



National Policy Dialogue on Integrated Water Resources Management in Tajikistan under the EU Water Initiative

Country Report on Mapping of Major Stakeholders and Programmes in Tajikistan

Updated Version

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1 Introduction



Integrated Water Sector Management in Tajikistan

The Government of Tajikistan is in the process of introducing Integrated Water Resource Management (IWRM) as a tool to ensure a sustainable, equitable and efficient use of the country's water resources. With an outset in the agricultural sector the Government aims at ensuring an improved coordination between all water users and in particular implementing a basin-wide management approach to the use of water. In this process the government has initiated the National Policy Dialogue on IWRM as a tool for improving the coordination.

The National Policy Dialogue on IWRM

National Policy Dialogues (NPD) on integrated water resources management (IWRM) and water supply and sanitation (WSS) are the main operational instrument of the European Union Water Initiative Component for Eastern Europe, the Caucasus and Central Asia (EECCA).

The NPDs provide practical assistance to strengthen integrated water resources management in EECCA countries. They are based on consultations with ministries, agencies and institutions (including science and academia), non-governmental and other national and international organizations. The NPD typically includes establishing steering committees which will guide and coordinate activities related to IWRM. An NPD is a process rather than an end-goal and aims at ensuring continuous development and coordination. As part of the NPD a *mapping* and a *road map* are being developed.

Objectives of the report

This document gives an overview - a *mapping* - of the key stakeholders and ongoing activities in the water sector in Tajikistan and serves as a tool for the responsible authorities and cooperating partners in their efforts to introduce the approach of IWRM. The objectives are to minimize potential duplication of activities of donors active in the water sector and to identify gaps and needed interventions.

The target group for the report are the NPD Steering Committee, other decision makers and other stakeholders in the water sector that need an overview of the ongoing activities in the sector. The document will be updated as needed.

2 Overview of water resource management

State of the water resources in Tajikistan

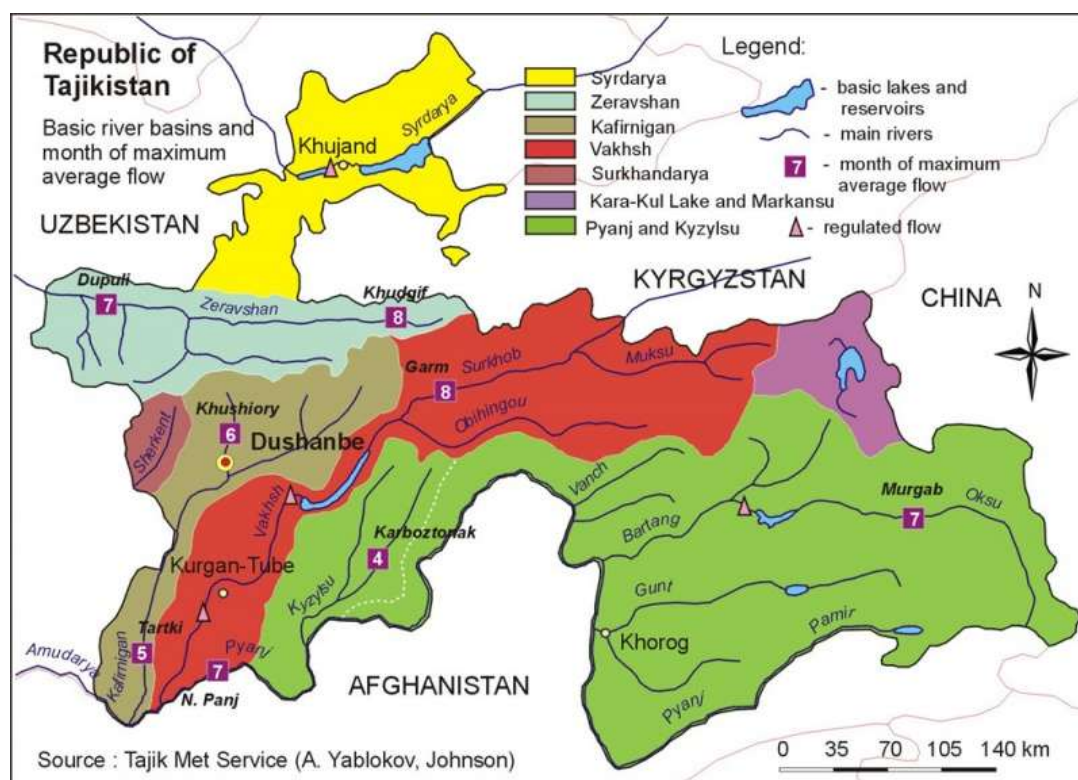
Tajikistan has an abundant amount of water resources. There are, however, multiple challenges in the use and protection of the water resources. Only some 60 per cent of the population has access to safe drinking water and there are frequent outbreaks of water-borne diseases creating severe human health risks. Over 90 per cent of the water is used in the irrigated agriculture and losses of water in the irrigation are high at least 40 per cent.

Because of their geographical location, almost¹ all Central Asian states rely heavily on the valuable water resources of Tajikistan. As an upstream country, Tajikistan is in a privileged position to provide other states with water, mainly for irrigation purposes. The use and management of water in Tajikistan is therefore important to the region and the country engages itself in and trans-boundary river basin management in cooperation with the neighbouring states. The challenges will be accentuated by climate changes.

The principle of Integrated Water Resources Management

The IWRM principle has been proven to be a comprehensive, equitable and sustainable approach to water management and is proposed for managing all of Tajikistan's water resources (including river flows, groundwater, springs and other water bodies). Integrated management means that all the different uses of water resources are considered together. Water allocations and management decisions consider the effects of each use on the others. They are able to take account of overall social and economic goals, including the achievement of sustainable development. IWRM is not a dogmatic framework, but a flexible, common-sense approach to water management and development.

Figure 1. Water resources of Tajikistan (Tajik Met Service)



¹ Except Kazakhstan

3 Legislation and the institutional setup

Policy framework

The Government includes water resources issues in its key policy targets. It aims especially to ensure enhanced access to safe drinking water supply and sanitation services and shift to integrated water resources management, consistent with the MDGs and Agenda 21. Detailed strategies, programmes, and description of required measures have been drawn up with the support of international organizations. Implementation, however, has so far been limited.

The “Concept” on Rational and Safe Use of Water Resources of Tajikistan (2001) contains information on water resources and main issues related to use of water. It outlines legislative, technical, economical and institutional aspects of water management. It serves as an overall guidance for development of legislation and practical management.

The Water Sector Development Strategy (2006) contains an assessment of the state of the water sector planned measures and action plans as well as associated expenditures and expected results. The adoption of the strategy needs to be followed up.

Programme for the Improvement of Clean Drinking Water Supply for 2008-2020 (2006) was approved by Government, involving potential investment requirements of over \$900 million. Implementation has, however, been limited due to lack of resources.

The **Draft Water Sector Development Programme**, (2009), aimed at re-launching the reform of the water sector and the rehabilitation of the water sector infrastructure during the period until 2020. The programme has not been finally approved or implemented.

The final report of the **EU TACIS Water Governance in Central Asia Project** (2010) presented a detailed analysis of the water policy challenges and recommended a step-by-step approach to introducing the IWRM principles in Tajikistan.

The Government has in 2011 adopted the principles in **The Water Sector Reform**, which aims at 1) water management based on river basins (instead of administrative boundaries), 2) a single body overseeing nation-wide water resource management, 3) control of water operation through appropriate agencies, 4) management of water by water users at the highest appropriate level, 5) Implementation of four River Basin Management Units. The work is ongoing (2011).

Legal framework

The Water Code (2000) regulates the overall use of water resources and (not based on the IWRM principles). It has been changed several times through amendments in 2006, 2008, 2009 and 2010, which have not all been implemented. Key laws are:

- Law of RT “On nature protection” (1994) is regulating water and water sources safe, establishing orders and norms of safety water use and foresees other water-conservative measures. It has been changed several times through amendments in 1996, 1997, 2002, 2004, and 2007.
- Law of RT “On Water Users Association” (2006) is targeted at irrigation and provides legal regulations for the establishment, activities and management of water users associations, as non-commercial organization for the operation and maintenance of irrigation systems.
- Law on safety of Hydraulic Structures was adopted in December 2010. This law regulates activities related with ensuring safety the safety of hydraulic structure during designing, construction, operation and other project stages. This law identifies obligations of state authorities and owners operating the hydraulic structures.

- The Drinking water and water supply law was adopted in December 2010. It regulates the relations within drinking water and water supply, and establishes a state guarantee on provision of people with portable water.

Institutional framework

State level

The Ministry of Land Reclamation and Water Resources (MLRWR) is responsible for water issues, state-owned central irrigation and drainage systems, canal construction and maintenance, all reservoirs, implementation of rural water supply. MLRWR has subdivisions at oblast and districts levels, State Institute for Designing Water Projects “Tajikgiprovodkhoz”, State water researcher Institute “TojikNIIGiM” and other subdivisions. Main Department “Tajikobdehot” (“TOD”) is leading supplier of water in rural areas.

The State Unitary Enterprise (KMK) is responsible for drinking water supply and sewerage in 15 cities and 40 district centres and serves some 850,000 people.

Water supply and sewerage in major cities (Dushanbe, Khujand, Kairakkum, Nurek, Roghun and Sarband) is organized under local authorities, supported on technical aspects by KMK.

The Ministry of Energy and Industry (MoEI) is responsible for energy generation, industry and mining. MoEI have close coordination with MLRWR on management of water discharges from reservoirs of Hydro-power stations. Coordinates the state-owned enterprises and the mining activities, and it deals with industrial wastewater treatment and tailings.

The State Committee of Environmental Protection (CEP) incl. Unit for Control of Use and Protection of Water Resources, and the Department of State Ecological Expertise. Involved in water management activities such as validation of environmental impact assessment.

The State Administration for Hydrometeorology is in charge of operating the hydrological observation network for the purposes of studying the hydrological cycle, control of water balance and water resources of separate watersheds and the assessment of anthropogenic impacts on the water resources. The State Administration for Hydrometeorology is subdivision of the CEP.

The Main Department of Tajikgeology possesses expertise on geology and groundwater.

The State Committee for Emergency Situations and Civil Defence (CES) is responsible for prevention of disasters and first line disaster response.

The Ministry of Health (MoH) is involved in water issues through the Sanitary Epidemiological Service (SES). Inspects the quality of drinking water, runs central laboratories and is involved in the permitting process for the use of water or the discharge of wastewater.

Local government level

The region and district administrations are involved in water issues through the ministries and committee branches. MLRWR in each oblast and districts has appropriate units. Also other ministries and Committees has own units in oblasts and districts levels, at list one staff in each district. Tajikobdehot (TOD) on behalf of MLRWR is present in districts. However, the local authorities do not have substantive competences in water sector management except in some towns (Dushanbe and others). The municipal administrations of these towns establish tariff proposals for water supply and sewerage subject to approval by the Ministry of Economic Development and Trade. According Water Code of RoT the district administrations has right to issue of permissions on use of springs are located within own districts.

The complex system of official stakeholders involved in management of water resources is illustrated in Figure 2.

Figure 2. Key Organizations Involved in Management of Water Resources

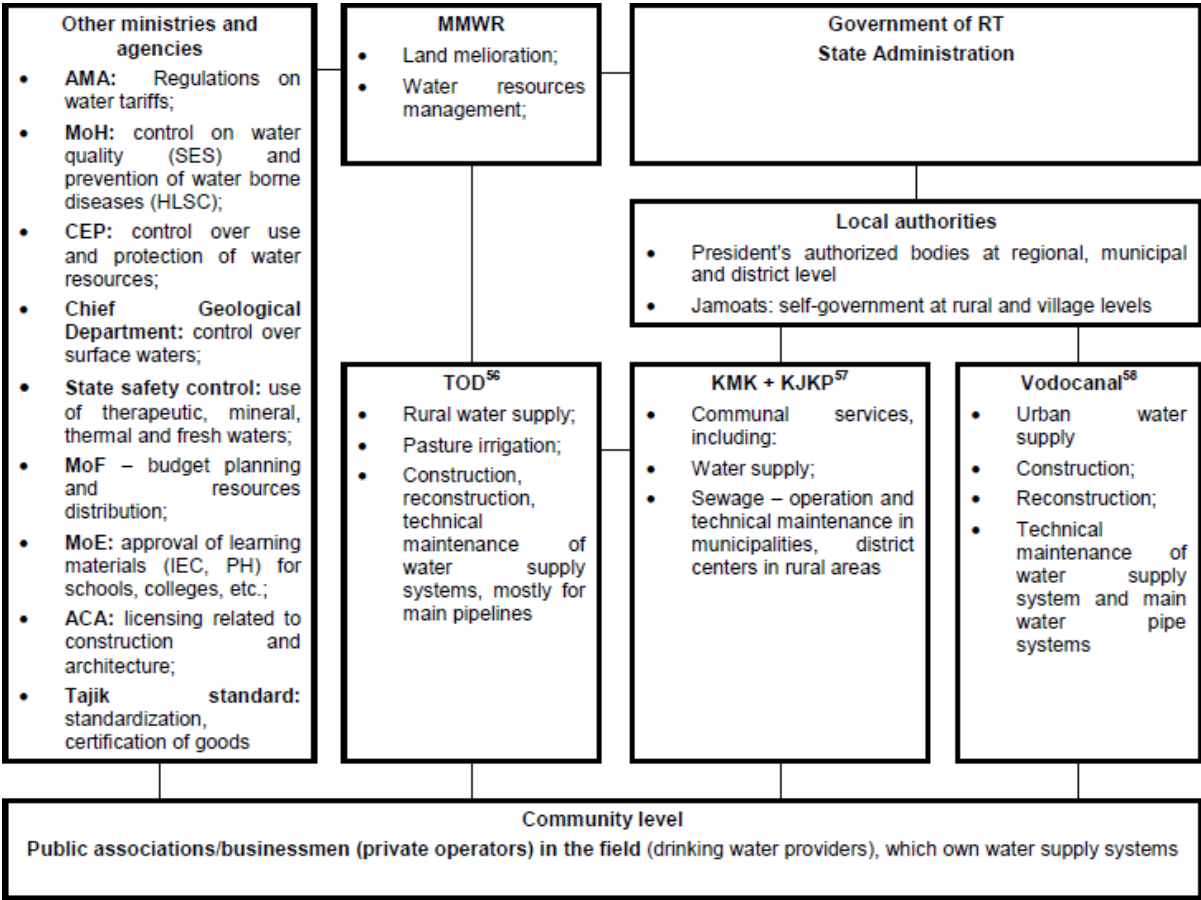


Figure 2. Key Organizations Involved in Management of Water Resources

Private sector stakeholders

Relevant state organizations, such as TojikObDekhot (rural water supply) and KMK (water supply and sanitation in district centres, settlements and cities/towns) are unable to provide adequate drinking water for many rural areas. Therefore, rural water consumers very often rely on community-based water supply management. There are many unresolved legal aspects in regard to private operators. Authorities often welcome communities’ initiatives of rural water supply, but the water user associations (WUA) cannot be legalised as formal owners of the systems. Legal status of service providers would help them not only to gain recognition and trust, but also to deal with contracts, apply for loans and regulate their own operations.

National NGOs and organizations

National NGOs and civil organizations involved in the water sector include Youth Ecocentre, Club of Ecological NGOs of RT, “Little Earth”, “Climate change and disaster risk reduction center”, “Youth of 21st century”, NGO «Noosphere”, Youth Group on Environmental Protection of Khujand, “Zan va Zamin”, Development Partners Association, Water consult, National Association of farmers of RoT, International Institute of Human ecology and others. Under the framework of implementing irrigation projects in the country, several national NGOs are providing technical assistance for establishment or/and capacity building of WUAs. A number of national NGOs are implementing water supply projects and awareness programmes, using grants provided by UNDP, USAID, EU and other international organizations. International NGOs also involve national NGOs while implementing projects within the water sector.

4 International co-operating partners

International Financing Institutions

Organisation	Water Project and Programms budget (mill. USD)	Period	Key activities (water sector)	Planned activities	Notes
European Union	20	2010 -2012	Coordination, water sector Environmental management	Urban Water Supply	European Union in Tajikistan and region also implementing row of other water related project through international and local NGOs and consultant companies
UNDP	4,42	2009-2011	Promoting IWRM and Strengthening Transboundary Dialogue in Central Asia	to strengthen regional capacity to address water governance challenges within national and transboundary sustainable development frameworks	Total budget for Central Asia countries
UNECE	0.5	2009-2012	Support to National Policy dialog on introduction of Integrated water resources management in Tajikistan	IWRM Policy packages	
OSCE	0.5	2009-2012	Security enhancing cross-border cooperation, support to development of Tajikistan Water sector development programme	Security enhancing cross-border cooperation, support to improvement of water sector management	
FAO	12	2009-2014	Agriculture, reform process	Agriculture, reform process	
EBRD	50	2006	Urban W&S Small scale hydropower	Urban W&S Small scale hydropower	
World Bank	62	2000-2012	Urban Water Supply Rehabilitation, Wastewater, rural Famrm privatization support, Rural Infrastructure rehabilitation, Fergana valley water recourses management	Urban Water Supply Rehabilitation, Wastewater, rural Irrigation infrastructure Rehabilitation.	
ADB	66	2001	Micro-Hydropower Development in Remote Areas (closed). Transboundary water resources management (irrigation). Agriculture rehabilitation, Irrigation Rehabilitation	Transboundary Water resources management (irrigation) Irrigated Agriculture, Irrigation infrastructure	
Islamic Dev. Bank	25	1998 -2011	Irrigation Development	Irrigation of new lands in Dangra valley	

Organisation	Water Project and Programms budget (mill. USD)	Period	Key activities (water sector)	Planned activities	Notes
SECO	2	2005	Urban W&S	Urban W&S	
SDC	11,94	2005	Water supply Khujand town, Rural W&S	Urban and Rural W&S	
GIZ	0.8	2008	IWRM, transboundary	IWRM, transboundary	
USAID	2.1	2005	Water Users Association support	Local Governance Community Participation Programme	

Note: In this table provided data and information on mostly known projects and programs.

International NGOs

Organisation	Water projects budget, (mill. USD)	Period	Key activities (water sector)	Planned activities	Notes
Oxfam	4.0	1998 -2014	WASH Programme, rural water supply and sanitation	WASH Programme, rural water supply and sanitation	
German Agro Action		1998 -	Watershed management, small scale irrigation		
CAREC	260.0 ²	2008-2009	Harmonization and Approximation of Water Standards and Norms in Central Asia	to improve water quality and environmental safety of population through harmonization and approximation of water standards and norms	
Save the Children (US, UK)		2000 -	Clean water and sanitation		
Wyg International	2,21	2008-2010	Water Governance in Central Asia	contribute to the reduction of pollution, to fair sharing and effective use of scarce water resources, to improve the quality of shared water resources such as trans-boundary rivers	

Note: In this table provided data and information on mostly known projects and programs

² Total budget for Central Asia countries

5 National Institutional Reform Activities

Status of institutional reforms

The **Water Sector Reform** process is ongoing (January 2012). It aims at laying the foundations for an IWRM approach, based on decentralization and outsourcing services as a transitional process towards a shared responsibility between the Government and the Civil Society.

Development of **National Water Sector Development Programme** was started in 2009. This work outlines the key activities and needs in the entire water sector. The work has now been merged with the above- mentioned activities on a water sector reform strategy. Currently, the programme is under consideration of all Government stakeholders.

The Government of Tajikistan cooperates with the Secretariat of **UN Water Convention**. In March 2011, the Secretariat conducted an inter-sectoral seminar in Dushanbe and the objective is to learn from the experience of neighbouring UN Water convention's member countries.

Key challenges and gaps identified

- The **Water Sector Reform** is being adopted and needs financial and institutional support for implementation. It is initially based on the needs of agriculture/irrigation but challenge is to adopt a reform which observes all aspects of water use.
- There is no updated **Water Policy** for Tajikistan to describe the guiding principles for and objectives in water resources management for the benefit of the population, the economy and the environment.
- The **Water Code** is outdated, has many amendments and is not based on IWRM principles or in line with modern international practices.
- There is no overall **National (water) Sector Development Strategy/Programme** which guides funding and implementation of water related activities.

Recommendations for interventions

- Finalise the **Water Sector Reform** based on IWRM principles; plan its implementation taking into account all sectors and their needs.
- Revise / establish an overall **Water Policy** for Tajikistan.
- Revise the **Water Code** based on the sector reform and the water policy.
- Revise the **National (water) Sector Development Strategy/Programme** with the objective to guide funding and implementation of all water related activities.
- Revise the **Programme for Clean Drinking Water Supply 2008-2020**, accounting for modern IWRM principles, involving local stakeholders, and taking account the need for sanitary drainage.
- Develop **National Strategy on Rural Water Supply and Sanitation**, taking into account lessons learned from ongoing projects and experiences in neighbouring countries such as Kyrgyzstan.
- Improve **Transboundary Water Cooperation Policies**.

Overview of Institutional Reform programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Water sector Strategy Reform	2010-	2.0	Technical Assistance to reform process	Ministry of Water	FAO, USAID	Ongoing
	Note:					
NPD on IWRM	2010-	0.2	Technical Assistance to NPD on IWRM	Ministry of Water	UNECE	Ongoing
	Note: UNECE will continue support to NPD on IWRM process in 2012					
Public Employment for sustainable Agriculture and Water Management	2011-2012	0.4	Technical Assistance to the introduction of river basin management	MLR&WR	World Bank	Ongoing
	Note:					
Transboundary water management in CA	2009-2011		Technical Assistance to interstate basin water management	MLR&WR	GIZ	Ongoing
	Note: GIZ Second face of the TWM in CA Program will continued in 2012-2013					
Improving of legal and institutional base of IFAS and its subdivisions	2009-2011	1,82	Technical Assistance	Central Asia Countries	GIZ	Ongoing
	Note: GIZ Second face of the TWM in CA Program will continued in 2012-2013					
Integrated Water Management in Central Asia	2010-2011		Technical Assistance to the introduction of integrated water resources management	MLR&WR	UNDP	Ongoing
	Note:					
Fergana Valley Water Resources Management	2005-2011	14,0	1. Irrigation Infrastructure Rehabilitation. 2. Technical Assistance to establishment of WUAS.	MLR&WR	World Bank	Ongoing
	Note: WB start financing next water project through same Project Management unite					

6 Trans-boundary Co-operation Programmes

Status of trans-boundary Programmes

The trans-boundary and regional cooperation between Tajikistan and its neighbouring countries is of crucial importance, politically, economically and environmentally. Regional programmes include activities such as the project on Water and Environmental Management for the Aral Sea, promotion of IWRM and Trans-boundary dialogue in Central Asia (UNDP), Integrated Water Resources Management in Fergana Valley (proposed) (SDC), and Trans-boundary Water Management in Central Asia (GIZ).

Tajikistan is also implementing river basin management programmes together with Kyrgyzstan and flood management programmes in cooperation with Afghanistan (ADB). These programmes are expected to be developed further in the coming years and are supported by international funding agencies.

Key challenges and gaps identified

- Some trans-boundary cooperation programmes already exist, particular in pilot areas, however, there is a clear need for further development in a number of river basins.
- Tajikistan has standing disagreements with Uzbekistan on the use of water and energy resources and hydropower, which hampers a constructive dialogue and cooperation on trans-boundary water management.
- Tajikistan haven't national strategy on further development of transboundary water cooperation with neighbouring countries.
- Tajikistan and its neighbouring countries lack a database for use of all trans-boundary water sources along the boarder perimeter of Tajikistan.

Recommendations for interventions

- Development of a database for all trans-boundary water sources along the border perimeter of Tajikistan.
- Resume cooperation and dialogue with Uzbekistan on management of water resources.
- For **Amudarya River** basin assess the role of reservoirs in mitigation of the impact on water shortage to the economy of the river basin countries. Develop economical mechanism of water management in the basin.
- For **Tajikistan/Afghanistan Panj river** basin or for **Tajikistan/Afghanistan and Kyrgyzstan Vakhsh-Panj rivers** basin establish Inter-governmental River Basins Commission and prepare Water Resource Management Plans (WRMP). Initially a pilot WRMP could be established.
- Develop proposals for reduction of water pollution in **Sirdary River Basin**.
- Develop National Strategy on transboundary water cooperation with neighbouring countries.

Overview of Trans-boundary Cooperation programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Transboundary Water Management in Central Asia Programme	2008-2011 1 st phase (2014)	Around 5,2	Fostering regional institutional cooperation, Strengthening transboundary river basin management, Implementing national pilot projects.	Gjvernment of CA countries	GIZ, EU	Ongoing
	Note: Second Phase of the programme will be implemented in 2012-2014. The budget showed for first phase of the Programme					
Promoting Integrated Water Resources Management Programme and Fostering Transboundary Dialogue in Central Asia	2009 - 2012	Around 4,0	Implementing IWRM strategies, Transboundary dialogue, Capacity building	Gjvernment of CA countries	UNDP	Ongoing
	Note:					
Pianj River Flood Management Programme	2009-2011		Flood management	GoT	ADB	Ongoing
	Note: Programme is developing in collaboration of Afghanistan and Tajikistan					
Save the Aral Sea Programme-3	NA	2011-	Aral Sea basin's transboundary rivers management	GoT	Governments of CA countries	
	Note: The program ASBP-3 is under consideration of CA governments					
Regional Cooperation on Environment and Water (WEECOP)	2012-2014	2.0	Regional information and dialogue	GoT	EC	
	Note: CA Countries					

7 Water Supply and Wastewater Management Programmes

Status of development in the sector

It is stated in the legislation of The Republic of Tajikistan that provision of the population with drinking water has the highest priority in the use of water resources. The issues of water supply and sanitation are integrated into the National Development Strategy for 2006-2015 and the Poverty Reduction Strategy, which are aligned with MDGs declared by UN. The amount of surface water and groundwater in Tajikistan is considered sufficient to cover the need for drinking water, not only for the domestic population, but also the population of other Central Asian countries.

Main responsibility on supply of drinking water and the protection and development of systems for drinking water distribution is delegated to the local authorities. Water supply of the cities Dushanbe and Khujand is implemented by the municipal water supply companies, Vodocanals, whereas the remaining towns are supplied by the State Unitary Enterprise (KMK). Water supply in smaller towns and in rural areas is facilitated by the department «Dehotsokhtmon» at the Ministry of Water Resources but is to a high degree left to the rural population and their water user associations.

Officially, 96% of the urban population and 51% of the rural population have access to drinking water (2010). Only 47% of urban population and 37% of rural population have access to relevant sanitation and hygiene facilities. In reality the figures are considered somewhat lower and the quality of the service varies.

Key challenges and gaps identified

- **Partially, Urban drinking water supply** service is at an unacceptable standard due to the outdated or dilapidated infrastructure. In such places, customers experience disrupted service and low water quality. Many water companies operate at losses and do not invest in improvements.
- Except in cities, **Urban wastewater** management is outdated or not functioning resulting in significant pollution of suburbs of some towns.
- **Rural water supply and sanitation** has low coverage. The rural population relies heavily on low quality water sources and lacks investment. The sector is in need of a proper legal basis for ownership and lacks an appropriate management structure.

Recommendations for interventions

- Rehabilitation of existing and construction of new urban schemes for drinking water supply and wastewater disposal on a cost recovery basis.
- Development and introduction of economic mechanisms of ensuring high quality services of water supply and its sustainability;
- Development of strategy for rural water supply and sanitation based on empowerment of local stakeholders and drinking water user associations. Review of legal basis for rural water supply management.
- Protection of sources of drinking water, prevention of pollution of environment by sewage flows.
- Coordination of activities with other water consuming sectors and transition to IWRM with active participation of water users.

Overview of Water Supply and Sanitation programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Urban Water Supply and Sanitation						
Dushanbe Water Supply	2002-2011	40.2	WS and San	Dushanbe Vodocanal	EBRD, World Bank	ongoing
	Note:					
Khujand WS project, phases 1 and 2	2005-2011	13.5	WS and San	Sughd oblast, Khujand WS Authority	EBRD, SECO	ongoing
	Note:					
Central Tajik WS Project			WS and San	Khojagii Manziliu Kommunalni	EBRD, SECO	Ongoing
	Note:					
Southern Tajik WS Project			WS and San	Khojagii Manziliu Kommunalni	EBRD, SECO	Ongoing
	Note:					
Municipal Infrastructure rehabilitation (in 9 towns)	2006-2011	12	WS 40%, Solid Waste 35%, Sewage 2%	Khojagii Manziliu Kommunalni	WB	ongoing
	Note: P079027					
Rural Water Supply and Sanitation						
Agriculture Rehabilitation project	2000-2007	31.5	IRR 53%, WSS 11,5%	GoT, MLRWR	ADB	completed
	Note:					
Community agriculture and water shed management	2004-2011	8	AGR + IRR = 25%, WSS 8%	GoT, MoA	WB, GEF	ongoing
	Note: P077454					
Irrigation Rehabilitation Project	2005-2010	21	IRR=76%, WSS=9%	GoT, MLRWR	ADB	ongoing
	Note: Extended for 2011					
WS developm. Program of Tajikistan, GoT Decree #514 from 2 Dec 2006	2008-2020		WSS=100%	KMK, Dushanbevodocanal; Khujandvodocanal, MLRWR	Donor Community in Tajikistan	ongoing
	Note: Implementation delayed					
Tajikistan Rural Development	2007-2012	23	WSS 2-3%	GoT, MoA	ADB	ongoing
	Note					
Tajikistan Water supply and Sanitation Project	2009-		Rural Water Supply and Sanitation		Oxfam (and SDC)	Ongoing
	Note:					

8 Irrigation Programmes

Status of development in the sector

Being the country with richest water resources in region, Tajikistan uses about 8-15 % of its available water for irrigation and other economic use. Irrigation is the basis of irrigated agriculture and food security in Tajikistan. More than 95 % of the agricultural production is linked to stable provision of water for about 745,000 ha of irrigated land. The irrigation and drainage infrastructure includes ten thousand kilometers of canals and drainage networks at various levels, a thousand hydro technical structures and hundreds of pump stations, ten kilometers of tunnels and other constructions which require appropriate maintenance and operation.



Figure 3: Water Consumption by Sector, 2009.

Key challenges and gaps identified

- Irrigation management is based on administrative boundaries which do not reflect the river basins and integrated water resources management.
- Irrigation systems are generally deteriorated with pipes and other equipment, which has been in service for over 40 years and their rehabilitation is costly.
- Approximately 20% of irrigated land in Tajikistan suffers from water shortages due to poor regulation of river flows³. Further, poor condition of the infrastructure (roads, telephone and radio communication) make irrigation system management even more challenging.

Recommendations for interventions

- Implement the strategy for reforming water sector and transition to basin water resources management principle;
- Ensure quality maintenance and operation, restoration and development of irrigational and drainage infrastructure;
- Develop and introduce effective economic mechanism of water resources management providing sustainable operation of systems;
- Develop and introduce effective economic mechanism of water resources management for irrigation of farmlands taking into consideration favorable social conditions for the local population;
- Improvement of institutional systems of water resources management, stage-by-stage transition to the integrated management of water resources and introduction of public participation in water resources management.

³ In Kofarnihon Kizilsu, Yakhsu river basins and in some north districts

Overview of Irrigation programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Agricultural Enterprises Privatization Support	1999-2004	10.5	Irrigation (80%)	Farm privatization support unit	GoT, WB	completed
	Note: WB loan					
Extreme Rehabilitation Project for Yavan Water Conveying System	2002-2003	2.6	Irrigation	GoT, MAWR	GoT, ADB	completed
	Note: ADB loan 1852 TAJ					
Agriculture Rehabilitation Project	2000-2007	31.5	Irrigation (50%)	GoT, MAWR	GoT, ADB	completed
	Note:					
Project Dangara Valley Irrigation, Phase II	2008-2013	22.0	Irrigation	GoT, MLRWR	GoT, IDB, Kuwait Fund	ongoing
	Note: Loan					
Dangara Valley Irrigation Project	2007	0.6	Irrigation	GoT, MLRWR	GoT, IDB	completed
	Note: IDB Loan					
Rural Infrastructure Rehabilitation Project	2003-2009	25.2	Irrigation	GoT, MLRWR	GoT, WB	completed
	Note:					
Rural Infrastructure Development Project	2005-2006		Agriculture, incl. irrigation	GoT, MoA	GoT, ADB	completed
	Note: ADB TA 4598-TAJ					
Irrigation Rehabilitation Project	2005-2006		Agric. irrigation, environm.	GoT, MLRWR	GoT, ADB	Ongoing
	Note: P077454					
Integrated Water Resources Management in Fergana Valley	2008-2011		Irrigation 50%	GoT, MAWR	GoT, WB, GEF	Ongoing
	Note: To be completed in 2011					
Community Agriculture and Water Shed Management	2004-2011	8.2	Agric. irrigation, W&S	GoT, MAWR	GoT	Ongoing
	Note: P077454					
Government of Tajikistan program on Irrigation of New Lands.	2006-2011	5.8	Irrigation	GoT, MAWR	GoT	Ongoing
	Note:					
Project Dangara Valley Irrigation, Phase II	2008-2013	22.8	Irrigation	GoT, MAWR	GoT, IDB, Kuwait Fund	Ongoing
	Note: loan					
Fergana Valley Water Resources Management	2005-2013	17.9	Water Res. Management, Institutional	GoT, MAWR	GoT, WB	Ongoing
	Note P084035					
Land Registration and Cadastre System for Sustainable Agriculture Project	2008-2011	7.5	Irrigation	GoT, Agency on Land, Geodezy	GoT, WB	Ongoing
	Note:					

9 Hydropower Programmes

Status of development in the sector

Tajikistan has considerable hydropower resources (and no carbon-based energy resources). Therefore, further development of energy in the country is closely linked with development of hydropower. At present, the produced hydropower uses about 6-7% of potential available resources.

Almost all electricity produced in Tajikistan comes from hydropower that uses melted water from snow in around the Pamir and Tian-Shan Mountain Region, Karategin and Alay mountain ranges. In winter, hydropower generation depends on storage of water in reservoirs, and when storage level is low, the country has to rely on imported oil, gas, coal and imported energy. The reported economically justified hydropower potential amounts to 300 billion kW/h per year.

In addition to the main hydropower plants (the country relies on completing of Roghun HPS) and a large number of medium and small-scale hydropower schemes (HPS) around the country.

The only heavy-duty power transmission line which allows to import and export electric energy goes through Uzbekistan. In 2011 it was completed construction of energy transmission line, connecting Tajikistan and Afghanistan and allows export of the summer excess of power to the north regions of Afghanistan. However, Tajikistan, Afghanistan, Pakistan, and Kyrgyzstan have signed an agreement on the development of an energy transmission project for Central Asia (CASA-1000), which provides for the building of high-voltage transmission lines from Kyrgyzstan and Tajikistan to Pakistan via Afghanistan.

Key challenges and gaps identified

- Need for funding for planned rehabilitation and extension of existing and new hydropower schemes.
- Conflicts of interest between neighboring countries still represent a major challenge. Tajikistan and Kyrgyzstan are seeking hydroelectric development whereas Uzbekistan, Turkmenistan and Kazakhstan prioritize sustainability of water use for irrigation and the increase of the water intake quota.
- Little cooperation with other water user stakeholders based on IWRM.

Recommendations for interventions

- Modernization, reconstruction, and maintenance of all operational hydropower plants and power facilities;
- Increasing effectiveness of repair/rehabilitation works in pumping stations during spring-winter season and power supply for irrigation purposes during spring season through better coordination of ministries.
- Establishment of maintenance and technological production facilities for HPP and the development of line construction infrastructure;
- Increased power efficiency through organization of full energy consumption records, integration of relevant tariff policies, and implementation of other regulatory measures to stimulate investment (benefits, fines, and incentives);
- Inclusion of environmental protection costs in the primary cost of electrical power;
- Development of regional and international cooperation for the reclamation of water and power resources in Tajikistan;

- Development of regional and international cooperation for construction of new HPS in mountainous ravines of Tajikistan with enough water storage reservoirs as a base of energy and sustainable water supply for irrigation and environment purposes of down stream countries.

Overview of hydropower programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Sangtuda – 1 HPS construction	2007-2009	447,76	Hydropower, 100%	GoT, MoEI	RAO ES Russia	Completed
	Note: 670MW					
Sangtuda-2 HPS construction	2009-2011	134,33	Hydropower, 100%	GoT, MoEI	IRI	Completed
	Note: 220MW					
Pamir Private Power	2002-2010	14,55	Hydropower, 100%	MoEI, Pamirengy	WB	Completed
	Note: P075256					
Roghun Feasibility Study Project	2010-2011		Hydropower, 100% (Irrigation in downstream countries)	GoT, MoEI	WB	Ongoing
	Note:					
189 small HPS	2009-2020		Hydropower, 100%	GoT		Ongoing
	Note: 150 HPS already in operation					
Rehabilitation of Roghun HPS's infrastructure	2009-		Hydropower, 100% (Irrigation in downstream countries)	GoT		Ongoing
	Note: Around 40% of Roghun HPS's infrastructure were been constructed in 1984-1990 and at present time needs a rehabilitation works					
Ayni' HPS			Hydropower, 100%	GoT	IRI	Planned
	Note: 150 MW					

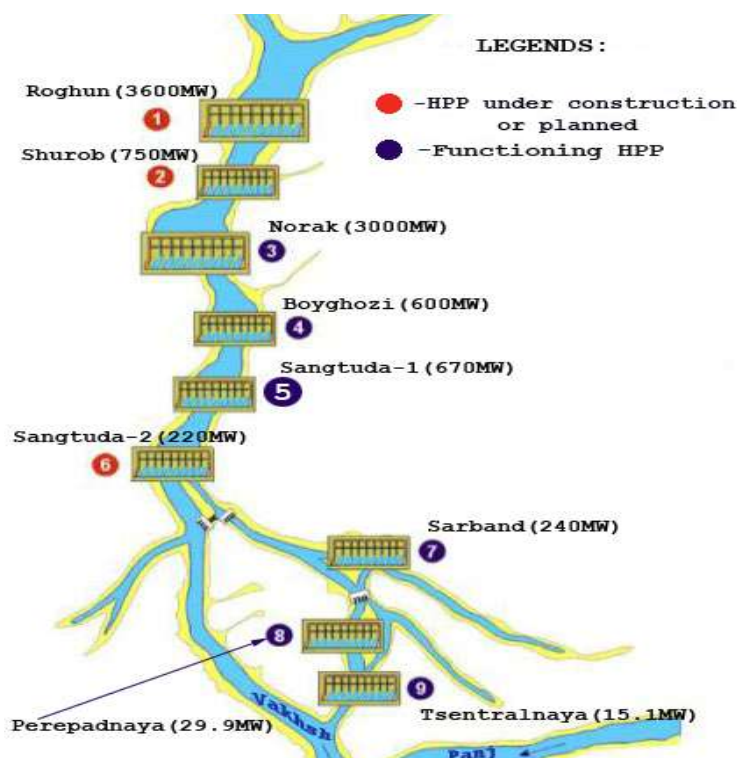


Figure 4: Scheme of Coordinated Hydroelectric System in Vaksh River

10 Environmental Management programmes

Status of development in the sector

The legislative basis on protection of environment in Tajikistan is the Constitution of the Republic of Tajikistan and other legal acts, adopted to guarantee the right of each citizen to favorable ecological environment. Tajikistan also ratified a number of international conventions on nature protection.

The Government's Committee for Environment protection is the main state-authorized body on implementation of ecological policy of Tajikistan. However, sector laws define responsibility of all executive authorities, and also responsibility of legal and physical entities in protection of water resources.

The state of the environment (related to water resources) is deteriorating due to insufficient enforcement of the legislation and insufficient investment in mitigation measure or improved infrastructure.

Key challenges and gaps identified

- Pollution of water sources from urbanized and industrial areas with limited treatment facilities;
- Increase of the level of groundwater in certain areas;
- Partially bogging and salinization of irrigated land;
- Depletion of key water sources;
- Destruction of the banks of water reservoirs and changed sedimentation of the rivers;
- Global climate changes and reduction of glaciers.

Recommendations for interventions

- Enforcement of the legislation for location of polluters in water protected zones and gradual removal of such pollutants from prohibited zones;
- Enforcement of the legislation on wastewater treatment for new and existing entities;
- Regulation on the use of fertilizers and chemicals;
- Construction of recycling plants in large cities;
- Improvement of the authorities' monitoring of water pollution including development of a network of laboratories for control of water sources;
- Termination of discharge of untreated sewage into water sources and the environment;
- Study and forecast the conditions of glaciers and the impact of melting.

Overview of environmental programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Water and Environmental Management Project. Sub-Component A1 National and Regional Water and Salt Management Plans	2000-2003		Water and sult. management in CA countries	GoT, MAWR	GEF Agency of the IFAS	Completed
	Note: Regional project					
Water and Environmental Management in the Aral Sea Basin		9,35 grant, 44,4 total with co-financing			GEF, IBRD	
	Note: Regional project					
Climate Resiliency for Natural Resources Investments	2010	0,56	Climate Change Adaptation – 100%	GoT, Committee on Environ. Protection under GoT	ADB	Completed
	Note: CDTA 44182-01					
Environmental and Social Impact Assessment Project	2011		Environ – 100%	GoT, MoEI, Environm. Protection Committee under GoT	WB	Ongoing
	Note: E2476 v4					
Community Agriculture and Watershed Management		3,36 grant, 9,92 total with cofinancing		GoT, MoA	GEF, IBRD	Ongoing
	Note: CEO Endorsed					

11 Disaster Management Programmes

Status of development in the sector

The mountainous terrain of Tajikistan and high level of precipitation create favorable conditions for natural and man-made disasters. With the growth of the population, expansion of human settlement, development of roads and infrastructure, acquisition of new lands in adjacent territories, overgrazing of pastures, the frequency of water related emergency disasters is increasing. The situation is aggravated by the climate changes over the last 10 years.

In Tajikistan most often disasters are floods and erosion of banks of rivers, land slides and mud slides. The most known and dangerous water related natural disaster remains the potential risk of spillover of Sarez Lake.

Measures on prediction, prevention and elimination of results of disasters in Tajikistan it is implementing according law *“On protection of population and territories from ES, caused by natural and man made disasters.”* In the country adopted *“Programme on development of natural emergency system and civil protection of the RoT for period of 2009-2014.”* The Programme is implementing by the Government and its main function is to ensure preparedness of all public administration bodies, financial and technical resources of the country for protection of population of RT from natural disasters and man-made catastrophes.

Management of floods is an inter-sectoral task and is linked with the management of hydrological posts and meteorological stations (Committee for Environment) on flooded risk rivers, data processing system (Committee for Environment and CES), monitoring and control of territories prone to flooding, preparedness for natural, disasters, conducting rescue operations at emergency situations (CES), mitigation of consequences of emergency situations.

Key challenges and gaps identified

- Annually the near banks territories are run the danger of flooding due undeveloped river banks protection dikes, mud flows damaging villages, agriculture lands and other infrastructures.
- Inadequate study of the high mountainous lakes, especially those threatening potential outbursts (such as Lake Sarez) may result in inadequate prevention and preparedness for natural disasters of a regional scale, covering a territory of over 55,000 km² and a population of over 6 million people.

Recommendations for interventions

Efficient management of flooding and mud slides requires development and implementation of a long-term strategy of flood management as part of the Integrated Water Resources Management (IWRM). The strategy should include

- Introduction of modern methods of forecasting floods and mud slides;
- Regular trainings with the local population and authorities on increased awareness and preparedness in case of natural disasters;
- Training of staff on managing flooding and mud slides on the basis of international experience;
- Banning major construction in villages and areas prone to flooding;
- Development of local long-term programmes for resettlement of populations from zones potentially prone to floods and mudslides;
- Improved methods of designing bank reinforcement constructions, application of modern technologies, development of investment projects;
- Introduction of international experience in managing high water levels and mud slides.

Overview of disaster management programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Khatlon Flood Management	2007-2013	21,27	FIMng-100%	MLRWR	ADB, GoT, JFPR	Ongoing
	Note:					
Natural Disasters Liquidation Project	Dec. 30, 2002	3,73	FIMng-100%	MLRWR	ADB, GoT	completed
	Note: ADB loan N1714TAJ					
Flood Liquidation Emergency Relief Project	Dec. 31, 2001	3,73	FIMng-100%	MLRWR	WB, GoT	completed
	Note: Loan N31230					
Additional loan for the Flood Liquidation Emergency Relief Project	Dec. 31, 2001	3,73	FIMng-100%	MLRWR	WB, GoT	completed
	Note: Loan N31231					
Lake Sarez Risk Mitigation Project	2006	0,35	Dam Safety – 100%	State Committee on Emergency and Civil Defence	WB, GoT	completed
	Note: WB-loan					
Pyanj River Basin Flood Management Project	2009-2010	1,2	FIMng-100%	MLRWR	ADB, GoT	ongoing
	Note: RETA-6452 extended to April 2011					
SMALL PROJECTS						
Disaster Management and Health Care Programmes	2010		FIMng Health	Red Crescent Society of Tajikistan	Red Cross	
	Note: http://www.ifrc.org/docs/appeals/annual10/MAATJ00210ar.pdf					
Water Management and Risk Reduction	2007-2011		Awareness and capacities	CoES&CD, GoT	SDC	ongoing
	Note: http://www.swiss-cooperation.admin.ch/centralasia/en/Home/Regional_Strategy/Water_Management_and_Disaster_Risk_Reduction					
Strengthened Disaster Risk Management in Tajikistan – Phase II	2008-2009		Disaster Risk Management	REACT, Agency of Hydrometeorology	UNDP, ECHO	completed
	Note: http://www.undp.tj/index.php?option=com_content&task=view&id=344					
Disaster risk management, planning and coordination capacity strengthening in National and local levels	2009-2010		Disaster Risk Management	IMAC, DPTP, REACT	UNDP, SDC	completed
	Note: http://www.undp.tj/index.php?option=com_content&task=view&id=344					
Support of the National Disaster Response Capacity in Tajikistan	2007-2010	2,47	Disaster Risk Management	CoES&CD, GoT	SDS, SRSA, UNDP	completed
	Note: http://www.undp.tj/index.php?option=com_content&task=view&id=344					
UN Emergency Reserve for Tajikistan	unlimited				UNHCR, SDC, Irish Government	ongoing
	Note: http://www.undp.tj/index.php?option=com_content&task=view&id=344					

12 Fishery Programmes

Status of development in the sector

Fishery development in Tajikistan is supported by an abundance of lakes, reservoirs, good natural and climatic conditions but has been in decline for the last ten years. The present infrastructure for fishing includes ponds and reservoirs of about 4-5000 hectares but was built in the 1960-80'es. It is necessary to fully restore the fish pond sector to an annual capacity of 4.5 thousand tons of fish, to develop schemes for new fish farms and to provide sites for the establishment of private businesses. Local rural communities could be engaged in small pond fishery development as well as stocking of the lakes and other water reservoirs.

Creation of warm water fishery ponds is of practical interest in the Pamirs, with its rich thermal springs located along the banks of the big rivers. The use of piped warm water will make it possible to maintain water temperatures of 13-16 degrees and cultivate up to 3-3.5 tons of fish per hectare. It is also important to restore ichthyologic research on the acclimatization of highly productive fish species, resolve food supply issues, organize stock breeding as well as production of planting material, species control and veterinary support.

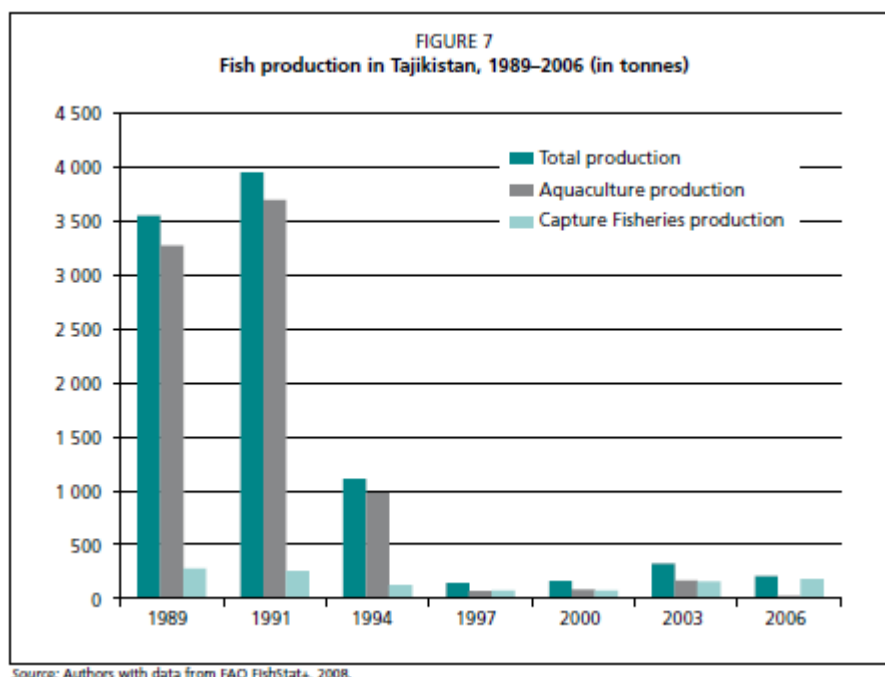


Figure 5. Fish Production in Tajikistan, 1989-2006

Government of Tajikistan in 2008 adopted Programme of development of fishery for the period 2009-2015. Programme For implementation of the Programe it is foreseeing construction of new fishery ponds, develop production of baby fishes and other measurements needs for increasing of fish production in Tajikistan. The Government of Tajikistan is planning annually invest \$100 thousand for implement the Programme.

Key challenges and gaps identified

- Lack of specialist experts and technology,
- Overfishing and poor management,

- Dramatic cuts to investment in research and production facilities,
- Reduced spending on maintenance of fleets and hatcheries,
- Weak management of water bodies and other ecological problems, including pollution of rivers,
- Lack of investment in modern processing and marketing facilities and equipment.

Recommendations for interventions

- Providing environmental safeguards is imperative for the fishing industry.
- Training opportunities for fish farmers, plant managers and other actors in the sector.
- Support to development of the infrastructure and technical support to the sector. Establishment of credit facilities.
- Strengthening institutions and combating institutional failure. Clarifying the access rights to water bodies.

Overview of Fishery programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Tajik Fish Equipment of Water Analysis Laboratory	2008	0,27	Provision of equipments	State Unitary Enterprise "Mohiyi Tojikiston"	UN FAO	completed
Note:						
Tajikistan Fishery development Programt	2009-2015	0,6	Fishery development	GoT, State Unitary Enterprise "Mohiyi Tojikiston"		ongoing

13 Recreation and Tourism Programmes

Status of development in the sector

Rich natural water courses and lakes in Tajikistan gives the country a huge potential for development of water related recreation and tourism. Currently, the country is estimated to be visited by up to 15 thousand tourists annually. While alpinist and resort areas are familiar to tourists, many lakes and rivers are relatively near to residential areas but remain unknown for the extensive tourist society. Four core categories of water recreation and tourism in Tajikistan are hot springs and mineral water resorts, lakes, reservoirs, and rivers.

Key challenges and gaps identified

- Insufficient information for local people and for tourists about water objects and their tourism potential.
- Little development of technical and service infrastructure for water related tourism;
- Water tourism issue is not studied in Tajikistan and there is lack of real assessment on its potential effectiveness for the country;
- The local population is not available of basic skills for providing tourism services.

Recommendations for interventions

- Classification of natural and anthropogenic water objects by type of water tourism;
- Establishment of clear and simple in use legal framework;
- Establishment of effective economic mechanism for tourism activity regulation, providing profitability of this type of business for all types of organizations, especially for local NGOs;
- Organization of specialized secondary educational institutions (college) for personnel training in the sphere of service and tourism, including water tourism;
- Creation of data base on private infrastructural objects at places close to water tourism objects, such as motels with all modern living conditions, local population capabilities in transport, readiness of local population to render guide services, their addresses;
- Creation of web site on water tourism in foreign languages.

Overview of Recreation and Tourism programmes

Project Programme	Period	Budget Million USD	Components	National Agency	International Agency	Status
Europe Aid: Strengthening Tourism Business Intermediary Organizations for Sustainable Economic Development	2009-2011	0,655 (EU contribution: 85%)	Capacity building activities for tourism associations.	Mountain Societies Development Support Programme Pamir's Eco-Cultural Tourism Association Zerafshan Tourism Development Association Deutsche Welthungerhilfe	EC European Centre for Eco and Agro Tourism (The Netherlands)	
Note:						
Community Based Tourism Programme in the Zerafshan valley, stage 1	2007-2009	0,362 (EU - 72,72%; BRD-Welthungerhilfe -28,8%)	Creation of Tourism Interest Groups. Creation of Tourism Development Assotiation. Standardization of certification. Improvement of infrastructure.	Agency for Support of Development Processes ZTDA	WHH, EC,	Completed
Note:						
Community Based Tourism Programme in the Zerafshan valley, stage 2				ZTDA	EC	
Note:						
Integration of ecological tourism on the slopes of the Hissar Mountains Programme			Nature protection aspects of turism; Increasing of turism potential of mountainous society.	NGOs "Jamoat Resource Centre", Hisor District	UNDP	
Note:						

14 Human Resources

Education and training

Tajikistan suffers from lack of qualified human resources in the water sector. A large part of the educated staff (in ministries and committees) received their education during the Soviet Period and the age of these professionals is coming close to retirement age. Involving a new wave of educated staff presents a challenge and many graduates immigrate to look for better education and/or employment opportunities.

The Tajik Agrarian University, the Tajik Technical University, and the National University of Tajikistan educate more than 200 water engineers on annual basis. Other hundreds Tajik students study in leading universities in EU, United States, Russia, Japan and other countries.

Many governmental and non-governmental organizations provide training to the employees in the water sector through grants and scholarships, and often capacity building forms part of international Technical Assistance programmes.

Private educational institutions have appeared in the urban centers, especially after the free higher education was abolished by the government in 2003.

Technical vocational training on water issues is almost non-existent in Tajikistan. There appears to be little interest of KMK and water companies in such apprenticeships. There is, however, a strong potential demand for qualified staff. This holds especially in agricultural water supply where 30 per cent of pumping stations are of a complex cascade nature and require highly qualified operators, who are difficult to find.

Human Resources in the public administration

Water sector personnel of the water sector comprise employees with different levels of education. Latest statistics (2004 data of ADB TA 3316901) indicate staff levels in the public administration as follows:

	Total	Dushanbe	Sughd	Hisor	Kurgon Teppa	Kulob	Badakhshon
Oblvodkhoz	190	21	36	29	41	37	26
University graduates	57	10	12	10	15	19	10
Technical education	54	8	12	10	15	9	10
Secondary education	44	3	12	9	11	9	6
Raivodkhoz management	2051	122	1081	239	582	18	9
University graduates	642	58	351	121	99	13	4
Technical education	1153	64	630	114	340	5	5
Secondary education	247		100	4	143		
Raivodkhoz execution	5632	211	3030	39	1952	400	67

At present the Ministry of Land Reclamation and Water Resources, due low level of salary haven't capacity to involve qualified employees to water sector.

Private sector and NGOs

Numerous trainings are being conducted by international NGOs in Tajikistan. Also trainings and capacity building is included in the implementation of grant and loan projects.

15 List of key stakeholders

A. National key stakeholders

1. Government of the Republic of Tajikistan
2. Ministry of Land Reclamation and Water Resources
3. State Unitary Enterprise “Khojagii Kommunaliiyu Manzili” (KMK)
4. Ministry of Energy and Industry
5. Ministry of Agriculture
6. Main Department of the Government of Tajikistan on Geology “Tajikgeologiya”
7. Dushanbe City Water Supply Authority “Dushanbevodocanal”
8. Khujand City Water Supply Authority “Khujandvodocanal”
9. Committee on Emergency and Civil protection under Government of Tajikistan
10. Committee on Environment protection under Government of Tajikistan

B. International key stakeholders

1. United Nations – UNDP, UNECE, UN FAO and other UN organizations
2. European Union – EU international organizations in Tajikistan and Central Asia
3. USA – USAID and other USA organizations
4. World Bank
5. Asian Development Bank
6. European Bank of Reconstruction and Development
7. Islamic Development Bank
8. GIZ
9. SDC
10. OXFAM
11. ACTED

In Tajikistan during last 20 years on rehabilitation and development of the economy of country were participated many international organizations, to which people of Tajikistan are very thankful. However, the above listed key international organizations names consciously was limited by eleven.