

China (Local Watershed Protection Schemes)

Local and Regional Initiatives for Watershed Protection

SUMMARY

Over the past decade, while the central government was developing a national Forest Ecological Compensation structure, several local initiatives were also developing throughout China, led by local governments' interest in protection of water quality and quantity. These are mainly provincial or county level initiatives using earmarked shares of water-based revenues or creation of watershed protection fees as mechanisms for funds collection. It is unclear how funds are transferred to upstream landowners, but this is likely to be through local-government supported land use agreements, involving mainly forest management.

As water user fees appear to be mandatory in some cases and as it is unclear how funds are transferred to landowners, these schemes can be considered as "borderline" PES.

MATURITY OF THE INITIATIVE

Although several studies mention the existence of these local initiatives (Changjin Sun and Xiaoqian Chen .2002; China Agricultural University, 2004; Changjin Sun and Chen Liqiao, 2005; Liu Can et al. 2005 in Lu Wenming *et al.*, 2002), their current status is unclear.

DRIVER

Municipal, county and provincial government authorities

STAKEHOLDERS

Supply

Landowners upstream of drinking water reservoirs, hydroelectric dams and industry water intakes

Demand

Local or provincial government, water utilities and other industries with high water use, hydropower producing companies and irrigation

Intermediary

Local government authorities negotiate directly with landowners on supply side and with other water users on demand side.

Facilitator

Forestry department in some cases

MARKET DESIGN

Service

Water quality (pollution and siltation control)

Landscape beauty

Commodity

Unclear but likely to involve:

Improved management practices for soil and water conservation,

Rehabilitation of existing ecosystems for conservation (mainly through reforestation of erosion-prone degraded lands)

Reforestation for commercial plantations

Payment Mechanism

Most common mechanisms for funds collection are earmarked shares of water-based revenues or creation of watershed protection fees. It is unclear how funds are transferred to upstream landowners.

Terms of Payment

Unclear

Funds Involved

See particular examples below

EXAMPLES



In **Liaoning Province** (Northeast China), a fee is charged to mining companies, paper mills, and other large industrial water users to support watershed forest management. Fees vary according to the user. Water urban supply companies, industrial and mining enterprises pay the highest fees (US\$0.0012/tonne of water used); agricultural water users pay US\$0.0001/tonne. Hydropower producers pay US\$0.0012 per kilowatt-hour and inland water transport enterprises contribute with US\$0.0001 per tonne transported. In addition, forest scenic beauty areas must contribute with 20% of admission tickets sales. Approximately 13 million Yuan are collected annually (about US\$1.6 million), amounting to 47million Yuan until 2002 (US\$6 million). (Lu Wenming *et al.*, 2002).

In **Shanxi Province** (East China), *Yao County* assigns 10% of the revenue from a water fees to the Forestry Department to protect critical watersheds. (Lu Wenming *et al.*, 2002). With the same aim, *Hubei Province* earmarks a share of the fees collected from drinking water, hydropower, scenic tourism, river transportation, mining in timberlands and economic forest products. (Changjin Sun and Xiaoqian Chen. 2002)

Miyun Reservoir and water supply for the cities of Beijing and Tianjin (East China)

Direct negotiations between the *Beijing and Tianjin municipalities* and the farmers in Chengde, Fengning County (*Hebei Province*) have led to the creation of an Environmental Forest Compensation Fund to secure the quality of the water stored in the Miyun reservoir. The reservoir supplies 80% of Beijing's water and 56% of water flowing into the Miyun Reservoir comes from the Chao, Bai and Chaobai Rivers which originate in Chengde Prefecture.

In order to reduce siltation into the reservoir (soil erosion is 1200 -1600 tons /km²) and control agro-chemical pollution runoff, the two municipalities have agreed to provide compensation for improved land use and forest management. Beijing municipality has agreed to pay 1 million Yuan/year (about US\$ 126,000) and Tianjin 400,000 Yuan/year (about US\$ 50,000). In addition to these donations, 0.2 Yuan (US\$0.02) per cubic metre of water consumed is earmarked for investment in forest protection (this amount is equivalent to about 12% of total revenue from water charges). (Lu Wenming *et al.*, 2002).

The central government has also invested in the protection of the watersheds supplying Beijing city, by channelling 8 billion Yuan (US\$ 1 billion), for the period 2001-2005, to soil and water conservation measures in Hebei and Shanxi Provinces (unclear if through the Eco fund, or through a different programme). In 2004, the province of Hebei has implemented soil conservation measures in 96,100 ha and developed water-saving irrigation on 47,000 ha of farmland. (China Agricultural University, 2004)

Zhejiang Province (Southeast China) is also working on the local take-over of the national Forest Ecological Compensation Programme and has established that all levels of government within the province will work towards the establishment of a provincial forest ecological service compensation fund, by: i) gradually increasing the size of compensation fund and ensure matching support from county level governments; ii) strengthening the collection and management of various resource use fees and raise fund use efficiency; and iii) introducing and explore market based ecological compensation mechanisms such as pollution rights trading and resource trading markets; They have so far invested about 200 million Yuan (about US\$ 25 million) and compensation is set at 8 Yuan/mu (or US\$ 15/ha). (Changjin Sun and Chen Liqiao, 2005)

In **Jiangxi Province** (*South China*) *Xingguo County* due to serious soil erosion (which affects 85% of county's land) the County created a scheme to provide households with financial support to plant and manage trees for soil conservation. 96% of the forestlands in the area were (by 2002) contracted under the Household Responsibility System. Funding originates in an imposed watershed protection fee: chemical and metallurgy industries pay a share of their sales revenue of 3 and 0.5% respectively; coal industry pays 0.1 Yuan per ton produced, and hydropower producers pay 0.001 Yuan/kWh. (China Agricultural University, 2004). Very positive results in terms of area affected by soil erosion, have been reported by Lu Wenming *et al.* (2002).

In **Guangdong Province** (*South China*), 30% of total annual forestry finance is assigned for ecological forestry (unclear how this is defined) and additional funds shall be collected from water user fees and government funds on soil erosion control. The compensation rate for forest owners in the scheme is 2.5 Yuan/mu/year. (Changjin Sun and Xiaoqian Chen .2002 and Lu Wenming *et al.*, 2002). The Qujiang County government, for example, charges water supply 0.01 Yuan (US\$0.001), per tone of water and hydro-electricity producers 0.005 Yuan/kW (US\$0.0005). In the city of *Guangzhou*, a similar scheme has been ongoing since 1998 when the payment was 5 Yuan/mu/year; by 2001 the payment level had doubled. (Changjin Sun and Chen Liqiao, 2005)



Xinjiang Autonomous Region established its own compensations scheme already in 1997. Funds have been collected from monthly salaries of employees in government departments, institutions and enterprises. Starting from the wage category 300-700 Yuan/month, 1 Yuan/month would be collected. The rate would increase quickly to 40 Yuan when monthly salary reaches 4,000 Yuan or above. Additional funds have been collected from crude oil, nonferrous minerals, scenic zones and forest parks. (Changjin Sun and Xiaoqian Chen .2002)

In **Guangxi Zhuang Autonomous Region**, hydropower companies are required to contribute with 1 Yuan /kW amounting to 1 million Yuan (US\$ 120,000) per year, to finance forest planting and management in the region. (Lu Wenming *et al.*, 2002)

In **Inner Mongolia Autonomous Region**, farmers in *Linhe County* are charged 0.5-1 Yuan/mu to invest in forest planting and management. (Lu Wenming *et al.*, 2002).

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