



## Industries share sales revenue for watershed protection – Xingguo County, China

**Authors:** Wenming, L. et al. compiled by Rodericks, S.

**Short title:** Industries share revenue for watershed protection, China

**Key Message:** Xingguo County collects mandatory payments from local industries in order to finance watershed protection measurements in the area.

**Reviewer:** Prof. Lan Fang

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### What was the problem?

Xingguo County is part of the Jiangxi province which is situated on the south bank of the Yangtze River in Eastern China. The total area of the province amounts 16.7 million ha of which 36 per cent is mountainous land and 42 per cent hilly land, while the remaining 22 per cent constitutes plain land and water bodies. 2009, the total area of the arable land of the province was about 2.8 million ha. The forest cover is 60 per cent (10.7 million ha) (The People's Government of Jiangxi Province). In the whole province around 420,000 hectares of freshwater are used for aquaculture. Of a total of 155 species around 30 fish species play a central role, such as carp, crucian carp, black carp, and silver carp etc. (The People's Government of Jiangxi Province). Almost all land surface (97.2 per cent i.e. 16.2 million ha) drains into Poyang Lake which is the main water body in Jiangxi province receiving its water from the Fu River, Gan River, Rao River, Xin River and Xiu River. During the 1960s and 1970s, Jiangxi Province as a whole suffered from severe environmental degradation. Forest coverage was only 31.5 per cent in the early 1980s (Shen, D. and Wu, J. 2004). By 1980, water and soil erosion had become serious problems, which resulted in frequent droughts, floods, loss of biological resources and further deterioration of soil quality and desertification. In Xingguo County soil erosion had affected 85 per cent of the county (approximately 190,000 ha) (Shen, D. and Wu, J. 2004).

### What was done to solve it?

In the early 1980s, the Jiangxi provincial government, with the help of the Central Government, initiated an integrated eco-restoration and poverty reduction program. This program was based on the following understanding: the Mountain is the source, the River is the flow and the Lake is the reservoir (Mountain, River, Lake: MRL). This approach showed an integrated understanding by emphasizing the interconnection of the three water ecosystems.

In the 1980s, another land use policy was introduced in China: The Household Responsibility System. This system was designed to increase yields and reallocated

communal land to peasant households, thus creating hundreds of millions of smallholders with relative autonomy over land use decisions and crop selections. Based on this policy 96 per cent of forested land in Xingguo County has been contracted to individual households. This gives them a huge responsibility with regard to managing the ecosystems of the watershed and their protection. In order to support these households in their activities, the local government in the Xingguo County created a public payment scheme: an imposed watershed protection fee. These fees have served to give households financial incentives to plant trees and manage forest ecosystems for soil conservation. Over 50 per cent of the amount invested in forest activities came from these fees.

### **Which ecosystem services were examined? And how?**

The major focus was on regulating ecosystem services (soil conservation) as well as provisioning services like the production of water with good quality and sufficient quantity of wood. Thus, watershed management and the prevention of soil erosion in the mountains were addressed. These aims were explicitly linked to poverty reduction. By giving farmers more freedom in their specific management practices and giving them incentives to plant trees and invest in soil conservation measures.

### **What policy uptake resulted from examining the ecosystem services?**

The County imposed a watershed protection fee in order to finance the payments for watershed protection. Following, the metallurgic industry pays 0.5 per cent of sales revenue, the chemical industry 3 per cent of sales, coal enterprises US\$0.01/t output and hydropower companies US\$0.0001/kilowatt output. The result of this policy and the investments in forest activities has been dramatic. By 1999 the area affected by serious soil erosion had dropped by almost 80 per cent to 41,000 hectares (Lui, C. 2003 and Wenming, L. et al. 2002).

### **Lessons learnt**

Poverty reduction can be perfectly combined with environmental conservation measures. In fact, addressing distributional aspects and the diminution of poverty is decisive for success in combating ecological problems. Therefore, integrated policies have to be developed which search for comprehensive answers to interrelated problems in the relationship between societies and nature. When the polluter-pays-principle is applied in a sophisticated and appropriate way, significant improvements can be quickly achieved.

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