

Pakistan- Mangla Dam

Watershed protection public investment

SUMMARY

Watershed Management investment by the Ministry of Water and Power.

MATURITY OF THE INITIATIVE

Ongoing since early 1980s.

DRIVER

Government concern over high rates of reservoir sedimentation.

STAKEHOLDERS

Supply

Private Landowners upstream of the reservoirs.

Demand

National Government: Ministry of Water and Power- water and power division (WAPDA), Forestry and Watershed Management, as administrators of the Tarbela and Mangla Dams, two of the World's largest earth-filled dams, and the largest in Pakistan. (Tarbela dam is the biggest hydropower station in Pakistan with the capacity to generate 3,478 MW of electricity)

Intermediary

No intermediary - direct negotiation.

Facilitator

Unclear if any.

MARKET DESIGN

Service

Sedimentation control.

Commodity

Best Management Practices through implementation of soil and water conservation techniques (check dams, terracing...)

Reforestation for commercial plantations

Payment Mechanism

Direct payments by the water and power division to farmers who adopt improved land management techniques. Unclear how payments are transferred.

Terms of Payment

In-kind and one-off: technical assistance and other inputs for the construction of soil and water conservation structures upstream from the dam reservoirs.

Funds Involved

In Tarbela catchment budget for its Participatory Watershed Management 2004/5 amounted to approx. US\$ 3.3 million (Rs. 198.6 million). In 2005/6, it was reduced to approx. US\$ 1.4 million (Rs 86.9million). Allocation for 2006-07 is US\$ 2.0 million (Rs 120.1 million).

In 2004/5 the ministry assigned aprox. US\$ 2.8 million (Rs 169.0 million) to the Mangla Watershed Management Project, which was also cut down considerably during the following year, to aprox. US\$ 0.6 million (Rs 33.9 million). (Environmental Annual Plan, 2004)

Additional investment channelled through the regional Poverty Reduction through Participatory Watershed Development” in Azad Jammu & Kashmir (AJK) costing Rs. 474.9 million. The Project envisages treating catchments areas of Mangla Reservoir as well as alleviating poverty in the region of Azad Jammu & Kashmir (AJK). Rs. 6.0 million were spent to start watershed management activities. (Planning and Development Ministry, Annual Plans 2006-07, chapter 6: Environment.)

ANALYSIS OF COSTS AND BENEFITS

Economic Environmental

Investment in the Tarbela watershed, during the period 2004- 05,resulted in 96 nurseries, the plantation of 8,000 acres, provision of check dams on 2,320 acres, terracing 525 acres and general maintenance activities in 30,000 of land.

In the same period, through the Mangla Watershed Management Project, 4,500acres were afforested. (Environmental Annual Plan, 2004). Here, water conservation activities such as reforestation, constructing silt traps, check dams and terracing meant that by 1984 sediment load had fallen by 25%, peak flows had reduced and total water supplies had risen. (Qutub, 1992)

Social

Watershed conservation activities in these two watersheds, are carried out as part of “Poverty Reduction through Participatory Watershed Management” projects that also support the establishment of community organizations and the generation of employment opportunities.

LEGISLATION ISSUES

No information

MONITORING

No information

MAIN CONSTRAINTS

No information

MAIN POLICY LESSONS

No information

OTHER INFORMATION

CONTACT

REFERENCES

Qutub, S. A. 1992. Economics of a Multipurpose Watershed Conservation Project. In Agarwal, A. (ed) Proceedings from a Seminar on the Economics of the Sustainable Use of Forest Resources. Delhi.

Information on Government of Pakistan website (www.pakistan.gov.pk)

Environmental Annual Plan 2004: Major Programmes 2004-2006.

<http://www.pakistan.gov.pk/divisions/planninganddevelopment-division/Data/AnnualPlan/Environment.pdf>

Ministry of Environment Medium Term Development Framework 2005-10

<http://www.pakistan.gov.pk/ministries/environment-ministry/media/mtdf.htm>

Planning and Development Ministry, Annual Plans 2006-07, chapter 6: Environment.



http://www.pakistan.gov.pk/ministries/planninganddevelopment-ministry/annual%20plans/2006-07/Chapter_6/Environment.pdf

LINKS

Water and Power Development Authority website:

http://www.pakistan.gov.pk/divisions/ContentInfo.jsp?DivID=27&cPath=294_300_311&ContentID=791