

What drives reforestation in Viet Nam?

Forest cover in Vietnam has significantly increased since mid 1990s, reportedly as a result of numerous policies and programs that support forest land allocation, protection and development. However, little has been understood about how such policies and programs affected local forests. In addition, there are concerns that forest plantation has been a threat to natural forest at the national level.

Drivers of forest changes in Bac Kan Province

Reforestation policies

Land allocation policies, population increase

Proximity to urban areas

Access to planting materials

Household income

Implications

- Expansion of plantation forest should go hand in hand with regeneration of natural forest.
- Better control of non-allocated forest or community land is needed to prevent encroachment.
- Government reforestation programs should focus in remote areas where people have no access to planting materials and markets.
- Forest plantation should be facilitated or expanded in areas where households have either less income from paddy rice production or more income from non-farm sources.

The study focused in Ngan Son and Pac Nam districts, Bac Kan province (Figure 1), where net reforestation has been found from 2000. A variety of research tools including GIS, focus group discussion and household surveys, followed by correlation and regression analyses were used to analyze the spatial and temporal patterns of forest changes, and the drivers behind those changes.

Key findings

The spatial data in Bac Kan province (Table 1) indicated an overall increase in both natural forest and plantation forest during 2000-2012. Spatial distribution of natural forest and plantation forest in Bac Kan Province in 2000 and 2010 are indicated in Figure 1 and 2 respectively.

At the household level, there was conversion from natural forest to plantation forest, agroforestry and shifting cultivation. These areas were eventually converted to plantation forest (Figure 3).

In general, increased forest cover was facilitated by the implementation of government policies and programs on forest protection, reforestation and land allocation, increasing population, and proximity to urban areas and access to sources of planting materials.

Household income as a driver of forest changes has two sides of the coin—low income households from paddy cultivation invest in forest plantation as an alternative income source; whereas, increases in income from paddy rice production tend to discourage expansion of forest plantation. Households with higher earnings from paddy rice invest more on other things than in forest plantation; this could run the risk of forest encroachment for paddy expansion.

Table 1. Natural and plantation forest area in Bac Kan province by 2000 and 2010

	2000 (ha)	2010 (ha)
Natural forest	235,605	237,605
Plantation forest	10,638	38,537
Total land area	485,941	

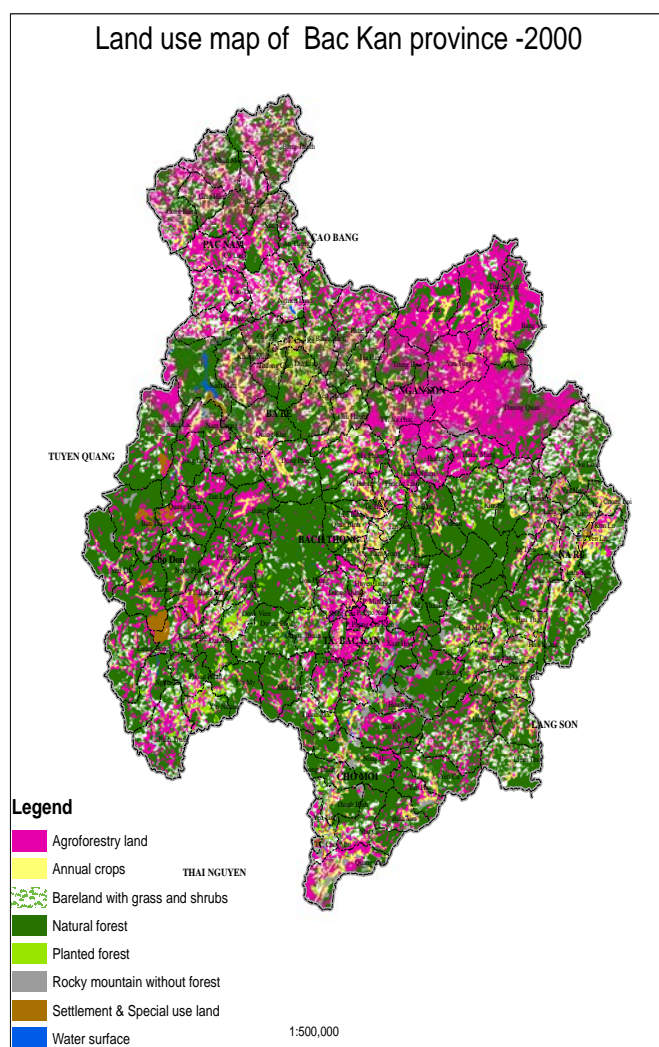


Figure 1: Land use map of Bac Kan province in 2000

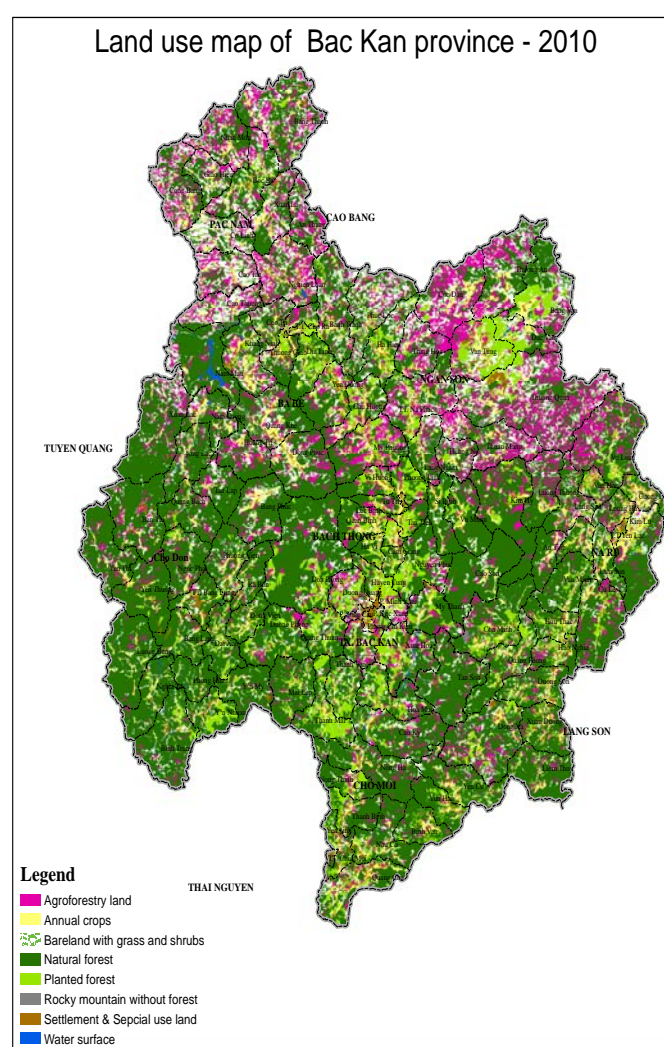


Figure 2: Land use map of Bac Kan province in 2010

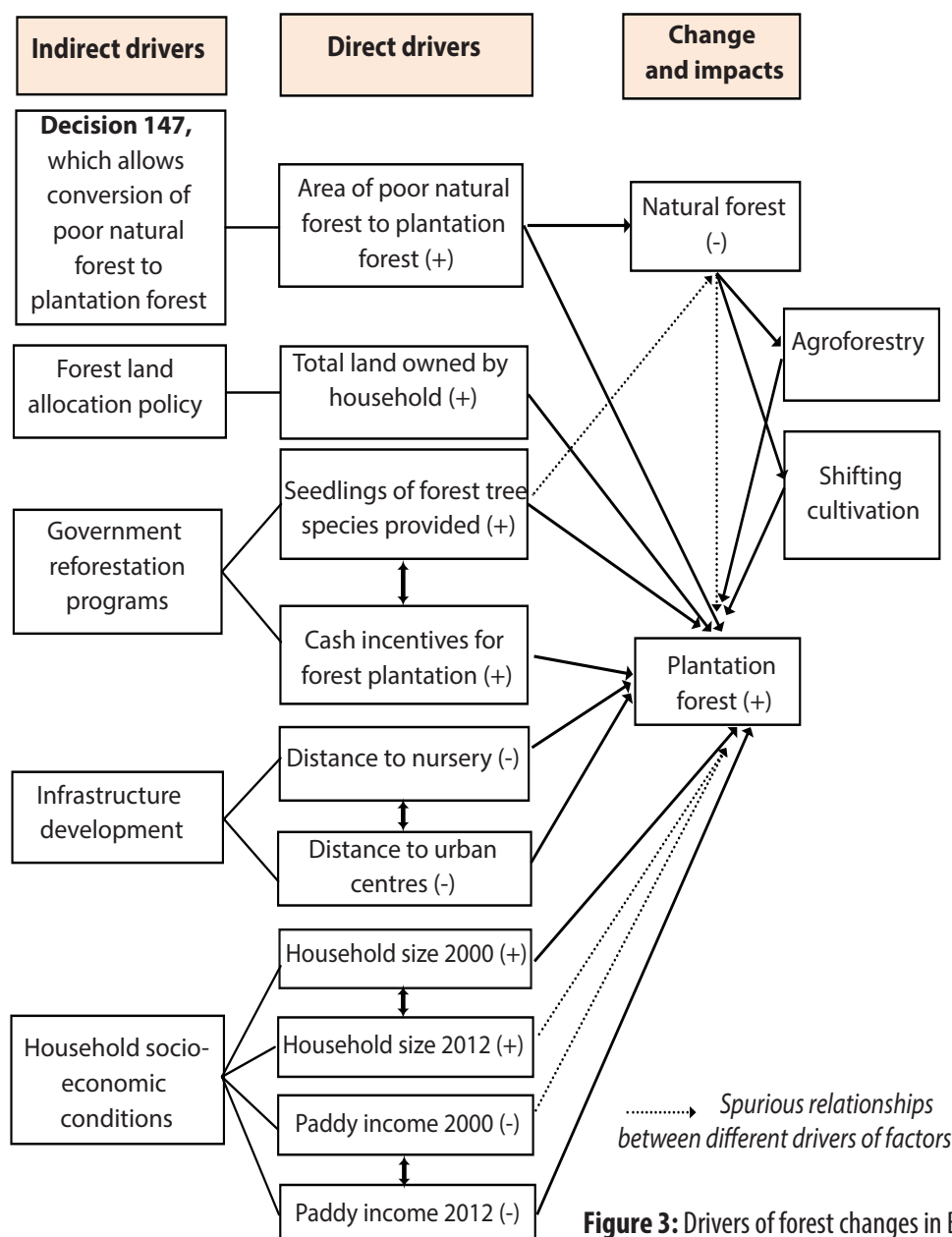


Figure 3: Drivers of forest changes in Bac Kan province

1. Government reforestation programs

On one hand, financial and seedling support from the government promoted rapid expansion of forest plantations, but also facilitated natural forest loss on the other hand. The area of forest established by households was strongly influenced by both the amount of cash and number of seedlings provided by the government. As a result, forest plantations spread not only in shifting cultivation and scattered tree-based areas, but also in allocated forest lands.

2. Land allocation, population growth

Household size and increasing population also influenced expansion of forest plantation from 2000 to 2012. This is because the lands allocated under the Land Allocation policy were proportional to the size of households that was increasing over the 12-year period. However, bigger households had also encroached into non-allocated forests to meet their demand for more land and food, which they could later convert into agriculture or forest plantation.

3. Proximity to urban areas and access to sources of planting materials

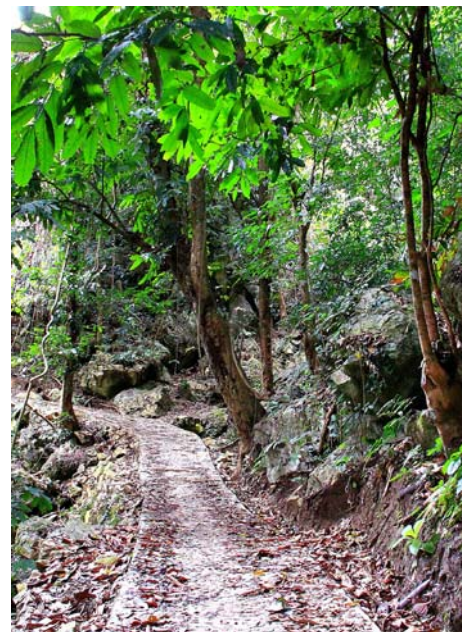
Both government-supported and privately-owned forest plantations were found to be mostly located in areas close to urban centers with good access to private seed and seedling sources.

4. Household income

By 2012, low-income households from paddy cultivation obtained additional income from forest plantations that were established during 2000-2012. Households earning less income from paddy fields considered forest plantation as a complimentary source of livelihood. Lower paddy-households also managed to earn off-farm incomes, which they invested in forest plantations.

Implications

1. Forest plantation development should go hand in hand with assisted natural forest regeneration. The government must impose strict regulations that ensure plantation forest development only in shifting cultivation areas and bare lands. Allocated natural forest should be left/or assisted to regenerate than being converted to forest plantation.
2. A better control of non-allocated forest lands or community forests is needed to prevent encroachment and conversion into agriculture or forest plantation. Natural population growth within allocated forest areas exerts pressure in non-allocated forest lands or community forests that are perceived to be a common pool resource.
3. Government reforestation programs should focus in remote areas where people have no access to planting materials and financial capital compared to their urban counterparts where seed and seedling systems, as well as market for timber products are well developed.
4. Forest plantation should be facilitated or expanded in areas where households have either less income from paddy fields or more income from non-farm sources.



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