



Ecosystem Services in Mountainous Area: A Case Study of Nghe an, Vietnam

Hoang Phan Hai Yen, Nguyen Thi Viet Ha, Binh Thai Pham^{1*}; Indra Prakash², Lai Van Manh³, Nguyen Thi Thuy Dung⁴, Phan Bui Quoc Manh⁵, Tran Thi Tuyen^{6*}

Department of Geography, School of Social Sciences Education, Vinh University, 460000, Vietnam

¹University of Transport Technology, Hanoi 100000, Vietnam.

²Department of Science & Technology, Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG), Government of Gujarat, Gandhinagar, India

³Institute of Strategy and Policy on Natural Resources and Environment, Hanoi, Vietnam

⁴Education for Nature of Vietnam (ENV) - 17T5 Hoang Dao Thuy street, Thanh Xuan, Hanoi;

⁵Nghe An Center Natural Resource and Environment of Monitoring, No. 4, Duy Tan street, Hung Phuc ward, Vinh city, Nghe An province, 460000, Vietnam

⁶Department of Resource and Environment Management, School of Agriculture and Resources Vinh University, 460000, Vietnam

**E-mail: binhpt@utt.edu.vn; ttt.dhv@gmail.com*

Abstract: A study was carried out in the mountainous Western area of Nghe An province, Vietnam, which is a forested area inhabited by ethnic minorities for payment for forest environment services with focus on watershed protection and carbon sequestration services. Remote sensing - GIS methods were used to map forest area for biomass assessment. In addition, the method of determining the level of payment for forest environmental services was used to calculate the Pu Hoat natural reserve. The study shows that there is great potential for the development of forest ecosystem services in the study area, which can contribute significantly to improve the livelihoods of indigenous people besides protecting/enriching forest capital. A number of practical solutions to improve the good implementation of forest environmental services have been proposed for the study area, which can also be applied in other areas. This research has highlighted the practical benefits of the Forest (environmental) Payment Service (FPS) and pointed out the shortcomings that need to be addressed.

Keywords: Forest Payment Service (FPS), Carbon absorption capacity, Nghe an province, Vietnam
