

CHINA-Meijiang

China – Meijiang -Orange Orchards

SUMMARY

The Meijiang Watershed in southern Jiangxi has long been known for its navel orange production (Gan-nan-qi-cheng) but also for its heavy soil erosion. A typical household has only a small area of orange orchard (1 ha on average) which means that they are vulnerable to market risk. The local government tried to help establish larger orange orchards in hilly, infertile areas with sparse vegetation, which were either left idle by landholders or not used for intensive agriculture. While these areas are lacking fertility, they have conditions of rainfall, sunshine, cumulative temperature, and unique day-night temperature differences, which are all favourable for navel orange planting. The local government therefore combined promotion of soil conservation with development of navel orange production. .

MATURITY OF THE INITIATIVE

Ongoing since 2003

DRIVER

Significant soil erosion problems in the area have prompted the government to take action. Existing government funds were insufficient so the local government introduced private investment to combine conservation with agricultural development.

STAKEHOLDERS

Supply

Orchard investors – they lease land from small landowners via a village committee.

About 1,333 ha was leased out in 2003, and 1,000 ha in 2004.

Approximately 40% of investors are external to the area. The remaining 60% are local (government officials and businessmen). According to officials at the Ningdu Bureau of Fruit and Tea, the external developers usually rent large orchards and invest more money per orchard than the local ones, but there are no official statistics on this. .

Site location and description: Ningdu county, Jiangxi province, south China. Upper parts of the watershed are hilly, with poor fertility and are easily eroded with the heavy rainfall of over 1500 mm/yr. Land is used by local farmers to grow firewood. About two thirds (66%) of the watershed is covered by forest. The hilly areas in the south have sparse vegetation. The flat areas in the valley are used for agricultural farming. Navel orange farming takes place in the hilly areas, where conditions are appropriate, if there is good soil management and production is on a scale large enough to make a profit.

Demand

Ultimately the Chinese government. It is assumed that watershed protection is paid back by the profits from pooled land management.

Intermediary

A village committee (part government), acts as a broker. It combines small plots of land held by individual households, into large areas (more than 7 ha/each). It then calls for investment to develop navel orange orchards.

The committee members are elected by farmers and in most cases command trusted. Committee members are paid from public finance and the committee often acts as the lowest level of government. The village committee works towards the orchards' development often following orders from a higher level of government (township or county).

Facilitator

Township government connects the County government and the Village committee. Their role is to implement the plans in villages under its jurisdiction. Some big orchards extend to two or more villages and in this case the township government has a role to coordinate between the neighbouring villages.

MARKET DESIGN

Service

Unclear what the environmental service is. Probably soil and water conservation.

Commodity

Best Management Practices through establishment of orange orchards with soil conservation measures (land leased from smallholders).

The water and soil conservation works include 1) terraced strip for planting orange seedlings; 2) level ditch on terrace for conserving water; 3) bamboo ditch with node; 4) planting Bahia grass on the edge of the terrace to prevent soil erosion.

Payment Mechanism

Administratively based. Provision of the watershed services is arranged through land management contracts. The following steps are involved:

- The village committee signs a lease contract with individual households, specifying the rent ((\$37/ha/year) and duration (30-70 years) etc. The rent is set by the government.
- The developer signs a contract with (one or more) village committees.
- The developer applies to the County government for a license to establish the orchard. This licence is issued if: 1) the orchard is large enough (more than 100 mu, i.e. 6.7 ha); 2) there is a soil conservation plan, which is subject to inspection by government agencies on a regular basis after it is implemented; and 3) there is a certified land lease contract.

The investors could potentially make a big profit in establishing the orchards, and they have obligations to conserve the hilly land and prevent soil erosion. In this case, *the developer pays for watershed conservation* and he/she is paid back by the profit from the development.

The County government subsidized the village committee by \$281/ha for building roads, power system, water supply system, and other infrastructure to attract investors. It also subsidized the developers by 50 yuan/mu (\$93/ha) for them to build conservation works.

Terms of Payment

Cash, ongoing and one-off. Annual rent paid for leasing land. Initial investment (one-off) in conservation practices, with possible one-off subsidy from the government.

Funds Involved

The land is usually rented by the developer for 30-70 years at US\$18-36/ha/year.

Conservation measures cost \$187/ha for construction in the first year with limited labour costs for maintenance in subsequent years. Government subsidies of \$94/ha for conservation are available for orchards over 20 ha. But many developers said that they would construct the conservation works regardless of the subsidy because of the high on-site benefits.

ANALYSIS OF COSTS AND BENEFITS

Economic

It is too early to properly assess the impacts of the initiative.

For the small landowners: Early reports indicate that since land was virtually lying idle with sparse firewood there would be no significant losses to undermine local livelihoods. Households no longer rely heavily on firewood because of changing energy sources (such as gas).

Farmers have not yet received any rent but some have benefited from employment at the orchards. . An orchard of 27 ha needs to hire 20 long-term workers (work year-round except busy farming time) as well as seasonal labour. The wage for a long-term worker in the orchard is about \$62/month, and occasional workers make \$2-3/day. By way of comparison, the average net income for a Ningdu farmer is \$225/year. The orchard development really offers them good opportunities for earning further income (Jin Leshan et al. 2005).

Estimates of costs and benefits *for the developer* (by Jin Leshan et al. 2005), indicate:

- Initial conservation costs: \$187/ha (with access to government subsidies of US\$94/ha for orchards over 20ha);
- Land leasing to village committee: US\$18-36/ha/yr;
- Production costs: US\$200/ha/yr
- Marketing costs: US\$50/ha/yr
- Average (minimum) price at the gate: US\$375/ton
- Average production per year: 41.25ton/ha

Jin suggests that developers could expect to make a gross profit of \$5,625/ha with an investment payback period of 6-8 years. Potential profits are high, but developers have to bear market and weather-related risks. .

Environmental

Early perceived impacts (from extensive interviews with local government agencies) indicate that:

- Soil erosion increased in the first three years of orchard development (for building terraced strip, level ditch, bamboo ditch, and planting), but was expected to ease off afterwards;
- Environmental pollution is not perceived to be a problem, although developers have applied fertilizers and plenty of pesticides in orchards;
- There is no consensus on the impact of orchard development on water flow. . Perceptions were almost equally divided among interviewees, half saying that water flow had increased and half that it had decreased.
- Lowering of riverbeds might be the result of increasing extraction of river sand rather than any reduction in soil erosion.

Most farmer respondents believed that orchard development mitigated soil erosion and caused little pollution. Some of the quotes included:

“There is no source of pollution”; “no pollution is visible”; “pesticide goes to the river and runs away, and so it does not pollute local drinking water”; “drinking water is taken from local well, which is not polluted”.

Farmers’ perceptions on water issues are largely driven by *“contemplation, reasoning, beliefs, rather than watching and touching”*.

Social

Land leasing contracts are too long-term. The Government sets long-term contracts to attract investment, but this might act against the best interests of the individual households.

LEGISLATION ISSUES

The government introduced the possibility of leasing out small plots in order to facilitate the pooling of large areas for orchard development.

MONITORING

The County government oversees the activities of the developers to ensure that they meet their conservation obligations

If there is any conflict between investors and local communities (e.g. stealing trees or fruit), the government agencies will intervene quickly.

MAIN CONSTRAINTS

The government is discouraged from looking for funds from possible buyers of watershed services downstream i.e. water users because it has the obligation to guarantee watershed conservation.

MAIN POLICY LESSONS

This kind of payment mechanism might be replicable where:

- 1) it might be difficult to convince downstream users to pay for watershed services;
- 2) both land market and commodity market are not mature – for example, individual households cannot benefit because they are too vulnerable to the orange market and cannot make initial investments;
- 3) watershed conservation benefits the development activities directly.



OUTSTANDING ISSUES

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LINKS