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DEVELOPMENT OF A STRATEGY AND STRUCTURE FOR LAND SUITABILITY EVALUATION FOR ERITREA

By

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Declaration

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and has not previously in its entirety or in part been submitted at any other university for a degree.

Signature..... Date..19.1.12.1.2000..

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ABSTRACT

Different evaluation systems of land have been used around the world. Basically these systems can be categorised into two main systems i.e. the USDA (initiated and started in the USA around 1930th) and the FAO Framework for Land Evaluation (developed in 1976 to answer some of the questions developing countries had with the USDA). The former deals with land capability classification where soil survey is done first and the use of the land is decided in general way from class I (best land for arable farming) to class VIII (worst land for arable farming). This type of classification is a narrow approach where economic analysis and comparison of different uses were not considered and it favours for arable use only. The later system takes the survey of land resources and producing of mapping units with homogenous characteristics at the same time defining the major kind of use and describing the land use types in detail. Comparison of the two will follow putting all factors i.e. physical, social, economic and environmental into consideration. Through the process of iteration different actions could be taken to bring both into harmony. This includes from land improvement (minor or major) to the complete change of the general objective of the evaluation.

Suitability evaluation is more flexible and can give more room for application in developing countries like Eritrea. The process is long and it is multi-disciplinary where different scientists from different field of studies work for the achievement of common goal. This help in the exchange of data for the future planning.

To initiate the evaluation exercise, two cereal crops i.e. wheat and sorghum were taken as a major kind of land use and their requirements and limitations were described in detail. On the other hand the major land qualities for rainfed agriculture in Eritrea i.e. moisture availability, nutrient availability, rooting condition and erosion hazard were chosen and their significance were discussed and ways for their assessment were proposed. Different factors that need to be considered during comparison of the requirements of the land use type and the qualities of the land were discussed. For determining the suitability, different systems are discussed and the

appropriate one is proposed for Eritrea. The final result of suitability evaluation is different maps showing the suitability rate and written report that indicate all the data, assumptions used during the evaluation process. At last more crops that grow in Eritrea were chosen and their requirements and limitations were identified and a check list for evaluating land qualities for irrigated agriculture and extensive grazing are described at the appendix.

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