Fact-Sheet - Forestry - Chad - Zone 1

List of projected changes - Tables show the mean of projected changes over the first and second half of this century. Uncertainty around these means is not specified but variable, depending on the climate model used and dependence on the assumed sensitivity of vegetation growth to atmospheric CO$_2$.

<table>
<thead>
<tr>
<th>Key findings for Zone 1:</th>
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<tbody>
<tr>
<td>• It is likely that biomass (vegetation carbon) in this zone will increase.</td>
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<tr>
<td>• It is likely that soil carbon in this zone will increase slightly.</td>
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<tr>
<td>• It is likely that total ecosystem carbon in this zone will increase moderately.</td>
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<td>• The increase is mainly the consequence of increasing atmospheric CO$_2$ concentrations. If CO$_2$ increase would be less than expected OR if vegetation sensitivity to CO$_2$ would be less than assumed in the vegetation models, the increase in vegetation, soil and ecosystem carbon would also be less.</td>
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<td>• The proportion evergreen and seasonal forests will increase while the proportion natural grasslands will decrease.</td>
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<td>• According to the models and the predicted climate, it is unlikely that as a consequence of climate change, the natural vegetation in the region will strongly degrade.</td>
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Data and method - The projected ecosystem carbon change signals are based on the LPJ-ml Dynamic Global Vegetation model (DGVM) forced by the bias-corrected ECHAM global climate change projections. Although it is scientifically weak to provide only one value for projected changes (e.g. the mean), which we do here, in the case of ecosystem carbon changes there are too many uncertainties to calculate a “likely range” or “confidence interval”. Instead we present the area-averaged mean change, based upon only one climate model, the ECHAM scenario, as this was the one giving most consistent results. We also verified the sensitivity of the DGVM to atmospheric CO$_2$ concentration change, because very little is known about the real CO$_2$ dependence of forests. This sensitivity study showed that if CO$_2$ dependence would be much smaller, the projected increases in ecosystem carbon will also be much less. Therefore the uncertainty ranges of the mean increases shown are large, often up to 50-100%. What is clearly needed is a large-scale experimental study to determine this sensitivity. Projected changes in the climate are assessed for two different greenhouse gas emission scenarios: the “Low” scenario is based upon the SRES B1 (IPCC-AR4) scenario; the “High” scenario is based upon the SRES A2 (IPCC-AR4) scenario.

Key adaptation options
In specific areas where ecosystems are shown to be at risk of degradation, conservation measures should be put in place. According to these computer simulations, there is no need to prepare for large-scale climate-induced degradation of tropical evergreen forests, but one should keep in mind that the current forecasts are very uncertain. Possible climate change mitigation measures, within UNFCCC (e.g., REDD+) or otherwise, seem relatively feasible.