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Impact of climate change on forests, forest products and the carbon cycle in the Congo Basin.

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Africa is widely seen as the continent most vulnerable to climate change. Current climate variability already has a large impact on the economies of developing countries. Large parts of African economies are highly climate sensitive, in particular agriculture, infrastructure and water sector. In this study we performed an analysis of climate change impacts in the Congo Basin on Forest ecosystem functioning and carbon storage. We emphasise the methodologies and validation involved in modelling the basin-wide carbon budgets. We also studied the potential shifts in broad classes of vegetation types, resulting from climate change. Finally, we compared annual productivity of the Congo forests with statistics of wood fuel and charcoal use for each of the countries in the region. The model simulations suggest that the region's forests will see increasing productivity under future climate, however, the effect of rising CO_2 concentrations, stimulating growth, is highly uncertain. From these findings it follows that the potential in the region to implement UNFCCC-REDD+ projects is still very uncertain, but probably sustainable and feasible. The analysis shows that, averaged over 10 years, wood fuel and charcoal use amount to 50% and in some countries up to 100% or even more of the yearly vegetation carbon increase. These percentages generally increases with population density.