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Farmer or expert; whose reality counts? A case study of Lao PDR

J. F. Sanchez-Moreno, A. Farshad, V. Jetten

International Institute for Geoinformation Science and Earth Observation (ITC)

sanchez@itc.nl, farshad@itc.nl, jetten@itc.nl / Fax: +31 (0)53 4874400 / Phone: + 31 (0)53 4874444

Food security and subsistence level are among the main concerns of farmers in less developed countries, such as Lao PDR. Around 80% of the population depends on agriculture as the main source of income; rice being the staple food. The topography, including narrow valleys, hills and ridges, urges the farmers to cultivate upland rice. In recent years, the Chinese interest in rubber latex encouraged the farmers to plant rubber tree, although the necessary knowledge on its requirements and on rubber processing is lacking. The importance of upland rice and the interest in rubber led to the formulation of the objectives of this study. The suitability of the two LUT's (upland rice- and rubber tree-based) were assessed, using three different approaches: 1) a suitability evaluation map was prepared by the farmers, and from the side of expert: 2) a conventional knowledge-based (Boolean) suitability evaluation was carried out using the Automated Land Evaluation System (ALES), and 3) a fuzzy-based approach was defined and applied. During the fieldwork a few workshops were organized, where the farmers were assigned to produce soil maps based on which, should they then determine the suitability of the different soil map units for the selected LUT's, after this and a few other terms were explained to them. The output of ALES (used by the expert) is suitability maps, wherein suitability classes are shown. Classes are determined through matching between land use requirements (demand) and land qualities (and/or) land characteristics (supply). The same land qualities and land characteristics defined in the Boolean (ALES) approach were also used in the fuzzy model. Different fuzzy membership values were set (literature-based) and weighed, calculated on the

basis of the Analytic Hierarchy Process (APH) technique, which relies on pair wise comparisons. Information retrieved from field surveys was an input to define the land qualities for the models. As fallowing is practised in the area, it was used in the modelling as one of the main parameters. However, the shortage in information on fallow length was overcome, formulating three hypothetical fallow periods (in scenarios) to run the models. The three different suitability visions were compared on a cell by cell basis.

The comparison between the three approaches reveals a reasonable agreement between the fuzzy- and the knowledge-based (Boolean) models that varies with the fallow period. In the case of farmers' suitability result, a better agreement is obtained for upland rice-based LUT (38%) as compared to the rubber-based LUT (22%).

When comparing the way different individuals perceive the reality is strongly related to their background, environment, position within society, etc. In this study three "realities" were compared. Strong differences are noticed, even within one and the same reality. The way an elder farmer understand the land may be completely different than a younger one. In the same way professionals with the same expertise may come out with dissimilar suitability classes. The question is then, which perception is closer to reality? Which one is the reality that counts? A perception of the reality is the (final) truth, which may take years, even centuries before it comes up. Individuals with power can be considered as those holding the truth and power is obtained with different ways, one of them is knowledge, which can be biased or wrong. Perhaps the reality is with those who deal in a daily basis with the issues that scientists study. On the other hand, farmers may be using practices that are not considered sustainable (according to the expert) and whose damaging effects are seen after some time has passed. Knowledge between farmers is transmitted from one generation to the other, and this knowledge can be incorrect. It should also be mentioned that farmers know only 2 classes: suitable and unsuitable, and that the maps made by them correspond with the current situations, the alternatives which satisfy them at this very moment.

Perhaps the reality is apprehended after trials and errors. The reality may be summarized as that both the experts and the farmers have to learn from each other in order to obtain a better understanding of the environment.

Key words: local knowledge, land suitability, fallow, fuzzy, upland rice, rubber, Lao PDR.