Land degradation associated with upland systems is now widely recognized as a one of the most important issues for improving the human and natural environment. The soil erosion and deposition which result from degradation have major negative economic impacts both on and off-site, including declining agricultural productivity, a reduction in storage capacity and delivery facilities of dams and reservoirs downstream, increasing pollution of drinking water, damage to irrigation infrastructures, and a threat to aquatic ecosystems as well as human health. Degraded land could be rehabilitated, and additional degradation prevented, in a cost-effective manner through improved cropping patterns and cycles, soil and water conservation practices, proper fertilization and other changes. However, limited resource of poor farmers and externality problem are the major issues that results in less conservation practices in the upland area. The use of payment for environmental services (PES) as a mechanism to translate external, non-market value of environmental services from soil and water conservation practices into real financial incentives for local actors to provide such services is proposed to address this issue. This study aims to design the PES scheme as an incentive mechanism for sustainable upland farming system and land use in order to provide benefits for hydropower dam operation and other water users at the downstream area. The study site is Hoa Binh province in the northwestern Vietnam, where Hoa Binh Dam, the largest hydroelectric dam in South East Asia, is located. Apart from electricity generation, flood control and supplementary irrigation in the Red River Delta downstream are also significant benefits from this dam. The result of the research will contribute to effective and efficient incentive system for soil and water conservation which in turn will contribute to the overall goal of sustainable agricultural development in the sloping lands for food security and poverty reduction in the region.