Using GIS/RS to Design and Study Impacts of Tenurial Access on Deforestation

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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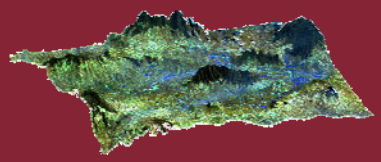
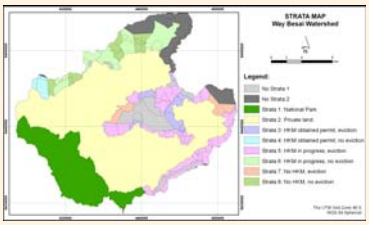


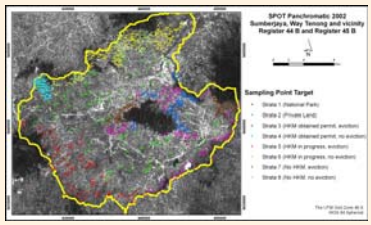
Background

While land is a crucial asset for most people in rural, hilly area of Sumberjaya, Lampung province, securing land tenure has been a long battle. In the early 1990s, Forestry Department announced that 30% of the watershed area classified as *protected area*. Farmers were demanded to stay away from their managed coffee gardens. Following the starting point of devolution process; a period many called as 'reformation' in Indonesia, social forestry concept (Hkm) was introduced. The system offers rights to manage land inside protected area by the means of preserving remaining forest (stop further deforestation) and planting new tree ('reforestation'). Now, 8 years after the enactment of HKm, it is timely to ask whether more secure tenure under social forestry scheme really meets its conservation objectives: to reduce deforestation and to increase tree cover in Sumberjaya watershed.

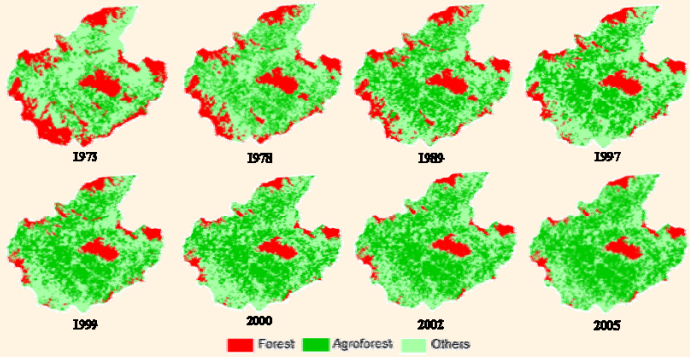
The Study Design

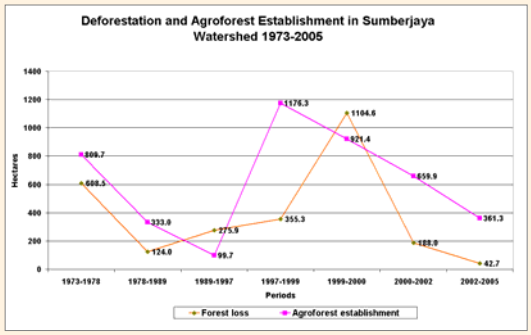
We identify 8 major tenure systems in Sumberjaya, based on three hierarchical levels. The first level is tenure systems based on forest status map. It classifies Sumberjaya watershed into *national park*, *private land* and *protected area*. The second level is tenure systems inside protected area. The areas are stratified into *HKm area*, *non-HKm area* and *unmanaged area*. The third tenure level classifies HKm areas into *HKm area with obtained permit* and *HKm area with in-process permit*.



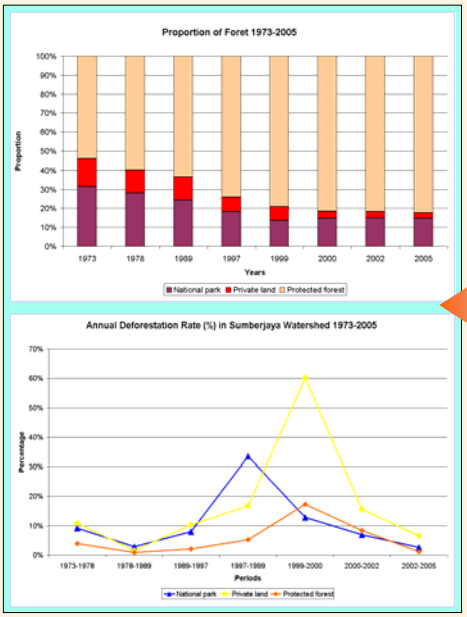


How do Forest Cover and Agricultural Practice evolve in the watershed?



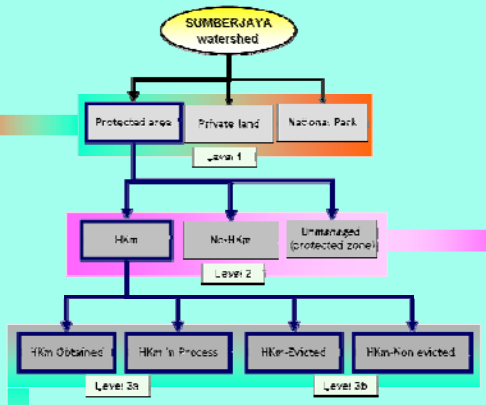


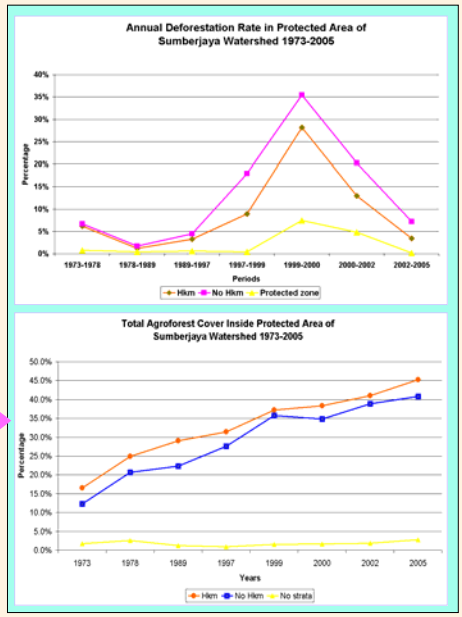
We calculate the annual change in area of agroforest in each time period of satellite image, and plot it against annual deforestation value, the result showed that the 're-treeing process' is relatively higher than the forest loss

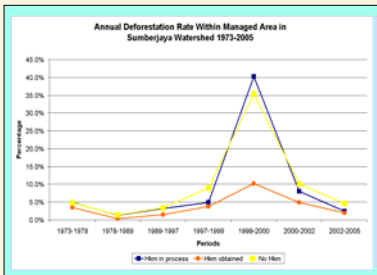


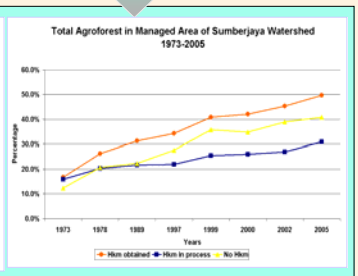
TENURE STRATIFICATION IN SUMBERJAYA

8 major tenure systems in Sumberjaya, in the first level: *national park*, *private land* and *protected area*. Inside protected area, there are *HKm area*, *non-HKm area* and *unmanaged area*. The third tenure level are *HKm area with obtained permit* and *HKm area with in-process permit*.









Forest loss in area where farmer has not obtained their Hkm permit is slightly higher than the area where farmer has obtained got theirs. This suggests that government's recognition to these Hkm groups is quite important in preventing further deforestation. Farmers who hold Hkm permits must be accountable in preserving remaining forest, but those who are still applying do not have any responsibility nor incentive to preserve forests.

Conclusion

This study shows that farmers who are granted with HKm permits have been accountable to the HKm scheme: inside Hkm, the extent of forest loss decreases and agroforest area increases. Even though deforestation rate does not reach the zero level, the study shows that the present rate of deforestation is the lowest ever since 1973. The deforestation rate remains particularly high in the area where HKm permits have not been granted yet. The processing of HKm permit application should be facilitated more rapidly by the government in order to push farmers to be accountable in managing their land while preserving the remaining forest.

For more information
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