



# **Forest management and dynamic livelihoods in Southeast Asia**

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Thinking beyond the canopy

Center for International Forestry Research

# Rural Livelihoods and Forests: Still an important gap

- Contribution of forests remains widely overlooked by policymakers in their poverty reduction strategies.
- Existing tools that assess poverty & income — e.g. poverty reduction strategy plans, the World Bank's Living Standard Measurement Study Surveys (LSMS), national income accounting systems — often fail to adequately capture the importance of income from natural resources.
- Thus the value of forests to the livelihoods (including food security) of the world's rural poor has remained largely invisible or misunderstood
- And situations are rapidly changing; what we know or think we know needs to be updated.





# Poverty and Environment Network



**“More than 10,000 years after the Agricultural Revolution started, millions of rural smallholders across the developing world may still derive as much income from foraging forests and wildlands as from cultivating crops”**

**(Wunder et al. 2014)**



# Poverty and Environment Network (PEN)

- The largest quantitative, global-comparative research project on forests & rural livelihoods to date
- **24** countries, including Indonesia, Vietnam, Cambodia, Yunnan (China)
- **33** PhD students
- **58** sites
- **240** households in the average study
- **333** villages or communities surveyed
- **~8,000** households
- **40,950** household visits by PEN enumerators
- **>17 million** data cells in PEN global data base



## Some Important Findings

- Income from natural forests & other natural areas ~28% of total household income (actually higher than the contribution of cropping).
- Great variation: 2 sites in East Kalimantan, one with 5.5% income from forests, the other with 36.5%.
- While there is significant gender differentiation in the collection of forest products, men generated at least as much income from forests as women.
- Forests are less important as “safety nets” than previously believed.
- The poorest farmers play only a modest role in forest clearing.



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**Environmental Income and Rural Livelihoods:  
A Global-Comparative Analysis**

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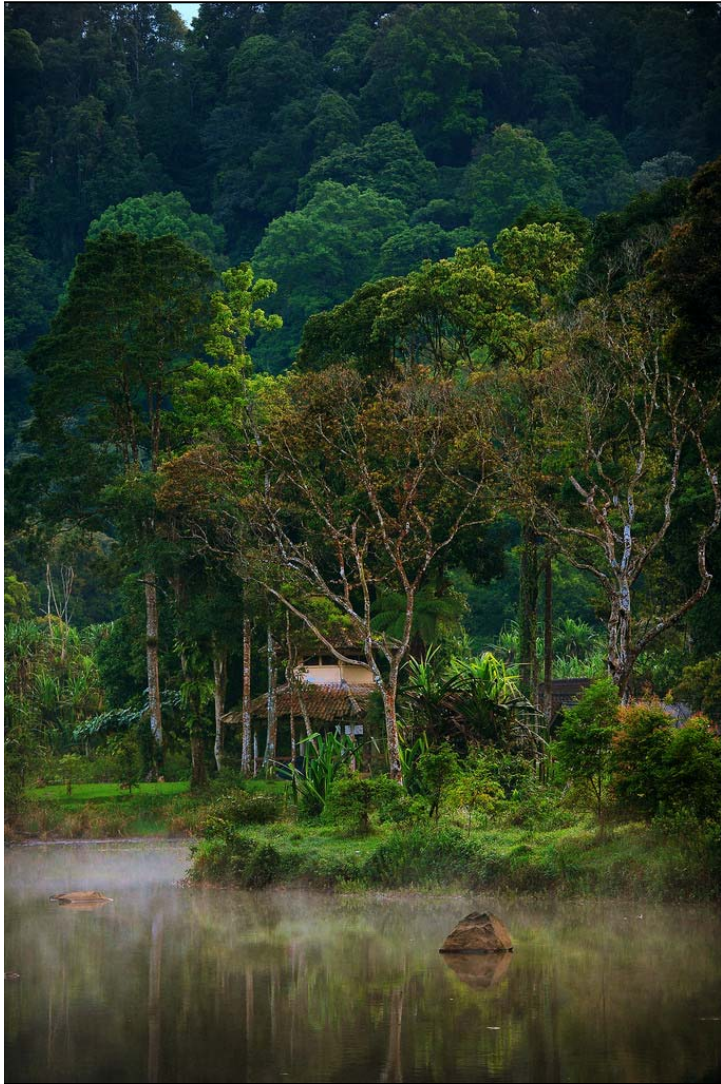
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# How might forests be important for nutrition?



- Collection of nutritious wild foods from forests
- Farming mosaics may promote more diverse diets
- Agro-forestry and fruit production
- Ecosystem services of forests for agriculture
- Availability of fuel wood, clean water
- May provide 'back up' foods for lean season



# Forests, Trees, and Micronutrients in Indonesia

- Indonesia very diverse country in terms of environments, culture, and livelihood strategies
- No comprehensive study to date that looks at nutrition and forests across the archipelago
- Recent CIFOR pan-tropical study using PEN (Poverty Environment Network) data from 24 countries including two sites in Indonesia
  - In one site, there was no use of forest sources for food
  - In second site, very substantial use among more than a quarter of community;
  - For forest-food using households, forest fruits and vegetables and bushmeat more than met households' recommended daily intake on average for fruits and vegetables and meat





# People in Motion: Forests in Transition:

## Demographic shifts are changing rural communities

- Since 2008, half the world's population (3.4 bn people) have lived in urban areas. A 10-fold increase during the 20<sup>th</sup> century. All the world's population growth in the next decades will be in urban centres (to 6.3 bn)
- Generalizations about links between migration and forest cover are often crude and little informed: "migrants deforest and destroy environments"
- Poor availability of data, especially on local migration and local urban-rural transfers of money, even less of other goods.



# ***"Ageing farmers threaten Indonesian food security"*** (Jakarta Globe, 2011)

**Karawang, West Java.** Ngadiyo, a farmer in Indonesia's West Java, worries that there won't be anyone to grow rice once he retires.

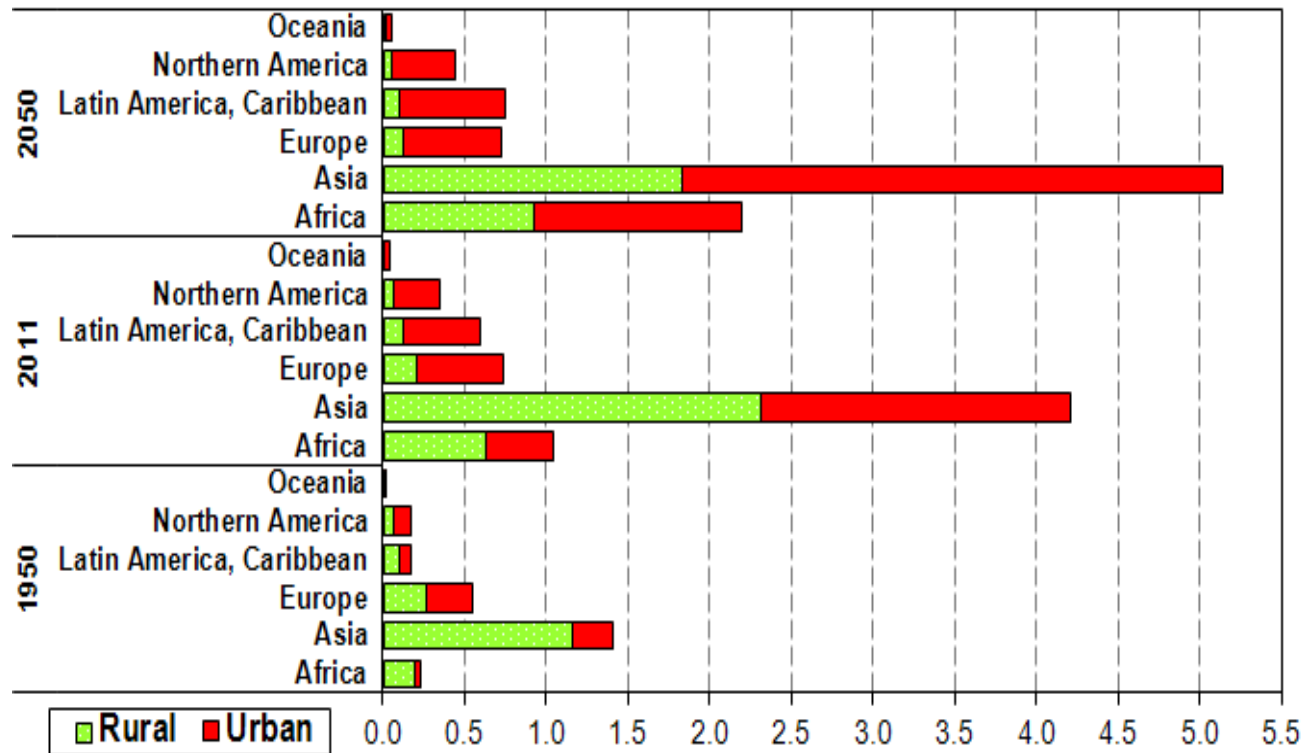
His son and two daughters moved to Jakarta, the capital, several years ago....they only return at harvest time, to help Ngadiyo and neighbors in Karawang, where the average age of farmers is more than 50.

According to the Agriculture Ministry, almost 80 percent of the nation's 140 million farmers are now aged 45 or older, compared to an average age of 40 three years ago.

**Officials of this vast nation are starting to worry that if the trend continues, future food supplies will be affected. "**



# Rural-urban population trends



Rural and Urban population by major regions, 1950, 2011 and 2050 (in billions) (UN, 2012)

- Global urban population is expected to increase by 72 % by 2050, from 3.6 billion in 2011 to 6.3 billion in 2050.
- The rural population of the less developed regions is expected to decline from 3.1 billion to 2.9 billion
- Globally, the level of urbanization is expected to rise from 52 % in 2011 to 67 per cent in 2050





# Diversity and complexity in migration, urbanization, and effects on forests

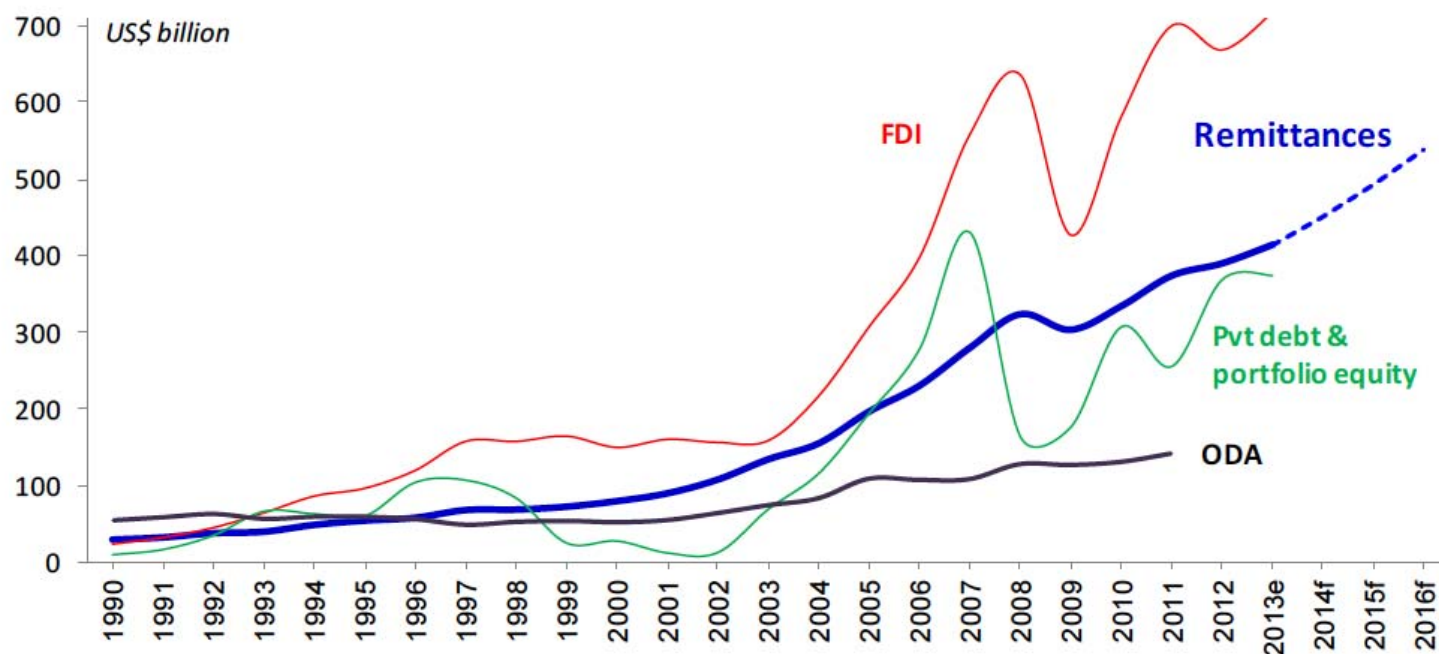
- Many types of mobility between urban and rural sites: temporary, circular, permanent, seasonal
- Great diversity of rural-urban linkages, diverse forms of residence; multilocality of households
- Large variations in who migrates ( e.g. who migrates permanently, etc.), where, with implications for forests
- Generalizations about links between migration/urbanization and forest cover are often crude and little informed: “migrants deforest and destroy environments”; “urbanization leads to more deforestation”
- Difficulty of applying earlier data and definitions: multiple differences with Euro-N. American “forest transitions”



# Remittances:

The World Bank estimated that migrants from developing countries will send home \$414 billion in remittances in 2013, growing 6.3% from previous year. This will continue to grow to \$540 billion by 2016 (Ratha, 2013).

Figure 1: Remittances flows are large, and growing

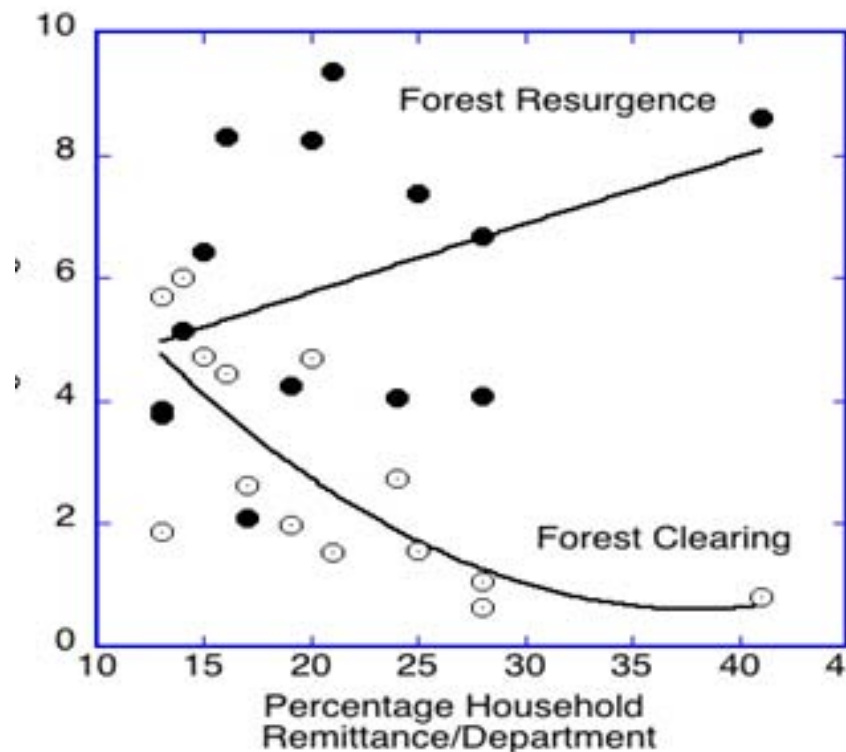


Sources: World Development Indicators and World Bank Development Prospects Group



# What effects do remittances have on Forest Cover?

- Official data on international remittances often understates; almost no data on internal remittances.
- One of the few studies that has tied remittances to forest found in Central America a statistically significant positive correlation of forest cover resurgence with remittances.
- For every percentage point increase in remittances, there is a 0.25 increase in the percentage of land with 30% or more tree cover. (Hecht and Saatchi 2007)





# Case Study:

## Tulung Agung District of East Java

- Communities and households are diverse and sources of their livelihoods are diverse, much off-farm
- Migration has been taking different forms and performed by differently positioned family members over time.
- Migration of women internationally (from this village to Hong Kong, Taiwan, and Singapore) had generated a great deal of change in the forest land itself and in the relations between the villagers and the forest
- For the first time, the remittances from migration/off-farm work were big enough to enable the household members at home to invest in milk cows AND to improve their houses.



## Teluk Agung (cont.)

- In the hamlets closest to forest planting elephant grass and the pine and mahogany forests have been completely transformed into a commodity grass, commodity tree system.
- The subsidy from the grass (and the forestland) makes it possible to just break even with a few cows, to gain access to credit (for motor bikes, home loans, and other kinds of loans), and to sell the cows when school fees and other expenses come due
- Young men with high school educations are taking Korean language lessons to compete for jobs in Korea). They are investing differently, buying or building houses in sub-district, district, and urban areas, starting businesses—shops, transport and trucking, more urban based; some buying of land.



# Dynamic Communities and Landscapes

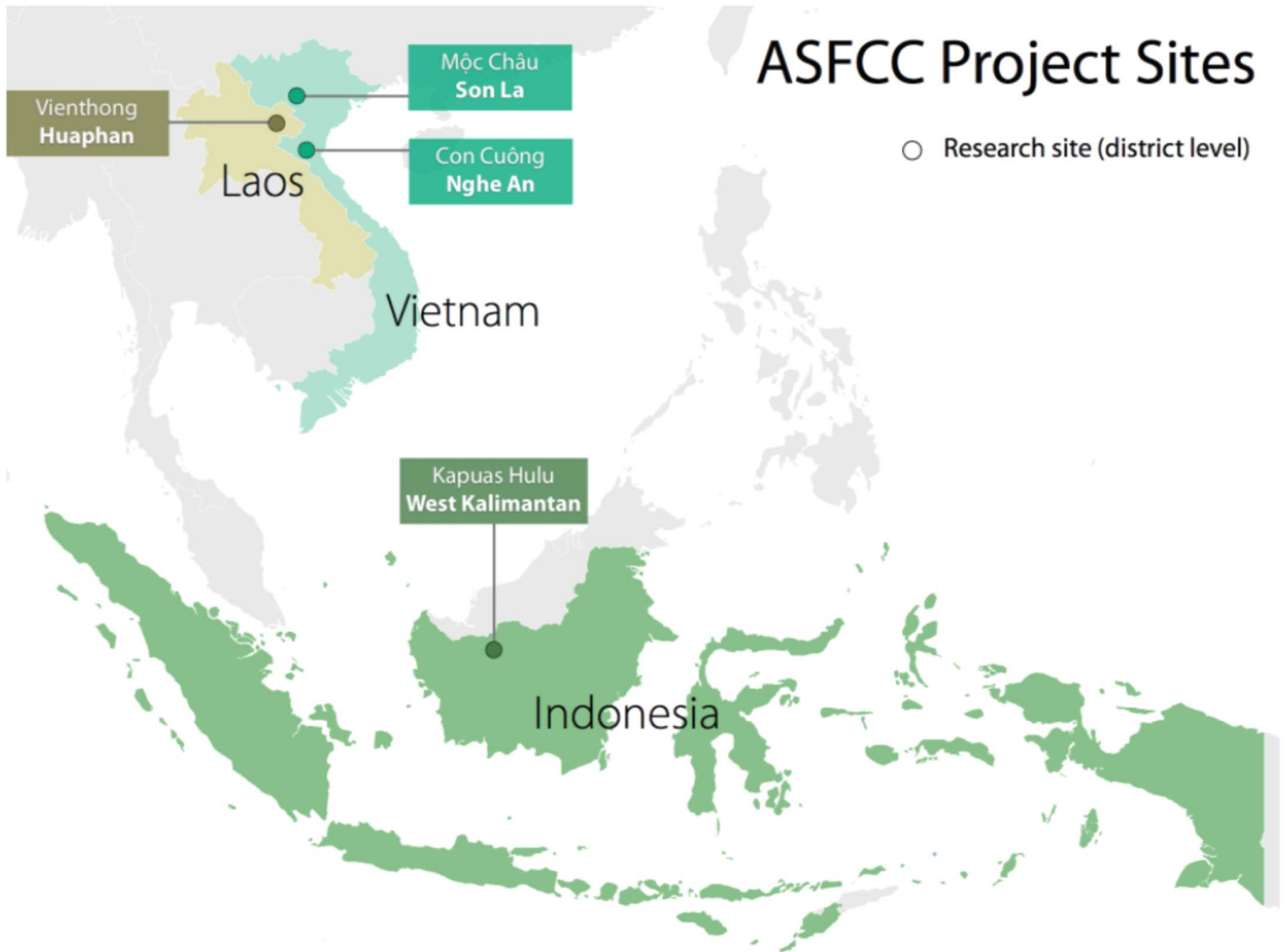
- For millennia forests and other non-agricultural ecosystems have been managed to better satisfy a variety of human and societal needs
- We need to focus on identifying, understanding and evaluating their realities, potentials, and the trade-offs they demand.
- Where there are forests remaining there are swiddeners
- Neither isolated nor static





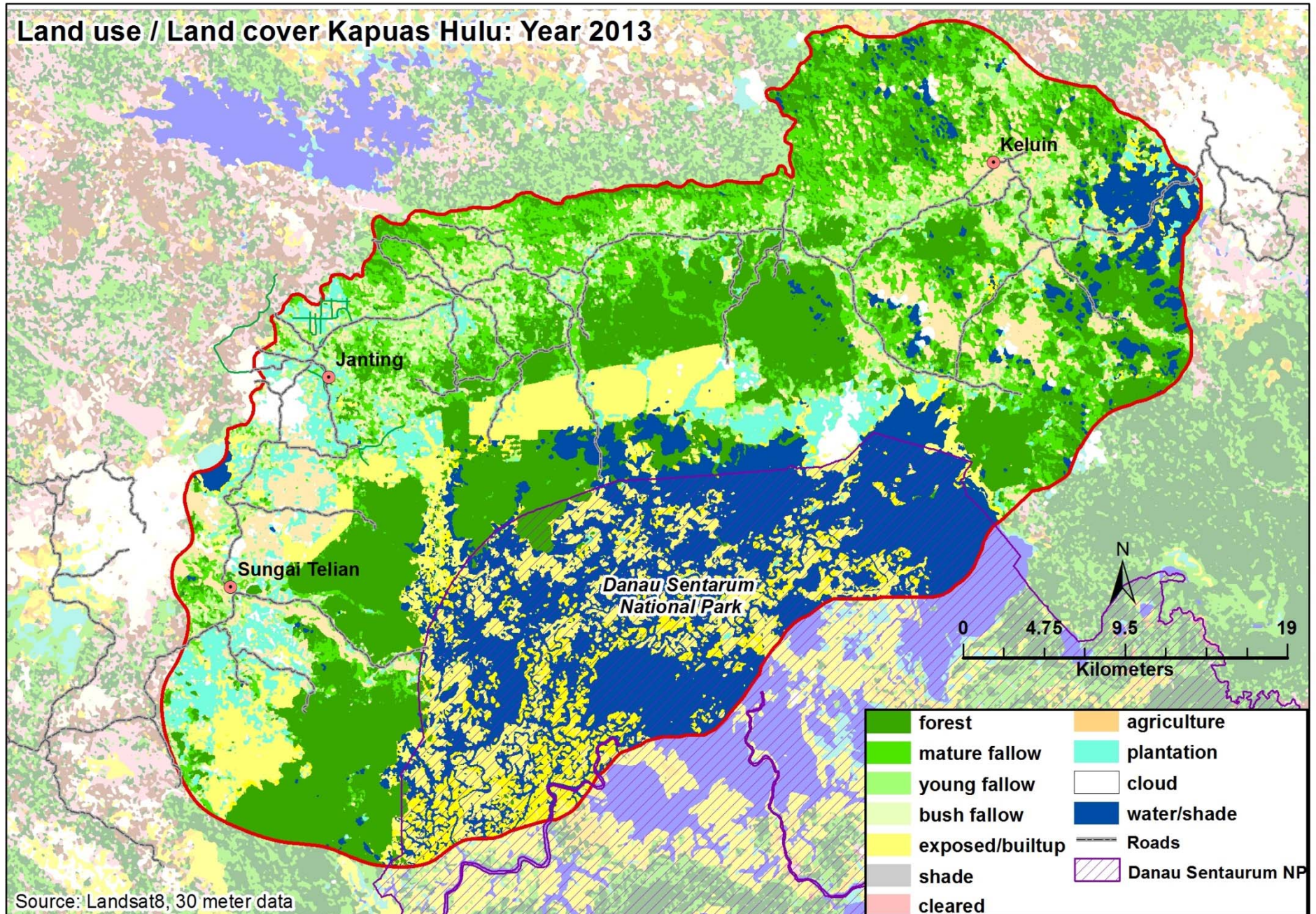
# ASFCC Project Sites

○ Research site (district level)



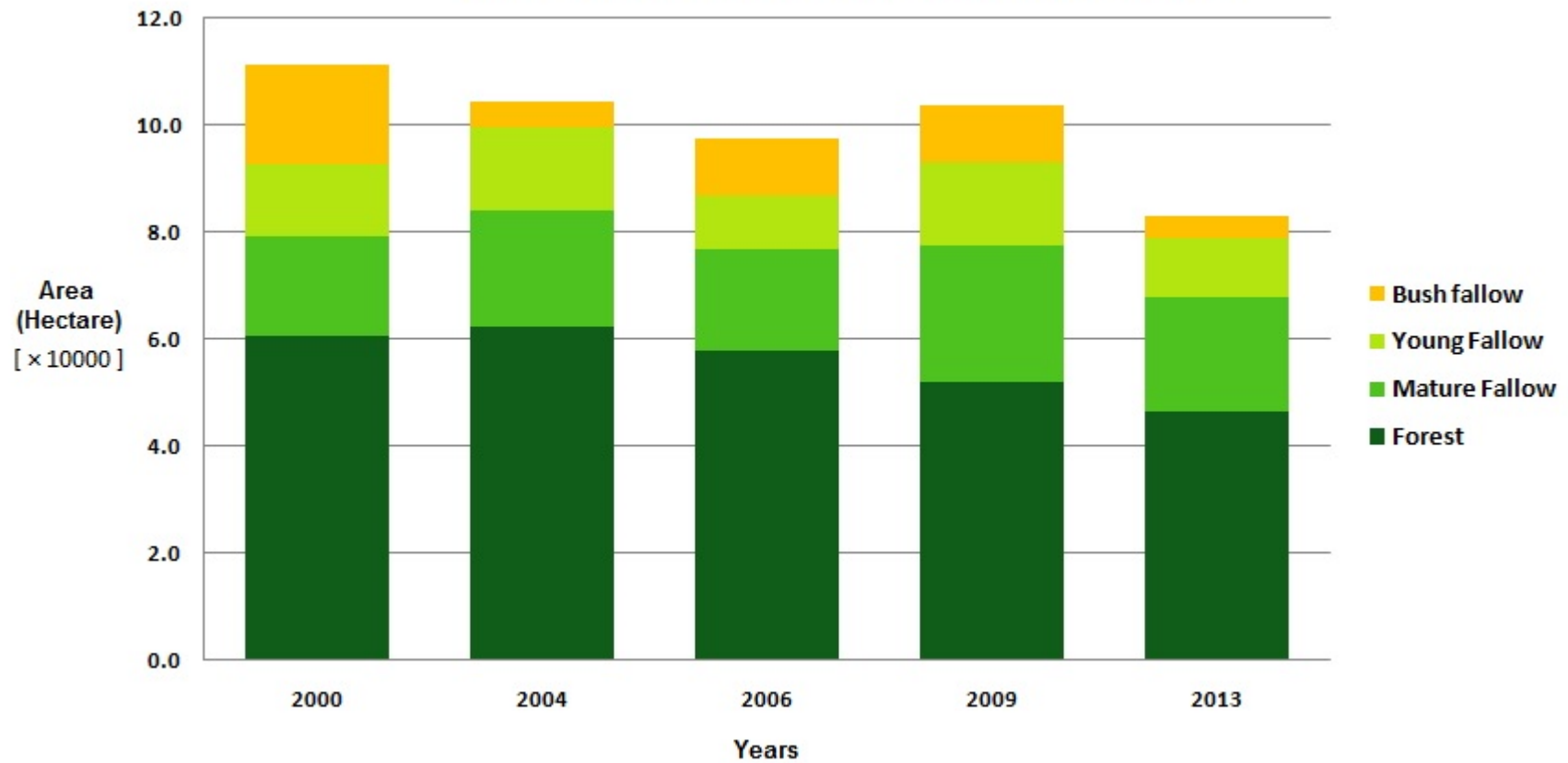


# Land use / Land cover Kapuas Hulu: Year 2013



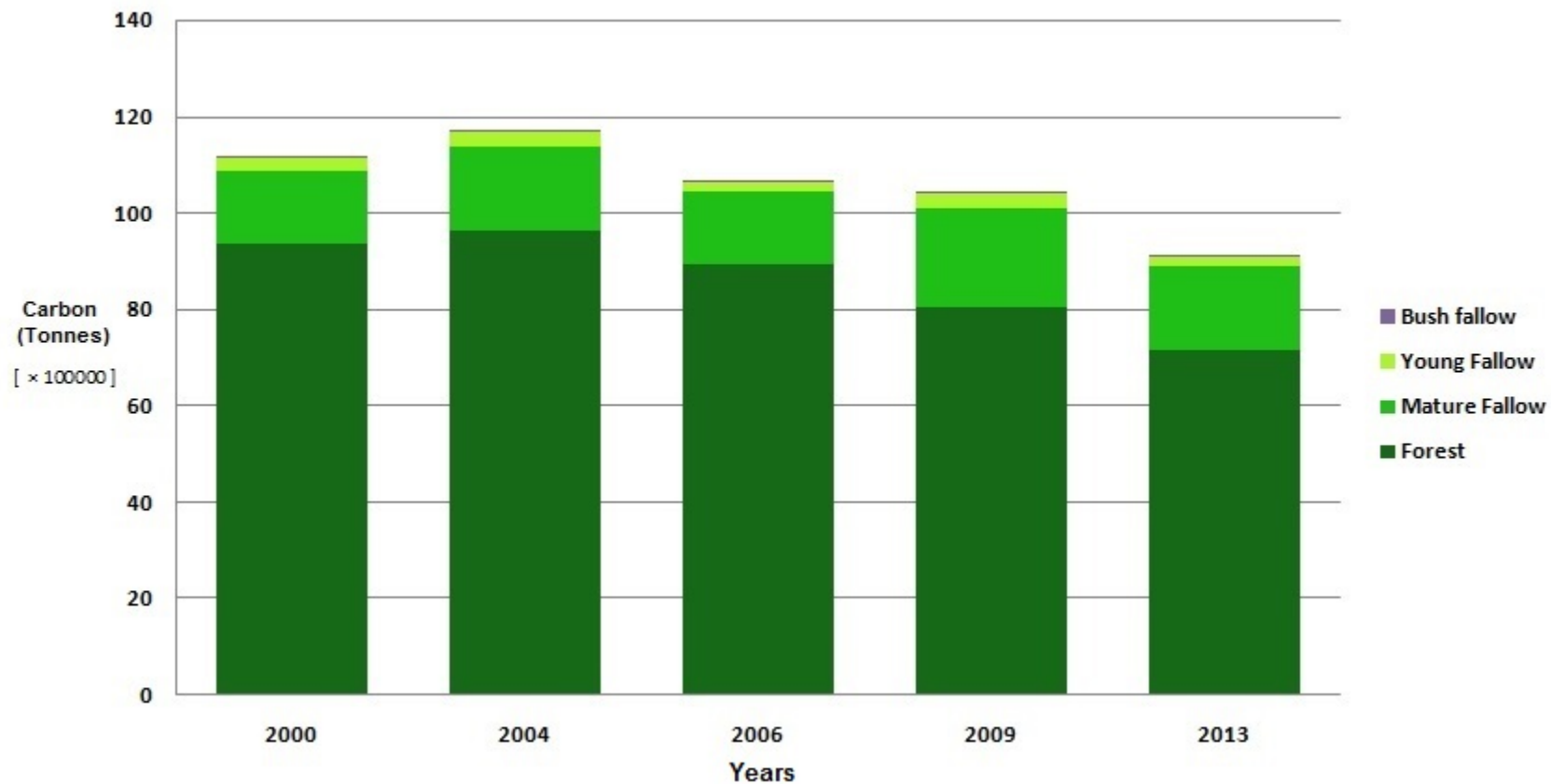


Swidden Land use / Land cover Change in Kapuas Hulu

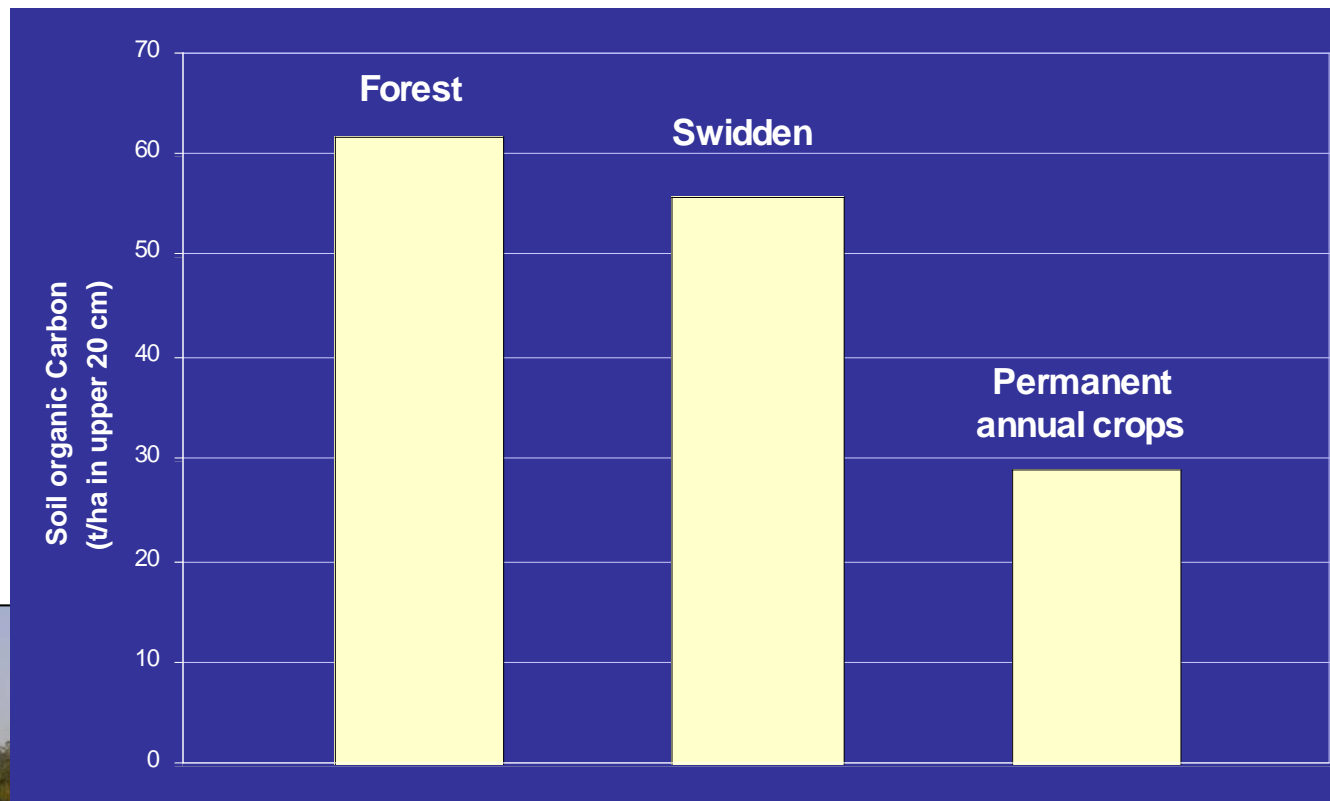




## Carbon stock associated with swidden in Kapuas Hulu



# Conservation of soil organic Carbon under swidden in Vietnam







# **Shifting cultivation in Laos: Dynamics of managing landscapes**

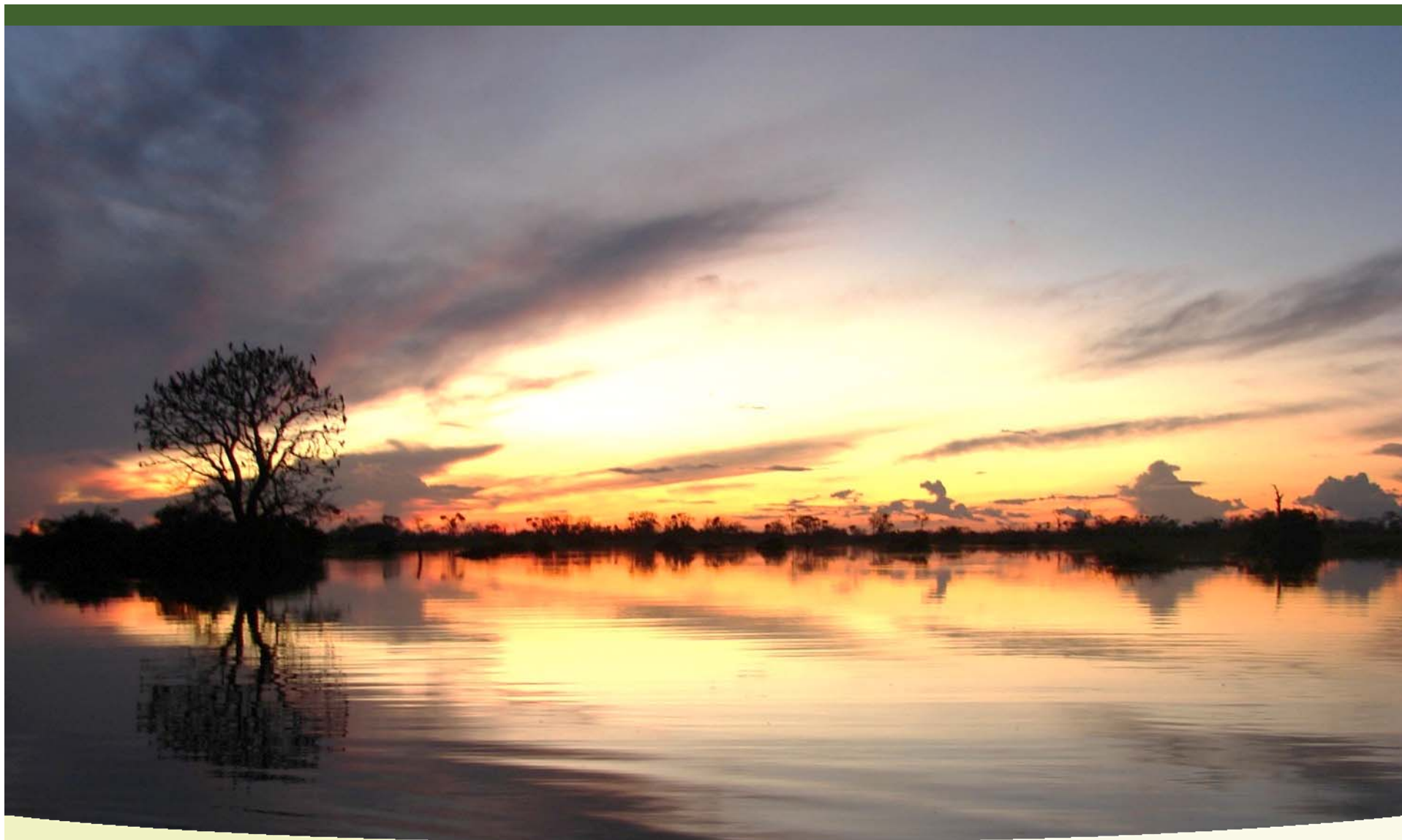


## **Policy-driven Land Homogenization: An Example from Laos (1973-2007)**

- Land use planning & regulations often simplify productive landscape patterns and move toward more distinction and segregation of agriculture and forest.
- By imposing boundaries between agriculture and forest areas, land use planning interventions have had significant impacts on the ability of rural communities to adapt to change (from Castella et al. 2013)







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