Maps of projected changes - Maps show the projection of change over this century (mean of the period 2071-2100 compared to the mean of the period 1961-1990) under the “High” emission scenario and for all available projections combined. In the left panel, changes in potential vegetation carbon are shown and in the right panel, changes in potential soil carbon. Changes in total ecosystem carbon equals the sum of these two.

Definition of Zone 2 - The map below indicates the position of Zone 2 (red rectangle), representing the regions north of the equator with predominantly tropical wet and dry climates with a dedicated rainy season. All values presented in this fact-sheet are changes spatially averaged over the whole zone. As the major parts of the Central African Republic falls within Zone 2, projected changes for this zone are assumed to be representative for these parts of the country.

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 CO2.

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 CO2 concentration change, because very little is known about the real CO2 dependence of forests. This sensitivity study showed that if CO2 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.

Further details can be found in the “Impacts Report” and the “Adaptation Report” in the report section of the final project document - also available online under www.giz.de and www.comifac.org