Socio-economic development has been rapid and uneven...

“Thailand is a very unequal society. There is growing awareness that inequality lies at the root of several forms of human insecurity, including rising political conflict.”

Boom-and-bust development has impacted landscapes and livelihood strategies.

**Resilient landscapes**

Resilient landscapes are those which are able to re-organize and continue to function after significant disturbances – *fires, floods, commodity price shifts, new policies*.
Development policies interact with shifts in demand to drive changes in landscapes

**Policies**
- Rubber & renewable energy
- Watershed & Conservation
- Transport & city planning

**Markets**
- Latex & bio-diesel
- Feed corn & wildlife trade
- Land & logistics

What have been the impacts of policies on landscape resilience?
Rubber policy and markets

- Export value US$ 9.3 billion a year (2010-3) Cf rice US$ 5.3 billion
- As stocks have risen prices have fallen
- Also impacted by fossil fuel and synthetic rubber prices
Recent expansion of rubber due to policy change influence ecosystem services provided by landscape.

Continued expansion of rubber and fruit trees at expense of forests will impact watershed services in future climates.

Renewable energy policies have set ambitious targets for biodiesel production

- Campaign to promote biodiesel started in 2005
- production became significant in 2008 with mandatory replacement of regular diesel to include 2% and later 5% biodiesel (also used price subsidies)
- Targets hard to meet; Alternative Energy Development Plan (2012-2021) sets more ambitious targets

Kumar et al. 2013. An assessment of Thailand’s biofuel development Sustainability 5:1577-1597
Renewable energy policies can have substantial impact on LULC and landscape resilience.


Introduction

Road work

Rubber & Oil

Conservation

Conclusion
Policies like maintaining protected areas help conserve biodiversity and provide other significant eco-services.

- incorporate mangroves into marine protected areas to reduce gap
- Scale up successful models of co-management
- Payment for ecosystem services (blue carbon) provided by mangroves


Expansion of feed corn to support changing diets drive rapid LULC in Nan Province


Reductions in forest cover likely to have major impacts on biodiversity and large mammals

2004 Indian Ocean Tsunami degraded capacities of most LULC classes to provide ecosystem services
Regional economic development and integration ideas have often been ‘driven’ by road infrastructure.
New roads create links to other places transforming access to markets and range of viable livelihoods

- expansion of upland cash crops at expense of forests and rice in areas nearer roads

Urbanization around Chiang Mai may be reducing resilience to floods and droughts

Conclusions

• There is a growing body of work on the implications of socio-economic development for landscape change in Thailand

• By drawing on understanding of ecosystem services this work suggests how landscape resilience may be changing as a result of specific development policies and markets.
Expansion of boom crops in SE Asia

Resilience ball in a cup