

GUIDELINE FOR FOREST MANAGEMENT TO REDUCE SOIL LOSS
RISK BY WATER IN THE WATERSHED OF BINH DIEN RESERVOIR,
THUA THIEN HUE PROVINCE, VIETNAM

*NGUYEN Thi My Quynh^a and Kunihiko YOSHINO^b

^a *Master student, Graduate School of Life and Environmental Sciences, University of Tsukuba*

Room 3F617, University of Tsukuba, 1-1-1, Tennodai, Tsukuba, Ibaraki, Japan;

Tel: +81 80-4447-2505;

Email: myquynh2505@yahoo.com.vn

^b *Associate Professor, Faculty of Engineering, Information and Systems: Division of Policy and Planning Sciences; University of Tsukuba*

Room 3F1111, University of Tsukuba, 1-1-1, Tennodai, Tsukuba, Ibaraki, Japan;

Tel: +81 29-853-5005;

Email: sky@sk.tsukuba.ac.jp

KEY WORDS: Soil erosion by water, forest management, RUSLE, remote sensing, geographical information system (GIS)

Abstract: Sedimentation in the Binh Dien Reservoir, Thua Thien Hue province, Vietnam causes negative impacts on water quality provided for metropolitan consumption, decrease of water containing capacity of the reservoir which results in power productivity of the hydropower plant and economic cost for dredging accumulated sediment. The root cause of the sedimentation is accumulation of soil loss from the watershed into the reservoir due to soil erosion by water. This study aims to figure out soil loss risk in the study site and to develop guideline of head watershed forest management for effective soil conservation. Within GIS platform, the Revised Universal Soil Loss Equation (RUSLE) was applied to simulate soil loss risk map. In enhancement of the effectiveness of C factor estimation, the study used the perpendicular vegetation index (PVI) which was computed with satellite remote sensing data. High rainfall intensity which concentrates mainly in rainy season and steeply sloped topography are main factors cause soil loss. On the contrary, vegetation plays important role in protecting land from soil erosion. However, the simulation showed that high risk of soil loss occurs on hillsides even though those areas are covered by poor vegetation. This finding implicates necessity to enhance quality of vegetation through proper headwater forest management.