The ESCAPE project: an interdisciplinary exploration of past and future environmental changes in Africa

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Sub-Saharan Africa (SSA) is known to be particularly vulnerable to climate change due to a combination of naturally high levels of climate variability, high reliance on climate sensitive activities such as rain-fed agriculture and limited economic and institutional capacity to cope with and adapt to climate variability and change. Furthermore, even without climate change, SSA is nowadays facing to recurrent food crises and to water scarcity and stress. The future of this region depends on the capability of the agriculture sector to guarantee food security for the vast majority of the population however while population is growing rapidly, water is becoming scarce, soils are degraded and yields are decreasing. Agricultural systems must therefore change to avoid catastrophe and to escape from the poverty trap. Urgent actions are required to tackle the issues raised by climate change in SSA and these actions need to be supported by the best knowledge available. The French ESCAPE project will revitalize research in SSA in this field through an integrated interdisciplinary framework that will increase our understanding of the problem and support decision making for the future. Two challenges are under way - First, we need to provide diagnostic of what has happened, what is happening and what is going to happen to prone economic sectors and to natural resources. It is important to make clear the potential implications of climate variability and change on resources. We need also to understand how the effects of climate change interact with other global changes in Africa (population growth, urbanization, land use changes, poverty...). Human activities and environmental changes have to be viewed together as co-evolutionary and adaptive. The adaptive capacity of the population (means of access, use and manage natural resources, means to adapt to climate variability) needs to be assessed in various sectors and locations by encompassing social, economic, political and technical aspects. By conducting this research, ESCAPE will therefore be in position to assess past and present vulnerability of systems and to point out the most vulnerable sectors and/or to determine regional priorities by economic sector. - Adaptation will be fundamental in securing the achievement of the UN Millennium Development Goals after 2015 in sub-Saharan Africa. ESCAPE will move beyond the static view of vulnerability assessments and the linear extrapolation of climate scenario impacts to facilitate pro-active adaptation that is scientifically sound and socially acceptable. Once vulnerable sectors and/or people have been targeted, research will be focused on increasing their adaptive capacities by designing new adaptation strategies that would be able to reduce their vulnerability to climate variability and change. This research will consider a user-driven definition and perception of problems and needs, as well as mutual learning by assessing both scientific and local knowledge. A better knowledge of how local actors such as farmers already adapt to climate variability and extreme weather conditions such as droughts and floods is essential to design and propose new adaptation strategies that can be adopted and used. ESCAPE therefore aims to assess the vulnerability of rural societies in SSA to climate and environmental changes and to explore adaptation pathways to reduce this vulnerability. This will be achieved by fostering interdisciplinary research, through both retrospective and prospective studies, on the evolution of different agricultural, ecological and social systems interacting together under the global environmental changes.