Erosion Control within a Cultivated Sloping Land in North Vietnam

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Abstract

The MSEC Program (Management of Soil Erosion Consortium) is an IWMI program for 6 countries in South-East Asia (Indonesia, Laos, Nepal, Philippines, Thailand and Vietnam). The general goal of MSEC is to support farmers on sloping lands, for maximum reduction of natural resources degradation and for poverty alleviation through enhanced adoption of sustainable land and water management systems. The research actions associate soil erosion measurements, erosion and hydrological modelling and farmer participatory approach.

In Vietnam, a cultivated watershed of 50 ha has been equipped from 1999 to measure water budget, soil loss, soil and water quality. The cultivated slopes are between 40% and over 100%. The soils are Acrisols (Ultisols), generally deep, porous, with clay-silty texture. The watershed has been cultivated with cassava crops during these three last years. The large annual variability of soil loss (from 1 to 15 t/ha/yr) depends in both time of the rain variability (in amount of rainfall and in hourly intensity) and the kind of land-use practice. For example, in 2001, the half watershed was cropped with cassava and consequently the soil loss was 6 more time higher. The suspended load recorded during rising flows proves that the suspended load can represent the same level of soil loss than the bed load. It underlines that to measure the soil loss it is a necessity to take these two kinds of matter river transport into account. The ^{137}Cs values in soils along the slope confirm recent and severe soil erosion of fine particles in cassava fields cultivated for the longest time, where the soils are the shallower. So tillage erosion should be the main erosion factor. Now the farmers of Dong Cao have an awareness of the impact of land-use on the soil loss and the soil fertility decrease. New cultural practices and the extension of cover plant will be developed the next years in order to control the erosion and to improve the modelling of the relation between erosion and land-use practice. In the future, an extension of the study area from 50 ha to over 1000 ha could be considered.

The Second International Conference on
Soil Quality Evolution Mechanism and
Sustainable Use of Soil Resources

Soil Quality ,
Environment and Sustainable Agriculture in Tropical and Subtropical Regions

Yingtan, P. R. China
23 — 25 September 2003

Organizer:

Key Basic Research Develop Foundation (973 Project) No. G19990118

The Institute of Soil Science, CAS, Nanjing, China

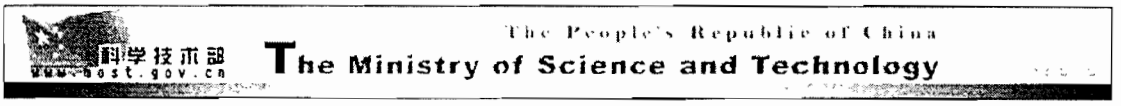
Sponsors:

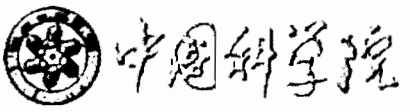
Ministry of Science and Technology

National Natural Sciences Foundation of China

Chinese Academy of Sciences

IRD, France





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