



<b>1. Project Data :</b>
<b>OEDID:</b> C2294
<b>Project ID:</b> P003556
<b>Project Name:</b> Tarim Basin Project
<b>Country:</b> China
<b>Sector:</b> Irrigation & Drainage
<b>L/C Number:</b> C2294
<b>Partners involved :</b> None
<b>Prepared by:</b> George T. K. Pitman, OEDST
<b>Reviewed by:</b> Susan Stout, OEDST
<b>Group Manager:</b> Roger Slade
<b>Date Posted :</b> 08/03/1998

## 2. Project Objectives, Financing, Costs and Components :

### Objective :

To expand irrigated area for crop production, improve agricultural services and promote livestock development in southern Xinjiang Region, one of the poorest and least developed areas in China .

### Financing and Costs :

Total project costs at appraisal were US\$ 212 million of which US\$125 million were to be financed by an IDA Credit approved August 1991. Actual total costs were US\$226 million of which IDA financed US\$ 128 million due to appreciation of the SDR. The Credit was fully disbursed and closed December 1997.

### Components :

- Irrigation and drainage improvement and expansion over 200,000 ha in the Yerqiang and Weigan river basins;
- Hydropower development of 21MW capacity in the Yerqiang basin;
- Development of agricultural and livestock support services;
- Restoration of the Tarim River ecosystem; and
- Upgrading of a hailstone suppression unit including radar and cloud seeding equipment .

## 3. Achievement of Relevant Objectives :

**With two minor exceptions, all the objectives were either met or exceeded .**

Good progress enabled canal lining and drainage to be expanded at mid-term review (lining from 736 to 1076 km, drainage from 834 to 906 km) and even these revised targets were exceeded . Investment in agricultural extension services and seed farms exceeded SAR targets . The animal husbandry component exceeded investment targets except for the reduction in the number (from 54 to 31) of artificial insemination/breeding stations because of the success of the prefecture government's own program . All components of the Tarim river restoration project were completed, as was the hailstone suppression unit . The hydroelectric unit and switching yard was constructed as planned.

## 4. Significant Achievements :

- **Farm family incomes increased** in constant terms by 64 percent in Yerqiang and 72 percent in Weigan .
- **Eighty percent of agricultural benefits accrued to the poorer farmers** (Uygurs).
- **Crop production improved** because canal lining saved 940 million m<sup>3</sup> of water that reduced waterlogging and enabled expansion of irrigation by 73,000 ha and supply of additional water to 113,00 ha of low-yield and stable areas; drainage improvements lowered the watertable and reduced soil salinity over 300,000 ha.
- **Hail damage was reduced** by about 90 percent.
- **Land use shifted towards higher value crops** (e.g. cotton).
- **Crop yields increased** 20-47 percent in stable areas, 68-118 percent in low-yielding areas.
- **Free markets for grain are in operation and account for 95 percent of incremental production sales** .
- **There was a marked increases in sheep production** enabled by better extension services, crop residues and by-products - but this was offset by a fall in goat production due to a decline in cashmere prices .
- **Government increased competitively bid civil works** because of significant costs reductions and better quality .
- **Farmers are paying full costs of veterinary services, and part of the irrigation and drainage costs** .

- Tarim River Basin Management Bureau established .
- ICR Economic Rate of Return (ERR) 33 percent compared with 34 at appraisal .

#### 5. Significant Shortcomings :

Few.

- **Water charges need to be increased** . Despite an increase by 600 percent by 1991, a further increase of 400 percent is required to meet the covenant that all O&M and a portion of capital costs will be repaid . This target is now set for end of 1999.
- **Number of livestock shelters and wells are less than 60 percent SAR targets** - but farmers prefer cheaper and locally designed wells/shelters
- **The hailstone suppression unit is institutionally misplaced** . Its O&M costs are too expensive for county government and significant positive externalities argue for prefecture level O&M .
- **Counterpart funding was a problem** primarily because of the multiplicity and mix of center/prefecture/county funding, but centralization in 1994 solved this problem.

6. Ratings :	ICR	OED Review	Reason for Disagreement /Comments
<b>Outcome :</b>	Highly Satisfactory	Satisfactory	ICR rating appears to take no account of water charge shortfall or problems with sustainability of hailstone suppression unit.
<b>Institutional Dev .:</b>	Substantial	Substantial	
<b>Sustainability :</b>	Likely	Likely	
<b>Bank Performance :</b>	Satisfactory	Satisfactory	
<b>Borrower Perf .:</b>	Satisfactory	Satisfactory	
<b>Quality of ICR :</b>		Satisfactory	

#### 7. Lessons of Broad Applicability :

Farmers respond to financial and free market incentives even in centrally managed economies .

#### 8. Audit Recommended? ☒ Yes ☐ No

**Why?** To determine (a) how the project fared given the transition to a market economy, (b) the success of the Tarim river basin ecosystem interventions (c), has dependence on the state diminished? and (d) sustainability of O&M.

#### 9. Comments on Quality of ICR :

**Balance could be improved** . More on impacts and institutional development would balance a picture that is dominated by physical input/output data. Revised economic analysis is summarized only and no way to check validity.