

## CHINA-Sloping Lands Conversion Programme (SLCP)

"Grain for Green"

### SUMMARY

National government programme through which farmers MUST set aside erosion-prone farmland within critical areas of the watershed of the two largest rivers in China: the Yangtze and Yellow river (sometimes called Huanghe River). Compensation is given in cash and in-kind. Total investment is US\$4.3 million per year.

### MATURITY OF THE INITIATIVE

Ongoing. Pilot run in 1999, full implementation since 2002.

### DRIVER

After a period of very serious flooding in 1998 and increasing demand for ecological services, the government began a major ecological restoration plan involving six key forestry programmes; the SLCP is one of these.

### STAKEHOLDERS

#### Supply

*Private landowners:* farmers on erosion-prone sloping land (slope greater than 25 degrees) within the upper watershed of the Yangtze river and in the upper and middle parts of Yellow river, covering a total of 50 million hectares and spanning 1,710 counties in 25 provinces. In principle, farmer participation is voluntary, but in practice local governments often focus on an *entire village* approach.

#### Demand

National government.

#### Intermediary

Local government offices are in charge of transferring the funds from central government to households.

#### Facilitator

The State Forestry Administration, the Ministry of Finance and the State Development and Planning Commission.

### MARKET DESIGN

#### Service

Erosion and sedimentation reduction.

#### Commodity

*Rehabilitation of degraded ecosystems for protection* through ecological tree planting.  
*Reforestation for commercial plantations* with economic trees (producing nuts or fruits and for timber).

#### Payment Mechanism

*Intermediary-based transaction (local government) internal trading:* central government allocates funding for compensation to farmers setting aside part of their cropland, local government offices facilitate implementation.

#### Terms of Payment

*In cash, regular:* 417 Yuan per hectare per year (US\$50) for farmers in the Yangtze River Basin and 290 Yuan per hectare per year (US\$36) for those in the Yellow river basin.

*In cash, one-off:* seed and planting subsidy: one-off 750 yuan per hectare (US\$93).



*In-kind, regular:* grain rations : 300 kilograms per year per hectare of set-aside land in Yangtze River watershed and 200 kilograms per hectare per year for the set-aside areas along the Yellow River.

Both cash and grain payments are awarded for five years for production trees and eight years for protection trees.

### **Funds Involved**

For the period of 2000-2010 total budget is 350 billion Yuan (about US\$43 billion). Between 1999, when the programme began, and 2005, the central government provided 103 billion yuan (US\$12.8 billion) (SLCP Office, 2006, cited in Jin 2006).

## **ANALYSIS OF COSTS AND BENEFITS**

### **Economic**

*Opportunity costs:* According to research by Xu Jintao and Cao Yiyang, [cited in Changjin and Chen, 2005] in most of the regions where the programme is operating, the grain ration received per hectare is higher than the average grain yield in normal years. In addition, productivity on plots remaining under production seems to increase - therefore, the level of national production of grain has not been affected by this set-aside scheme.

A cost effectiveness and sustainability analysis conducted by Emi Uchida, Jintao Xu, and Scott Rozelle (cited in Gee 2006) concluded that "the results imply that on average the program is enrolling plots with positive environmental benefits and relatively low opportunity costs."

### **Environmental**

Up to 2005: nine million hectares of sloping land has been converted into forestland and tree plantations. However, the survival rate of the trees planted by the programme can be very low (about 100 trees out of 400,000 plus trees planted in Qingjian County of Northern Shaanxi Province), in places where the permanently dry layer of the loess (about two metres deep) acts as a death trap for deep-rooted vegetation (Changjin and Chen 2005).

According to observations made by the Sichuan Agricultural University, silt run-off from converted lands is 22-24 per cent less than from comparable farming lands in Tianquan County (Changjin and Chen 2005).

Expected environmental benefits are: to control soil erosion on 340 million mu (about 23 million hectares), stop desertification in 400 million mu (about 27 million hectares), which will reduce sediment into the Yangtze and Huanghe Rivers by 260 million tonnes.

### **Social**

The programme is carried out mainly in poverty-stricken mid-west China and involves 90 per cent of China's poor people (SLCP Office, 2006, cited in Jin 2006). Improvement of the living conditions of the farmers is a large component of this programme (i.e. the programme is a way of achieving distributional objectives). Since 1999, 30 million householders have received compensation in the form of a total of 48 million tons of grain and 17.6 billion yuan (about US\$2 billion) in payments (Gee, C. 2006); other benefits are the release of family labour that can be utilised on other plots or activities.

## **LEGISLATION ISSUES**

Forest Law (1998) and Water Law (2002) formally recognise the importance of compensation for environmental service provision.

## **MONITORING**

Local government offices are responsible for monitoring.

## **MAIN CONSTRAINTS**

Once the programme and payments end, there will be little to stop farmers from growing crops again on these lands – It is hoped that i) farmers will develop other activities during the programme which they will then continue afterwards or ii) they will be able to draw enough benefits from the trees planted for the programme.

## MAIN POLICY LESSONS

Due to the fact this programme offers compensation and support to take up forestry, willingness to participate was high, in contrast to the low level of acceptance of the Shelter Belt Programme, which did not provide any such compensation (Changjin and Chen 2005).

Weyerhaeuser (2006) identifies the following key policy lessons for the Sloping Lands Conversion Programme:

- Reasonable incentives are the key to maintaining environmental services over the longer term.
- Payment schemes require adequate funding to ensure adequate levels of environmental services:
  - long-term funding;
  - sufficient funding to cover the costs of planting high quality trees and maintaining these, otherwise farmers often revert to agriculture or plant low quality trees with poor economic and ecological returns;
  - compensation for opportunity costs of foregone land uses.
- Clear objectives and evaluation procedures can help allocate scarce financial resources and avoid programme drift and unintended uses of funds; programmes should move beyond paying to restore forest cover and focus more on rewarding the provision of actual environmental service.
- Ensuring stakeholder participation from the beginning can improve acceptance levels, enhance programme design, strengthen links between producers and beneficiaries, reduce enforcement costs and improve results.
- Transparency in deciding how payments are calculated and how they are to be used is crucial to gaining public acceptance and maintaining the quality of environmental services.
- Government agencies and local governments should continue facilitating fairer negotiations and effective contracts between producers and beneficiaries, especially as more private payment schemes emerge.

Overall outlook of Payment for Watershed Services (PWS) in China (Stanton et al., 2010):

"The number and variety of PWS schemes in China have escalated in recent years, from around eight in 1999 to more than 47 in 2008, with an estimated transacted value of roughly US\$7.8 billion, impacting some 290 million hectares. Payments in China have grown from just over US\$1 billion in 2000 to an estimated US\$7.8 billion in 2008. In 2008, China's major forestry programmes account for over 90 percent of total PWS payments. Current watershed payment schemes in China are almost exclusively government mediated, and many programs have been created in response to the central government's call to promote the development of and innovation in 'eco-compensation mechanisms.' For example, from 2002 onward, around 50 per cent or more of total transactions by value are under the Conversion of Cropland to Forests and Grassland programme. Another potentially significant boost to PWS at both the provincial and national levels could come from a new water pollution emissions trading system. Activities on the ground, including the establishment of a pollution-permit trading platform, suggest that such a system may soon debut in various locations across the country."

## OTHER INFORMATION

After a period of very serious flooding in 1998 and increasing demand for ecological services, the government began a major *Ecological Restoration Plan* involving six key forestry programmes:

- i) *Three North and Middle and Lower Reaches of the Yangtze Watersheds Shelterbelts Programme*: covering four million square kilometres (about 40 per cent of China's total land area).
- ii) *Sloping Farming Lands Conversion* or "Green for Gain" Programme.
- iii) *Desertification control in Beijing city* (raise vegetation cover to stop sandstorm problem in the region).
- iv) *Natural Forest Protection Programme* (logging limitations).
- v) *Fast-Growing and High Yielding Forest Industrial Base Programme in Key Regions* (to increase timber production- goal is to produce 133 million cubic metres, which is equivalent to 40 per cent of current domestic demand).
- vi) *Wildlife Protection and Nature Reserve Programme* (10 projects to conserve flagship species and 30 other important forests, Gobi desert and wetlands, to be implemented until 2010).

## CONTACT

No information available.

## REFERENCES



Bennett, M. T. (2005) China's Sloping Land Conversion Programme: Institutional Innovation or Business as Usual? Revised version of a paper presented at the ZEF-CIFOR workshop on Payments for Environmental Services: Methods and Design in Developing and Developed Countries. Titisee, Germany, June 15-18, 2005, CIFOR and ZEF Bonn.  
[http://www.zef.de/fileadmin/webfiles/downloads/projects/devcom/PES\\_workshop\\_files/Case\\_study\\_China.pdf](http://www.zef.de/fileadmin/webfiles/downloads/projects/devcom/PES_workshop_files/Case_study_China.pdf).

Bennett, M.T., Xu, J., 2008. China's sloping land conversion programme: Institutional innovation or business as usual? *Ecological Economics* 65, 699-711.

Changjin, S. and Chen, L. 2005. The Status of Payments for Watershed Environmental Services of Forests in China and its Institutional Analysis IIED Project Desk Study I-The Study of Policies and Legislations Affecting Payments for Watershed Environmental Services- draft. RCEEE for IIED-funded watershed protection services-unpublished.

Emi Uchida, Jintao Xu and Scott Rozelle (2005) Grain for Green: Cost-Effectiveness and Sustainability of China's Conservation Set- Aside Program *Land Economics*, Vol. 81, No. 2, May 2005, pp: 247-264.

Gee, C (2006) Grain-for-Green, Ecosystem Marketplace website, Katoomba Group. Last accessed 24/02/2006 at:  
[http://ecosystemmarketplace.com/pages/article.news.php?component\\_id=4193&component\\_version\\_id=6013&language\\_id=12](http://ecosystemmarketplace.com/pages/article.news.php?component_id=4193&component_version_id=6013&language_id=12).

Jin, L. (2006) Payment for Environmental Services in China: cases. IIED internal document  
Stanton, T., Echavarría, M., Hamilton, K., Ott, C., 2010. State of watershed payments: an emerging marketplace. Ecosystem Marketplace.

SLCP Office Official website (in Chinese): [http://www.tghl.gov.cn/baodao/baodao\\_show.aspx?id=1485](http://www.tghl.gov.cn/baodao/baodao_show.aspx?id=1485).

Sun, C., Chen, L., 2006. A study of policies and legislation affecting payments for watershed services in China, *Developing markets for watershed protection services and improved livelihoods*. Research Center of Ecological and Environmental Economics Beijing, and International Institute for Environment and Development, London.

Weyerhaeuser, H. (2006) Paying for Environmental Services in China: Lessons Learned from a promising approach. EFRN European Tropical Forest Research Network Newsletter Forests, Water and Livelihoods [45-46 Winter 2005/06] <http://www.etfrn.org/etfrn/newsletter/news4546/index.html>.

Xu, J., Katsigris E. White T. A. editors. 2002. Implementing the Natural Forest Protection Program and the Sloping Land Conversion Programme: Lessons and Policy Recommendations. Council for International Cooperation on Environment and Development (CCICED) Secretariat Canadian Office.  
<http://www.harbour.sfu.ca/dlam/Taskforce/grassPreface.html>.

Xu, J., Tao, R., Xu, Z., Bennett, M.T., 2010. China's Sloping Land Conversion Programme: does expansion equal success? *Land Economics* 86, 219-244.

Xu, Zhigang, Michael Bennett, Ran Tao and Jintao Xu. 2004. "China's Sloping Land Conversion Programme Four Years On: Current Situation, Pending Issues." *The International Forestry Review*. Special Issue: Forestry in China – Policy, Consumption and Production in Forestry's Newest Superpower. 6(3-4): 317-326, cited in Bennet, 2005

## LINKS

[http://www.cepf.net/xp/cepf/where\\_we\\_work/southwest\\_china/full\\_strategy.xml](http://www.cepf.net/xp/cepf/where_we_work/southwest_china/full_strategy.xml)  
<http://www.harbour.sfu.ca/dlam/WorkingGroups/Forestry/newsletter4.html>