

**Assessing the Impact of Uncertain Resolution on Forest Cover and the  
Definition of a 'Forest'**

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## Abstract

The Kyoto Protocol has the provision of international carbon offset<sup>1</sup> trading as one of the flexibility<sup>2</sup> mechanisms for meeting carbon reduction goals. However, determining the number of offsets generated by, say, a forest plantation requires a measure of the amount of carbon sequestered by the forestland, which in turn depends on how much area in the plantation actually constitutes a 'forest'. This analysis addresses the uncertainty in the measurement and representation of geographic phenomena, particularly land cover. The uncertainty stems from the vagueness of the labels that are assigned to different zones, which is a result of absence of objective geographic individual units (Longley, et al) and also from the lack of comparability across spatial resolution in terms of land use and land cover data. More precisely, the question that is addressed is what absolute or relative incidence of trees in a tree-covered zone qualifies it for the label of a 'forest' and how does the corresponding measure of tree cover behave with varying spatial resolution of data. The measure of 'forest cover' increases as spatial resolution of data falls. The increment in the measure of forest cover is the largest for areas with a lower density of tree cover. This vagueness in defining a 'forest' is further worsened by the differences in techniques applied and data used for measuring these phenomena across regions. This analysis would be particularly useful for evaluating CDM projects in developing countries which are not likely to have very good data on land cover. And if these countries acquire better data, the definitions of forest cover would have to be reevaluated and the results of this analysis would have to be kept in mind in order to get a realistic estimate of corresponding forest cover claims.

## References

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<sup>1</sup> Offsets are a form of credit-based emissions trading. Offsets are created when a source makes voluntary, permanent emissions reductions that are in surplus to any required reductions. Existing sources that create offsets can trade them to new sources to cover growth or relocation. (<http://www.co2e.com/common/glossary.asp#O>)

<sup>2</sup> The Kyoto Protocol has provisions that allow for flexibility in how, where, and when emissions reductions are made via three mechanisms: the Clean Development Mechanism, International Emission Trading and Joint Implementation. These mechanisms have been established to increase flexibility and hence reduce the costs of reducing emissions.

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