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Land use and desertification in the Binh Thuan Province of Southeastern Vietnam: mitigation and adaptation options now and under climate change

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Desertification and drought affects approximately 300,000 ha of land in the southeastern provinces of Vietnam, much of which is located on agricultural land and forest in the Binh Thuan Province. The methodology for analysing mitigation and adaptation options follows a chain of risk approach that includes a spatio-temporal characterisation of (1) the hazard, (2) the bio-physical and socio-economic impact, (3) the vulnerability to different activities as related to land uses, and (4) risk management options.

The present forms of land degradation include sand dune formation and severe erosion (63%), degradation due to laterisation (14%), salinisation (13%), and rock outcrops (10%). The climate is characterized by a distinct dry season with high temperatures, a lot of sunshine and a warm land wind resulting in high evapotranspiration rates. Delays in the onset of the rainy season, e.g. with 20 days in 2010, cause a shift in the growing season. Damages due to drought are estimated at hundreds billion VND (US$ 1 = VND 20,8900) and contribute to poverty in the rural areas. The current risk-exposure is exacerbated further by climate change. Combined effects of desertification and climate change cause increased degradation of natural resources including land cover. At the same time land use changes are crucial in influencing responses to climate change and desertification. A further SWOT analysis combined with spatio-temporal analysis for each of the major sectors (agriculture, forestry and nature protection, urban and rural development, water resources and fisheries, industry) demonstrates a series of adaptation and mitigation options.

Land is a valuable and limited resource. An integrated approach to land use and management is therefore essential to combat environmental hazards such as desertification and climate change.