



<b>1. Project Data:</b>		<b>Date Posted :</b> 05/30/2001	
PROJ ID: P010405		<b>Appraisal</b>	<b>Actual</b>
<b>Project Name:</b> Fordwah E Sadiqia S Irrigation and Drainage	<b>Project Costs (US\$M)</b>	70.66	57.86
<b>Country:</b> Pakistan	<b>Loan/Credit (US\$M)</b>	54.20	46.52
<b>Sector(s):</b> Board: RDV - Irrigation and drainage (100%)	<b>Cofinancing (US\$M)</b>		
<b>L/C Number:</b> C2410			
	<b>Board Approval (FY)</b>		92
<b>Partners involved :</b>	<b>Closing Date</b>	06/30/1999	06/30/2000
<b>Prepared by :</b>	<b>Reviewed by :</b>	<b>Group Manager :</b>	<b>Group:</b>
Robert C. Varley	George T. K. Pitman	Alain A. Barbu	OEDST
<b>2. Project Objectives and Components</b>			
<b>a. Objectives</b>			
<ol style="list-style-type: none"> <li>1. Raise agricultural production, employment and income through improved water quality and availability;</li> <li>2. Reduce the need for expensive subsurface drainage and harmful environmental effects related to waterlogging;</li> <li>3. Improve the equity of water distribution;</li> <li>4. Develop models for Farmer Organizations for O&amp;M and collection of water charges at distributary level;</li> <li>5. Improve the ability of WAPDA (Water and Power Development Authority) and GovPunjab to operate and maintain similar projects.</li> </ol>			
<b>b. Components</b>			
(i) Farmer-managed interceptor-cum-subsurface drains (ICSD); (ii) Canal lining of 173 km including 34 km of experimental lining; (iii) Improvement/lining of 415 watercourses; (iv) Surface drains of 277 km; (v) Field Trials and Monitoring for Phase-2; (vi) Irrigation and Drainage Research; (vii) Monitoring and Evaluation of Project Impact; (viii) Technical Assistance and Training; and (ix) Future Project Preparation. In 1997 a Resettlement Action Plan (RAP) was added since land acquisitions significantly affected almost 5,000 farmers.			
<b>c. Comments on Project Cost, Financing and Dates</b>			
Fundamental, and to some extent anticipated, changes took place as a result of research results as well as exogenous factors:- (i) the interceptor drains were cancelled because of inadequate seepage water to make them economic; (ii) related drainage works, which should have been completed by another project, were cancelled; and (iii) field trials revealed that an original plan to use geo-membrane for canal lining would be uneconomic. Consequently, although the objectives were not changed, the composition of component expenditures were quite different from the SAR:- (i) experimental farmer operated ICSD (Interceptor Cum Subsurface Drains) were substituted for Interceptor Drains; (ii) more surface drains were constructed to substitute for those not completed by the other project; and (iii) more economical canal linings were used. Devaluation of the Rupee also reduced \$ costs and the ICR estimates \$7.68 million of the Bank loan will be cancelled.			
<b>3. Achievement of Relevant Objectives:</b>			
<ol style="list-style-type: none"> <li>1. As a result of water conservation measures 25% more water became available - yields of cotton increased by 52% and wheat by 58% during 1999, while incremental production at full development is estimated to include 32,000 tons of wheat, 14,000 tons of cotton and 310,000 tons of fodder. The ERR was 18% compared with 22% at appraisal. Incremental farming income increased by 30%;</li> <li>2. The waterlogged area (water table depths up to 1.5m) was reduced from 80% in 1997 to 24% in 1999 (attribution is complicated by rainfall being lower than average during the 2 years);</li> <li>3. 3 of 5 distributary canals are now operated by Farmer Organizations (FOs) on a continuous flow basis, and this has improved perceptions of control and equity in water distribution .</li> <li>4. 415 WUAs (target 165) and 3 FOs were legally established and contribute 60% of fees collected to main system O&amp;M. 3 pilot Drainage Beneficiary Groups were successfully piloted; and</li> <li>5. GovPunjab and the implementing agencies extended skills in contract management and procurement, irrigation and drainage technologies, GIS, community mobilization, participatory irrigation management, environmental control, cultural awareness, land acquisition and resettlement .</li> </ol>			

#### 4. Significant Outcomes/Impacts:

The project demonstrated: -

1. The viability of a new physical model of sustainable subsurface drainage (ICSD) was established and new management needs addressed by piloting of 3 DBGs. ICSD and Drainage Beneficiary Groups were subsequently incorporated in the National Drainage Program .
2. The social viability of organizing water users at the secondary drainage level in Pakistan was demonstrated and many ideas incorporated in the Tarim Basin II Project in China .
3. Farmers showed strong commitments by participating with their own equity capital (10 % for ICSD and 50% for watercourse improvement) and have been rewarded with high returns (estimated at 70%);

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

1. The SAR contained no mention of the effect of land acquisition although this issue was adequately addressed during implementation, the initiative being taken to prepare a Resettlement Action Plan (RAP.) Of the 2,225 farmers marginalized, 57% were identified as "losers" who required rehabilitation to regain their economic status. The balance of 951 farmers were able to restore incomes on their residual land holdings through higher productivity induced by the project .
2. Annex 8 reports problems with compensation - including low levels and delays in payment . A monitoring survey of PAPs revealed only a small percentage of PAPs knew of economic rehabilitation procedures while none knew of formal grievance procedures .
3. The inclusion of major components for high-tech lining and interceptor drains was premature and the department and consultants were slow in revising the expensive canal lining program .

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
<b>Outcome:</b>	Satisfactory	Satisfactory	
<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	

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. Before considering investment in high cost sub-surface drainage, there should be preceding interventions in water conservation, surface drainage, improved water management and a program to identify residual subsurface drainage requirements .
2. Field trials and investigations of drainage options should be completed before project appraisal .
3. Farmers will participate in on farm drainage/irrigation improvements through use of their own equity - credit is not essential and equity ensures a strong stake in the success of implementation and subsequent operation .

#### 8. Assessment Recommended? Yes No

**Why?** The drainage, canal lining and farmer management issues are central to improvement in irrigation conditions throughout Pakistan and this project would fit in well as part of a cluster . It was probably too early at completion to judge the sustainability of either the participatory irrigation management (which depends on strong political support) or reduction of waterlogging (rainfall was below average over the evaluation period 1997-99.) Success in irrigation sector reforms in Punjab offers an interesting contrast with a neighbouring state in India where recent Bank projects have not produced the same favorable outcome .

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

Good overall, although it would have been useful to include the source and statistical basis for production and area figures.