

MAIN RESULTS

on «TSR» Component under «IWRM-Fergana» Project

Introduction

«IWRM-Fergana» Project is implemented in Fergana Valley shared by three Central Asian states – Kyrgyzstan, Tajikistan, Uzbekistan). Fergana Valley has key problems typical for the whole Central Asia. It is practically impossible to introduce IWRM principles effectively in Fergana Valley without studying and understanding main problems of Fergana Valley as a whole.

Socio-political situation in Fergana Valley is characterized by acute land and water resources deficit and their exhaustion, low effectiveness of implemented economic reforms, a number of difficult environmental problems, forced increase of extensive agriculture methods, relatively poor development of private enterprise and local market (inside the Valley – between adjacent states), availability of enclaves and disputed territories between neighboring countries, border and customs problems and others. The situation shall remain difficult in future, as population growth continues and natural resources keep limited. There is agrarian overpopulation. Only 0.6 ha of lands are per 1 person in areas with high soil fertility.

Agriculture plays a crucial role in economics of Fergana Valley states and gives 30-40% of GDP. Up to 50% of able-bodied population is engaged in it. According to calculations in future agrarian sector will also keep it leading role in the Valley economics that causes a necessity to improve agriculture effectiveness.

One of the main security and sustainability threats in Fergana Valley is population poverty and unemployment. So in 2004 average monthly salary for the Kyrgyz part of Fergana Valley was 15 \$, for the Uzbek part – 11-12 \$ and Sogd province – 20 \$. Unemployment in the region is due to sharp decrease of employment in state sector and poor development of private sector, production stopping, reinforcement of negative disproportion between manpower availability and low need in it. Thus, in Sogd province more than ¼ of population is elder 18 and unemployed, for the Kyrgyz and Uzbek part this rate is about 20 %.

«TSR» Component coverage (TSR Khodjabakirgan and Shakhimardan basins) is in Batkent (Kyrgyzstan), Sogd (Tajikistan) and Fergana (Uzbekistan) provinces. Pilot TSRs are ones of the largest rivers running from Alay mountain range (TSR Shakhimardan: length is 112 km, average annual water discharge is 9.84 m³/sec) and Turkestan mountain range (TSR Khodjabakirgan: 117 km, 11.0 m³/sec).

1. Water and environmental issues

Population prosperity and environmental sustainability in Fergana Valley depend significantly on water resources quality, availability and volume. Situation is complicated by population growth, which increases environmental pressure on water resources. It is very typical for small river basins.

Fergana Valley is a zone rich in minerals. It evoked development of mining and uranic industry, which was attended with great dirt accumulation. Radioactive and toxic waste is of big concern. It can lead to serious environmental consequences when there is emergency wash-out in the Valley. Kadamzhay, Khaydarkan, Taboshar and others are main dangerous reaches in Shakhimardan and Khodjabakirgan TSR basins.

Batkent province is at the first place in Kyrgyzstan in the light of dimensions of industrial waste accumulation. A serious threat for environment and population is waste products from Khaydarkan Mercurial Plant (MP) and Kadamjay Antimonial Plan (AP). TSR Shakhimardan has high natural content of harmful substances. The situation is aggravated by arsenic, antimony and mercury compounds exceeding MPC from *Kadamjay AP* salt accumulators. Thus Vodil site (Uzbekistan) contains antimony by 4-5 times higher and mercury by 2-116 times higher than in TSR Shakhimardan upstream.

According to expert evaluations *Khaydarkan MP tailing storages* are the main sources of air and TSR Shakhimardan water pollution (mostly – mercury and antimony).

Batkent province is very prone to *dangerous natural phenomena and processes*. Mudflows and floods are the most dangerous ones. Mudflows with up to 1000 m³/s are possible in TSR Shakhimardan basin. So in 1977 and 1998 as a result of rains and high-mountain Kurban-Kul lake rush there were disastrous mudflows with great number of victims. 15 active mudflow basins are pointed out in the province. Floods and

mudflows have consequences, in particular, destruction of irrigation systems, reinforcement of channel processes leading to changes in channels and waterway banks.

More than 90% of territory is in seismic area (8 points). Earthquakes with direct disastrous consequences for economics can lead to lake rushes, landslides, destruction of dams of tailing storages and other disasters.

Sogd province is a large industrial region. During the independence years due to stop of many plants emission of harmful substances was reduced more than by 4 times. However natural environment state was not improved. People became to impact on mountain territories, where nature was the one source of people survival, rather than on plains. Main centers of environmental risk are tailing storages in Khodjent (Chkalovsk, Adrasman, Taboshar). Many of such storages are built in flood-plains. Sogd province is in area of high active *dangerous natural phenomena*. The most dangerous ones are mudflows, landslides and strong winds. Dump ingress in rivers can cause active landslides. Thus, Adrasman and Chkalovsk waste stores are prone to erosion, mudflows and landslides.

2. Water sharing from TSRs Shakhimardan and Khodjabakirgan: normative documents

Inter-republican water sharing for TSR Shakhimardan was established by USSR MLR&WR Protocol of 11.04.1980, according to which the Kyrgyz part is 27 % and the Uzbek one is 73 % of river flow. The analysis shows that as a whole water sharing has been observed by the Parties. However, there are some problems during acute seasons of year.

Inter-republican water sharing for TSR Khodjabakirgan was established by Protocol of the Meeting among MLR&WR representatives from both union republics of 17-18.05.1962. According to this Protocol water limits are 79% for Tajikistan and 21% of river flow for Kyrgyzstan.

TSR water withdrawals of the Parties for 2001/2002¹-2006 are given in Table 2.1.

Table 2.1

Water withdrawals from TSRs Shakhimardan and Khodjabakirgan for 2001-2006 (% of TSR flow)

№№	Years	TSR Shakhimardan		TSR Khodjabakirgan	
		Kyrgyzstan	Uzbekistan ²	Kyrgyzstan	Tajikistan
1	2001	40.6	59.4 / -	17.2	82.8
2	2002	30.4	30.4 / 81.0	9.9	90.1
3	2003	21.9	78.1 / 79.0	9.0	91.0
4	2004	20.3	79.7 / 99.0	10.6	89.4
5	2005	32.8	67.2 / 97.0	8.9	91.1
6	2006	19.9	80.1 / 52.0	10.3	89.7
7	2001-2006	27.7	62.3	11.0	89.0
8	2002-2006	25.1	74.9 / 82.0	9.7	90.3

On average for 2001-2006 water withdrawals per Kyrgyzstan were 27.7% (Shakhimardan river) and 11.0% (Khodjabakirgan river) of annual flow under norms 27% and 21% respectively, i.e. on average for long period Kyrgyzstan did not exceed water limits.

At the same time there is water availability problem in TSR downstreams over seasons. Thus, in the Uzbek part of TSR Shakhimardan basin for the last 5 years (2002-2006):

- irrigated agriculture had the most acute water availability deficit against planned one. It was the following (% of planned one): 2002 – 77.1%, 2003 – 75.9%, 2004 – 98.1%, 2005 – 95.9%, 2006 – 45.8%, average for 2002-2006 – 78.4%.

Water deficit is started from March-April and have occasion as a whole to April-August and practically concurs with the growing season (April-September). In particular situation was difficult in 2006

¹ For the Uzbek part of TSR Shakhimardan – data for 2002-2006

² Data for Uzbekistan were given in % of planned water withdrawal from TSR Shakhimardan. Figures by fraction: the first ones are according to Kyrgyzstan data and the second ones are for Uzbekistan

(Table 2.2). So, for the first 10 months in 2006 water availability in the Uzbek part of TSR Shakhimardan was varied within 15.4% (June) - 75.3% (October) and averaged 50.8%. Excessive water withdrawal was in November (by 20%) and December (by 63%). Irrigated agriculture is the core water consumer (Table 2.3), thus the main water deficit burden is loaded on agriculture. In July and August during critical periods of development of cotton and other crops water withdrawals were 54.5% and 83.7% of planned ones.

Table 2.2

Monthly water withdrawals of Uzbekistan from TSR Shakhimardan for 2006 (m³/s)

№№	Parameter	Month											
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	Planned, m ³ /s	0.83	1.75	5.72	5.98	9.29	8.74	12.16	9.72	4.73	3.16	2.30	3.30
3	Actual, m ³ /s	0.39	1.44	1.77	0.92	4.23	4.08	6.63	8.14	2.80	2.38	2.75	5.37
4	Actual/planned, %	47.0	82.3	30.9	15.4	45.5	46.7	54.5	83.7	59.2	75.3	120	163

Table 2.3

Water withdrawals of Uzbekistan (Shakhimardan river) for 2002-2006 and key water users

№№	Years	Water withdrawal			For core economic sectors, million m ³					
		Planned million m ³	Actual million m ³	%	Irrigation		Drinking needs		Other sectors	
					Planned	Actual	Planned	Actual	Planned	Actual
1	2	3	4	5	6	7	8	9	10	11
2	2002	180.4	145.7	81	158.3	122.0	6.3	7.9	15.8	15.9
3	2003	180.9	143.4	79	159.5	121.0	5.7	6.3	15.8	16.1
4	2004	193.0	191.4	99	172.5	169.3	4.7	6.3	15.8	15.8
5	2005	187.9	182.8	97	167.4	160.6	4.7	6.3	15.8	15.9
6	2006	196.6	102.0	52	176.1	80.6	4.7	5.7	15.8	15.8
7	2002-06	187.8	153.1	82	166.8	130.7	5.22	6.5	15.8	15.9

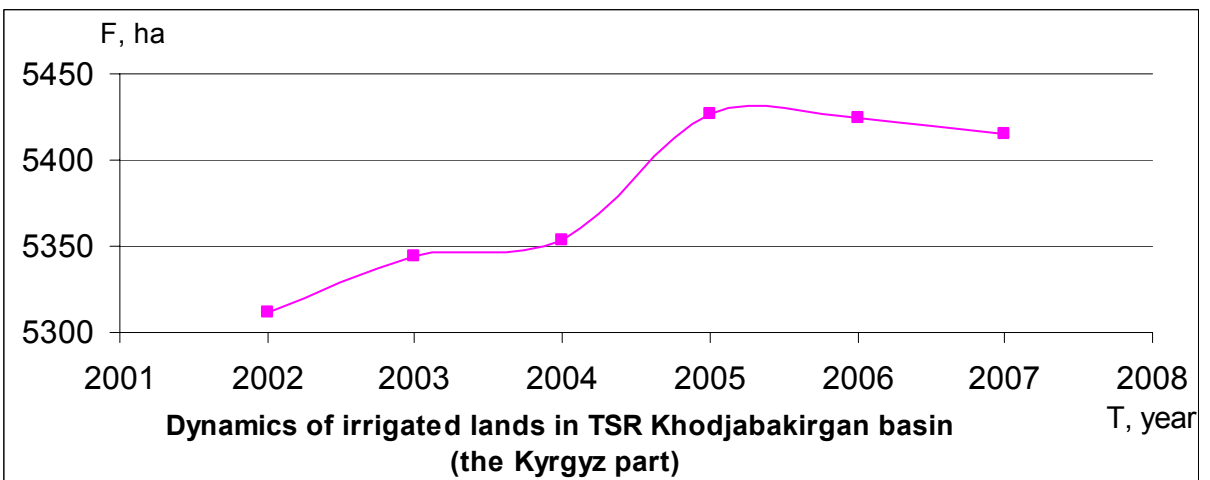
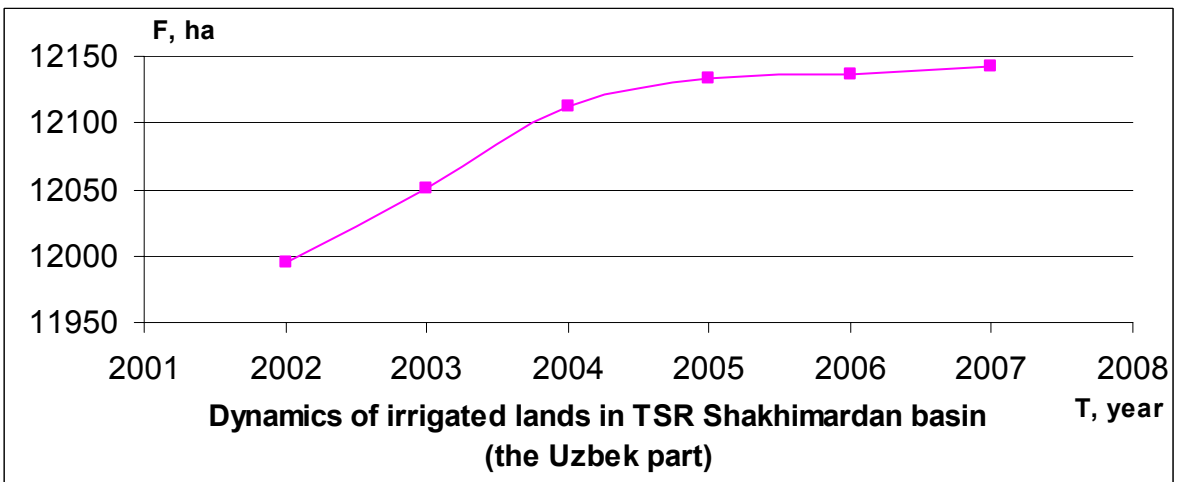
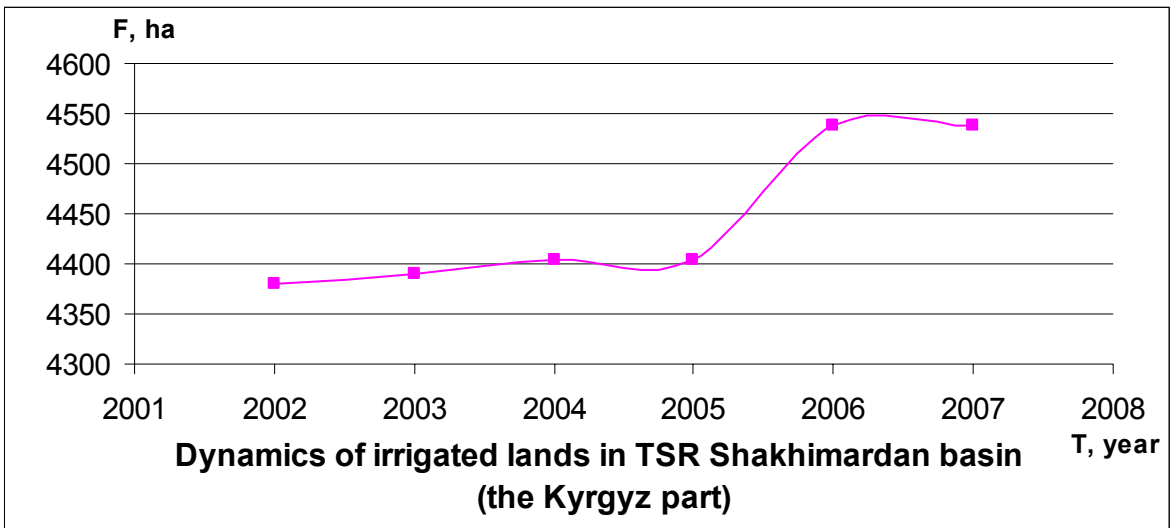
Similar problems are in the Tajik part of TSR Khodjabakirgan, where up to 80% of total water withdrawal is used for irrigation. Data analysis³ for 1980-2006 has showed that:

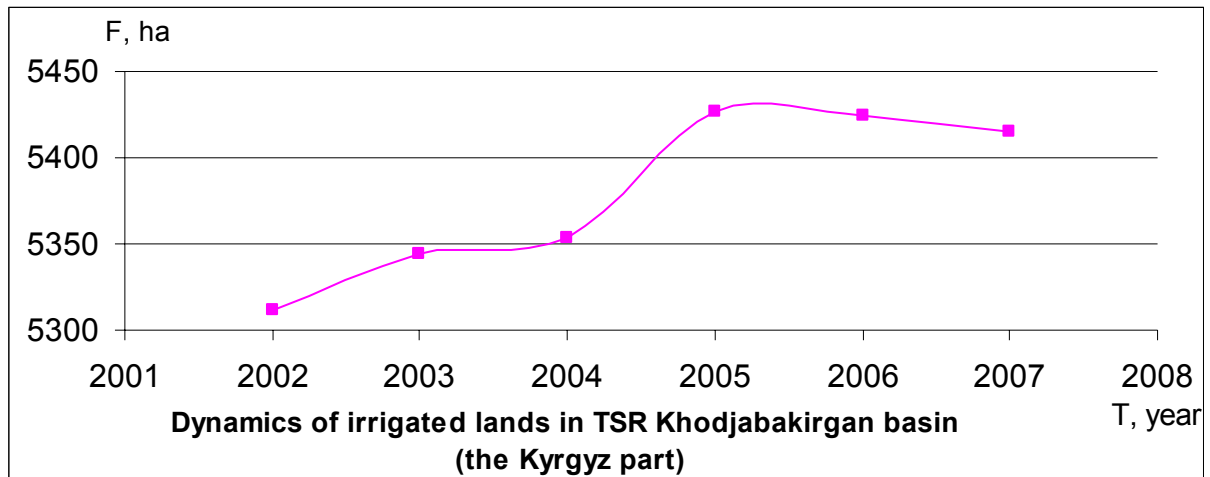
- The lowest water availability of agriculture has been in 2000 and 2001 – 45.6% and 49.6% of planned values respectively;
- As a rule water deficit is from February-March up to October;
- As a whole, water deficit against planned values is during April-September;
- On average water availability of agrarian sector has been: April – 24.7%, May – 54.3%, June - 85.0%, July - 81.2%, August - 69.0%, September – 78.4%. In 2002-2006 water availability has been 25.7%, 54.9%, 97.6%, 91.5%, 82.6% and 96% respectively during the same months.
- Water availability of non-agrarian sector: water availability has been reduced since 1987 (100%) till 1994 (48.5%), and in 1995-2006 that value has been varied within 20.8%-78.4% (2000). During 1980-2006 water availability has accounted for 69.8%.

3. Irrigated lands

Dynamics of irrigated lands for the Kyrgyz and Uzbek parts of TSR Shakhimardan and the Kyrgyz and Tajik parts of TSR Khodjabakirgan is given below in schedules. The more detailed information on irrigated lands and crops for TSRs basin is given in complete report.

³ There are data for 1980-2006 for the Tajik part of TSR Khodjabakirgan. Data for the Kyrgyz part of pilot TSRs are given for 2001-2006. (Batken province was formed in 1999).





4. Key stakeholders and their views for TSR water resources management

During workshops, surveys and consultations a tentative inventory of stakeholders was determined. Such stakeholders are going to take part directly or through their representatives in bilateral dialogue and negotiations to discuss joint water resources management in pilot TSRs Shakhimardan and Khodjabakirgan basins. Depending on types and stages of planned arrangements (workshops, dialogues, negotiations, preparation of draft Agreements on TSRs and Provisions on Basin Commissions, etc.), on which representation level depends, key stakeholders will determine organizations, institutions and departments (Table 4.1):

Views of key stakeholders regarding water resources management in TSRs Shakhimardan and Khodjabakirgan were revealed during workshops, expert surveys, consultations listed below generally and without personification of views⁴. It should be pointed out that from the very beginning of consultations and dialogues experts and other stakeholders deemed it was properly to discuss joint water resources management in TSRs and not to emphasize water sharing.

1. Introductory workshop (May 30-31, 2007, Tashkent). The key priorities were:

- Equitable water distribution at the lower level of water use,
- "Preparation of draft Agreements on water sharing from TSRs " was narrowed. Agreement should cover a wide range of issues related to TSR water resources management (ecology, information exchange, databases, basin management, privileges, etc.);

- Installation of gauging stations, IS and DB creation, monitoring.

30 persons took part in the workshop.

2. Round tables in Osh (26.06.2007) and Batken BAWR (27.06.2007):

- Interstate water sharing from TSRs is political issue and when addressing it requires firstly wariness and delicacy, foresight, collaboration with governing bodies and other key stakeholders.

More than 50 persons took part in round tables in Osh and Batken.

3. Workshop "Water management problems and experiences within main canals and TSRs in Fergana Valley" (Fergana, August 03-04, 2007):

⁴ Many views were alike by content. A number of views, which did not correspond to «general line», were given below. In particular, parties made the least emphasis on «water sharing», which was agreed by most of stakeholders.

- Refinement of legal frameworks for water resources management and introduction of IWRM principles for TSR basins in Fergana Valley as a whole. TSRs Shakhimardan and Khodjabakirgan will be pilot and various IWRM aspects will be worked out there;

Table 4.1

Key stakeholders of dialogues on TSRs

№ №	TSR Shakhimardan		TSR Khodjabakirgan	
	Kyrgyzstan	Uzbekistan	Kyrgyzstan	Tajikistan
1	Governmental level		Governmental level	
2.1	Ministries for Foreign Affairs		Ministries for Foreign Affairs	
2.2	National Border Departments ⁵		National Border Departments	
2.3	ICWC CA members		ICWC CA members	
2.4	Central Water Agencies		Central Water Agencies	
2.5	Ministries for Justice		Ministries for Justice	
3	Local level		Local level	
4	State Administrations for Batken province and Kadamjay district Department for Agrarian Development Batken BAWR Provincial WUA Support Unit Union of WUAs for the South Region of Kyrgyzstan, Water Council for Shakhimardan River Basin Kadamjay DAWR WUA Support Unit for Kadamjay district Provincial Environment Body WUAs: "Zhanyzher-Pulgon", "Ak-Suu Kholmion", "Alga-Zhorkoton" Rural Administrations: "Orozbekov", "Kholmion", "Alga", "Kotormo" Interested NGOs and NGOs for border regions in Batken province; other stakeholders	Fergana Provincial and District Khokimiyats Provincial and District Sub-Units for A&WR Provincial Environment Committee Funds "Makhallya" for province and district Syrdarya-Sokh BAIS FVMCA UDC SFC MO, SFC UCWU - AIS "Isfayram-Shakh" WUAs: "Yakhshi niyat", "Akhror mirob Mumin", "T.Sattarov", Citizen Meetings: "Yukori Vodil", "Vodil", "Mindon", Interested NGOs and NGOs for border districts in Fergana province; Other stakeholders	State Administrations for Batken province and Leylek district – Department for Agrarian Development Batken BAWR – Provincial WUA Support Unit Union of WUAs for the South Region, Water Council for Khodjabakirgan River Basin Leylek DAWR WUA Support Unit for Leylek district Provincial Environment Body WUAs: "Kulundy Razzakov", "Kozho-Bakyrghan" Rural Administrations: "Beshkent", "Kulundy" Interested NGOs and NGOs for border districts in Batken province; Other stakeholders	Khukumats for Sogd province, Dj-Rasul and B-Gafurov districts, Khodjent, Provincial Administration for Agriculture and for D-R and B-G districts Provincial Environment Committee, KhBC UCWU KhBC CWC KhBC MO State Unitary Administration for KhBC Water Supply Organization – Chkalovsk Kolkhoz Samatova WUAs: "Tochikobod" Dekhkan farms: "Khodja-Bakirgan", "R.Kosimov", Azizova JSC Urunkhodjaeva Vodovod "Ovchi-Kalacha" (Khodjent) Zhamoats "Chimkhayot", "Ovchi Kalacha", "Yangi khayot" and their makhallya committees NGOs for border districts in Batken province; Other stakeholders
5	Note: During negotiations a list of key stakeholders for TSR Shakhimardan and Khodjabakirgan basins will be specified taking into account current situation and views of key stakeholders			

⁵ It is expected that Basin Commission will be composed of representatives from boundary army or services implementing boundary control at check points and/or protecting state boundaries at project countries in pilot TSR basins or at three provinces (Batken, Sogd, Fergana) – check-points «Kadamjay» and «Vodil» along the Uzbek-Kyrgyz border and «Andarkhan» and «Patar» along the Uzbek-Tajik border as well as «Batken», «Ovchi-Kalacha», etc.)

Among the above stakeholders «IWRM-Fergana» Project implementing organizations such as SDC, IWMI and SIC ICWC CA are not mentioned but acting as stakeholders.

- Need to organize dialogues between key stakeholders regarding joint water resources management in all TSRs of Fergana Valley and not only in pilot Shakhimardan and Khodjabakirgan;

More than 40 persons took part in the workshop.

4. The workshop on public participation in water resources management within Fair "IWRM in Central Asia", round table and work meeting on "TSR" Component (Osh, September 08-09, 2007):

- Acceptability of European approaches to TSR water resources management.

About 60 persons took part in events in Osh.

5. Consultations and work meetings within "IWRM-Fergana" Swiss External Review events (Osh, 07.09.2007; Fergana, 10.09.2007; Khodjent, 19-21.09.2007):

- Component can reduce conflict capacity in the Valley and provide a single approach to introduction of IWRM principles in project area in transboundary context,

- Component implementation meets the objective on strengthening of transboundary cooperation and policy sustainability between Fergana Valley countries,

- Importance of "TSR" Component integration in next project phase,

- Firstly – preparation of Agreements and creation of Joint Commissions for pilot TSRs, then – development of Framework Agreement for all TSRs in Fergana Valley.

6. Work meetings within "IWRM-Fergana" Swiss Monitoring Mission events (Fergana, 27.09.2007; Kadamjay, 04.10.2007; Khodjent, 05.10.2007):

- Inclusion of activity on installation of water accounting and data communication facilities, automation and control of main gauging stations in pilot TSRs into plan of measures;

- Cooperation with National Hydrometeorological Services regarding flow forecasting as a condition for effective water resources management in pilot TSRs;

More than 40 persons took part in events.

7. Final work meeting on Swiss Monitoring Mission results for "IWRM-Fergana" Project (Uzbekistan, Fergana, October 24, 2007):

- Focusing efforts on preparation of draft Agreements and Provisions on River Commissions only for pilot TSRs, Framework Agreement should be postponed to Phase IV;

- Supporting proposals on introduction of IWRM principles in pilot TSR basins;

24 persons took part in the event.

8. Workshops/trainings/work meetings under "TSR" Component for the Uzbek part (Fergana, 01.11.2007) and the Kyrgyz part of TSR Shakhimardan (Kadamjay, 02.11.2007), the Tajik and Kyrgyz parts of TSR Khodjabakirgan (Khodjent, November 09, 2007):

- Key issues: poor provision of water infrastructure with modern water accounting facilities, lack of exchange of hydrological and hydrometric information between parties, poor coordination on perspective issues of water resources management including joint planning;

- Interest in initiating negotiation process on joint water resources management in TSRs and preparing new legal framework for water resources management in pilot TSRs;

- Existing legal framework for water sharing should be taken as a basis to prepare a new one;

- Importance to keep interaction between water specialists on both sides of border;

- Consent to start bilateral dialogue on TSRs Shakhimardan and Khodjabakirgan.

More than 40 persons took part in events in Fergana, Kadamjay, Khodjent.

9. Bilateral workshops (Khodjent, 20.11.2007), (Osh, 23-24.11.2007):

- Agreements should cover core problems on joint water resources management in TSR basins (rehabilitation of controlling gauging stations, water accounting, communication, information exchange, information availability and transparency, mutual control, flow forecasting, natural disaster control systems and others),

- Agreement should reflect general principles and rules for joint management of TSR basin, including principles for share holding in cost recovery for constructing water and other (flood control and others) structures,

- Agreement does not reflect quantitative data on water sharing, but interstate water sharing established earlier can be used as a basis,

- Agreement should provide for creation of River Commissions,

- Each party assigns on its own its representative in TSR River Commission, quantitative composition of river Commissions is formed on parity basis,

- Disputes and conflicts are addressed on consensus base,

- Commission is led by Co-Chairmen and will have executive body (Committee or Secretariat) fulfilling River Commission decisions between its meetings; etc.

Participants emphasized that before assuring sustainable activity of River Commissions, including financial one, there should be remained current interrelations between national water structures on both sides of border.

More than 30 persons took part in bilateral workshops.

In all more than 320 persons took part in above mentioned events, including «TSR» Component executors from regional and national groups and taking into account repeated participation of stakeholder representatives in some arrangements.

5. Transboundary infrastructure of pilot TSRs

As a whole recommendations were given to rehabilitate and install controlling gauging stations in TSR and main water intakes on both sides of border (respective materials are given in complete report).

6. Legal aspects for management of international water

6.1. Summary of international legal regulations in the field of management of international water.

Summary is given in complete report and composed of 3 parts: Part I: terminology; Part II: structure and content of international agreements; Part III: interstate structures (Commissions) on management of transboundary water.

6.2. Draft AGREEMENTS and PROVISIONS on Joint River Commissions for TSRs Shakhimardan and Khodjabakirgan are given in complete report.

7. Introduction of IWRM principles in basins of TSRs Shakhimardan and Khodjabakirgan

As a result of arrangements conducted under «TSR» Component conditions were established to initiate negotiation process on joint water resources management in pilot TSRs between key stakeholders on both sides of border. Key stakeholders are willing to initiate dialogue and create a single basin organization for effective development of limited water resources for joint water resources management in TSRs Shakhimardan and Khodjabakirgan on mutual basis.

Strategy for sustainable water resources management in TSRs Shakhimardan and Khodjabakirgan requires continuing to conclude Agreements on pilot TSRs, for which it is planned to create Basin Commissions. Strategy will include essential introduction of IWRM principles in TSR Shakhimardan and Khodjabakirgan basins as a tool for sustainable water development.

Full «Strategy / Vision on “TSR” Component implementation under "IWRM-Fergana" Project will be in the nearest future: possible phase IV is given in complete report taking into account performed activities for «TSR» Component and description of current and starting situation.

Typical moments for Strategy / Vision on "TSR" Component in Phase IV are given below.

The goal of next stage for "TSR" Component: "provide sustainable TSR water resources management in Fergana Valley in "IWRM-Fergana" Project area based on IWRM principles". Efforts are focused on TSRs Shakhimardan and Khodjabakirgan and at the same time activities will be started in remaining TSRs in "IWRM-Fergana" Project area (TSRs Akbura, Aravansai, Sokh and others).

The following blocks and work scope are proposed for "TSR" Component:

1. Policy and Legal Block. Tentative work scope:...

...1.2. Draft Agreements on joint water resources management and Provisions on River Commissions...;

...1.3. Preconditions for preparing draft Agreements on other TSRs in project area ...:

2. Block "Introduction of IWRM principles ..." Tentative work scope:

...2.2. Pilot canals; 2.3. Pilot WUAs; 2.3.1. Demonstration polygons:

3. Technical / technological / information block Tentative work scope:

3.1. Database and information system:

3.2. Evaluation of technical equipment of pilot TSRs, canals, WUAs...

3.3. Provision of pilot TSRs, canals, WUAs with required technical facilities.

3.3.1. Automation of core hydrostructures in pilot TSRs, canals and WUAs.

3.3.2. Firstly, controlling gauging stations in pilot TSRs should be rehabilitated and installed – «Dzhidaly» (TSR Shakhimardan), Kadamjay district in Kyrgyzstan and «Andarkhan» (TSR Khodjabakirgan) in Leylek district in Kyrgyzstan.

3.3.3. The second priority is to construct and install controlling gauging stations in border districts⁶ of adjacent states in pilot TSRs basins – in Uzbekistan, in Fergana district (TSR Shakhimardan) and in Tajikistan, in Babadzhan-Gafurov district (TSR Khodjabakirgan).

3.3.4. The third priority is to install water accounting facilities in each country in TSRs, which significantly impact on river flow volume and interstate water sharing:

TSR Shakhimardan basin:

- water withdrawal point into canal Nurgaziev (Kadamjay district, for Kyrgyzstan needs);

- water withdrawal into canals Araptepa, Korayantag and three canals from Vuadil hydrounit (Fergana district) – see. § 5.4 and Fig.1 of complete report;

TSR Khodjabakirgan basin:

- water withdrawal into canal Kulundy (for Kyrgyzstan needs);

- water withdrawal from KhBC (for Tajikistan needs);

- water withdrawal from pumped KhBC (for Kyrgyzstan)⁷...

3.3.5. The fourth priority is to install additional gauging stations in TSRs for accounting river flow. As a whole the problem should be a prerogative of National Hydrometeorological Services of Parties. Close cooperation with such Hydrometeorological Services is a guarantee to avoid replication in flow monitoring activities and dissipation of state/donor funds when addressing the same problems.

When constructing or rehabilitating gauging stations it is expedient to focus on those river reaches, where gauging stations have never been installed, in particular:

TSR Shakhimardan basin:

- Koku/Kurbankul river⁸ (gauging station «Usty»);

⁶ Controlling gauging station should be constructed at reaches meeting respective requirements and maximally close to state border to simplify calculating water balance.

⁷ Water withdrawal in KhBC tail (for Kyrgyzstan needs) in Tajikistan requires additional study, as there are financial problems related to water withdrawal assurance for Kyrgyzstan (water lifting).

- Aksu river⁹ (gauging station «Dugoba river upstream»);

- Dugoba river¹⁰ (gauging station «Ustye»);

TSR Khodjabakirgan basin:

- TSR Khodjabakirgan (gauging station «Kishlak Kalacha»);

3.3.6. At the same time it is expedient that controlling gauging stations, measurements of which are basics for interstate water sharing, will be under management of administrative bodies for water resources. As for observations cooperation is possible between hydrometeoservices and water resources bodies of border district.

4. Education Block (workshops, trainings, consultations)

5. Dissemination of knowledge and Component information, process monitoring

7. Capacity development and revelation of views of key stakeholders (in complete report)

8. Creation of databases for TSRs Shakhimardan and Khodjabakirgan

Information for DB was collected from various sources, including formal reference materials of hydrometeoservices in USSR, Kyrgyzstan, Tajikistan, Uzbekistan and local sub-units of water bodies located in TSR Shakhimardan and Khodjabakirgan basins. Data of hydrometeoservices and local water bodies were main sources.

Core list of data for DB is given in complete report.

10. Excerpts from typical materials included in DB for TSR basins

Complete report contains list of some typical hydrological data having direct or indirect relation to water resources formation and use and as a whole to TRS Shakhimardan and Khodjabakirgan water resources management in the context of addressing problems on introduction of IWRM principles. Such data provide general retrospective picture of pilot TSR basins and at the same time most of data reflect hydrological characteristics, which are relatively stable in terms of time (water temperature, sediment content, mineralization chemical composition of soil in upstreams and to a certain degree glaciation and others). Such data against current state prove significant reduction of observations over hydrological phenomena and processes in mountain river basins, in particular, in pilot TSRs.

11. Dissemination of information on «TSR» Component

Web-site of «TSR» Component is <http://iwrn.icwc-arak.uz/activity_tsr_ru.htm> and open in general web-site structure for «IWRM-Fergana» Project <<http://iwrn.icwc-arak.uz/>>, where multiplexed information and summary reports on performed activities for “TSR” Component are published in English and Russian.

Information on «TSR» Component is published, in particular, in ICWC serial publications in English and Russian:

ICWC CA Press-Releases: 1. № 4 (128) March 2007; 2. № 5 (129) March 2007; № 15 (139) June 2007; 3. №19 (143) September 2007.

ICWC CA Bulletins: 1. № 44, 2007; 2. №. 45, 2007; 3. № 46, 2007;

More detailed information is given in complete report.

**«TSR» Component Leader
Under «IWRM-Fergana» Project,
Candidate of technical science**

Yu.Rysbekov

Executors:
Yu.Rysbekov
Phone: 265-16-59
26.01.2008.

⁸ Component of TSR Shakhimardan.

⁹ Component of TSR Shakhimardan

¹⁰ Tributary of TSR Shakhimardan