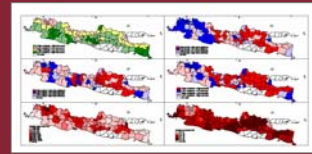
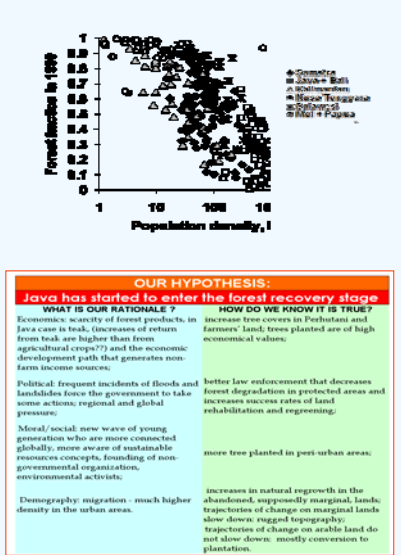


Java: Less Forest, More Trees Outside Forest, Persistent Poverty

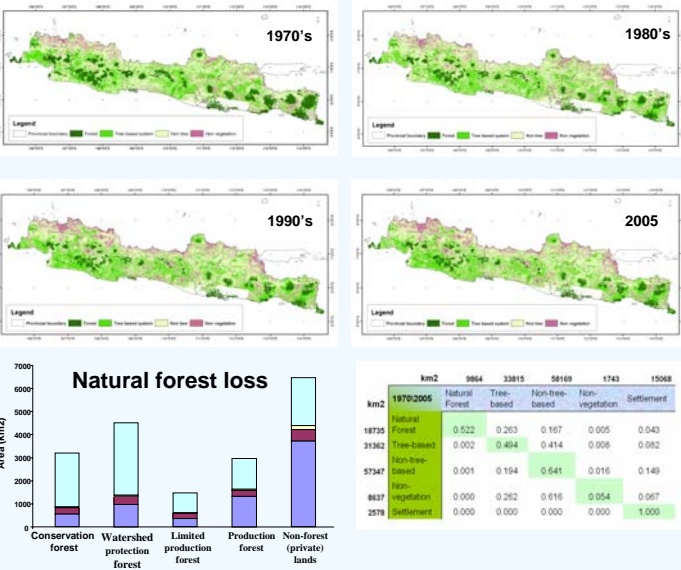


BACKGROUND

Within Indonesia and Southeast Asia in general, the island of Java experienced the earliest significant forest exploitation which was dated back from the late seventeenth century, and now Java is the most densely populated island with the lowest forest fraction among Indonesian islands. Despite of the important roles of tree cover in Java in providing environment services to 60% of the population of Indonesia and in supporting peoples' livelihoods, the dynamics of forest and tree cover in Java remains largely unknown. Being in the most advanced stage of forest transition, Java should be able to offer some lessons learnt to the outer islands and other countries in the region.

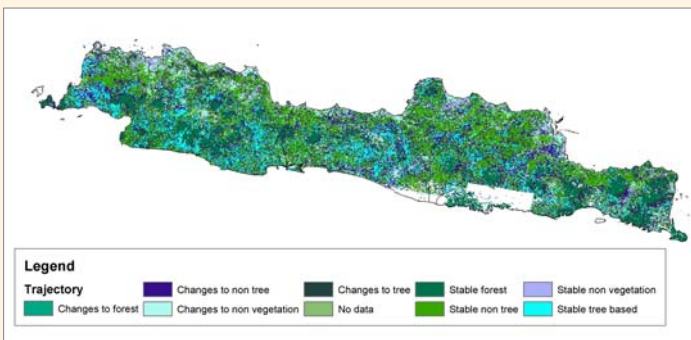


LESS FOREST ?



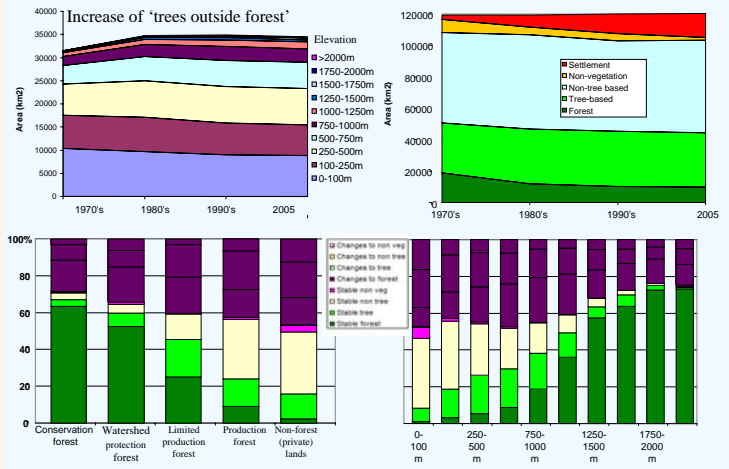
Java forests have been through a long process of transition. This study, which cover the period between 1970's to 2005, witnesses the stabilizing period of forest and tree cover in Java. Natural forest declines in a slow rate. The annual rate of natural forest loss of Java decreases from 5%, 1.7% to 0.4% in the periods of 1970-1980, 1980-1990, 1990-2005 consecutively.

Natural forest loss happened mostly in the first period of study (77%) and among them more than half of the cleared area was converted to tree based systems. Most of the natural forest loss happened within private lands, in low elevation areas. Since then the rate of forest loss declines and nowadays annual forest loss is very low.



MORE TREE ?

Despite of economic development and population growth, the tree cover outside forests remain stable in areas during the 35 years study period and lately they also stable in locations. During the period of 1970's to 1980's, areas of tree cover expanded significantly in private lands, in higher elevation and in places further away from city centers. Natural forest loss slows down in rate and other types of land cover also changes less over the three study period, however the long term trend shows that compared to long term stable land cover, the more recent conversion (along the 35 years time-scale) both to tree-based systems and non-tree-based systems are found more in higher elevation areas (> 1000 m asl.). This should raise a conservation issue that needs to be addressed urgently.

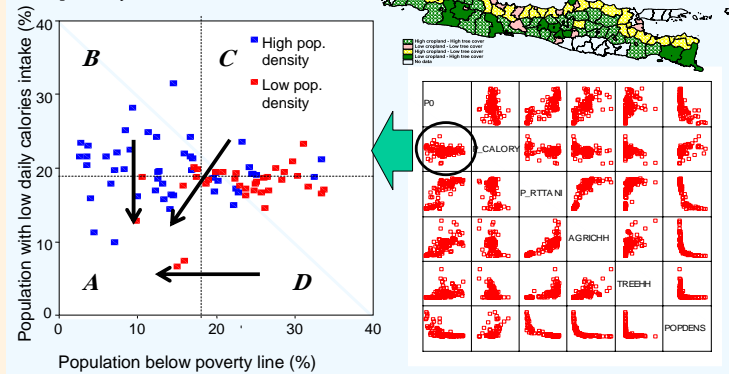


PERSISTENT POVERTY ?

We use two district poverty measures:

- Proportion of people below poverty line in total population
- Proportion of people with daily calories consumption less than 1,700 kcal

They reflect degrees of engagement in cash economies and subsistence level respectively.



- Population density, that in part reflects urban-rural dichotomy in Java, associates strongly with both poverty rate and nutrient deficiency
- Highly populated areas being well-off in terms of poverty rate and nutrient deficiency (A, B). The most well-off districts are those with maintain some tree cover, cropland and some farmer population (A). Otherwise, nutrient deficiency tends to be high even with low poverty rate (B). This shows livelihoods benefit of maintaining multi-functional landscape, in addition to its well-known environmental service provision.
- Districts with low population density tend to associate with high poverty rate, which suggests the lack of economic opportunities (C, D). While the cropland and tree cover are quite extensive, the economic returns might not be comparable with the non-agricultural sectors. In such areas, high nutrient deficiency leads us to hypothesize that agroclimate and land productivity are the primary constraints (C). However access to land can also one factor that deserves further investigation. Developing and maintaining irrigation system and distributing high quality tree seedling might be listed high in the government list of priority or rural development. Reward mechanism for environmental services, e.g., watershed protection and avoided deforestation, will probably be appropriate in these areas.
- In other cases, where nutrient deficiency is low (D), we hypothesize that the land capability and agroclimate should be able to support some sustainable and high return agricultural and agroforestry practices. Government programme to engage farmers into market network should be fruitful.

