of the historic COP 21 agreement also mentions food security from a broader perspective by referring to “safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change” (UNFCCC 2015: 21). The agreement also refers to human rights, gender, ecosystems and biodiversity, all issues that are central to agriculture. Thus the policy environment has become far more conducive to a more environmentally sensitive agriculture, with broader development aspirations such as improved nutrition and the alleviation of poverty.

Although this book presents some preliminary assessments of the agrarian drivers of change in seven diverse tropical landscapes, some patterns and trends are clearly emerging, even at this nascent stage.

The Ethiopian site is focused on the Munessa Forest region along corresponding agricultural intensification and forest cover gradients. While overall food security has increased over time, particularly where agricultural intensification is at its greatest, there has been a significant decrease in the contribution of forest resources (notably fuelwood) to household income and the ownership of cattle, given the removal of appropriate grazing land. The long-term implications of this transition are yet to be fully understood, but it is likely that in the more simplified production systems, overall poverty has actually increased as a proportion of the population. The role of the State

has also had significant impact on this landscape with uncertain property rights and land annexation playing significant roles in driving rapid deforestation.

In Southwest Cameroon there remains a strong reliance on forest products for rural income and consumption, yet annexation of forestland by conservation actors and removal of the forest itself through conversion to oil palm plantations has affected basic access to NTFPs and other wild resources. So while there is plenty of forest remaining, much of it is off limits to local customary use, for agriculture or any other land use. Given that Cameroon is the breadbasket of the region, producing large quantities of foodstuffs that supply the neighboring oil rich countries of Nigeria, Equatorial Guinea and Gabon, this could have a major ripple effect for the food security of the region.

In Kupuas Hulu, Indonesia, the agrarian trajectory from diverse smallholder agricultural production toward more intensive agribusiness is having a major impact on the livelihoods of local people. The persistent argument that commercial agriculture benefits all is clearly not the case in this instance; the benefits may be accrued nationally, and in the hands of a very few, but the transformation of the landscape into oil palm monocultures has had major impacts in terms of environmental impoverishment and displacement. In terms of diets, the fact that a clear 'nutrient transition' has occurred, whereby previously diverse foodstuffs have been replaced by cheap and available consumables such as instant noodles, is having a major impact on the long-term health and nutrition of the local populace.

The parklands of southern Burkina Faso show an interesting and much more historically rooted integration of forest, farm and markets. Earlier studies from the region have highlighted the seasonal fluctuation in food availability throughout the year and a corresponding varying reliance on wild foods. Thus the forests clearly play a significant role in buffering dietary diversity during lean agricultural months. As this landscape shows the synergies between these three elements, obvious trajectories of intensification are more difficult to identify than for the other sites, with the landscape showing 'clusters' of intensification, rather than a linear pattern of transition. As such, these landscapes are managed to be as resilient as possible for the vicissitudes of climate and environment that affect the region.

In Siuna, Nicaragua, the defining drivers of land-use change have been as much political as economic and environmental. The drivers of deforestation in this landscape have been long rooted in historical trends and changes, and shaped by decades of conflict and political upheaval as much as by the expansion of agricultural production systems. This includes the migration of large numbers of people dispossessed by conflict and looking for affordable, or free, land on which to settle.

The miombo woodlands of Zambia, in this case Eastern Province, once converted, provide some of the best agricultural land in the country. Although 99% of the populace is engaged with agricultural activities, there remains a strong reliance on forest resources to supplement livelihood income. This is also reflected in the policy environment where agriculture is significantly more favored than the forestry sector. Ultimately this has resulted in a lack of understanding of the role of forests for rural livelihoods and resource conflict at the agricultural frontier.

The Chittagong Hill Tracts of Bangladesh remain the only region of the country characterized by any kind of topography. With a high population density and in-migration, clearance of natural forest for agricultural production has been a characteristic driver of change. Although significant areas of forest remain, they are being rapidly lost, especially in more accessible sites. However, tree cover in home gardens and other farmland has increased in recent years and this goes some way in mitigating overall deforestation rates. Thus Bangladesh is at the ‘restoration or agro-forestation’ point in the tree transition curve (Van Noordwijk et al. 2014). Despite the significant levels of agricultural expansion, livelihoods overall are rooted in poverty, malnutrition and poor health.

As the studies in each country continue, and data becomes available for a broader suite of cross-site comparison studies during 2016, significantly more compelling conclusions can be drawn from this project. Early indications suggest that the transformation of wildlands, notably forests, for agriculture does not have the concomitant transformational influence on rural poverty, livelihoods, nutrition and health that would be expected. As this research unfolds, we aim to further test the hypotheses and answer the questions listed in the introduction to this book. Agrarian change transitions are taking place all over the globe, but clearly not everyone benefits. Who does, and why, will be the focus of further assessment.

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