



Drivers and Dynamics of Global Environmental Change in Southern Africa

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Africa's potential to provide food, fuel, fibre and fodder for future global food and energy security has made it a target for a myriad investors from developed and developing countries alike. In many places, land grants and purchases have led to the establishment of huge monoculture production areas for food, fuel, fibre (maize, sugar cane, jatropha, plantation forestry etc) often preceded by deforestation and large scale utilisation and modification of available water resources. This coupled with the likelihood of rapid urbanisation in Africa over the next forty years and associated impacts linked to the high concentrations of inhabitants utilising and ultimately degrading available natural resources (e.g. wood for charcoal; water quality) have made Africa's ecosystems and people amongst the most vulnerable to global environmental change.

Key questions that arise are how available scientific knowledge can best be utilized to reduce this vulnerability, where key gaps in knowledge in understanding the inter-linkages between societal needs and Food-Fibre-Energy-Water supply exist and how to best address the necessary complexity of considering these at different spatial and temporal scales. Drawing on the Ecosystem Goods and Services approach, we present key messages from ongoing research activities in South Africa, Swaziland, Mozambique and Tanzania and report on progress in applying management tools and systems to support decision making in these areas where development needs are critical. We also highlight lessons drawn from situations where unintended consequences have resulted from well meaning or politically expedient initiatives linked to large donor or foreign investment schemes, such as "outgrower" programmes, and where major environmental damage and ultimately the permanent loss of productivity of some landscapes has occurred.