



China's Sloping Land Conversion Program: Institutional Innovation or Business as Usual?

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Sloping Land Conversion Program

Largest land conversion program in the developing world.

- Budget of RMB 337 billion (> US\$40 billion), over RMB 50 billion of which has been spent so far.
- Plans to convert around 14.67 million ha of cropland to forests by 2010 (4.4 million of which is on land with slopes > 25°), and has a “soft” goal of afforesting a roughly equal area of barren mountainous wasteland.
- Has already converted 7.2 million ha of cropland by 2003 end, and afforested 4.92 million ha of barren wasteland.

Sloping Land Conversion Program

- Began in 1999.
- 15 million farmers entered the program in the first 4 years alone.
- Leaders estimate it will affect some 40-60 million rural households upon completion.
- Currently being implemented in more than 2000 counties across 25 provinces.
- Significant local variation in implementation.

Actors

- Central government is the buyer (a public scheme).
- Rural households are sellers.
- Local government (County, township and village) serve as the mediators, and bear the onus of actual implementation.
- **Do buyer and beneficiaries fully overlap...?**

Environmental Services Targeted

- **Stated environmental goals:** reducing water and soil erosion and increasing China's forest cover and area by retiring steeply sloping and marginal lands from agricultural production.
 - **Soil erosion a major problem in China:** 2 to 4 million tons of silt released into Yangtze and Yellow Rivers each year, 65% estimated to come from sloping cropland, 70% of this sloping cropland is estimated to be in west China.
- ➔ SLCP has stated emphasis on west China.

Yellow and Yangtze River Basins



Additional Objectives

- **Stated Additional Objectives:** Alleviating rural poverty and helping rural households to shift to more sustainable means of production.
 - ***Implicit subsidy to the State Grain Bureau.***
 - Large grain subsidy standard.
 - Program grain purchased from SGB at RMB 0.4/kg above market prices.
- ➔ 24.55 million ton draw-down of stocks & RMB 9.8 billion (~US\$ 1.2 billion) subsidy.

Selection of Participants

- Based on whether land is within program targeted area.
- **Generally non-voluntary.**
- Targeting of areas, and determination of SLCP quotas is top-down.
- Townships and villages: prefer slope & land quality targeting, prefer retiring contiguous swaths.
- Some “showcasing” has occurred.
- Xu *et al.* (2005) finds targeting generally in terms of slope and land quality.

Table 1 SLCP Implementation in 2003 Survey Sample Villages

Question to Village Leader	Total (n=36)	Shaanxi (n=12)	Gansu (n=12)	Sichuan (n=12)
<i>Who decides how much land area should be retired?</i>				
Province	0%	0%	0%	0%
County	25%	25%	25%	25%
Township	50%	8.3%	58.3%	83.3%
Village	13.9%	16.7%	25%	0%
Village Small Groups	0%	0%	0%	0%
Households	22.2%	50%	8.3%	8.3%
Other	0%	0%	0%	0%
<i>Who decides which plots to retire?</i>				
Province	0%	0%	0%	0%
County	16.7%	16.7%	0%	33.3%
Township	52.8%	16.7%	58.3%	83.3%
Village	36.1%	33.3%	58.3%	16.7%
Village Small Groups	2.8%	0%	8.3%	0%
Households	16.7%	41.7%	8.3%	0%
Other	0%	0%	0%	0%
<i>Who decides what to plant on retired land?</i>				
Province	0%	0%	0%	0%
County	66.7%	41.7%	58.3%	100%
Township	19.4%	16.7%	41.7%	0%
Village	5.6%	8.3%	8.3%	0%
Village Small Groups	0%	0%	0%	0%
Households	11.1%	33.3%	0%	0%
Other	2.8%	0%	8.3%	0%
<i>Who conducts inspections and verifications?</i>				
County	100%	100%	100%	100%
Township	100%	100%	100%	100%
Village	2.8%	8.3%	0%	0%
Other	97.2%	91.7%	100%	100%
<i>Share of villages that ...</i>				
<i>...distribute SLCP quotas to households.</i>	61.1%	25%	58.3%	100%
<i>...distribute SLCP quotas to village small groups.</i>	60%	27.3%	50%	100%
<i>...are allocated SLCP quotas by township government.</i>	75%	41.7%	83.3%	100%

Table 5 Farmer autonomy in SLCP participation (n=348)

GROUP	MEASURE OF AUTONOMY	% THAT SAID "YES"			
		ALL	Shaanxi (n=103)	Gansu (n=85)	Sichuan (n=76)
PARTICIPANTS (n=264)	<i>Were the villagers asked their opinion about the project and how it could be best designed prior to the time that the project was implemented?</i>	42.8%	41.7%	41.2%	46.1%
	<i>When you village began SLCP, did your household have autonomy to choose whether or not to participate?</i>	61.7%	72.8%	43.5%	67.1%
	<i>Did you have autonomy in choosing the types of trees to plant?</i>	36.0%	47.6%	34.1%	22.4%
	<i>Did you have autonomy in choosing which areas to retire?</i>	34.5%	53.4%	15.3%	30.3%
	<i>Did you have autonomy in choosing which plots to retire?</i>	29.9%	40.8%	12.9%	34.2%
NON-PARTICIPANTS (n=81)	<i>Could you participate in SLCP if you wanted to?</i>	25.9%	45.5%	29.4%	16.7%

Source: Xu et al., 2005.

Targeting of Disadvantaged Groups

- Land distribution in rural China relatively equitable.
- Evidence from previous work that poor households are not being predominantly targeted within program areas (Uchida *et al.*, 2004; Xu *et al.*, 2005).
- Generally, the poorer households in China live in areas with highly sloping, marginal cropland.

Payments

- Cash: RMB 300/ha (~US\$36) per year
- Grain:
 - Yangtze River Basin: 2250 kg/ha per year
 - Yellow River Basin: 1500 kg/ha per year.
- Seedlings provided: RMB 750/ha (*including wasteland*)
- Income from forests/grasses planted is tax exempt.
- **However**, since last year, payments fully in cash
(Yangtze: ~RMB 3,450/ha, Yellow: ~RMB 2,400/ha)

Payments

- 2 years if grasses are planted.
- 5 years if “economic forests” (defined as orchards or plantations with medical value).
- 8 years if “ecological forests” (defined as timber stands)

Compliance

- Based on retirement of land from agricultural use, and afforestation of wasteland.
- Survival rates of trees/grasses planted on the retired land (no stipulations for wasteland).
- During pilot phase, these survival rates were generally 70% for the northwest of China, and 85% for the Southeast of China.
- From informal discussions with SFA officials → These have changed to 75% for all of China.

(Conflict with Depts of Silviculture & of Forest Resources)

Conditionality

- Weak conditionality.
- The program's dual goals of environmental amelioration & poverty alleviation create a dilemma for local leaders:

Enforce compliance → reduce enthusiasm, harm welfare.

OR

Do not enforce → encourage shoddy implementation.

Table 2: Average Survival Rate of Trees Planted Under SLCP (%), 2003 Survey.

Province	County	Township	Govt. Standard	Inspections		
				1 st	2 nd	3 rd
Shaanxi	Yanchuan	Yanshuiguan	70%	94.2%	93.6%	98%
		Majiahe		72.9%	95.8%	96.4%
		Yuju		79%	83.2%	95%
	Liquan	Yanxia		56.3%	86.8%	81.1%
		Jianling		78.8%	47.9%	39.4%
		Chigan		100%	46.7%	52.1%
Gansu	Jingning	Zhigan	70%	70%	69%	66%
		Gangou		80%	76.6%	71%
		Lingzhi		-	75.7%	77.7%
	Linxia	Zhangzigou		56.3%	46.7%	65%
		Tiezhai		90%	61.1%	75.8%
		Hexi		87.5%	69.5%	64%
Sichuan	Chaotian Area	Datan	85%	82%	61.5%	67.3%
		Zhongzi		70%	48.7%	77%
		Shahe		92.5%	74.1%	40.4%
	Li	Shangmeng		100%	79.6%	76.1%
		Puxi		74.9%	80.7%	84.8%
		Guergo		70%	74.1%	77%

Source: 2003 Survey Data.

Additionality

- SLCP definitely has additionality in terms of carbon sequestration, biodiversity and watershed services.
→ Farmers would not have retired land otherwise.

Impact on participants

- Both Uchida *et al.* (2004) and Xu *et al.* (2005) find insignificant impact on total per capita household income.
- Both find evidence of shift from cropping to husbandry, but impact is small.
- Uchida *et al.* (2004) finds evidence of increase in housing and livestock assets of participants associated with program participation.

Problems in Implementation & Design

- Lack of participant autonomy.
 - Program does not budget for local implementation costs.
 - Fast pace of expansion.
 - Pilot phase (1999-2001): 402,000 ha/year.
 - 2002-2003: 3 million ha/year, a sixfold increase.
- ➔ Shortfalls in subsidies, delays in inspection.

TABLE 3 Participant 1999 Net Income from Enrolled Land Versus SLCP Compensation Standards

		Net Losing Households	Net Gaining Households	All Participants
Shaanxi (<i>n</i> = 103)	Number of Households	7	96	103
	Total 1999 Net Income from Enrolled Land (<i>RMB</i>)	322	12	34
	Total Converted Land Area (<i>Ha</i>)	5.13	68.13	73.27
	Compensation Standard - 1999 Net Income (<i>RMB</i>)	-14,778	120,478	105,700
	Average Net Gain as % of Total Compensation	-120%	74%	60%
Gansu (<i>n</i> = 85)	Number of Households	40	45	85
	Total 1999 Net Income from Enrolled Land (<i>RMB</i>)	239	65	135
	Total Converted Land Area (<i>Ha</i>)	8.07	11.93	20
	Compensation - 1999 Net Income (<i>RMB</i>)	-13,139	11,614	-1,525
	Average Net Gain as % of Total Compensation	-68%	41%	-3%
Sichuan (<i>n</i> = 76)	Number of Households	22	54	76
	Total 1999 Net Income from Enrolled Land (<i>RMB</i>)	364	70	164
	Total Converted Land Area (<i>Ha</i>)	7.27	15.47	22.73
	Compensation - 1999 Net Income (<i>RMB</i>)	-19,439	26,657	7,218
	Average Net Gain as % of Total Compensation	-85%	55%	10%

Source: Xu *et al.*, 2005.

TABLE 4 Average Shortfalls in Grain and Cash Compensation in Surveyed Areas, 2002

Province	County	Grain (kg / ha) ⁺		Cash (RMB / ha)		Total Shortfall (RMB / ha) ⁺⁺
		SLCP Standard	Actual Delivery	SLCP Standard	Actual Delivery	
Shaanxi	Yanchuan	1500	232.5	300	60	1507.5
	Liquan	1500	1215	300	90	495
Gansu	Jingning	1500	810	300	255	735
	Linxia	1500	322.5	300	30	1447.5
Sichuan	Chaotian	2250	2025	300	45	480
	Lixian	2250	1927.5	300	195	427.5
Average:		1763	810	300	105	1148

Source: Xu *et al.*, 2005. ⁺ This is a sum of corn, wheat and rice subsidies. ⁺⁺ This values grain at the national price of RMB 1/kg.

Permanence, Accounting, Leakage

- No mechanism to prevent leakage.
- The tax break is the only mechanism encouraging permanence.
- Subsidy period too short!

Table 6: Participants' Viewpoints on their Post-SLCP Activities.

Question:	% of Participants / % of Retired Area			
	All (n=264, 115.94 ha)	Shaanxi (n=103, 73.24 ha)	Gansu (n=85, 19.97 ha)	Sichuan (n=76, 22.73 ha)
Promising	57.6% / 54.2%	51.5% / 52.0%	76.5% / 76.9%	44.7% / 41.3%
<i>Allow timber trees / orchard trees to reach maturity for harvesting.</i>	20.8% / 23.7%	24.3% / 26.3%	21.2% / 22.1%	15.8% / 16.8%
<i>Can maintain livelihood with revenue from current activities [non-farm business / aquaculture / livestock / orchards].</i>	36.7% / 30.5%	27.2% / 25.8%	55.3% / 54.8%	29.0% / 24.4%
Ambiguous	20.1% / 25.7%	27.2% / 29.7%	14.1% / 12.2%	17.1% / 24.4%
<i>Continue farming.</i>	0.8% / 0.2%	0.0% / 0.0%	2.4% / 1.1%	0.0% / 0.0%
<i>Find work in the city.</i>	12.5% / 17.0%	17.5% / 18.5%	10.6% / 10.7%	7.9% / 18.0%
<i>Start a new non-agricultural activity.</i>	5.3% / 6.9%	6.8% / 8.9%	1.2% / 0.3%	7.9% / 6.1%
<i>Other (no clarification given).</i>	1.5% / 1.5%	2.9% / 2.3%	0.0% / 0.0%	1.3% / 0.3%
Problematic	22.4% / 20.1%	21.4% / 18.2%	9.4% / 11.0%	38.2% / 34.3%
<i>Don't know.</i>	14.8% / 13.8%	9.7% / 10.4%	8.2% / 10.9%	29.0% / 27.5%
<i>Assume/hope subsidies, of some type, will continue.</i>	1.5% / 0.8%	0.0% / 0.0%	0.0% / 0.0%	5.3% / 4.1%
<i>If not making adequate income, will return plots to cultivation.</i>	1.5% / 0.5%	3.9% / 0.9%	0.0% / 0.0%	0.0% / 0.0%
<i>Return currently retired plots to cultivation.</i>	4.6% / 5.0%	7.8% / 7.0%	1.2% / 0.1%	4.0% / 2.8%

Source: 2003 Survey Data







