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
Land Cover Change and Soil Fertility Decline in Tropical Regions

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**Abstract:** Land cover changes influence the biogeochemistry, hydrology, and climate of the earth. Studies that assessed land cover changes at the global scale mostly focused on: deforestation, cropland expansion, dry land degradation, urbanisation, pasture expansion, and agricultural intensification. For the assessment, remotely sensed land-cover data, census data, and expert knowledge were used. In tropical regions, forest is cleared for the expansion of cropland, wood extraction, or infrastructure expansion. This widely occurs in the Amazon region and in Asia. In many temperate regions, the area under forest is increasing although forest plantations are also on the increase in the tropics. Croplands expanded by 50% during the 20th century, from roughly 1200 million ha in 1900 to 1800 million ha in 1990. It appears that there is no major desertification in the Sahel region and that urbanisation and most highly-populated cities are found in tropical regions. In China, the area under cropland increased from 98 to 130 million ha between 1949 and 1996. In the same period the area under forest almost doubled. In temperate regions, agricultural land is being taken out of production (set-aside), planted with biofuel crops or converted to recreational or building areas. Some areas appear to be more affected by rapid land-cover change because they are studied more intensively. There are several interacting drivers for land cover change but the exponential growth in human population is important. Currently, 95% of the population growth takes place in tropical regions. Soil fertility in tropical regions is affected by rapid land cover changes. The effects of deforestation and grassland conversions as well as agricultural intensification have been fairly well-documented. The spatial and temporal effects of soil fertility change and its interaction with land cover change remains to be investigated.

**Key Words:** Land use change, tropical regions, soil fertility, China, deforestation, cropland

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