



1. Project Data:		Date Posted : 06/27/2003	
PROJ ID: P003540		Appraisal	Actual
Project Name : Loess Plateau Watershed Rehabilitation Project	Project Costs (US\$M)	248.7	252.0
Country: China	Loan/Credit (US\$M)	150	148.7
Sector(s): Board: RDV - Central government administration (85%), General water sanitation and flood protection sec (9%), General agriculture fishing and forestry sector (6%)	Cofinancing (US\$M)		
L/C Number: C2616			
	Board Approval (FY)		93
Partners involved :	Closing Date	12/31/2002	12/31/2002
Prepared by :	Reviewed by :	Group Manager :	Group:
Robert C. Varley	George T. K. Pitman	Alain A. Barbu	OEDST
2. Project Objectives and Components			
a. Objectives			
The objectives were to:			
1. Increase agricultural production and incomes on 15,600 km ² of land in the Loess Plateau in nine tributary watersheds of the Yellow River;			
2. Reduce sediment inflows to the Yellow River by locating the project areas in the parts of the Basin with severe soil erosion.			
The project was to: (a) create sustainable crop production on high-yielding level farmland and thereby replace the areas devoted to crops on erodible slope lands; (b) plant sloping lands to a range of trees, shrubs and grasses for land stabilization, and the production of fuel wood, fodder and timber for construction; and (c) substantially reduce the sediment runoff from slope lands and gullies.			
b. Components			
Total Project Costs of \$248.7 million comprised:			
Land Development - Terracing/ Irrigation (42.4%), Afforestation (28.2%), Grassland (6.6%) and Dams (6.7%)			
Institutional Development - Support Services (4.9%) and Training/ Management (6.3%)			
Contingencies - Physical (4.9%) and Price (33.1%)			
c. Comments on Project Cost, Financing and Dates			
Project funding requirements were only 1% over budget, IDA disbursements being 99%, and government counterpart funds and farmer contributions 105% of appraisal estimates. The major deviations in planned over budgeted expenditures were a significantly higher cost for Dams (122% higher than the pre-contingency appraisal estimate) and a re-allocation within the Institutional Development category from Training /Management to Support Services.			
3. Achievement of Relevant Objectives:			
1. The project was completed slightly ahead of schedule and met nearly all the main physical targets, which included large-scale investments in terracing and irrigation, afforestation, grasslands, livestock, dams and silt-retention structures (the one exception.) The project exceeded output targets, increasing annual grain output from 427,000 to 698,000 tons and fruit from 80,000 to 345,000 tons, while raising per capita. incomes of over one million farmers from Y 360 to Y1,263 (target Y 900.)			
2. Sediment inflow to the Yellow River was halved, as planned, from 120 to 63 million tons/annum (roughly 4% of total silt deposited in the Yellow River each year.)			
The re-estimated Economic Rate of Return of 19% exceeded the target of 17%, while inclusion of sediment reduction and carbon sequestration benefits increased it to 29%. Returns from livestock and animal husbandry sectors far			

exceeded expectations. The sustainability of financial and economic benefits is supported by the creation of strong incentives for both farmer and government stakeholders.

4. Significant Outcomes/Impacts:

1. The project has shown itself to be one of the largest and most successful erosion control programs in the world - construction of 90,000 ha of terraces involved excavation of 100 million cubic meters of earth. Using well-tested models the project reversed soil deterioration, reduced farmers' vulnerability to drought, and implemented economically viable and environmentally sustainable farming practices on a large scale.
2. The project management system, with its participatory implementation methodology, unprecedented level of accountability and discipline, has in part been adopted in other national programs.
3. Multidisciplinary planning and working teams, under a single Project Management Office, from a wide range of departments such as soil and water conservation, agriculture, livestock and forestry, achieved the necessary level of integration for effective watershed management.
4. Computerized MIS, GIS and other computer-based planning and recording systems significantly improved human and institutional capacity.

5. Significant Shortcomings (including non-compliance with safeguard policies):

The only significant shortcoming was an underfunding of silt retention structures whose benefits were primarily downstream. The number of key dams envisaged at appraisal was reduced, one reason being that village households did not see the local benefits as commensurate with the construction and maintenance cost. The marginal downstream benefits (in terms of increased dry season water availability, and savings in flood protection works) are substantial, but Central Government would not agree to increase its share of funding to reflect the downstream fiscal and economic benefits of silt retention dams.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Highly Satisfactory	Highly Satisfactory	
Institutional Dev.:	High	High	
Sustainability:	Highly Likely	Highly Likely	
Bank Performance:	Highly Satisfactory	Highly Satisfactory	
Borrower Perf.:	Highly Satisfactory	Satisfactory	The lack of central government transfers to fund reduced siltation benefits downstream in the Yellow River is significant issue - it is mentioned 3 times in the ICR.
Quality of ICR:		Satisfactory	

NOTE: ICR rating values flagged with '*' don't comply with OP/BP 13.55, but are listed for completeness.

7. Lessons of Broad Applicability:

1. A sustainable watershed management project requires a) participatory project planning and management down to the individual watershed communities; b) a technical package which combines both sustainable soil and water conservation practices; and c) generates increased productivity and incomes for local communities.
2. Effective project planning and management, supported by rigorous monitoring, evaluation and accountability, contributes to successful implementation and allows successful pilot activities to be scaled up.
3. Strictly enforced grazing bans were a cornerstone of strategy to reverse soil degradation - regeneration from the growth of natural shrubs, grasses and trees established dense vegetative cover at minimal cost. Livestock production need not suffer - to the contrary, on the Loess Plateau, productivity and incomes increased considerably as a more intensive production system (fodder crops on new terraces and feed/stabling technology) was adopted.
4. Land tenure reforms create strong incentives for investment in land improvement long-term land contracts are an incentive for sustainable land management practices.

8. Assessment Recommended? ☒ Yes ☐ No

Why? This is an exceptional project with an embedded integrated watershed management model which has demonstrated the feasibility of breaking the cycle of poverty and environmental degradation in severely water stressed regions. These themes are core elements of the Bank's sustainable development strategy and an independent project performance review, especially one clustered with the recently completed China Red Soils I Project, could be of great value to the Bank and many of its clients with similar arid region problems.

9. Comments on Quality of ICR:

Highly satisfactory, concise and complete, although an economic analysis of the costs and benefits of a higher level of investment in silt reduction structures, would have been useful.

