



Tropentag, October 11-13, 2006, Bonn

“Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research”

Land Resource Assessment for Social Land Concessions in Rural Cambodia

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Abstract

The paper presents the application of a land resources assessment method to evaluate biophysical resources, their condition, trends and capability for use in rural Cambodia. The applied geo-ecological method takes into account a range of different agro-ecological factors. Resulting land units are systematic arrangements of various predefined categories. The capability of land units for particular land uses and the adapted treatment required for sustainable land use avoiding degradation are determined next. Assessments are required to serve the long-term needs of economic and environmental development, land allocation and environmental as well as land management and monitoring. Social concession land for sustainable agricultural purposes will be provided to landless and poor households in Cambodia. Major constraints for agricultural production by poor farmers are limited commercial inputs and a low level of technology implying that unfavourable land or soil qualities are difficult to modify by current farming operations. Qualities to be considered for a suitability rating are e.g. soil fertility, water retention capacity, soil depth, slope and susceptibility to erosion. Landscape and ecological field observations, assembled in a standardised soil and terrain resources database (SOTER) provide the basis for a suitability assessment. A preliminary suitability analysis in two provinces was based on the existing soils map and updated MRC soil data. Additional soil and terrain data was gathered from the digital terrain model SRTM90, the hydrological network as well as land use and land cover pattern derived from Landsat and Spot remote sensing data. Based on 41 auger samples and 10 full pit analyses a soil mapping process on reconnaissance level was started in Oddar Meanchey. Laboratory analyses of field samples have taken place in the Soil lab of the Ministry of Agriculture which probes major physical and chemical soil analysis]. The suitability assessment combines results from soil fertility, water retention capacity, soil depth, slope and susceptibility to erosion, providing five suitability classes according to FAO (1974). This derived map provides a quick and comprehensive overview of land resources and conditions for decision makers in the process of land allocation.

Keywords: Cambodia, land resource assessment, Soil Mapping, SOTER