

Vetiver for Sustainable Watershed Management in the Dabie Mountains of China: Swiss Re Funded Project Launched

Soil erosion and the Dabie Mountains

Water erosion has been a problem ever since man started to cultivate land. It became more critical with increasing population. In the recent decades, forests decreased dramatically in China and water erosion became more serious. The area under water erosion has expanded to 1.5 million square kilometers in the country.

Caused by water erosion, the level of river bed raised considerably. In raining season, flooding caused disastrous consequence. For example, in 1998, heavy flooding caused 4,150 death and direct economic lose of 255, 090 million Yuan RMB in China (about US\$31, 108 million). To control water erosion and protect natural resource is one of the most urgent tasks of human being.

The Dabie Mountains, the launched project area, 90-1,700 m above sea level has a total area near 100,000 sq. km. Caused by various factors, the Dabie Mountain area remains under developed and forms one of the poorest region of the country. Water and soil erosion is one of the main factors influencing agricultural development. Since the soil in the Dabie Mountains was mainly derived from coarse granite rocks, soil erosion was proved serious. To control soil erosion, Vetiver System was introduced to the Dabie Mountains by China Vetiver Network in 1998. Field trials in Yuexi County of Anhui Province, and Huanggang Prefecture of Hubei Province showed that vetiver grass grew very well and played an important role in water conservation and slope stabilization.

The Swiss Re supported project

The objectives of the Swiss Re supported project is to help farmers control water and soil erosion, protect natural resources and increase income at the same time by:

- Introducing and raising awareness of water, soil and natural resources protection and the effectiveness of vetiver in water and soil erosion control, watershed management and sustainable agriculture, earth work stabilization, disaster prevention, and other numerous multiple uses among policy makers, farmers, extension workers and technicians in the whole Dabie Mountains and other mountain area in China.
- Training farmers on vetiver characteristics, vetiver planting, propagation, pruning and management and the application of multiple uses of the pruning.
- Introducing and extending proper vetiver based agroforestry technology, such as vetiver-chestnut-wheat system, contour planting technology, crop diversity for erosion control, etc.
- Generating income by establishing vetiver-protected high quality commercial trees and vegetables on terrace, and small animal husbandry.
- Helping women improve social and economic condition by training and demonstration on vetiver management, tea production, etc.
- Extending the above technologies and experiences to the whole Dabie Mountains and other mountain area of China through various activities.

Agroforestry will be introduced and demonstrated, totaling 120 000 tea seedlings, 900 chestnut trees, and 210 000 vetiver tillers will be established in demonstration plots. Series training courses will be organized and over 1 000 persons be directly trained. The experiences and information will be most widely distributed through in-direct training, information dissemination, visiting, and national and international networking.

The initiation of the project

To start the project a group from China Vetiver Network went to the project area at the end of May 2004. Discussion was held with local party secretary, and the technicians from the soil conservation bureau and soil and water conservation institute. At the meeting China Vetiver Network introduced Vetiver System and its function for water and soil erosion control. A set of technical materials were distributed, including posters produced by The Vetiver Network (international) and Taiwan university, that contained numerous color pictures vividly showing how vetiver grass control water and soil erosion and protect farming production. Local people expressed high interests in vetiver application and their thanks to the donor's generous support. Through discussion a Working Group was formed which consisted of village director, technicians, farmers, and member of China Vetiver Network. The responsibility of different people was also discussed and decided. At the end of the meeting a contract was signed.

As an initiation, the Working Group members went to the field to investigate the demonstration site, the Shao Huo Shan Mount that was 400 Mu (about 26 hectares). It had a slope for 15-25 degree. Two patches of the slope land were selected for the demonstration of vetiver hedges protected tea bushes and vetiver hedges protected tea bushes. To implement the project more smoothly a timetable was proposed, that includes two major components: the technical training mainly in September of 2004 and the planting in March of 2005. Contents of training and extension will include :

- Why erosion should be controlled.
- Water and soil conservation and reconstruction of eroded slopes and terraces.
- Vetiver: its characteristics, growth behavior, management, applications, and reproduction technology, and benefit.
- Vetiver based agroforestry technology and crop diversity for water conservation, income generation, and food security.
- Nitrogen-fixing trees, shrubs, and plants for soil fertility maintenance and sustainable farming.
- Contour-planting techniques, commercial tree production and management (chestnut and tea).

Methods of training and extension include:

- *Formal Training*: Training courses will be carried out at two-stages, i.e. township level for middle school graduates and villager-group level for less educated farmers respectively. The former will be the trainer for the latter. All of the training will be combined with practical exercise and field demonstration when appropriate.
- *Self-study*: Supplemented by supervision and multiple training materials, self-study of printed materials is a very cost-effective training method. Small supervision group will be organized to spread technologies and to answer farmers' questions.
- *Field visitation*: One of the challenges in this project is to create opportunity for farmers, government officials, and extensionists to learn and grasp technology through visiting demonstration plots.

Some other aspects were also discussed:

- To meet the needs of the training, multiple training materials will be prepared and produced in the recent three months, i.e. June, July, and August 2004, in addition to extension materials.

- Land preparation will be carried from October 2004 to January 2005, that includes bush clearing, terrace establishing, holes and ditches preparation for economic trees.
- Manuring and economic tree and vetiver planting in March of 2005.
- To collect more vetiver seedlings, a small nursery will be established in June 2004.

All of the partners and participants believe that the project could be implemented smoothly and successfully through joint effort of all of the partners.



A meeting was being held at local office.



Field investigation.