

United Nations Development Programme
Countries: Kyrgyzstan, Tajikistan, Kazakhstan
Project Document

Project Title **Promoting IWRM and Fostering Transboundary Dialogue in Central Asia**

UNDAF n/a

Outcome(s):

Expected CP Outcome(s): Strengthened regional capacity to address water governance challenges within national and transboundary sustainable development frameworks

Expected Output(s):

- Output 1: Developing and implementing IWRM Strategies in Kyrgyzstan
- Output 2: Developing and implementing IWRM Strategies in Tajikistan
- Output 3: Transboundary Dialogue and Cooperation in the Ili-Balkhash River Basin
- Output 4: Regional Dialogue, IWRM Governance and Sector Capacity Building

Executing Entity: UNDP, Bratislava Regional Centre

Implementing Agencies: UNDP Kazakhstan (Output 3); UNDP Kyrgyzstan (Output 1); UNDP Tajikistan (Output 2); Bratislava Regional Centre (Output 4)

Brief Description: While the Aral Sea Basin is closed (water is limiting), improved governance and sectoral service delivery are among the key water management challenges in Central Asia, rather than absolute scarcity. This regional programme will build on successful experiences with introducing IWRM in Kazakhstan, and aims to promote transboundary dialogue and sustainable water resources management in Central Asia through interventions (i) at national level (mainly involving Kyrgyzstan and Tajikistan), and (ii) at transboundary level (mainly involving Kazakhstan and China) in parallel.

In Kyrgyzstan and Tajikistan, the objective will be to develop and implement national integrated water resources management and water efficiency strategies (IWRM Planning) at national and basin level. In doing this, the project will focus both IWRM governance and institutional reform, as well as on concrete interventions to improve (a) irrigated agriculture, (b) the rural water supply and sanitation situation, and (c) small-scale hydropower service delivery. *In the Ili-Balkhash River Basin*, the main focus will be on fostering transboundary dialogue and enhance cooperation between Kazakhstan and the People's Republic of China, aiming at improved management of the shared River Basin system and its resources. *On a regional level*, the programme will focus besides efficient and effective programme management and project coordination on (i) capacity building – a joint IWRM training plan with GWP, SDC and possibly other partners and initiatives is under preparation – (ii) knowledge and experience exchange as well as (iii) trans-regional trust-building and coordination interventions.

Programme Period:	2009-2012
Key Result Area (Strategic Plan):	Mainstreaming environment and energy; Expanding access to environmental and energy services for the poor
Atlas Award ID:	_____
Start date:	01 Jan 2009
End Date	31 Dec 2012
PAC Meeting Date	29 May 2008

Total resources required	USD 5,400,000
Total allocated resources:	
Regular	USD 350,000
Other:	
o EC	EUR 1,500,000
o Norway (tbc)	USD 800,000
In-kind Contributions	
o Govt (Kaz)	USD 600,000
o Govt (Kyr)	USD 200,000
o Govt (Taj)	USD 200,000
Unfunded budget:	~ USD 900,000

Agreed by (Government)

Agreed by (Executing Entity):

Agreed by (UNDP):

**United Nations Development Programme
Regional Project Document**

Project Title **Promoting IWRM and Fostering Transboundary Dialogue in Central Asia**

UNDAF n/a

Outcome(s):

Expected CP Outcome(s): Strengthened regional capacity to address water governance challenges within national and transboundary sustainable development frameworks

Expected Output(s): - Output 1: Developing and implementing IWRM Strategies in Kyrgyzstan
 - Output 2: Developing and implementing IWRM Strategies in Tajikistan
 - Output 3: Transboundary Dialogue and Cooperation in the Ili-Balkhash River Basin
 - Output 4: Regional Dialogue, IWRM Governance and Sector Capacity Building

Executing Entity: UNDP, Bratislava Regional Centre

Implementing Agencies: UNDP Kazakhstan (Output 3); UNDP Kyrgyzstan (Output 1); UNDP Tajikistan (Output 2); Bratislava Regional Centre (Output 4)

Brief Description: While the Aral Sea Basin is closed (water is limiting), improved governance and sectoral service delivery are among the key water management challenges in Central Asia, rather than absolute scarcity. This regional programme will build on successful experiences with introducing IWRM in Kazakhstan, and aims to promote transboundary dialogue and sustainable water resources management in Central Asia through interventions (i) at national level (mainly involving Kyrgyzstan and Tajikistan), and (ii) at transboundary level (mainly involving Kazakhstan and China) in parallel.

In Kyrgyzstan and Tajikistan, the objective will be to develop and implement national integrated water resources management and water efficiency strategies (IWRM Planning) at national and basin level. In doing this, the project will focus both IWRM governance and institutional reform, as well as on concrete interventions to improve (a) irrigated agriculture, (b) the rural water supply and sanitation situation, and (c) small-scale hydropower service delivery. *In the Ili-Balkhash River Basin*, the main focus will be on fostering transboundary dialogue and enhance cooperation between Kazakhstan and the People's Republic of China, aiming at improved management of the shared River Basin system and its resources. *On a regional level*, the programme will focus besides efficient and effective programme management and project coordination on (i) capacity building – a joint IWRM training plan with GWP, SDC and possibly other partners and initiatives is under preparation – (ii) knowledge and experience exchange as well as (iii) trans-regional trust-building and coordination interventions.

Programme Period:	2009-2012
Key Result Area (Strategic Plan):	Mainstreaming environment and energy; Expanding access to environmental and energy services for the poor
Atlas Award ID:	_____
Start date:	01 Jan 2009
End Date	31 Dec 2012
PAC Meeting Date	29 May 2008

Total resources required	USD 5,400,000
Total allocated resources:	
Regular	USD 350,000
Other:	
o EC	EUR 1,500,000
o Norway (tbc)	USD 800,000
In-kind Contributions	
o Govt (Kaz)	USD 600,000
o Govt (Kyr)	USD 200,000
o Govt (Taj)	USD 200,000
Unfunded budget:	~ USD 900,000

Agreed by (UNDP): _____

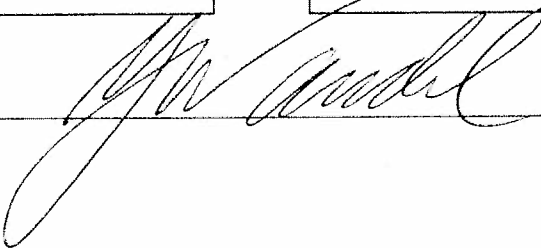


TABLE OF CONTENTS

I. SITUATION ANALYSIS	4
II. STRATEGY	5
III. RESULTS AND RESOURCES FRAMEWORK	18
IV. TOTAL AND ANNUAL WORK PLAN	24
V. MANAGEMENT ARRANGEMENTS	30
VI. MONITORING FRAMEWORK AND EVALUATION	31
VII. LEGAL CONTEXT	33
VIII. ANNEXES	34

Acronyms

AEPF	Kyrgyz Agency for Environmental Protection and Forestry (Office of Gov)
BRC	UNDP Bratislava Regional Centre
CBO	Community Based Organization
CEP	Tajik Committee for Environmental Protection (Office of Government)
DSE	Kyrgyz Department of Sanitation and Epidemiology (MoH)
DWR	Kyrgyz Department of Water Resources (MAWR)
DWS	Kyrgyz Department of Water Supply (MAWR)
EPFA	Kyrgyz Environmental Protection and Forestry Agency
GOK	Government of Kyrgyzstan
GOT	Government of Tajikistan
IRBM	Integrated River Basin Management
IWRM	Integrated Water Resources Management
MAWR	Kyrgyz Ministry of Agriculture, Water Resources and Processing Industry
MEDT	Kyrgyz Ministry of Economic Development and Trade
MEI	Tajik Ministry of Energy and Industry
MoA	Tajik Ministry of Agriculture
MoH	Kyrgyz Ministry of Health
MWRI	Tajik Ministry of Water Resources and Irrigation
NGO	Non Government Organization
OMA	Tajik Operation and Maintenance Organizations (MWRI)
RRF	Results and Resources Framework
RWSS	Rural Water Supply and Sanitation
SCEPF	Tajik State Committee on Environmental Protection and Forestry
SEA	Strategic Environmental Assessment
SUE	State Unitary Enterprises (MWRI)
WRC	Water Resources Committee of Kazakhstan
WUA	Water User Association

I. SITUATION ANALYSIS

The drying of the Aral Sea, attributed to Soviet-era expansion of inefficient irrigated agriculture, has been described as the world's worst human-caused ecological disaster. However the Aral Sea Basin is "closed" (water is the limiting resource not land) and improving conventional irrigation system efficiencies alone will not contribute significantly to saving water and "stabilizing" the Aral Sea. However, better efficiency and improved management regimes could indeed significantly contribute to better water governance through more sustainable allocation of available resources, and thus to better provision of water-related services to the population and the various dependent sectors.

From the Irrigation – Environment Nexus...: The Amu Darya River rises in Tajikistan and Afghanistan and flows to the Aral Sea forming the border of Uzbekistan and Turkmenistan. The Syr Darya River rises in Kyrgyzstan and also flows to the Aral Sea but between Uzbekistan and Kazakhstan. Therefore, the CA countries share the Aral Sea Water Basin (ASB) and are locked in a hydrological inter-dependence that transcends national boundaries. Rainfall in the Basin is generally quite low and most runoff (about 87%) is generated by snow & glacier melt in the mountainous upstream countries. However the arable land is mainly concentrated in the more populous downstream countries: The three downstream countries, containing 80% of the Central Asian population and 85% of ASB irrigated land, make 73% of total water abstractions (UN 2004).

... to a Regional Policy –Poverty Nexus: With the breakup of the Soviet Union the elaborate set of water and energy sharing agreements among the Soviet republics of Central Asia largely broke down and the previously integrated regional water and electricity infrastructure became fragmented and suffered from a lack of maintenance. With overuse and, in particular, poor management of water resources, agricultural yields stagnated or fell – and groundwater levels in the Aral Sea continued to drop precipitously. As a result the provinces around the Aral Sea, in particular the Karakalpakstan region of Uzbekistan, suffered great hardships and increases in poverty.

Against this backdrop, a water and energy situation that is difficult and tense at best during years of normal weather can quickly deteriorate into a major humanitarian, economic and political crisis for the region. The last major drought in the region, which occurred in 2000-01, affected not only the republics of the Former Soviet Union, but also Afghanistan, Iran, Pakistan and Mongolia, with devastating effects on the region's agricultural production. Above-average warming and glacial retreat will likely exacerbate the water, agricultural and distributional problems in the region which is already characterized by political and social tensions over access to water and energy resources. Central Asian region loses US\$1.7 billion, or 3% of GDP, annually because of inefficient water resources management. The annual decrease in agricultural production is estimated at US\$2 billion; and the energy production from hydro-resources is at high risk.

A history of failed approaches: While the Central Asian republics of the Former Soviet Union avoided open conflict over scarce water resources, their relations have been strained. Attempts by the international community to solve the situation, foremost related to the transboundary *water-energy nexus*¹, showed limited success mainly due to (i) their limited scope and (ii) the "top-down" nature of approaches.

Rather than water, developed land equipped with functional infrastructure, is the limiting resource in both Kyrgyzstan and Tajikistan. Therefore, rather than absolute scarcity, *improved governance*

¹ The transboundary Water – Energy Nexus involves a conflict of interest between summer irrigation, in downstream countries, the winter energy needs of the upstream countries. This arises from their different land, water and energy resources, the upstream locations of existing regulating reservoirs and the variation in water supply and demand between wet and dry years. However, after nearly two decades of donor facilitation, several regional agreements have proven ineffective. The downstream countries are now investing in storage, to re-regulate winter releases, and donors are refocusing on: (i) bi-lateral agreements and (ii) national institutional and financial capacity.

and sectoral service delivery are the key water management challenges. Furthermore, addressing the water problems in an integrated, cross-sector manner will be the backbone and a prerequisite to addressing not only direct water-related, but also energy and agriculture production issues under the umbrella of this project.

In appreciation of the fact that the majority of prevailing water-related development challenges could be tackled through *Integrated Water Resources Management (IWRM)*, this project is seeking to support Central Asian governments through a set of activities in the following three, jointly with all key stakeholder identified, priority areas: (i) Irrigated agriculture, (ii) rural water supply and sanitation, as well as (iii) small-scale hydropower, which are amongst the main pro-poor water services. In both Kyrgyzstan and Tajikistan, the initial two focus countries of this project, sustainability and financing of infrastructure rehabilitation and improvement, as well as management (operation and maintenance), have been identified as the top water sector priorities.

The need for a concerted approach amongst the partners: Considering the co-existence of complementary activities related to the management of water resources, and in order to better use the available resources, several multi- and bilateral partners², who are in one way or another supporting the Central Asian governments towards IWRM, increased access to Water and Sanitation Services, and to advance on the achievement of the water-related MDGs, have decided to work together and coordinate their activities and future projects in the water sector in Central Asia. The participating organizations and countries agreed earlier in 2008 to develop a “**Common Framework for Addressing Water Issues in Central Asia**”, which would (i) map and describe their on-going and planned projects and interventions, (ii) identifying potentials to align activities or implementation arrangements, as to mutually agree on (iii) common strategic priority outcome areas, underlying strategic approaches, and roles and responsibilities; all under the objective to eventually (iv) align activities or enter into concrete collaboration amongst different partners in support of the Central Asian governments. Potentially, this initiative could lead towards a Sector-Wide Approach (SWAP) in the Central Asian Water Sector in the mid- or long-term.

Further details are presented in Annex 2 (Regional and National Water Sector Review) and Annex 3 (“Common Framework for Addressing Water Issues in Central Asia”).

II. STRATEGY

The overarching strategic approach

The overarching strategy adopted for all activities under this project entails the careful approaching of (a) transboundary and (b) divisive issues from a national, river basin or local, as well as mutual beneficial perspective (see illustration). The intention is to build national capacities and readiness for a more integrated approach to water management by tackling

Priority areas for intervention

Geographic scope

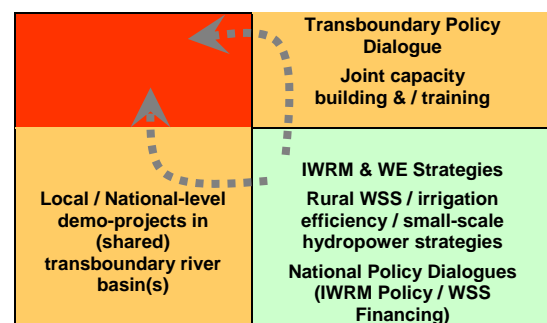
Transboundary

**National
River Basin
Local**

Thematic / political scope

Divisive

Mutually Beneficial



² Besides UNDP, the active partners to date include the EU/EC (DG Environment / EU Water Initiative; DG Aidco, DG RELEX), UNECE, OECD and Norway. Initial interest to join this initiative emerged from the World Bank, Italy, Finland, Germany (GTZ), and Switzerland (SDC).

issues and tasks located in these “easier domains”, with an aim to simultaneously, and step by step, build capacity and readiness to address transboundary and “divisive domain issues” by the governments.

The project is expected to foster transboundary dialogue, in Central Asia, through interventions at national level (mainly involving Kyrgyzstan and Tajikistan), and at transboundary level (mainly involving Kazakhstan and China).

In Kyrgyzstan and Tajikistan (Outputs 1 and 2), the objective will be to develop and implement national integrated water resources management and water efficiency strategies (IWRM Strategies) at national and basin level. In doing this, the project will focus on concrete interventions to improve: (i) irrigated agriculture, (ii) rural water supply and sanitation (RWSS), (iii) small-scale hydropower service delivery, and (iv) IWRM governance and institutional reform.³

In the Ili-Balkhash River Basin (Output 3), the aim is to foster transboundary dialogue and enhance cooperation between Kazakhstan and the People’s Republic of China for improved management of the shared River Basin system and its resources.

At a pan-regional level (Output 4), the aim is to build sub-regional capacity and provide adequate expert support to ensure efficient and effective project implementation, pan-regional coordination of activities (in and outside the scope of this project), as well as joint and coordinated capacity building and policy advise.

The sectoral activities (under outputs 1 & 2) will aim at two sets of key results:

- (i) Realistic national investment, strategies, plans and financial policies, which will be informed by the results of
- (ii) Demonstration projects that develop both practical management instruments and feasibility studies for possible donor funding.

Other expected results include the development and implementation of: (i) a joint management agreement – for equitable water, energy and O&M cost sharing – in a small transboundary sub-basin, (ii) context-specific participatory IWRM processes, (iii) additional demonstration projects, to address stakeholders next highest priorities, and (iv) context-specific institutional reforms.

A detailed description of outputs, indicative activities, targets, responsibilities, inputs and costs are summarized in the following Results and Resources Framework (RRF), and the Total and Annual Workplan. For more details on activities, steps and expected results, refer to the indicative TOR and draft work plans in Annex 4.

Activities

Output 1: Developing and implementing IWRM Strategies in Kyrgyzstan

Activity 1.1: Gravity Irrigation Demonstration Projects

This activity aims at joint (Government – Water User Association WUA – NGO⁴) development of feasibility studies, followed by the development and implementation of innovative system management and agricultural development plans in selected demonstration oblasts or river basins.

³ IWRM is a process that promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. IWRM integrates service delivery, resource management and institutional reform.

⁴ NGO involvement is intended to facilitate introduction of the demand-driven approach and national capacity building.

A participatory performance assessment and diagnosis (PAD) process towards improvement of performance and increase of agricultural production (wheat and/or cotton), will ensure capacity building combined with thorough analysis and development of solutions towards improvement of gravity irrigation systems, with an aim towards introduction of diversified and/or alternating crop production to improve beneficiaries' socio-economic situation in the long-run. Specific attention will be paid to the replicability of the demo projects, including proper documentation and codification of experience, with a view to prepare scale-up of successful case at national or transboundary level.

Indicative sub-activities:

- Select (in participatory manner) Demonstration irrigation systems⁵
- Develop participatory performance assessment and diagnosis (PAD) processes to identify production constraints
- Formulate practical priority infrastructure, system management and agricultural interventions
- Conduct joint Ministry-WUA feasibility studies considering (inter alia):
 - public-private partnerships (PPPs)
 - practical measures to combat corruption
 - opportunities to match donor's technical, economic, social, environmental and other requirements for possible funding
- Prepare system management and agricultural development plans to increase cotton and/or wheat production
- Solicit authorities' approval of feasibility studies and promulgation of initial generic PAD processes
- Launch WUA-led implementation and joint M&E of agricultural & system management plans
- Evaluate and document the process for future replication

Activity 1.2: Irrigation Investment Strategies, Plans and Financial Policies

This activity aims at the (joint government-NGO) development of realistic, national irrigation investment plans, strategies and/or financial policies, as most adequate, in parallel with, and informed by, experience generated in activity 1.1 – with a strong focus on mobilizing donor funding for implementation. Strategic Environmental Assessments will be carried out on all key documents as a part of their preparation, as to promote best practice and international standards and to allow usage of the demonstration examples for the further development of methodological approaches and tools for the region.

Indicative sub-activities:

- Select economic, social and environmental ranking criteria and method to assess investment priorities including trade-offs between: (i) recurrent and capital costs, (ii) capital infrastructure improvement and new development costs and (iii) subsidies and cost recovery.
- Conduct inventories of all oblast irrigation systems, infrastructure condition and investment proposals.
- Synthesize climate, land, water supply and demand data to define homogeneous agro-zones
- Calculate capital and O&M costs for standard zones, systems and improvements
- Design, conduct, analyze and interpret willingness-to-pay (WTP) and user report card (URC) surveys with respect to infrastructure improvements and O&M service delivery

⁵ based on IRBM considerations, system management capacity, demand for reform and economic, social, environmental criteria (as well as key strategic documents developed under activity 1.2);

- Conduct financial/economic analyses of investment priorities, cost recovery & subsidies
- Conduct SEA for and in parallel with key documents / drafting processes
 - Establish SEA team, identify key environmental issues & stakeholders
 - Design the SEA approach and procedure
 - Through stakeholder consultations, analyze trends for key environmental issues and analyze likely environmental impacts of the proposed investment priorities
 - Through stakeholder consultations, propose mitigation / enhancement measures, and draft SEA report(s) to be integrated into the main documents
- Develop investment strategies, plans and financial policies, and ensure promulgation by the governments

Activity 1.3: Kyrgyz Rural Water Supply and Sanitation (RWSS) Demonstration Project

This activity aims at the development and implementation of one or more sub-projects to demonstrate solutions towards improved access to water and sanitation services for inhabitants of selected rural areas, with a special focus on marginalized and disadvantaged groups. The project sites will be selected with broad stakeholder participation, and based on a set of criteria including needs and potential impact aspects, but also feasibility for donor-funding as well as the potential to serve as basis for replication and scale-up. The project will support the responsible authorities to formulate and implement joint O&M arrangements, as to ensure sustainability of the interventions beyond the projects' timeframe.

Indicative sub-activities:

- Based on participatory stakeholder dialogues, and in close consultation with ADB, the World Bank, DFID and other relevant investors, select suitable and representative sites for donor co-financed sub-projects that preferably also meet IRBM considerations
- Together with suitable NGO and/or CBOs, support responsible authorities to develop and conduct surveys to assess prevailing WSS systems
- Analyze the likely environmental effects of selected sub-projects implementation based on the principles of SEA
- Together with NGOs, support authorities and CBOs in joint diagnosis of both systems and CBO sustainability constraints, and to formulate practical joint arrangements for sustained O&M and CBO capacity
- Through NGO, support responsible authorities and CBOs in joint O&M of improved facilities.
- Ensure joint evaluation and documentation of process and experiences for future scaling-up

Activity 1.4: Small Transboundary Sub-basin management agreement

This activity aims at progressively developing, negotiating, signing, implementing, monitoring and evaluating of a demonstration joint sub-basin management agreement towards equitable water, energy and O&M cost sharing including relevant Kyrgyz, Tajik and, preferably, Uzbek sub-basin authorities.

Indicative sub-activities:

- Support the central government and relevant local authorities and, preferably, Uzbek counterparts to jointly select a small transboundary sub-basin with water, energy & O&M cost sharing issues
- Facilitate joint appointment of an NGO to facilitate consensus building & conciliation by the parties
- Support local authorities to assess/agree joint water, energy and O&M cost sharing issues
- Support local authorities to develop/agree/sign water, energy and cost sharing agreements

- Ensure the parties implement, monitor and evaluate equitable water, energy and cost sharing and document the process for future replication in other transboundary sub-basins

Activity 1.5: Participatory Integrated River Basin Management (IRBM) Processes

This activity aims at supporting authorities and relevant stakeholders, including relevant NGOs, to progressively develop and implement practical participatory IRBM processes, integrated with all other relevant activities and results

Indicative sub-activities:

- With NGO and relevant local authority assistance, prepare stakeholder analyses and participation plans (SAPP), to facilitate representative government, private sector and civil society participation based on their rights, risks and responsibilities
- Develop practical participatory IRBM processes that reconcile the requirements of horizontal inter-sectoral integration with vertical sectoral management, devolution to the lowest appropriate level (subsidiarity) and efficient effective sub-basin or local service delivery
- Promote, and support the parties to continuously maintain participatory processes, conduct M&E and ensure proper documentation of the IRBM processes
- Advocate for promulgation of IRBM process for widespread replication by the government

Activity 1.6: Other Priority Demonstration Projects

This activity aims at identifying opportunities, and at progressively developing and managing other practical demonstration projects to address stakeholders' next highest priority issues⁶, and to facilitate governmental participation as well as assistance by NGOs.

Indicative sub-activities:

- Facilitate agreement amongst key stakeholders on economic, social and environmental ranking criteria – taking into account the results from relevant SEA activities carried out within the project
- Support key stakeholders to identify, assess, rank and reach consensus regarding their next highest priority IWRM issue
- Promote the establishment of a range of practical options, using the agreed criteria to rank and select their preferred solution which they then design and jointly approve
- Analyze the likely environmental effects of selected sub-projects implementation based on the principles of SEA
- Help stakeholders to implement, monitor and evaluate the management aspects of their preferred solution, while supporting the relevant authorities to document and promulgate the process for scaling-up

Activity 1.7: International River Basin Management (IRBM) Institutional Reforms

This activity aims at developing and implementing a context-specific IWRM (institutional reform) strategy, and to support stakeholders' priority IWRM issues/interventions at the river basin and/or local-levels.

Indicative sub-activities:

⁶ For example stakeholders' next highest priority IWRM issue and activity might include climate change adaptation, aquatic ecosystems or natural disaster mitigation as well as another irrigated agriculture or RWSS issue and activity.

- Assist key stakeholders (through the relevant authorities) to assess the strengths and weaknesses of present arrangements (enabling environment, organizations and management instruments), with respect to experience implementing and/or developing their priority outputs
- Facilitate consensus-finding among stakeholders on context-specific institutional reform Strategy
- Advocate for promulgation and implementation of priority institutional reforms by the government

Output 2: Developing and implementing IWRM Strategies in Tajikistan

Activities 2.1: Pumped Irrigation Demonstration Projects

This activity aims at joint (Government – Water User Association WUA – NGO⁷) development of feasibility studies for, and implementation of innovative system management and agricultural development plans in selected demonstration oblasts or river basins. A participatory performance assessment and diagnosis (PAD) process towards improvement of performance and increase of agricultural production (wheat and/or cotton), will ensure capacity building combined with thorough analysis and development of solutions towards improvement of pumped irrigation systems, with an aim towards introduction of diversified and/or alternating crop production to improve beneficiaries' socio-economic situation in the long-run. Specific attention will be paid to the replicability of the demo projects, including proper documentation and codification of experience, with a view to prepare scale-up of successful case at national or transboundary level

Indicative steps and sub-activities:

- Select (in participatory manner) Demonstration irrigation systems⁸
- Develop participatory performance assessment and diagnosis (PAD) processes to identify production constraints
- Formulate practical priority infrastructure, system management and agricultural interventions
- Conduct joint Ministry-WUA feasibility studies considering (inter alia):
 - public-private partnerships (PPPs)
 - practical measures to combat corruption
 - opportunities to match donor's technical, economic, social, environmental and other requirements for possible funding
- Prepare system management and agricultural development plans to increase cotton and/or wheat production
- Solicit authorities' approval of feasibility studies and promulgation of initial generic PAD processes
- Launch WUA-led implementation and joint M&E of agricultural & system management plans
- Evaluate and document the process for future replication

Activity 2.2: Irrigation Investment Strategies, Plans and Financial Policies

This activity aims at the (joint government-NGO) development of realistic, national irrigation investment plans, strategies and/or financial policies, as most adequate, in parallel with, and informed by, experience generated in activity 1.1 – with a strong focus on mobilizing donor funding for implementation. Strategic Environmental Assessments will be carried out on all key documents

⁷ NGO involvement is intended to facilitate introduction of the demand-driven approach and national capacity building.

⁸ based on IRBM considerations, system management capacity, demand for reform and economic, social, environmental criteria (as well as key strategic documents developed under activity 1.2);

as a part of their preparation, as to promote best practice and international standards and to allow usage of the demonstration examples for the further development of methodological approaches and tools for the region.

Indicative sub-activities:

- Select economic, social and environmental ranking criteria and method to assess investment priorities including trade-offs between: (i) recurrent and capital costs, (ii) capital infrastructure improvement and new development costs and (iii) subsidies and cost recovery.
- Conduct inventories of all oblast irrigation systems, infrastructure condition and investment proposals.
- Synthesize climate, land, water supply and demand data to define homogeneous agro-zones
- Calculate capital and O&M costs for standard zones, systems and improvements
- Design, conduct, analyze and interpret willingness-to-pay (WTP) and user report card (URC) surveys with respect to infrastructure improvements and O&M service delivery
- Conduct financial/economic analyses of investment priorities, cost recovery & subsidies
- Conduct SEA for and in parallel with key documents / drafting processes
 - Establish SEA team, identify key environmental issues & stakeholders
 - Design the SEA approach and procedure
 - Through stakeholder consultations, analyze trends for key environmental issues and analyze likely environmental impacts of the proposed investment priorities
 - Through stakeholder consultations, propose mitigation / enhancement measures, and draft SEA report(s) to be integrated into the main documents
- Develop investment strategies, plans and financial policies, and ensure promulgation by the governments

Activity 2.3: Tajik Rural Water Supply and Sanitation (RWSS) Demonstration Project

This activity aims at the development and implementation of one or more sub-projects to demonstrate solutions towards improved access to water and sanitation services for inhabitants of selected rural areas, with a special focus on marginalized and disadvantaged groups. With the support of suitable NGO partners, selected Tajik communities will be mobilized and supported to form representative democratic CBOs. The aim is to empower the new CBOs to plan, select, design, construct and manage their own water supply systems and household sanitation facilities to address the health and sustainability impacts of rural WSS service levels and project rules. The project will support the formulation and implementation of suitable O&M arrangements, as to ensure sustainability of the interventions beyond the projects' timeframe.

Indicative sub-activities:

- Together with Tajik authorities, select Demonstration villages based on IRBM considerations and WSS coverage for community mobilization
- Through NGOs, develop and deliver hygiene education (HE / WASH), and facilitate dialogue to stimulate demand for WSS improvements
- Support communities forming representative CBOs and deliver trainings on their roles, opportunities and responsibilities, and the respective government duties
- Support CBOs to identify alternative water sources, formulate alternative water systems, make informed choices, about their preferred WSS technology and service levels, based on

estimated costs and benefits, prepare feasibility studies and, after FS approval, design their preferred WSS facilities and arrange construction⁹.

- Analyze the likely environmental effects of selected sub-projects implementation based on the principles of SEA
- Together with NGOs, support authorities and CBOs in joint diagnosis of systems and development of feasibility studies, development and work plans as well as practical joint arrangements for sustained O&M and CBO capacity
- Facilitate government approval of feasibility studies, and ensure the promulgation of initial WSS preparation processes
- Through NGO, help CBOs supervise construction of improved WSS systems & facilities, and ensure that CBOs sustain O&M of their improved WSS facilities.
- Ensure joint evaluation and documentation of process and experiences for future scaling-up

Activity 2.4: Tajik Rural Water Supply and Sanitation (RWSS) Investment Strategies, Plans and Financial Policies

This activity aims at supporting the government to prepare jointly with NGO and other stakeholders a realistic Rural WSS investment strategy, plan and/or financial policy, informed by practical demonstration experience from Activity 2.3, ready for donor funding. Any such strategies, plans or financial policies will consider health and sustainability impacts of WSS service levels and project rules respectively. SEA(s) will be carried out for all key documents as a part of their preparation, promoting the best practice and international standards, as to be used as demonstration examples for further development of an SEA methodology and tool for this sector region.

Indicative sub-activities:

- Select economic, social and environmental ranking criteria, and methodological tools to assess investment priorities, including trade-offs between: (i) recurrent and capital costs, and (ii) cost recovery and subsidies based on equitable cost sharing between society and beneficiaries
- Conduct SEA for and in parallel with key documents / drafting processes
 - Establish SEA team, identify key environmental issues & stakeholders
 - Design the SEA approach and procedure
 - Through stakeholder consultations, analyze trends for key environmental issues and analyze likely environmental impacts of the proposed investment priorities
 - Through stakeholder consultations, propose mitigation / enhancement measures, and draft SEA report(s) to be integrated into the main documents
- Through NGOs, support authorities to design and conduct representative surveys to assess:
 - the health impacts of different WSS service levels,
 - service level associations with unit cost, consumption, collection time and existing coverage and
 - beneficiary willingness-to-pay for alternative WSS technology and service levels to determine the need for WSS improvements;
- Conduct financial and economic analysis, of both time-savings and health benefits, and application of the agreed ranking criteria and method to determine investment priorities and appropriate cost recovery and subsidy policies to ensure sustainability of systems and CBOs
- Develop investment strategies, plans and financial policies, and promote their promulgation by the government

⁹ The FSs will incorporate PPPs (if appropriate) and practical measures to combat corruption

Activity 2.5: Tajik Small-Scale Hydropower (SSH) Investment Strategies, Plans and Financial Policies

This activity aims at revising and/or updating the MEI's present investment strategy with support by relevant NGO, based on: (i) assessment of recently completed small-scale hydropower (SSH) sub-projects, (ii) realistic unit costs and (iii) economic viability and sustainability of present installations and O&M arrangements. SEA will be carried out for key documents as a part of their preparation promoting the best practice and international standards, to be used as example for further development of this tool in the sector and region.

Indicative sub-activities:

- Support MEI to select representative sub-projects and develop / agree on the economic, social and environmental ranking criteria and methodology to assess investment priorities including trade-offs between: (i) recurrent and capital costs, and (ii) equitable subsidies and cost recovery
- Conduct SEA for and in parallel with key documents / drafting processes
 - Establish SEA team, identify key environmental issues & stakeholders
 - Design the SEA approach and procedure
 - Through stakeholder consultations, analyze trends for key environmental issues and analyze likely environmental impacts of the proposed investment priorities
 - Through stakeholder consultations, propose mitigation / enhancement measures, and draft SEA report(s) to be integrated into the main documents
- Through NGO assistance, support the authorities to develop and conduct a survey of representative SSH installations, CBOs and joint O&M arrangements, diagnose constraints and formulate practical measures to alleviate them and assess unit costs and economic benefits
- Conduct financial and economic analysis
- Apply ranking criteria to determine investment priorities, appropriate financial policies and arrangements for sustained O&M
- Develop revised investment strategies, plans and financial policies, and promote their promulgation by the government

Activity 2.6: Small Transboundary Sub-basin management agreement

This activity aims at progressively developing, negotiating, signing, implementing, monitoring and evaluating of a demonstration joint sub-basin management agreement towards equitable water, energy and O&M cost sharing including relevant Kyrgyz, Tajik and, preferably, Uzbek sub-basin authorities.

Indicative sub-activities:

- Support the central government and relevant local authorities and, preferably, Uzbek counterparts to jointly select a small transboundary sub-basin with water, energy & O&M cost sharing issues
- Facilitate joint appointment of an NGO to facilitate consensus building & conciliation by the parties
- Support local authorities to assess/agree joint water, energy and O&M cost sharing issues
- Support local authorities to develop/agree/sign water, energy and cost sharing agreements
- Ensure the parties implement, monitor and evaluate equitable water, energy and cost sharing and document the process for future replication in other transboundary sub-basins

Activity 2.7: Participatory Integrated River Basin Management (IRBM) Processes

This activity aims at supporting authorities and relevant stakeholders, including relevant NGOs, to progressively develop and implement practical participatory IRBM processes, integrated with all other relevant activities and results

Indicative sub-activities:

- With NGO and relevant local authority assistance, prepare stakeholder analyses and participation plans (SAPP), to facilitate representative government, private sector and civil society participation based on their rights, risks and responsibilities
- Develop practical participatory IRBM processes that reconcile the requirements of horizontal inter-sectoral integration with vertical sectoral management, devolution to the lowest appropriate level (subsidiarity) and efficient effective sub-basin or local service delivery
- Promote, and support the parties to continuously maintain participatory processes, conduct M&E and ensure proper documentation of the IRBM processes
- Advocate for promulgation of IRBM process for widespread replication by the government

Activity 2.8: Other Priority Demonstration Projects

This activity aims at identifying opportunities, and at progressively developing and managing other practical demonstration projects to address stakeholders' next highest priority issues¹⁰, and to facilitate governmental participation as well as assistance by NGOs.

Indicative sub-activities:

- Facilitate agreement amongst key stakeholders on economic, social and environmental ranking criteria – taking into account the results from relevant SEA activities carried out within the project
- Support key stakeholders to identify, assess, rank and reach consensus regarding their next highest priority IWRM issue
- Promote the establishment of a range of practical options, using the agreed criteria to rank and select their preferred solution which they then design and jointly approve
- Analyze the likely environmental effects of selected sub-projects implementation based on the principles of SEA
- Help stakeholders to implement, monitor and evaluate the management aspects of their preferred solution, while supporting the relevant authorities to document and promulgate the process for scaling-up

Activity 2.9: International River Basin Management (IRBM) Institutional Reforms

This activity aims at developing and implementing a context-specific IWRM (institutional reform) strategy, and to support stakeholders' priority IWRM issues/interventions at the river basin and/or local-levels.

Indicative sub-activities:

- Assist key stakeholders (through the relevant authorities) to assess the strengths and weaknesses of present arrangements (enabling environment, organizations and management instruments), with respect to experience implementing and/or developing their priority outputs
- Facilitate consensus-finding among stakeholders on context-specific institutional reform Strategy

¹⁰ For example stakeholders' next highest priority IWRM issue and activity might include climate change adaptation, aquatic ecosystems or natural disaster mitigation as well as another irrigated agriculture or RWSS issue and activity.

- Advocate for promulgation and implementation of priority institutional reforms by the government

Output 3: Transboundary dialogue in the Ili-Balkhash River Basin

Activity 3.1: Support to bilateral commission and framework agreements

This activity aims at strengthening of the joint Kazakh-Chinese Ili-Balkhash Commission, through organization of regular, bilateral meetings at technical and political levels, promotion of inclusion of Kyrgyzstan representatives into the Working Group of the Commission, and through facilitation of a continued dialogue between the involved parties towards of a consensus on cooperation and joint management of the Ili-Balkhash resources.

Indicative sub-activities:

- Provide technical and logistical support to the governments of Kazakhstan and China, and proactive support to organize regular meetings of the Joint Commission. Meetings are expected to be held at technical and political level and include representatives of the Kyrgyz Republic as observers.
- Initiate and facilitate discussions to determine practical steps required to enforce the 2002 agreement
- Review and discuss possibilities for inclusion of the Kyrgyz Republic as party to the 2002 agreement
- Facilitate dialogue and mediate concrete processes between the governments in view of improvement of the Ili-Balkhash framework agreement about water quality monitoring and allocation with mutually agreed procedural provisions for transboundary cooperation and management of resources

Activity 3.2: Documentation and RB master plan

This activity aims at revising a river basin master plan for the Ili-Balkhash basin—developed within a TACIS project “Development of Ili-Balkhash Basin Integrated Management Plan”. This will include an update and establishment of adequate documentation base in the Ili-Balkhash river basin. The master plan will be agreed with IBRB key stakeholders and adopted by responsible government agency. This activity will be aligned with recently approved EC and UNECE projects for Central Asia on local multi-sectoral efforts for the Central Asia Initiative (CAI) Water Dialogue and water quality and standards.

Indicative sub-activities:

- Systematically collect and prepare a joint background and baseline documentation
- Establish the basis of a mutually acceptable, continuously to be updated database about the Ili-Balkhash river basin system with all relevant resources, including quantity and quality aspects of surface and groundwater, land and biological resources, and others to be determined by mutual consent of the two parties.
- Facilitate and promote the revision of the Ili-Balkhash river basin (RB) master plan with all relevant elements

Activity 3.3: Public engagement

This activity aims at ensuring full and continuous involvement of key stakeholders in all major decision-making processes, transparent information of the general public overall, and on specific provisions of sustainable management of Ili-Balkhash river basin resources in particular.

Indicative sub-activities:

- Support the parties to develop and enforce a stakeholder involvement strategy, and facilitate the launch of a general awareness and public mobilization campaign
- Promote and facilitate the involvement of key stakeholders in the transboundary dialogue overall
- Ensure a participatory approach to the development of strategies, plans or decisions about the (sustainable) management of the Ili-Balkash river basin's resources

Output 4: Regional Dialogue, IWRM Governance and Sector Capacity Building

Activity 4.1: Regional Dialogue, IWRM Governance and Sector Capacity Building

This activity aims at provision of adequate technical and logistical support and backstopping to PIUs, governmental partners, and other key national / local organizations or entities entitled to profiting from this project and its activities. This activity will furthermore address capacity building needs, establish and implement a comprehensive capacity building roadmap – jointly with other partners and projects, as adequate – as to secure needed regional competency in all relevant domains, especially for the project team and close & eligible partners in view of their performance and implementation of their IWRM roles and functions. For that, this activity will develop, support and deliver all required training, equipment and/or tools, as to ensure efficient and effective project management, activity implementation and the achievement of the projects goals, with special regard to ensure sustainability and accountability.

Indicative sub-activities:

- Provide all necessary finance, equipment logistical or other kind of support to the PIUs to manage their tasks and deliver results under the overall objective and according to the workplan
- Promote suitable organizational arrangements, including dedicated staffing, and help the UNDP Consultants procure NGO support services
- Develop the capacity of all key organizations to perform their IWRM functions, inter alia:
 - Provide objective (not biased), transparent (clear to all stakeholders) and timely technical assessments and advice and
 - Facilitate informed (costs and benefits) inclusive (all affected stakeholders) decision-making regarding priority IWRM challenges and range of solutions
- Ensure application and demonstration of the good practice of SEA in water management related planning, as to ensure efficient integration of environmental considerations in specific water management related planning, and promote this as an example for its further application in other sectors
- Advocate for, and pro-actively support the development and implementation of a joint capacity building roadmap with other key organizations or projects, as adequate and to the maximum extent possible
- Promote and support capacity building for all involved and eligible stakeholders on IWRM, SEA and all other relevant domains, according to needs assessments and the (joint) CB roadmap
- Pro-actively promote coordination among projects and interventions, and between all key players in the water sector in Central Asia, and advocate / support the identification, definition and application of joint strategic approaches and activities to the extent possible
- Enable the international project coordinator to fulfill is/her role in taking an overall coordination and oversight function about the development and implementation of all activities, proper M&E

and accountable reporting, and the promotion of IWRM principles and activities through all aspects of this project

Sustainability

Due to the very nature of this project and its overarching methodological approach, and as a matter of paramount importance, special emphasis will be paid to various aspects of development sustainability:

The underlying strategic approach to (i) develop strategies and plans in parallel with (ii) concrete implementation at least in one pilot or demonstration location, is aiming at effective capacity building and at laying the necessary ground for achieving maximum institutional sustainability.

Furthermore, the majority of project activities will be prepared, implemented and evaluated by actively engaging key stakeholders and, as adequate, the broad public throughout the entire process.

Apart from the participatory character of this project, a particular focus of the project is to define needs – and implement – policy reform as to support change towards an integrated approach to water resources management with all its aspects and elements. This way, the project will ensure that all interventions in the area of rural WSS, irrigation efficiency and small-scale hydropower will be supported by adequate policy frameworks and embedded into an enabling environment, aiming at sustainability of interventions and investments at macro-level.

A thorough project monitoring and evaluation regime with periodic review and quality assurance by the project board will ensure that all of these methodological aspects are fully enforced.

Finally, as an integral part of the overall capacity building approach of this project, a detailed exit strategy will be developed during the last semester of implementation for the various activities. The objective is to ensure proper ownership by, adequate capacity of, and ensured engagement by the target groups to follow-up on achievements as well as commenced activities once this project will phase out. This exit strategy will as a minimum address the following aspects:

- Ownership aspects regarding project results, deliverables or assets, and agreements among authorities, relevant target groups and beneficiaries on their respective roles and responsibilities for the continuation of activities and/or maintenance of project (co-) funded equipment and/or installations;
- Updated risk analysis with possible contingency plans for all activities and investments;
- Post-project financing plans for continuing activities, as needed;
- Concept notes for emerging needs for future or follow-up projects, with indicative partnership and resource mobilization opportunities.

III. RESULTS AND RESOURCES FRAMEWORK

Intended Outcome as stated in the Country Programme Results and Resource Framework:						
EUR_OUTCOME149: Strengthened regional capacity to address water governance challenges within national and transboundary sustainable development frameworks						
Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets: 1 Number of national legislative frameworks that introduced policy reforms to better address water-related challenges; 2 Number of transboundary coordination or cooperation mechanisms; 3 Extent of national buy-in to transboundary coordination or cooperation mechanisms.						
Applicable Key Result Area (from 2008-11 Strategic Plan): Mainstreaming environment and energy; Expanding access to environmental and energy services for the poor						
Partnership Strategy: UNDP will be supported by the European Commission and Norway, and work closely with the EC, UNECE and OECD under the "Common Framework for addressing Water Issues in Central Asia" (see Annex 3).						
Project title and ID (ATLAS Award ID): <i>Promoting IWRM and Fostering Transboundary Dialogue in Central Asia</i>						
INTENDED OUTPUTS	TARGETS	INDICATIVE ACTIVITIES	RESPONSIBLE	INPUTS (months / <i>US\$ thousand</i>)		
Output 1: Developing and implementing IWRM Strategies in Kyrgyzstan Indicators: - Wheat yield - Adequate and sustainable management arrangements and instruments - Investments strategies, plans and/or financial policies - Number of investment strategies, plans and/or financial policies applying SEA in their elaboration process - No. of households provided with improved WSS services - nationally owned participatory implementation process - Transboundary sub-basin agreement	<ul style="list-style-type: none"> Wheat yield > 4 T ha-1 Participatory assessment and diagnosis processes are adopted by GOK Participatory processes, for prioritizing IWRM issues and solutions, adopted & mngt aspects implemented Feasibility studies (FSs) are approved 	1.1 Kyrgyz Gravity Irrigation Pilot Projects	UNDP Kyrgyzstan Oblast and Rayon DWRs jointly with WUAs and NGO support	Int irrigation mngt	6	
				Int ag economics	1	
				Int ag extension	3	
					Nat irrigation eng	6
					Nat irrigation mngt	9
					Nat WUA develop	9
					Nat ag extension	6
					<i>Total cost</i>	<i>343</i>
		<ul style="list-style-type: none"> About 200 extra households provided with improved WSS services. Investment strategies, plans and/or financial policies promulgated SEA carried out for key documents as a part of their preparation Management arrangements, addressing sustainability issues, are promulgated and 	1.2 Kyrgyz Irrigation Investment Strategies, Plans and Financial Policies	UNDP Kyrgyzstan MAWR with NGO support	Int irrigation mngt	4
Int ag economics	2					
Nat irrigation eng	6					
				Nat WUA deveop	6	
				Nat environment	6	
				<i>Total cost</i>	<i>206</i>	
		1.3 Kyrgyz RWSS Pilot Project	UNDP Kyrgyzstan Village CBOs with DWS and DSE and NGO support	Int rural WSS eng	3	
				Int participatory TOT	1	
				Nat rural WSS eng	6	
				Nat CBO develop	6	

<p>- Policy reform processes</p> <p>Baseline:</p> <p>- Wheat yield < 3 T ha⁻¹</p> <p>- Unsuitable management arrangements; lack of management instruments; limited participatory processes</p> <p>- No experience from applying SEA to water management related investment strategies, policies, plans</p> <p>- No investment strategies, plans or financial policies</p> <p>- No TB agreements in effect</p> <p>- No institutional integration</p>	<p>adopted by the GOK</p> <ul style="list-style-type: none"> GOVs promulgate (IWRM) reforms The GOVs jointly implement a transboundary sub-basin agreement for equitable water-energy-cost sharing 			<u>Total cost</u>	<u>137</u>
		1.6 Small Transboundary Sub-basin management agreement (Kyr-part)	UNDP Kyrgyzstan Local Kyrgyz, Tajik and, preferably, Uzbek authorities with Int. NGO support	Int IWRM governance Int participatory process Nat IWRM institutions Nat community develop <i>International NGO Cost</i>	1 1 4 2 <i>90.0</i>
				<u>Total cost</u>	<u>168</u>
		1.7 Participatory IRBM Processes (Kyr-part)	UNDP Kyrgyzstan MAWR, MWRI and local authorities assisted by NGOs	Int participatory process Nat IWRM institutions Nat community develop	3 1 8
				<u>Total cost</u>	<u>103</u>
		1.8 Other Priority Pilot Projects (Kyr-part)	UNDP Kyrgyzstan MAWR, MWRI and key stakeholders assisted by NGOs	Int IWRM governance Int participatory process Int unallocated input Nat IWRM institutions Nat community develop	1 1 3 3 6
		<u>Total cost</u>	<u>156</u>		
		1.9 IRBM Institutional Reforms (Kyr-part)	UNDP Kyrgyzstan MAWR, MWRI and local authorities	Int IWRM governance Nat IWRM institutions	3 8
				<u>Total cost</u>	<u>100</u>
				<u>SUB-TOTAL Output 1</u>	<u>1'213</u>
<p>Output 2: Developing and implementing IWRM Strategies in Tajikistan</p> <p>Indicators:</p> <p>- Wheat production</p> <p>- Adequate and sustainable</p>	<ul style="list-style-type: none"> Wheat prdn demonstrated and adopted by farmers on 10% of the pilot service area Participatory assessment and diagnosis processes are adopted by GOT Feasibility studies (FSs) are 	2.1 Tajik Pumped Irrigation Pilot Projects	UNDP Tajikistan Oblast and Rayon OMAs jointly with WUAs and NGO support	Int irrigation mngt Int ag economics Int ag extension Nat irrigation eng Nat irrigation mngt Nat WUA develop Nat ag extension	6 1 3 6 9 9 6

<p>management arrangements and instruments</p> <ul style="list-style-type: none"> - Investments strategies, plans and/or financial policies - Number of investment strategies, plans and/or financial polices applying SEA in their elaboration process - No. of households provided with improved WSS services - nationally owned participatory implementation process - Transboundary sub-basin agreement - Policy reform processes <p>Baseline:</p> <ul style="list-style-type: none"> - Negligible wheat production - Unsuitable management arrangements; lack of management instruments; limited participatory processes - No investment strategies, plans or financial policies - No experience from applying SEA to water management related investment strategies, policies, plans - Initial Small-scale Hydropower investment strategy - No TB agreements in effect - No institutional integration 	<p>approved</p> <ul style="list-style-type: none"> • About 200 extra households provided with improved WSS services. • Participatory implementation process, addressing health/sustainability impacts of WSS service levels/project rules, is promulgated and adopted by the GOT • Participatory processes, for prioritizing IWRM issues and solutions, adopted & mngt aspects implemented • Investment strategies, plans and/or financial policies promulgated • SEA carried out for key documents as a part of their preparation • Management arrangements, addressing sustainability issues, are promulgated and adopted by the GOT • Revised SSH investment strategy, plan and financial policy promulgated • GOVs promulgate (IWRM) reforms • The GOVs jointly implement a transboundary sub-basin agreement for equitable water-energy-cost sharing 			<u>Total cost</u>	<u>343</u>
		2.2 Tajik Irrigation Investment Strategies, Plans and Financial Policies	UNDP Tajikistan MWRI with NGO support	Int irrigation mngt Int ag economics Nat irrigation eng Nat WUA develop Nat environment	4 2 6 6 6
				<u>Total cost</u>	<u>206</u>
		2.3 Tajik Rural Water Supply and Sanitation (RWSS) Pilot Project	UNDP Tajikistan Village CBOs with OMA and/or SUE and NGO support	Int rural WSS eng Int participatory TOT Nat rural WSS eng Nat CBO develop	6 2 12 12
				<u>Construction costs</u>	<u>100.0</u>
				<u>Total cost</u>	<u>385</u>
		2.4 Tajik Rural Water Supply and Sanitation (RWSS) Investment Strategies, Plans and Financial Policies	UNDP Tajikistan MWRI with NGO support services	Int rural WSS eng Int WSS economics Nat rural WSS eng Nat CBO develop Nat environment	4 2 8 4 6
				<u>Total cost</u>	<u>206</u>
		2.5 Tajik Small-scale Hydropower (SSH) Investment Strategies, Plans and Financial Policies	UNDP Tajikistan MEI with NGO	Int SSH engineer Int SSH economist Nat SSH engineer Nat Utilities & CBOs Nat environment	3 1 4 4 4
				<u>Total cost</u>	<u>137</u>

		2.6 Small Transboundary Sub-basin management agreement (Taj-part)	UNDP Tajikistan Local Kyrgyz, Tajik and, preferably, Uzbek authorities with Int. NGO support	Int IWRM governance	1	
				Int participatory process	1	
				Nat IWRM institutions	4	
				Nat community develop	2	
				<i>International NGO Cost</i>	<u>90.0</u>	
		<i>Total cost</i>				<u>168</u>
		2.7 Participatory International River Basin Management Processes (Taj-part)	UNDP Tajikistan MAWR, MWRI and local authorities assisted by NGOs	Int participatory process	3	
				Nat IWRM institutions	1	
				Nat community develop	8	
		<i>Total cost</i>				<u>103</u>
		2.8 Other Priority Pilot Projects (Taj-part)	UNDP Tajikistan MAWR, MWRI and key stakeholders assisted by NGOs	Int IWRM governance	1	
				Int participatory process	1	
Int unallocated input	3					
Nat IWRM institutions	3					
Nat community develop	6					
<i>Total cost</i>				<u>156</u>		
2.9 International River Basin Management Institutional Reforms (Taj-part)	UNDP Tajikistan MAWR, MWRI and local authorities	Int IWRM governance	3			
		Nat IWRM institutions	8			
<i>Total cost</i>				<u>100</u>		
<i>SUB-TOTAL Output 2</i>				<u>1'804</u>		

<p>Output 3: Transboundary dialogue in the Ili-Balkhash River Basin</p> <p>Indicators</p> <ul style="list-style-type: none"> - transboundary coordination mechanisms or institution - Documentation and data basis - Stakeholder / public engagement <p>Baseline:</p> <ul style="list-style-type: none"> - No permanent secretariat or framework agreement - Limited documentation, no management plan - No significant engagement of stakeholders 	<ul style="list-style-type: none"> • Functional coordination body with regular bi-lateral meetings at political and technical level • Relevant documentation and suitable database • River basin master plan • Regular engagement of key stakeholders and information of the public in transboundary matters 	3.1 Functional Bilateral Commission and framework agreements	UNDP Kazakhstan	Int IWRM governance 2 Int participatory process 0 Int Environmentalist 10 Int unallocated input 0 Nat IWRM institutions 6 Nat community develop 0 <u>Nat NGO service cost</u> 0			
					<u>Total cost</u>	<u>69</u>	
		3.2 Documentation and IWRM RB master plan	UNDP Kazakhstan	Int IWRM governance 3 Int participatory process 0 Int Environmentalist 23 Int unallocated input 1 Nat IWRM institutions 12 Nat community develop 0 <u>Nat NGO service costs</u> 0			
					<u>Total cost</u>	<u>190</u>	
		3.3 Public engagement	UNDP Kazakhstan	Int IWRM governance 0 Int participatory process 5 Int Environmentalist 01 Int unallocated input 1 Nat IWRM institutions 3 Nat community develop 15 <u>Nat NGO service costs</u> 32.1			
					<u>Total cost</u>	<u>241</u>	
						<u>SUB-TOTAL output 3</u>	<u>500</u>

<p>Output 4: Regional Dialogue, IWRM Governance and Sector Capacity Building</p> <p>Indicators:</p> <ul style="list-style-type: none"> - Regional sector and organization management capacity - Project implementation quality - Capacity for integrating environment into water management planning <p>Baseline:</p> <ul style="list-style-type: none"> - Limited sector and organization management capacity - Project implementation not yet started - Limited capacity for integrating environment into water management planning 	<ul style="list-style-type: none"> • Regional sector and organization management capacity enhanced • Efficient and effective project implementation • Increased capacity for integrating environment into water management planning • Strengthened transboundary cooperation on environmental issues 	4.1 Project Management, Sector Activity Support and Capacity Building	UNDP BRC MAWR, MWRI and local authorities	Int IWRM governance	14
				Int participatory process	14
				Int Environmentalist	11
				Int unallocated input	17
				Nat IWRM institutions	28
				Nat community develop	28
				<u>Nat NGO service costs</u>	<u>233.3</u>
				<u>Total cost</u>	<u>1'883</u>
				<u>SUB-TOTAL Output 4</u>	<u>1'883</u>
<i>Grand Total</i>					<u>5,400</u>

IV. TOTAL AND ANNUAL WORK PLAN

EXPECTED OUTPUTS	PLANNED ACTIVITIES	TIMEFRAME				RESPONSIBLE PARTY	PLANNED BUDGET			
		Y1	Y2	Y3	Y4		Funding Source	Budget Description	Amount (\$ thousand)	
									2009	Total
Output 1: Developing and implementing IWRM Strategies in Kyrgyzstan	1.1 Kyrgyz Gravity Irrigation Pilot Projects	X	X	X	X	UNDP Kyrgyzstan		71200 – International Consultants	50.0	200.0
								71300 – Local Consultants	15.0	60.0
								71600 – Travel	2.0	7.8
								71600 – Transport	4.6	18.2
								72000 – Equipment & Operations	6.5	26.0
								74500 – Miscellaneous	7.8	31.2
								Sub-Total	85.8	343
	1.2 Kyrgyz Irrigation Investment Strategies, Plans and Financial Policies	X	X	X		UNDP Kyrgyzstan		71200 – International Consultants	30.0	120.0
								71300 – Local Consultants	9.0	36.0
								71600 – Travel	1.2	4.7
								71600 – Transport	2.7	10.9
								72000 – Equipment & Operations	3.9	15.6
								74500 – Miscellaneous	4.7	18.7
		Sub-Total	51.5	206						
	1.3 Kyrgyz Rural Water Supply and Sanitation Pilot Project	X	X	X	X	UNDP Kyrgyzstan		71200 – International Consultants	20.0	80.0
								71300 – Local Consultants	6.0	24.0
								71600 – Travel	0.8	3.1
								71600 – Transport	1.8	7.3
								72000 – Equipment & Operations	2.6	10.4
								74500 – Miscellaneous	3.1	12.5
		Sub-Total	34.3	137						
	1.6 Small Transboundary Sub-basin management agreement (Kyr-part)	X	X	X	X	UNDP Kyrgyzstan		71200 – International Consultants	10.0	40.0
								71300 – Local Consultants	3.0	12.0
								72100 – Contractual Services	22.5	90.0
							71600 – Travel	0.4	1.6	
							71600 – Transport	0.9	3.6	
							72000 – Equipment & Operations	1.3	5.2	

							74500 – Miscellaneous	3.8	15.2						
							Sub-Total	42.0	168						
	1.7 Participatory International River Basin Management Processes (Kyr-part)	X	X	X		UNDP Kyrgyzstan	71200 – International Consultants	15.0	60.0						
												71300 – Local Consultants	4.5	18.0	
												71600 – Travel	0.6	2.4	
												71600 – Transport	1.4	5.4	
												72000 – Equipment & Operations	2.0	7.8	
												74500 – Miscellaneous	2.4	9.4	
												Sub-Total	25.8	103	
	1.8 Other Priority Pilot Projects (Kyr-part)		X	X	X	UNDP Kyrgyzstan	71200 – International Consultants	25.0	100.0						
												71300 – Local Consultants	4.5	18.0	
												71600 – Travel	0.9	3.6	
												71600 – Transport	2.1	8.2	
												72000 – Equipment & Operations	3.0	11.8	
												74500 – Miscellaneous	3.6	14.2	
						Sub-Total	39.0	156							
	1.9 International River Basin Management Institutional Reforms (Kyr-part)		X	X	X	UNDP Kyrgyzstan	71200 – International Consultants	15.0	60.0						
												71300 – Local Consultants	4.0	16.0	
												71600 – Travel	0.6	2.3	
												71600 – Transport	1.3	5.3	
												72000 – Equipment & Operations	1.9	7.6	
												74500 – Miscellaneous	2.3	9.1	
						Sub-Total	25.0	100							
							Total Output 1	303.3	1'213						
Output 2: Developing and implementing IWRM Strategies in Tajikistan	2.1 Tajik Pumped Irrigation Pilot Projects	X	X	X	X	UNDP Tajikistan	71200 – International Consultants	50.0	200.0						
													71300 – Local Consultants	15.0	60.0
													71600 – Travel	2.0	7.8
													71600 – Transport	4.6	18.2
													72000 – Equipment & Operations	6.5	26.0
													74500 – Miscellaneous	7.8	31.2
													Sub-Total	85.8	343
		X	X	X		UNDP	71200 – International Consultants	30.0	120.0						

	2.2 Tajik Irrigation Investment Strategies, Plans and Financial Policies					Tajikistan	71300 – Local Consultants	9.0	36.0
							71600 – Travel	1.2	4.7
							71600 – Transport	2.7	10.9
							72000 – Equipment & Operations	3.9	15.6
							74500 – Miscellaneous	4.7	18.7
							Sub-Total	51.5	206
	2.3 Tajik Rural Water Supply and Sanitation Pilot Project	X	X	X	X	UNDP Tajikistan	71200 – International Consultants	40.0	160.0
							71300 – Local Consultants	12.0	48.0
							72100 – Contractual Services	25.0	100
							71600 – Travel	1.6	6.2
							71600 – Transport	3.7	14.6
							72000 – Equipment & Operations	5.2	20.8
							74500 – Miscellaneous	8.8	35.0
Sub-Total	96.3	385							
	2.4 Tajik Rural Water Supply and Sanitation Investment Strategies, Plans and Financial Policies	X	X	X		UNDP Tajikistan	71200 – International Consultants	30.0	120.0
							71300 – Local Consultants	9.0	36.0
							71600 – Travel	1.2	4.7
							71600 – Transport	2.7	10.9
							72000 – Equipment & Operations	3.9	15.6
							74500 – Miscellaneous	4.7	18.7
Sub-Total	51.5	206							
	2.5 Tajik Small-scale Hydropower (SSH) Investment Strategies, Plans and Financial Policies	X	X			UNDP Tajikistan	71200 – International Consultants	20.0	80.0
							71300 – Local Consultants	6.0	24.0
							71600 – Travel	0.8	3.1
							71600 – Transport	1.8	7.3
							72000 – Equipment & Operations	2.6	10.4
							74500 – Miscellaneous	3.1	12.5
Sub-Total	34.3	137							
	2.6 Small Transboundary Sub-basin management agreement (Taj-part)	X	X	X	X	UNDP Tajikistan	71200 – International Consultants	10.0	40.0
							71300 – Local Consultants	3.0	12.0
							72100 – Contractual Services	22.5	90.0
							71600 – Travel	0.4	1.6
							71600 – Transport	0.9	3.6

							72000 – Equipment & Operations	1.3	5.2
							74500 – Miscellaneous	3.8	15.2
							Sub-Total	42.0	168
	2.7 Participatory International River Basin Management Processes (Taj-part)	X	X	X		UNDP Tajikistan	71200 – International Consultants	15.0	60.0
							71300 – Local Consultants	4.5	18.0
							71600 – Travel	0.6	2.4
							71600 – Transport	1.4	5.4
							72000 – Equipment & Operations	2.0	7.8
							74500 – Miscellaneous	2.4	9.4
							Sub-Total	25.8	103
	2.8 Other Priority Pilot Projects (Taj-part)		X	X	X	UNDP Tajikistan	71200 – International Consultants	25.0	100.0
							71300 – Local Consultants	4.5	18.0
							71600 – Travel	0.9	3.6
							71600 – Transport	2.1	8.2
							72000 – Equipment & Operations	3.0	11.8
							74500 – Miscellaneous	3.6	14.2
							Sub-Total	39.0	156
	2.9 International River Basin Management Institutional Reforms (Taj-part)		X	X	X	UNDP Tajikistan	71200 – International Consultants	15.0	60.0
							71300 – Local Consultants	4.0	16.0
							71600 – Travel	0.6	2.3
							71600 – Transport	1.3	5.3
							72000 – Equipment & Operations	1.9	7.6
							74500 – Miscellaneous	2.3	9.1
							Sub-Total	25.0	100
							Total Output 2	451.0	1'804
Output 3: Transboundary dialogue in the Ili-Balkhash River Basin	3.1 Functional Bilateral Commission and framework agreements	X	X	X		UNDP Kazakhstan	71200 – International Consultants	10.0	40.0
							71300 – Local Consultants	3.0	12.0
							71000 – Unallocated Personnel Exp	0.0	0
							72100 – Contractual Services	0.0	0
							71600 – Travel	0.4	1.6
							71600 – 71600 – Transport	0.9	3.6
							72000 – Equipment & Operations	1.3	5.2
							74500 – Miscellaneous	1.6	6.2

								Sub-Total	17.3	69
3.2 Documentation and RB master plan	X	X	X		UNDP Kazakhstan	71200 – International Consultants	25.0	100.0		
						71300 – Local Consultants	6.0	24.0		
						71000 – Unallocated Personnel Exp	5.0	20.0		
						72100 – Contractual Services	0.0	0		
						71600 – Travel	1.1	4.3		
						71600 – Transport	2.5	10.1		
						72000 – Equipment & Operations	3.6	14.4		
						74500 – Miscellaneous	4.3	17.3		
						Sub-Total	47.5	190		
	3.3 Public engagement	X	X	X		UNDP Kazakhstan	71200 – International Consultants	25.0	100.0	
							71300 – Local Consultants	9.0	36.0	
							71000 – Unallocated Personnel Exp	5.0	20.0	
							72100 – Contractual Services	8.0	32.1	
							71600 – Travel	1.2	4.7	
							71600 – Transport	2.7	10.9	
							72000 – Equipment & Operations	3.9	15.6	
							74500 – Miscellaneous	5.5	22.0	
Sub-Total							60.3	241		
Total Output 3								125.0	500	
Output 4: Regional Dialogue, IWRM Governance and Sector Capacity Building	4.1 Project Management, Sector Activity Support and Capacity Building	X	X	X	X	UNDP BRC	71200 – International Consultants	165.0	660.0	
							71300 – Local Consultants	28.0	112.0	
							71000 – Unallocated Personnel Exp	115.0	460.0	
							72100 – Contractual Services	58.3	233.3	
							71600 – Travel	9.3	37.0	
							71600 – Transport	21.6	86.2	
							72000 – Equipment & Operations	30.8	123.2	
							74500 – Miscellaneous	42.8	171.3	
Sub-Total								470.8	1'883	
Total Output 4								470.8	1'883	
TOTAL								1,350.0	5,400	
		1		1						

Overview about expected contributions and co-funding inputs

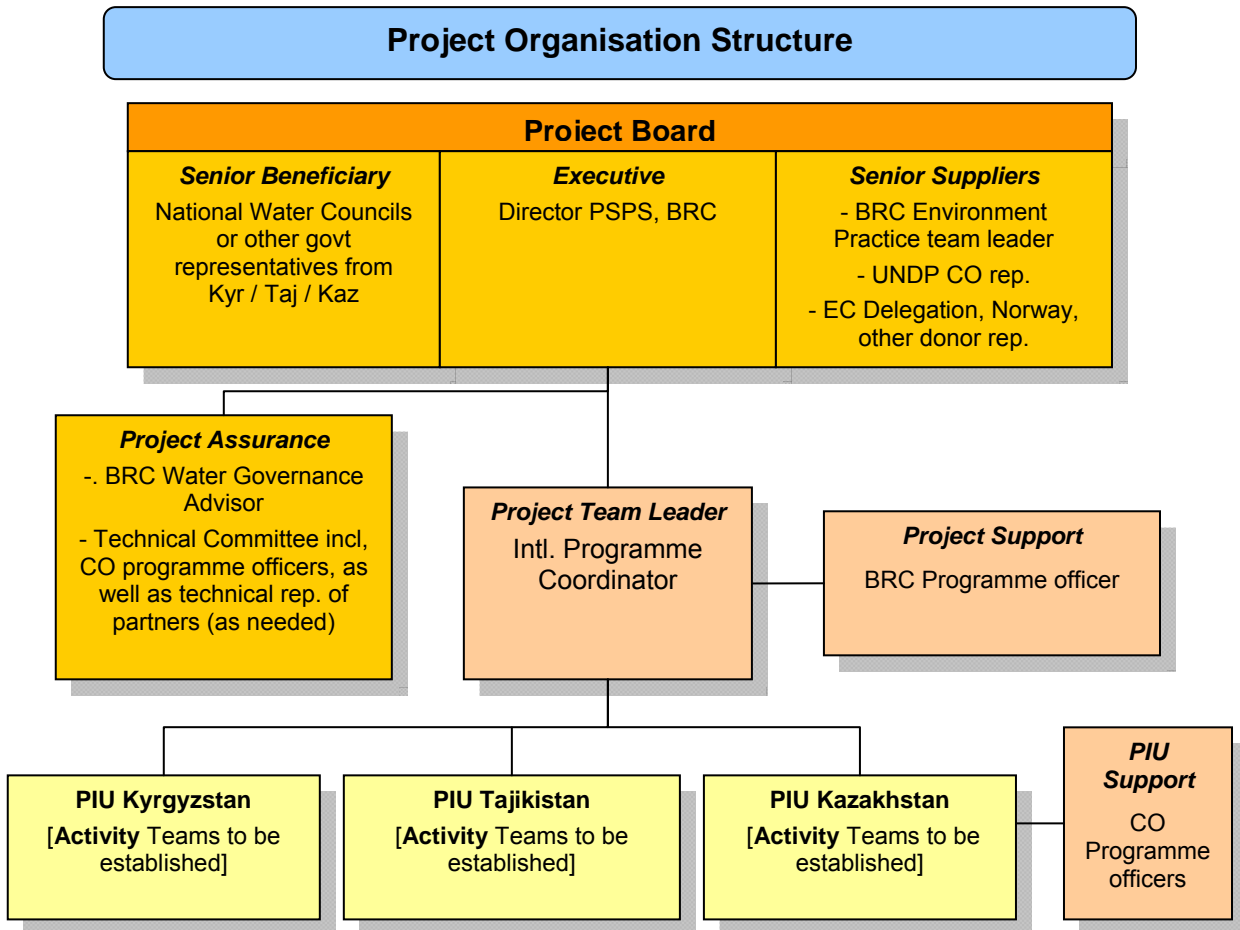
Source	Type	Contribution (in USD 1'000's)				Remarks
		Total	2009	2010	2011/12	
European Commission	Cash	2,350	450	450	1,100	EUR 1.5 million
Norway	Cash	800 *	400	250	150	4 th year pending confirmation
UNDP BRC	Cash	50	5	15	30	
UNDP Kazakhstan	Cash	100	25	25	60	Output 3
UNDP Kyrgyzstan	Cash	100	25	25	50	Output 1
UNDP Tajikistan	Cash	100	25	25	50	Output 2
Gov of Kazakhstan	In-kind	600	100	250	250	Output 3
Gov of Kyrgyzstan	In-kind	200 *	50	50	100	Output 1
Gov of Tajikistan	In-kind	200 *	50	50	100	Output 2
<i>Unfunded (mobilization strategy pending)</i>	<i>(cash)</i>	900	220	210	470	
TOTAL		5,400	1,350	1,350	3,265	

* tbc

V. MANAGEMENT ARRANGEMENTS

The project will be implemented by UNDP through its Bratislava Regional Centre (BRC), and executed by the UNDP Central Asian Country Offices, as part of the proposed “Common Framework for addressing Water Issues in Central Asia” that UNDP has agreed upon with the European Commission (EC), UNECE and OECD (EAP Task Force) and other partners. The framework and proposed management structure are presented as Annex 3.

Project Management Organization



The Project Board (PB), with high level representatives of the partners and the implementing organization, will meet twice a year together with the National Water Councils (NWCs) to discuss project implementation and provide policy advice to reach project objectives. Project Assurance will be ensured by the Regional Water Governance Advisor, calling on a Technical Committee, as needed, consisting of technical representative from the UNDP Country Offices and project partners. On a quarterly basis, project advance and technical issues will be addressed with the Project Team Leader and/or the three Implementation Units (PIU) – see detailed Monitoring Framework and Evaluation Arrangements below.

Overall responsibility for project implementation, TA inputs and UNDP expenditure, will be delegated to an international Project Team Leader and Governance Specialist (PTL), who will report to the PB. The indicative Terms of Reference are presented as Annex 4.

Three Project Implementation Units (PIU), reporting to the Project Team leader (PTL), will be established in Kyrgyzstan, Tajikistan and Kazakhstan. The PIU's will be responsible for day-to-day execution of the various project activities at national level.

Initially dedicated (full-time) National Project Managers (NPM) and sector Coordinators will staff the PIUs. The relevant MAWR and MWRI departments will provide the irrigated agriculture and rural water supply and sanitation coordinators. Kyrgyz sanitation and Tajik small hydropower Coordinators will be seconded from the respective Ministries of Health and Energy and Industry. In Kazakhstan, relevant departments of the Water Resources Committee and the Ministry of Environmental Protection will provide transboundary water management coordinators. UNDP Technical Assistance (TA) will support both NPMs and PIUs. Additional qualified international and national consultants and/or organizations, including academia, will be recruited for the implementation of selected tasks, as adequate.

The PTL in coordination with the PIUs shall call for regular meetings with project associated stakeholders to discuss the project advance, and to receive feedback on the strategy and work plan. Based on the "Common Framework for Addressing Water Issues in Central Asia", the PIUs will also actively take part, and be involved, in the EUWI National Policy Dialogues.

National project implementation context

Kyrgyzstan and Tajikistan both intend forming National Water Councils (NWCs). In the meantime they are expected to constitute national Project Steering Committees (NPSCs), under the Prime Minister's Offices, with membership representing the private sector and civil society as well as the sectoral Government Ministries and Agencies. Both NPSCs will be advised by Donor Coordinating Groups (DCGs) to be chaired in rotation by representatives of the World Bank, ADB, EBRD and bi-lateral donors as well as UNDP and the EC/EU etc. UNDP will act as the advisory Secretariat to both NPSCs. In Kyrgyzstan UNECE and OECD will play a similar advisory role with respect to the EC funded National Policy Dialogues (NPDs) for IWRM institutions and WSS financing.

In Kazakhstan, the Water Resources Committee under the Ministry of Agriculture has the overall responsibility for water management in country. Eight River Basin Organizations (RBO) report to the Water Resources Committee and perform water allocation and licensing functions at river basin levels. The WRC will chair the national Project Steering Committee with membership of key relevant Government Ministries and Agencies, a designated representative of the Balkash-Alakol RBO, representatives of local authorities (Akimats), donor organizations (UNDP, EC/EU, ADB, UNESCO and others) and civil group representatives.

Initial assessment indicates water sector organizations have limited staff and capacity to manage project implementation. Furthermore the project will introduce and adapt IWRM principles to suit Kyrgyz and Tajik conditions. Project Implementation Units (PIUs) will be located within the Kyrgyz Ministry of Agriculture, Water Resources and Processing Industries (MAWR), the Tajik Ministry of Water Resources and Irrigation (MWRI), and the Kazakh Water Resources Committee. The PIUs will be responsible for project execution, stakeholder participation, achieving the challenging, context-specific, balance between horizontal and vertical coordination, decentralization and management devolution, to the lowest appropriate level, and lower level organizational arrangements including staffing and IWRM capacity building.

VI. MONITORING FRAMEWORK AND EVALUATION

It is expected the Project Board (PB), together with the NWCs will meet bi-annually. The Project Team Leader (PTL) will assist the NPMs to prepare Quarterly Progress Reports for approval, or orientation, by the PB and after comment by the DCGs. UNDP will also approve the proposed subsequent workplan and TA inputs on a quarterly basis. In accordance with the programming

policies and procedures outlined in the UNDP User Guide, the project will be monitored through the following:

Within the annual cycle

- On a quarterly basis, a quality assessment shall record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table below.
- An Issue Log shall be activated in Atlas and updated by the PTL and NPMs to facilitate tracking and resolution of potential problems or requests for change.
- Based on the initial risk analysis submitted (see annex 1), a risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.
- Based on the above information recorded in Atlas, Quarterly Progress Reports (QPR) shall be prepared by the PTL (and NPMs), and submitted to the Project Board through Project Assurance, using the standard report format available in the Executive Snapshot.
- a project Lesson-learned log shall be activated and regularly updated to ensure on-going learning and adaptation within the organization, and to facilitate the preparation of the Lessons-learned Report at the end of the project
- a Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events

Annually

- **Annual Review Report.** An Annual Review Report shall be prepared by the Project Manager and shared with the Project Board and adequate National Authorities (e.g. NWCs). As minimum requirement, the Annual Review Report shall consist of the Atlas standard format for the QPR covering the whole year with updated information for each above element of the QPR as well as a summary of results achieved against pre-defined annual targets at the output level.
- **Annual Project Review.** Based on the above report, an annual project review shall be conducted during the fourth quarter of the year or soon after, to assess the performance of the project and appraise the Annual Work Plan (AWP) for the following year. In the last year, this review will be a final assessment. This review is driven by the Project Board and may involve other stakeholders as required. It shall focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes.

Evaluations

- **Mid-term Evaluation.** An evaluation will be scheduled during the third quarter of the second implementation year. The aim will be to look back on the achieved results, lessons learned, the project overall status vis-à-vis the plans, established project partnerships, and links to other initiatives, as to generate forward-looking recommendations in terms of the overall project relevance, strategy and approach, and the ahead activities in particular. The evaluation will suggest possible changes that would be required in the overall project architecture, and/or on certain activities in order to fulfill the objectives. The evaluation will also examine project management in terms of efficiency, effectiveness and delivery, the project's deliverables in terms of timeliness, quality and applicability, and will review the specific monitoring and reporting tools, including the logs, and will formulate recommendations towards improvement or better fulfillment of duties, as required.
- **Final Evaluation.** A final evaluation will be scheduled during the last quarter of the project. The aim will be to look back on the overall achievement of results, the project's (actual or expected) impact, established project partnerships and links to other relevant initiatives, as well as the (foreseen) sustainability (strategy). One of the key focuses will also be to harvest and codify knowledge, experience and lessons learned, and to generate recommendations in terms of necessary follow-up activities, interventions or projects. The

evaluation will also review the overall project management, reports and materials produced in terms of relevance, quality and applicability.

Findings of both evaluations will be disseminated widely in the form of e- or hard-copy knowledge products, as useful and adequate.

VII. LEGAL CONTEXT

This regional project document shall be the instrument referred to as such in Article I of the between the Governments participating and the United Nations Development Programme.

Consistent with the above stated Standard Basic Assistance Agreement (SBAA) and the [Supplemental Provisions](#), the responsibility for the safety and security of the executing agency and its personnel and property, and of UNDP's property in the executing agency's custody, rests with the executing agency.

The executing agency shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the executing agency's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The executing agency agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

VIII. ANNEXES

- 1. Risk Analysis**
- 2. Regional and National Water Sector Review**
- 3. Common Framework for addressing Water Issues in Central Asia (UNDP-EC-UNECE-OECD)**
- 4. Indicative Terms of Reference**
- 5. TOR for the International Project Team Leader**
- 6. SEA Concept Note**
- 7. References**

ANNEX 1 – RISK ANALYSIS

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Implementation Arrangements NWCs or PIUs are not formed & adequately staffed	May 2008	Political/ Organizational	IWRM governance and institutional reforms, efficient and effective project management and organizational capacity building will be limited. Probability 2, Impact 4	During the first six months, this issue will be monitored by the PTL, and alternatives developed to be agreed upon by the PB, as needed.	PTL / PB			<i>pending</i>
2	Implementation Arrangements Local organizations do not have/appoint suitable dedicated permanent staff.	May 2008	Organizational	IWRM governance and institutional reforms and organizational capacity building will be limited. Probability 3, Impact 3	During the first six months consultants will assist PIUs to identify local-level organizations and make suitable staffing arrangements for UNDP approval.	National govts.			<i>pending</i>
3	Stakeholder Relations NWCs or PIUs do not encourage civil society and private sector participation	May 2008	Strategic	IWRM governance and institutional reforms and organizational capacity building will be limited. Probability 2, Impact 3	During the first six months consultants will assist PIUs to prepare stakeholder analyses and participation plans for UNDP approval.	PIUs			<i>pending</i>
4	Funding Investment plans and/or pilot projects are not funded by donors	May 2008	Financial	IWRM processes and pilot projects are not scaled-up and there is no synergy with other donors programs. Probability 2, Impact 3	DCGs will advise the PTL/PIUs and/or NWCs. Investment plans and pilot projects prepared to donor requirements, or for parallel funding if necessary.	PB / Assurance			<i>pending</i>

ANNEX 2 – REGIONAL AND NATIONAL WATER SECTOR REVIEW

The Aral Sea Basin and Irrigation – Environment Nexus

The CA countries share the Aral Sea River Basin (ASB) and are locked in a hydrological inter-dependence that transcends national boundaries. The Amu Darya River, with a mean annual flow (MAF) of 79.3 BCM (km³), rises mainly in Tajikistan and Afghanistan and flows to the Aral Sea between Uzbekistan and Turkmenistan. The Syr Darya River contributes 37.2 BCM (32%), rises mainly in Kyrgyzstan and flows to the Aral Sea between Uzbekistan and Kazakhstan. As ASB rainfall is generally quite low this runoff is generated mainly by snow and glacier melt in the mountainous upstream countries. However the arable land is mainly concentrated in the more populous downstream countries. Together the three upstream countries generate 87% of the total ASB streamflow whereas the three downstream countries, containing 80% of the CA population and 85% of ASB irrigated land, make 73% of total ASB surface water abstractions (UN 2004).

The population of the ASB is not readily available. However Central Asia had a population of 58 million in 2005. This indicates average water availability is greater than 2,000 m³/person/year or more than twice the threshold of water scarcity. However the drying of the Aral Sea has also been described as the world’s worst human-caused ecological disaster (UNDP 2006). This is attributed to the Soviet-era creation of a vast irrigated agricultural system mostly in the downstream riparian states (UNDP 2004). Therefore this might be described as the “Irrigation – Environment Nexus”.

The conventional wisdom appears is that the Aral Sea can be “stabilized” by improving irrigation efficiency (World Bank 2003a, UN 2004, UNDP 2003, 2004, 2005). However this seems to reflect the popular misconception of irrigation “efficiency”. Because upstream “losses” are often re-cycled downstream, basin-level efficiency can be quite high while system efficiencies remain quite low.¹¹

The view that the Aral Sea can be stabilized, by improving irrigation efficiency, seems to have originated with a study of *National and Regional Water and Salt Management Plans*. The interim conclusion was that, with reasonable standards of management, water resources are adequate to meet current irrigation requirements and provide an appropriate volume for environmental purposes. It was then estimated that groundwater extraction, equivalent to 23% of river diversions, provides 52% of crop water requirements (CWR) but only 14% of river diversions meet CWR.¹² This implies that: (i) surface irrigation efficiency is only 14% and (ii) conjunctive surface – groundwater use efficiency is only 37% but (iii) only 84% of the CWR is actually met. The 1999 ASB water balance, from a subsequent volume (Haskoning 2003), is re-presented below.

1999 Aral Sea Basin Water Balance (BCM = km³)

Surface water	118.62	Irrigation consumption	78.35
		Net domestic and industrial	10.00
		Wetlands and Aral Sea	14.28
		Increased storage	1.53
		Reservoir evaporation etc	5.46
		Diverted to desert sinks	9.00
Supply	118.62	Consumption	118.62
Drainage return flows to rivers	27.52	Irrigation diversion - consumption	22.13
Groundwater - shallow aquifers	10.00	“Losses” from Amu and Syr Darya	15.40
Supply plus Recovery	156.14	Diversion plus Extraction	156.15

Source: Haskoning 2003 with separation of irrigation diversions into consumption and “losses”

¹¹ See recommended readings, on the river basin perspective, at www.winrockwater.org/reference_materials.cfm.

¹² Because of generally shallow unconfined aquifers, and low rainfall, irrigation “losses” provide virtually all recharge.

The total ASB irrigated areas was reportedly 8 million hectares in 1997 (UN 2004). This implies an average annual consumption of 980 mm. This is high compared with crop water requirements of 800 mm (cotton) and 470 mm (wheat) in the Ferghana Valley (Finney 2008). However consumption of 980 mm is not implausible especially if irrigated area was under reported? Therefore the water balance indicates the only real ASB water losses are to desert sinks and reservoir evaporation. This implies basin-level irrigation efficiency is between 78% and 88% compared with only 14% to 37% suggested by the earlier interim estimates and conclusions.

There does not appear to have been a final *Water and Salt* study report. However, at the project preparation workshops (5 and 11 March 2008), participants confirmed the ASB is “closed”, water is limiting, and not land, and improving conventional irrigation system efficiency will not contribute significantly to saving water to “stabilize” the Aral Sea. Kyrgyz and Tajik water resource endowments and incentives for improving irrigation efficiencies are considered below.

The Transboundary Water – Energy Nexus

In essence the transboundary Water – Energy Nexus involves a conflict of interest between summer irrigation, in downstream countries, and winter energy needs in upstream countries. This arises from their different land, water and energy resources, the upstream locations of existing regulating reservoirs and the variation in water supply and demand in wet and dry years (World Bank 2003a, 2004a 2004b, UN 2004, UNDP 2003, 2005).

Much of the debate has centred on operation of the Kyrgyz Toktogul Reservoir, on the Naryn River. The Naryn River has a MAF of 12.4 BCM and contributes 33% of the total Syr Darya MAF (37.2 BCM). Toktogul Reservoir has a storage capacity of 19 BCM and was designed to release 6 BCM in summer (April – September) and 3 BCM in winter (October – March). During the Soviet-era Kyrgyzstan provided irrigation releases and surplus hydropower, in summer, and received Uzbek and Kazakh fossil fuels in winter. After 1991 market reforms increased the price of coal and gas, to world prices in hard currency, and regional energy generation plants no longer operated as part of a unified system. Kyrgyzstan reacted by increasing its winter hydropower releases. Apart from the reduction in summer irrigation releases other adverse downstream impacts included increased winter flooding, caused by channel freezing, and formation of Aydarkul Lake.

To address these problems the countries entered into several agreements culminating in the 1998 Long Term Framework Agreement. This explicitly recognized that water regulation is a costly service that requires fair compensation. Estimates indicated Uzbekistan and Kazakhstan would gain \$M 36 and \$M 31 from operating Toktogul Reservoir for summer irrigation instead of winter energy. Incremental Kyrgyz costs would amount to only \$M 35. Therefore all countries would benefit if downstream states compensated Kyrgyzstan and all three shared the \$M 32 net annual benefit equitably (World Bank 2004a). However Kyrgyzstan must still meet winter energy demand by some means? Hydropower generation requires 6 BCM (World Bank 2004b).

The downstream countries are now investing in storage, to re-regulate winter releases, as well as to avoid flooding. Simulations have also indicated Toktogul can be operated in a substantially improved “modified irrigation mode”. This might limit winter releases to 4.5 BCM, increase summer releases to 7.0 - 7.5 BCM and increase summer electricity generation by 1,500 GWh to meet the growing Russian demand. The revenue might be used to purchase coal from Kazakhstan and gas from Uzbekistan to run the Bishkek I thermal plant. In response the World Bank advocated shifting focus, from ineffective regional agreements, to new strategies involving: (i) bi-lateral agreements and (ii) national institutional and financial capacity (World Bank 2004b).

Priority National Water Sector Challenges

Kyrgyzstan (population 5.2 million) and Tajikistan (6.6 million) have both made progress but much remains to be done to improve human development and achieve their millennium development goals (MDGs). Human development indices (HDIs) are 0.696, rank 116/177, and 0.673 (122)

(UNDP 2007a). Living standards surveys indicate the expenditure poverty (\$2.15/person/day) rate was 43% in Kyrgyzstan (2005) and 64% in Tajikistan (2003). However most poor reside in rural areas where irrigated agriculture accounts for more than a third of Kyrgyz GDP and more than a quarter of Tajik GDP. In Kyrgyzstan the equivalent rural poverty incidence was 51%. In the two populous Tajik agricultural oblasts poverty rates were 78%, in Khatlon, and 64% in Sogd in the Ferghana Valley (World Bank 2005a, 2007). In Kyrgyzstan 77% and 59% of the population have access to improved water and sanitation and 33% of children under five are malnourished (under height for age). In Tajikistan these figures are only 59%, 51% and 42% (UNDP 2007a).

The 1995 Nukus Conference Resolution, signed by the five CA countries, ratified Soviet-era water allocations reflecting the above ASB water shortages. Kyrgyzstan and Tajikistan are reportedly entitled to 3.97% and 10.69% of the combined Amu Darya and Syr Darya flows. This is equivalent to MAFs of about 4.63 and 12.45 BCM and availabilities of 890 and 1,886 m³/person/year in 2005. This indicates Kyrgyzstan is already suffering water scarcity (< 1,000 m³/person/year) although it is not clear why the two allocations are so different? However, from 1990 to 2005, actual Kyrgyz diversions reportedly declined, from 13 to 6 BCM. This is widely attributed to deteriorating infrastructure (see below). Furthermore system-level efficiencies imply annual consumption is only 2 to 3 BCM. Therefore developed land, equipped with functional irrigation infrastructure, is presently the limiting national resource not water. This implies national water challenges are more to do with improving governance than managing absolute water scarcity (< 500 m³/person/year).

The core MDG for Tajikistan is combating hunger and poverty (UN 2005). The GOT identified five areas as having the greatest potential impact, including agricultural infrastructure and productivity, and set a target of rehabilitation of 70% of their irrigation and drainage networks (UN 2005). The recent Central Asia Human Development Report (UNDP 2005) also identified four main national water policy challenges: infrastructure maintenance, water pricing, community participation and groundwater. Similarly the National Human Development Report (UNDP 2003), on improving water management in Tajikistan, identified three main sector constraints: lack of funds, institutional weaknesses and wasteful consumption. These priorities are consistent with the GOK and GOT policies as reflected, for example, in the Kyrgyz and Tajik IWRM "Road Maps" (GWP and UNEP 2006) and the Water Sector Development Strategy in Tajikistan (MWWMI 2006).

Clearly the top IWRM priority issue, in both Kyrgyzstan and Tajikistan, is the sustainability of water infrastructure as a result of the national financial crises, brought on by the end of the Soviet-era in 1991, compounded by the Tajik Civil War. This concerns both operation and maintenance (O&M) and infrastructure improvement and to water supply and sanitation as well as irrigated agriculture.

Irrigated Agriculture

Kyrgyzstan reports 1,200,000 and 58,000 ha presently irrigated by gravity and pumped systems respectively. It also claims another 2,500,000 ha of land suitable for new irrigation development. Tajikistan reports an irrigated area of 740,000 ha of which about 280,000 is served by pumped systems. About a third of the latter are reverse "cascade" systems involving up to seven pumping stations, in series, and total lifts of up to 300 m. Differences between "irrigable" areas, equipped with Soviet-era infrastructure, and present actual irrigated areas are unclear. However the decline in Kyrgyz diversions, from 13 to 6 BCM, (see above) is commonly attributed to deteriorating infrastructure. Tajikistan reports a similar decline, from 10 to 8.5 BCM, and that 50% of its pumping stations and 65% of drainage systems are "worn out". Based on a 1990 asset inventory Tajikistan also estimates that \$ 746 million (or \$ 1,000 ha⁻¹) is required to "restore" irrigation systems.

A study of irrigation in Central Asia found rehabilitation is pro-poor. Between one and two thirds of Tajik irrigation systems are presently economically viable, at world market prices, and viability would improve if farmers switched to more productive crops (\$ ha⁻¹ or \$ m⁻³) and/or used inputs more efficiently. Kyrgyz rehabilitation costs are also substantially less than the net present value (NPV) of irrigated incomes. The study also concluded that economic reform and subsidized restoration, even of non-viable irrigation systems, might be cheaper than direct transfers to replace incomes lost due to deteriorating infrastructure. As well as normal economic, social and environmental selection criteria, good governance and management institutions are important considerations in prioritizing improvement of irrigation and drainage systems (World Bank 2003b).

Tajik stakeholders expressed concern that improvement of pumped irrigation systems tends to be less economically viable than for gravity systems. However reverse “cascade” system costs will increase with each lift. Therefore lower lifts will be more economically viable than higher ones.

The Kyrgyz *Irrigation Rehabilitation Strategy and Action Plan* (Mott MacDonald 2000) considered both the rehabilitation and sustainability of irrigation and drainage systems. However it neither assessed investment priorities nor estimated capital or recurrent costs. Furthermore participatory performance assessments (PPAs), to diagnose infrastructure, management and agricultural constraints and formulate improvements to alleviate them, have now generally superseded simple inventories and rehabilitation of infrastructure. Updated Kyrgyz and Tajik irrigation investment plans should also reflect more recent project implementation experience.¹³

System operation and maintenance (O&M), to ensure the adequate delivery of irrigation water and drainage as well as the sustainability of infrastructure on which they depend, is an important intermediate management objective. Tajik capital and recurrent irrigation infrastructure costs have also been estimated at \$ 492 and 238 million (UN 2005). At 12% pa the annual O&M cost is equivalent to a NPV of \$ 1,867 million over 25 years. This emphasizes the importance of recurrent O&M, as costs are four times initial capital rehabilitation costs!

Tajik lift irrigation covers one third of the irrigated area and receives two thirds of budgeted O&M resources (World Bank 2005b). This implies pumped O&M costs are four times gravity costs. Most costs are for: (i) maintenance of surface systems and (ii) operation of pumped systems. Therefore, while water is not limiting in the upper ASB (see above), improved water use efficiency will reduce the substantial cost of operating pumped irrigation systems.¹⁴ The efficiency of pumped irrigation is much more important to Tajikistan, which reports 280,000 ha (38% of its total irrigated area), compared with only 58,000 ha (5%) reported in Kyrgyzstan.

Both countries are now forming water user associations (WUAs), introducing irrigation service fees, for O&M cost recovery, and transferring responsibility for O&M of secondary irrigation canals to new WUAs. In Kyrgyzstan some 300 WUAs have been established in 40% of irrigated areas. The mixed results are attributed to a variety of causes including minimal improvements of system infrastructure (UNDP 2005). Furthermore international experience consistently indicates sharing of O&M responsibilities and costs is insufficient to sustain viable WUAs. Sustainable WUAs also require transfer of commensurate authority, and benefits, as well as effective WUA participation in system governance, management and/or infrastructure improvements. However current projects generally include only separate WUA and infrastructure rehabilitation components.

System performance, to optimize the net value of agricultural production or productivity (\$ ha⁻¹ and/or \$ m⁻³), is the ultimate management objective. By improving management Kyrgyzstan might save an estimated \$ 81 million (4.3% of GDP) and Tajikistan \$ 170 million (10.6%) annually. The reported causes of present losses include “inadequate water availability” and poor agronomic practices (UNDP 2005). However there are no recent PPAs and the upper ASB is not short of water (see above). Therefore “inadequate water availability” is likely to refer to water distribution inequities that are ubiquitous in gravity irrigation systems? Conjunctive use of surface (upstream) and groundwater (downstream) is often cost effective in rectifying such inequities.

The literature frequently advocates irrigation demand management and water pricing. This involves charging for actual water use, as well as delivery services (O&M), to improve irrigation water use efficiency and inter-sectoral allocation. However, even where water is limiting, such economic instruments have not proven very effective in practice (Perry 1997, World Bank 2004c, CAWMA 2007). Rather than generic solutions a flexible PPA process is required to identify specific system and/or on-farm management constraints and formulate practical measures to alleviate them and realize the optimum agricultural production potential.

¹³ The completed Kyrgyz On-Farm Irrigation Project (WB) is currently being evaluated. Active irrigation projects include the Kyrgyz Water Management Improvement Project and Second On-Farm Irrigation Project (both WB) and the Tajik Ferghana Valley Water Resources Management Project (WB) and Irrigation Rehabilitation Project (ADB).

¹⁴ A 50% efficiency improvement would achieve a significant reduction, in pumped O&M costs, of up to 25%.

In Tajikistan cotton is the main irrigated crop, the cotton sector is the largest employer of the rural workforce and more than 70% of the population, engaged in the sector, is poor. From 1990 to 2003 cotton yields reduced by 32% from 2.8 to 1.9 T ha⁻¹. Therefore recommended interventions include increased productivity. However the yield decline is attributed to current market distortions not water-related factors. Therefore the most important reform measures are to resolve the cotton debt and completely liberalize the sector (UN 2005). The Sustainable Cotton Sub-sector Project will support these priority reforms (ADB 2006a). Without reform the profitability of cotton and non-cotton (mainly wheat) farms have been estimated at \$ 161 and 323 ha⁻¹. With reform estimated gross margins increase to \$ 322 and 647 ha⁻¹ respectively (UN 2005). While cotton sector reform may benefit poor landless agricultural labourers, this analysis indicates individual Tajik farmers will be better-off growing wheat, instead of cotton, with or without cotton sector reform.

Wheat is the most important Kyrgyz crop. A recent international study considered the potential for increasing agricultural water productivity (CAWMA 2007).¹⁵ In the Ferghana Valley present wheat yields and water requirements are 2.8 T ha⁻¹ and 470 mm (Finney 2008). However effective rainfall is minimal and potential evapotranspiration (ET_c) must be about 500 mm. Therefore water productivity is 0.56 kg m⁻³ and farmer's present wheat yields are only about 30% of their potential. However, below 40% to 50% of potential, agronomic practices, such as soil fertility, limit water productivity and yields. Above this level yield gains are nearly proportional to increases in crop evapotranspiration. Improved agricultural management, to increase present yields/productivity by up to 50%, is a prerequisite of improved irrigation and on-farm water management to meet crop water requirements and increase present yields/productivity by about 200% more.

These promising results are consistent with interim recommendations, of the *Water and Salt* study, as well as anecdotal evidence that suggests farmers generally over-irrigate, but too infrequently, resulting in excess water "losses" followed by soil moisture deficits before irrigations. However the extrapolated potential wheat yield should be treated with caution (Figure 7.2, CAWMA 2007). The results are also inconsistent with the above ASB water balance. This indicates an average annual consumption of 980 mm (Haskoning 2003) compared with cotton and wheat water requirements of 800 mm and 470 mm (Finney 2008). Finally these remarkably low wheat yields are only consistent with exceptionally high soil moisture deficits (FAO 1979). With these caveats the results are still sufficiently promising to warrant high priority IWRM activities in both Kyrgyzstan and Tajikistan.

The Environment

The Central Asian states of Tajikistan, Uzbekistan and Kyrgyz Republic are independent secular multinational countries located in the core of the Eurasia continent within the Tyan-Shan and Pamiro-Alay high mountain range.

The region is presently threatened by land degradation, water scarcity and pollution, deforestation and desertification and belongs among the most environmentally vulnerable ecosystems in the world. Conditioned by mountain relief, atmospheric activity and precipitation, the relationship between the mountains and the plains provides the most important link for the moisture exchange mechanism over the arid territory of Central Asia.

The mountains therefore play a significant role in the distribution of water resources. Precipitation stored in glaciers and frozen soil can be stored for many decades and forms basic reserve for river flow in extremely arid years. Mountain flow is one of the main sources of renewable clear water resources in the region – more than 90 percent of the water resources are concentrated in the mountains¹⁶ that are on the territories of two countries – Kyrgyzstan¹⁷ and Tajikistan (the region's

¹⁵ IWMI has also studied agricultural water productivity in the Syr Darya River Basin (Murray-Rust 2003).

¹⁶ Karaev, Z., 2004: Managing the Water Resources in Central Asia: Is Cooperation Possible? Paper prepared for the workshop "Resources, Governance and Civil War", European Consortium for Political Research Joint Sessions of Workshops, University of Uppsala.

¹⁷ About 40 percent of the region's water resources are concentrated only in Kyrgyzstan (see Klötzli, S., 1994: The Water and Soil Crisis in Central Asia: A Source for Future Conflicts? Center for Security Studies (CSS), ETH Zurich. 1(11).

two main rivers – Syr Darya and Amu Darya originate in these two countries). The mountains are at the same time threatened by increasingly occurring landslides, avalanches, glacial surges, mud flows and floods all of which threaten not only highland populations. Directly or indirectly, these activities impact the densely populated and biologically valuable areas.

Environmental pressures are mainly caused by poor agricultural practices (e.g. intensive or inappropriate use of arable land, soil degradation due to extensive irrigation, and lack of application of ameliorative measures), illegal deforestation, horticulture (e.g. extensive cattle pasturing and overgrazing), ineffective management of water resources and energy resources. These problems are exacerbated by the fact that due to economic decline after the collapse of the Soviet Union, the entire region witnesses a growing tendency to maximise short-term economic gains in sectors such as agriculture, forestry, energy and mining.

Water management strategies or similar documents in the field of integrated water resource planning process can provide a suitable platform for addressing many of the above issues.

However detailed baseline studies produced in both project countries within e.g. National Capacity Self-Assessments for implementation of Rio Conventions (NCSAs) point out many weaknesses in the integration of environmental commitments into mainstream development plans generally and water resource management specifically. Common priorities for implementation of the defined by the NSCA in Tajikistan include integration of global environmental commitments in planning of the rational use of lands, inter-agency and inter-institutional coordination and public participation. Also, Kyrgyzstan's NCSA (2005) states that it would be reasonable to analyze national and agency development programmes with regard to the risks and threats on the change in the environment's condition, limited natural resources and the necessity for their rational management.

Key environmental issues

The following environmental issues were identified in the national documents prepared in both countries for the implementation of Global Environmental Conventions (Kyrgyzstan 2004¹⁸, 2005¹⁹ and Tajikistan 2005²⁰) as relevant to the water management. They can provide the preliminary scope for further investigation within the SEA activities of the project.

Water

The sustainable water management shall aim to the balance between the various needs – need of high quality drinking water, need of water for agriculture and industry, need of water for energy, and natural need of water for the environmental to ensure the natural ecological processes. Thus it is related to almost all human activities.

In Kyrgyzstan, the danger of water pollution resulting from impact of surface run-off, sewerage system run-off and unregulated storage of industrial, domestic and livestock waste is considered high²¹. Serious situation with ground water contamination by nitrates is in the region of Orto-Alysh water intake, which provides 60% of drinking water for the capital of the republic. Increased nitrate concentration is observed at the depth of 150 m. The cause of this contamination is location of farms and cattle breeding, development of irrigated agriculture, poor sanitary of settlements, lack

¹⁸ MEE, GEF & UNDP (2004). Global ecological conventions: the capacities of Kyrgyzstan: Subject Review, Ministry of Ecology and Emergencies of the Kyrgyz Republic and Global Environment Facility and United Nations Development Programme in Kyrgyzstan, Bishkek, 2004

¹⁹ MEE, GEF & UNDP (2005), Global Environmental Conventions: Cross-Sectoral Interaction and Capacity Building in Kyrgyzstan, Ministry of Ecology and Emergencies of the Kyrgyz Republic and Global Environment Facility and United Nations Development Programme in Kyrgyzstan, Bishkek, 2005

²⁰ Report and Action Plan on Building National Capacity (AP BNC) to Implement Commitments of the Republic of Tajikistan on Global Environmental Conventions, endorsed by resolution #202 of the Government of the Republic of Tajikistan, June 2005.

²¹ D.M. Mamatkanov and others. Water and Hydroelectric Energy Resources. From the book *The Mountains of Kyrgyzstan*. Bishkek, 2001.

of water supply system and canalisation. The most serious risk presents industrial pollution of water resources²².

Tajikistan is in the main zone of flow formation of the Aral Sea basin. The majority of environmental problems appear with respect to water resource use. Improper water management leads to natural calamities such as salinisation, pollution, mud flows and floods. The collector and drainage waters enriched with salts and agricultural wastes (waste waters) returning to river basins deteriorate the quality in water sources, lead to the deterioration of the ecological condition of water, soil and life conditions of the population.

Land

The land and especially its use for agriculture purposes has close link to the water management – water consumption (irrigation) and water pollution (through the soil pollution).

In Kyrgyzstan agricultural lands occupy more than a half of the country. Rainfalls are insufficient during vegetation periods²³, so agricultural land cultivation is considerably dependent on irrigation. Agricultural crops are prone to water erosion if irrigated excessively and unsystematically. Irrigation of areas with underground water close to surface under the condition of arid climate leads to secondary salination of land. Low-lying areas are exposed to swamping and flooding of inhabited areas. Water and wind erosion affect more than 60 percent of arable lands in the country. More than 80 percent of arable lands in the country are highly salinated.

In Tajikistan extensive usage of pesticides and chemicals in agriculture became the main reason of both toxic and chemical pollution of soils and inland waters within the area 30 thousand hectares in the south and north of the country. Irrigated farming, which uses more than 70% of all consumable fresh-water, has catastrophic influence on the state of the Aral Sea. Simultaneously, drainage and used irrigation water has negatively altered water quality and caused eutrophication in some watercourses. Land irrigation without consideration of soil properties and drainage network outputs led to erosion processes on the main irrigation areas (Beshkent, Yavan, Obikiik and Dangarin valleys).

Biodiversity

Availability of water is one of the crucial conditions for biodiversity – so the overuse of water for human activities can cause significant adverse effects to the biodiversity. There can be also direct impacts related to the habitat degradation (e.g. hydropower sector). Biodiversity including aquatic biodiversity is addressed within the process of implementation of UN Convention on Biodiversity both in Kyrgyzstan²⁴ and Tajikistan²⁵.

Kyrgyzstan has a high concentration of animal and plant species. About 2 percent of the world flora and more than 3 percent of the world fauna can be found here (these figures are quite high considering that Kyrgyzstan occupies only 0.03 percent of the earth's surface). Most plant and animal species refer to endemics and cannot be found elsewhere. A sustainable trend of biodiversity reduction has been observed²⁶, which is conditioned by deteriorated flora and fauna habitats. The reasons are intensive agricultural cultivation of land and water resources.

²² Environment state of Kyrgyz Republic, 2000.

²³ K.D. Bokombaev, E.M. Rodina and others. The Climate and Environment in Kyrgyzstan. Bishkek, 2003

²⁴ State Agency on Environmental Protection and Forestry of the Kyrgyz Republic, 2005: 3rd National Report to the Convention on Biological Diversity.

²⁵ National Strategy and Action Plan on Conservation and Sustainable Use of Biodiversity, Republic of Tajikistan, 2003.

²⁶ K. Jundubaev and others. *Assessment of Capacity Needs for Implementation of the UN Convention to Combat Desertification in the Kyrgyz Republic*. From the book *Global Environmental Conventions: the Capacities of Kyrgyzstan*. GEF/UNDP Project, NCSA-Kyrgyzstan. Bishkek, 2004

In Tajikistan, there are more than 25 types of ecosystems, including water reservoirs and anthropogenic ecosystems. The most productive and diverse ecosystems are mountain forests, alpine meadows and tugai. These ecosystems are subject to disturbing, degradation and modification. It is important to note that tugai ecosystems are mainly saved in the southern Tajikistan at present, while before 20th century they were distributed along all distance of Amudaria and Sirdaria rivers. Many elements of biological diversity are threatened and immediate conservation measures are required. As a result of land development, for the last 70-80 years, the area of tugai ecosystems was reduced by more than 3-4 times, reduction of juniper and broad-leaved forests is also observed. Non-regulated cattle grazing leads to the changes in vegetation cover as well as decrease of pasture productivity and reduction of wild areas.

Climate change

Changes of the climate can cause changes in the distribution of water resources – quantity as well as quality – and so possibilities of its utilization for various activities. The character of river flow will alter that negatively affects local ecology and vulnerable sectors of economy such as irrigation, water supply and hydropower engineering in Central Asian region.

According to data from Kyrgyzstan²⁷, the number of mudflows, floods and water loggings increased in 2002 as compared to 1993 5 times. Experts refer attribute this to global climate change and increase in rainfalls.

Tajikistan's glaciers in the 20th century lost more than 20 km³ of ice. Small glaciers that comprise 80% of all glaciers and occupy 15% of total ice cover melt intensively. In the period from 1969 to 1986, Skogatch glacier, which is located in Obihingou basin, lost 8% of the total mass. Many glaciers in Zeravshan basin also retreat. Projected climate change in global and regional scales will have beneficial and adverse effects on both environmental and socio-economic systems, but the larger the changes and the rate of change in climate, the more the adverse effects predominate. Trends for climate warming lead to stable intensive reduction of glacier surfaces. According to forecast, by 2025 the territories of glaciers will be reduced by 30-40% resulting in water volume diminish by 25-35%²⁸. In this regard, adaptation to climate change is of highest importance²⁹.

Health risks

Water pollution and low quality of drinking water is one of the key issues related to the human health. The quality of the major part of water sources does not meet the requirements of sanitary and environmental norms in Tajikistan.

Several water-born diseases have been reported in the region³⁰. In Tajikistan they include typhoid, paratyphoid, leptospirosis, bacterial dysentery³¹. The National Environmental and Health Action Plan of Kyrgyzstan stipulate the reduction of the waterborne microbial diseases among the priority actions³². It identifies several reasons for this status – the rural population is often forced to use water from open reservoirs and irrigation canals. The water from these sources does not meet the acting State Standard with respect to biological and chemical parameters. The hot climate,

²⁷ Ministry of Emergencies of the Kyrgyz Republic, 2005: : Dangerous natural disasters and emergencies by types, which have occurred in the Kyrgyz Republic in 1993-2002

²⁸ Mamatov, N., E., Cusupov, M., K., Raimcanov, B.: Water Resources Problems in Kyrgyzstan. Proceedings from International Congress on River Basin Management – Practices on River Basin Management. Turkey, 2007

²⁹ Tajikistan: State of the Environment Report, 2003.

³⁰ A major epidemic of typhoid fever occurred in Dushanbe, 1997, that resulted from contamination of the municipal water system (in "Epidemic Typhoid Fever – Dushanbe, Tajikistan, 1997. Morbidity and Mortality Weekly Report, 1998").

³¹ Asian Development Bank, 2000: Environmental Profile of Tajikistan.

³² The Ministry of Health and the Ministry of Environmental Protection of the Kyrgyz Republic (1997): The National Environmental and Health Action Plan of Kyrgyzstan.

especially in the south of the country, makes for the increase in microbiological contamination of water in the open reservoirs.

Another serious problem related to the public health presents natural disasters (see below).

Natural disasters

In Kyrgyzstan the following natural disasters are widespread in the country: earthquakes, landslides, mudflows, floods, lakes with a potential to overflow, stone falls, landslips, water loggings, and avalanches. Especially issues related to the water management – landslides and floods – are extremely prevalent and frequent. They come first on the list of most dangerous natural disasters in Kyrgyzstan because of the general damage caused by them. Landslides are particularly typical for the south of the Republic (Osh and Jalalabad)³³. There is a danger of landslides and floods in more than 3,900 river basins. In more than 10 river basins avalanches occur. More than 200 of 2,000 high-mountain lakes have a potential to overflow, and the number of such lakes continues to grow³⁴.

Due to its geographical position Tajikistan is very much prone to disasters caused by water. Steep mountain slopes and instable topsoil are conducive of slides, there are 50 000 of them every year. One of the consequences of heavy rainfall is high floodwaters and mudflows, which are observed frequently in the foothills and mountainous areas of Tajikistan at the altitudes of up to 2,000 m. In high-altitude areas, floods can result from a break-through in temporary (glacial) lakes. Some 85% of Tajikistan's area is threatened with mudflows and 32% of the area is situated in the high mudflow risk zone³⁵.

Raising awareness on environmental issues

Since water management does cover various human activities and sectors, the public awareness on the environment is a key to ensure the integration of the relevant environmental issues as a condition for achieving the successful results. Number of action has been taken to strengthen the public involvement in the field of sustainable development and environmental protection³⁶. Raising environmental awareness and building capacity belongs to the environmental priorities in Tajikistan³⁷.

Rural Water Supply and Sanitation

Water service considerations are quantity, access (proximity), quality and reliability. Households with at least 20 lcd of clean water, available within 1 km, are presently classified as having an "improved" service level. However the simple distinction between "improved" and "un-improved" water is largely illusionary to water-insecure rural households. Poor rural people often use different sources seasonally and for drinking and their personal and domestic hygiene (UNDP 2006). Sanitation service level distinctions suffer similar uncertainty.

The MICS' report present uses of "improved" drinking water sources and sanitation are 88.2% and 96.3% (Kyrgyz) and 69.5% and 93.7% (Tajik). The Joint Monitoring Programme (JMP) defines "improved" water sources to include communal standpipes or wells as well as individual yard taps or house connections. It reports Kyrgyz and Tajik water/sanitation coverages are 77/59% and 59/51% (WHO and UNICEF 2006). However the individual water coverages are only 45% and 34%. This illustrates how coverage is related to service level. Therefore there are also important issues concerning appropriate WSS service levels and coverage estimates.

³³ Notes from the Regional Workshop on Natural Disasters Preparedness in Ferghana Valley, 2007, Bishkek

³⁴ I.T. Aitmatov and others. Dangerous Natural and Anthropogenic Processes and Disasters in Mountain Areas. From the book *The Mountains of Kyrgyzstan*. Bishkek, 2001

³⁵ Tajikistan: State of the Environment Report, 2003.

³⁶ In 2005, the UNDP launched its first full-fledged five-year Environment Programme, with the goal of including sustainable development principles into national strategies and policies.

³⁷ Asian Development Bank, 2000: Environmental Profile of Tajikistan.

The JMP also notes significant disparities in access to water and sanitation. The Kyrgyz and Tajik urban/rural coverages are 98/66% and 92/48% (improved water), 75/51% and 70/45% (improved sanitation) and 79/27% and 79/20% (individual water). Thus urban areas enjoy much better coverage than much poorer rural areas. Kyrgyzstan has better existing coverage, has received more support than Tajikistan and will continue to do so.³⁸ Consultants recently helped prepare a draft Kyrgyz Long Term Strategy for the RWSS Sector (Carl Bro and Atkins 2007).

The LTS found: (i) there is no policy governing service delivery, in response to community demand, and (ii) a key priority is to focus more directly on RWSS health impacts. The LTS is neither a policy document nor an implementation plan. However the EU Water Initiative will now support a National Policy Dialogue (NPD) for preparation, development and implementation of a RWSS Financing Strategy (Cowi 2007, OECD 2008). Therefore Kyrgyz stakeholders identified the sustainability of existing WB/DFID and ADB systems and community based organizations (CBOs) as the main need and opportunity for UNDP to add value to existing programs.

Tajik stakeholders identified their RWSS priorities as: (i) investment planning, to optimize health impacts and other benefits, and (ii) development of practical management instruments, project rules and participatory processes to introduce and implement the proven pro-poor demand driven approach to sustainable RWSS (WSP undated, DFID 1998, WSP 2003, WB 2006a, ADB 2006b).

Considerable epidemiological evidence is available on the health impacts of different WSS interventions and service levels (Esrey 1996, Pruss 2002, WHO 2003, 2007, WB 2004d, 2006b). Unfortunately the results are yet to be mainstreamed possibly because they are variable and context-specific? However general results and trends are quite consistent for both diarrhoea and other water-related diseases. First water quality, at source, has little discernable impact on health. This is apparently due to contamination between the sources and point-of-consumption. Thus attention has now turned to simple low-cost household boiling, chlorination and UV radiation treatments. Second water quantity is important and consumption of at least 50 lcd is required, for personal and domestic hygiene, to maximize health impacts (WHO 2003).³⁹

International research has consistently verified the consumption (c) – access (a) relationship shown opposite (DFID 1998). For $a > 30$ min, $c < 15$ lcd, for $5 < a < 30$ min, $c = 15$ lcd, for $a < 3$ min, $c > 50$ lcd. This indicates people will only consume 50 lcd if yard taps or house connections are provided even if communal water points have the capacity to deliver 50 lcd. This implies two water supply service levels: (i) minimum (MSL) with communal water points & consumption = 15 lcd and (ii) optimum (OSL), individual connections and actual consumption > 50 lcd.

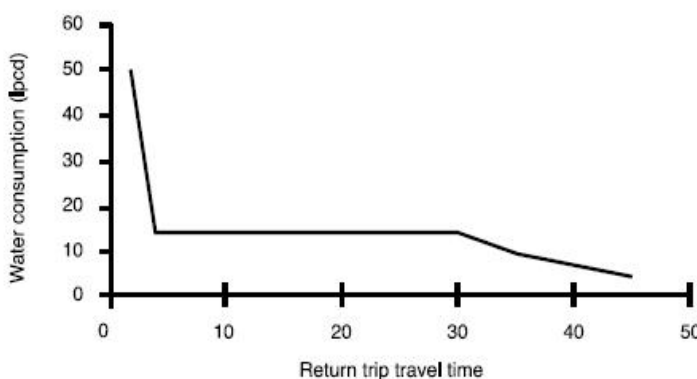


Figure 2.3.2. Water consumption vs travel time

Finally the health impacts of water supply (quantity) and sanitation are not additive. Rather than complements, these interventions may be alternatives to each other. These generic trends, with significant implications for effective demand-driven WSS programs, should be verified nationally.

Kyrgyz Infectious Disease Incidence (cases/100,000 people) and Coverage (%)

³⁸ The Kyrgyz Rural Water Supply and Sanitation Project (WB/DFID) and Community-based Infrastructure Services Sector Project (ADB) together cover about a third of the country. They are now both nearing completion. WB/DFID are presently evaluating RWSSP to prepare a follow-up project. However Tajik RWSS sector support is presently limited to small components of the active Irrigation Rehabilitation Project and proposed Rural Development Project (both ADB).

³⁹ For these important reasons “fresh”, “clean” “potable” and “drinking” water supply programs are all misleading.

Oblast	Infectious Disease	Water Supply			Quality	Improved Sanitation
		Individual	Communal	Unimprove		
Batken	540	19.2	49.0	31.8	90.8	73.3
Jalalabad	490	39.6	44.8	15.6	87.1	99.4
Issyk-Kul	120	56.3	34.4	9.3	86.9	98.5
Naryan	310	13.8	72.0	14.2	92.3	98.8
Osh	530	44.4	38.0	17.6	80.1	96.4
Talas	430	17.1	70.5	12.4	88.2	99.9
Chui	60	72.1	26.9	1.0	80.3	97.6
Bishkek	60	95.7	4.3	0.0	97.1	100.0
R-square		-0.563	0.345	0.737	-0.026	-0.197

The above table illustrates a method of verifying the national health impacts of WSS interventions and service levels. Unfortunately it doesn't distinguish between diarrhoea and other water-related diseases. However the tentative national and above generic water quality and quantity results are consistent. Individual connections explain 56% of the variation in disease (significance 3%) but neither water quality nor communal connections are associated with disease. However the analysis tends to contradict the third generic result as infectious disease is not associated with sanitation coverage (disaggregate sanitation service levels)? The practical significance of water quantity differences is also unclear as infectious disease incidences are about 40, 210 and 1,630 cases per 100,000 people for the individual, communal and unimproved service levels?

Two supply-side estimates of national WSS capital and recurrent costs are available (UN 2005, Carl Bro and Atkins 2007). Based on WB/DFID and ADB experience present Kyrgyz rural water supply unit costs are nearly \$ 50 per person exclusive of individual connections. Sanitation costs are based on providing one school WSS block (\$ 2,300) and two ventilated improved pit (VIP) latrines (\$ 200 each) for each village (average 320 households per village).⁴⁰ Demand is unreported but households generally prefer private latrines to communal ones. They may also prefer pour-flush to VIP latrines? Therefore present Kyrgyz sanitation service levels may explain the apparent lack of association between infectious disease and coverage reported above?

The Tajik MDG Needs Assessment estimates urban water rehabilitation costs were \$ 480.9 million to serve 97% of the total 2000 urban population of about 1.41 million. Thus imputed unit costs were \$ 352 per person. Based on a hypothetical "average" piped sub-project, for a settlement of 3,000 residents (or 500 households), estimated unit costs were \$ 17 and 25 per person (only 47% extra) for communal and individual water supply systems. The assumed technology mix included individual connections (55%) and public stand posts (39%).

There are normally pronounced economies of scale in the provision of piped water supply systems. Unit costs often increase exponentially with decreasing population served. Therefore unit costs are usually much higher in small isolated rural villages than urban towns and cities. Thus the difference in average village sizes (500 vs 320 households) may explain all the difference between estimated Tajik and Kyrgyz unit costs (\$ 17 vs 50 per person)? However, because there are also many more small villages, the average unit cost is much higher than the unit cost of serving the average village. Therefore reliable supply-side cost estimates need data on the relationships between: (i) water supply system costs, (ii) village populations and (iii) the number of villages.

Because of economies of scale it costs more to provide the same water service level to the poorer rural areas. Thus Tajik urban – rural inequities are even greater than the proposed unit investment cost ratio of nearly 17! Rural service level and coverage inequities (see above) would be reduced if the rural OSL was adopted, where feasible, and rural investment was increased relative to urban.

There are two main complimentary demand-side approaches to RWSS investment planning. Representative surveys of willingness-to-pay (WTP), for different interventions and service levels, are often used to estimate the economic benefits and determine national financial and subsidy

⁴⁰ Tajik MDG Needs Assessment estimates are based on provision of private latrines apparently at \$ 120 per household.

policy. However these are demanding and do not appear to have been conducted in either Kyrgyzstan or Tajikistan. While WTP surveys remain important it is questionable whether WTP fully reflects WSS health benefits? This is evidenced by the need for ongoing hygiene education to promote informed choices of WSS technology and associated behavioural change.

Two recent international studies considered the effectiveness of the different WSS interventions and service levels (WHO 2004, World Bank 2006b). The results of the later study are summarized at www.dcp2.org. Not surprisingly low cost hygiene education was the most health effective intervention. However personal and domestic hygiene depends on the availability of adequate water quantity (see above). WSS infrastructure interventions were ranked: (i) communal water supply (\$ 94 per DALYs averted), (ii) individual water supply (223) and sanitation (270). However reported reductions in the incidence of diarrhoea are 17%, 63% and 36%. The evidence quoted above also indicates individual water systems and improved sanitation only cost about 50% more and half as much as communal water systems. This indicates the reverse health impact - spending on (i) sanitation and (ii) individual water is 4.2 and 2.5 times more effective than communal water?

The earlier study found timesavings are much larger than health benefits. Halving the proportions of people with improved (communal) piped water and sanitation was estimated to cost \$ 1.78 and 9.52 billion annually and achieve economic benefit-cost ratios (BCR) of 8 and less than 6.⁴¹ Separate individual water connections were not considered but the imputed BCR is at least 25.⁴² This indicates WSS infrastructure rankings are: (i) individual water (BCR > 25), communal water (8) and sanitation (BCR < 6). Not surprisingly low-cost household water treatment and safe storage were also found to be highly cost-effective. The variable results indicate these important studies warrant more detailed consideration, national verification and open debate.

Small-scale Hydropower

In Tajikistan rural electricity is usually only available for a few hours per day during winter. However the prolonged, extremely cold, winter of 2007 – 2008 led to even more severe hardships than usual. In view of the hardship and impasse over the transboundary water – energy nexus development of small rural hydropower is now a high priority. This is reflected in the Governments Small Hydropower Construction Program 2007 – 2020 (GOT Decree N449 2006) and Small Scale Hydropower Development Strategy (MIE and UNDP 2007).

The ADB pre-preparation document noted MIE unit costs were \$ 600 – 800 kW-1, for Russian equipment, and less for Pakistani and Chinese equipment. However NGO costs were even lower (ADB 2004a). Sub-project preparation documents are not readily available but the first group of 17 high priority small hydropower sub-projects, including two each financed by ADB and UNDP, has now been implemented to supply an estimated 9,562 kW to 8,584 households at a cost of \$ 11.8 million (\$ 1,234 kW-1). The second priority group, of 25 sub-projects (estimated cost \$ 20.7 million @ \$ 920 kW-1), is awaiting finance. However the actual unit costs, and economic viability, of previous implementation is yet to be assessed. Furthermore it is not clear whether management arrangements involve local government utilities, community based organizations or both?

Adaptation of IWRM Principles

The 1992 Dublin IWRM ecological principles are: independent sectoral management is not appropriate, river basins are the natural management unit, land and water need to be managed jointly and the environment needs much greater attention. The institutional principles are: all key stakeholders should participate, including the state, private sector and civil society, women need to be included and actions should be taken at the lowest appropriate level (*subsidiarity*). The instrument principles are that water is a scarce resource and greater use needs to be made of incentives and economic principles in improving its allocation and protecting its quality.

⁴¹ However estimated sanitation timesaving seem unlikely, as they are more than five times those for improved water?

⁴² Based on: (i) individual unit costs 50% higher than for communal systems and minimal (ii) time-savings five times greater than communal systems (3 vs 15 min/trip), and (iii) health benefits proportional to consumption (50 vs 15 lcd).

IWRM is sometimes confused with the “resource management” scope of the World Bank’s Water Resources Sector Strategy (World Bank 2004c).⁴³ However the WB Strategy accepts IWRM can be conceptualized as a “comb”, in which the water-using sectors are the “teeth” and the resource itself is the “handle” (GWP 2000). The WB Strategy was also based on, and complements, the previous WB Policy that remains current and reflects the broader new definition of IWRM. Inter-sectoral integration is also, arguably, the main purpose of IWRM (GWP 2000). Indeed “resource management” is not an end in itself but a means of improving “service delivery”. IWRM specifically includes “service delivery”, as well as “resource management”, and IWRM Strategies include water efficiency to improve both inter and intra-sectoral management (GWP 2004).

A basic insight of the recent World Water Development Report 2 - *Water a Shared Responsibility* (WWDR2 - UN 2006), which is yet to garner enough attention, is that the global insufficiency of water (particularly for water supply and sanitation) is primarily driven by inefficient service delivery rather than water shortages. This implies the degree of water shortage influences the optimum balance between resource and operational management. Increasing inter-sectoral competition requires increases in resource management, and similar decreases in operational management, and visa versa. Therefore operational management and service delivery are likely to be relatively more important as neither Kyrgyzstan and Tajikistan suffers from absolute scarcity.

Integration doesn’t mean traditional intra-sectoral decision-making is abandoned (UN 2006, GWP undated). Integration also involves dialectic between horizontal (across sectors) and vertical integration (across scales) and subsidiarity or decentralization of management to the lowest appropriate national, river basin or local level (World Bank 2004c). The degree of water shortage also influences the optimum balance of horizontal and vertical integration. Increasing sectoral competition and scarcity need proportional increases in inter-sectoral management, and decreases in intra-sectoral management and subsidiarity, and visa versa. Therefore vertical integration and subsidiarity are likely to be relatively more important in Kyrgyzstan and Tajikistan.

IWRM requires principled pragmatism, and doing a few important things well, so water quality (too dirty) and/or quantity (too much/too little) are actually improved. This requires participatory IWRM processes that facilitate informed inclusive decision-making and transparent identification, formulation and assessment to prioritize and select issues and options to address them. The WWDR2, and HDR on *Beyond Scarcity: Power, poverty and the global water crises* (UNDP 2006), found the global water crises is less about managing absolute scarcity than improving governance.⁴⁴ The institutional enabling environment, organizations and management instruments are important.⁴⁵ However they are not ends in themselves, but means of solving priority IWRM challenges (GWP 2004), assessment should identify specific performance constraints and governance and institutional “re-form” should follow IWRM “function” based on priority needs.

Countries that have successfully reformed governance often started by addressing priority water challenges, associated with specific development goals, rather than with major institutional reforms (WaterWiki 2008). The Aral Sea Program, first phase investment component, also produced more tangible benefits (successful pilots that have been scaled-up) than conceptual work that generated less local ownership (World Bank 2003a).

Capacity development is the process by which individuals, organizations and societies develop abilities (individually and collectively) to perform functions, solve problems and set and achieve objectives (UNDP 2006). This is the purview of

⁴³ The WB *Strategy* uses a simple IWRM topology that distinguishes between: (i) broad-based or poverty-targeted and (ii) resource management or service delivery interventions. Watershed management is classified as poverty-targeted resource management whereas irrigation management is classified as broad (not poverty-targeted) service delivery?

⁴⁴ Governance is the exercise of economic, political & administrative authority to manage a country’s affairs at all levels. It comprises mechanisms, processes and institutions, through which citizens groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences. Its four dimensions are equitable use, economic efficiency, environmental sustainability & political empowerment through stakeholder participation in decision-making. Corruption is ubiquitous in developing countries where its abatement is an important aspect of governance (UN 2006).

⁴⁵ The key institutional change areas are: (i) policies, (ii) legislation, (iii) financing and incentives, (iv) the organizational framework, forms and functions, (v) capacity building, (vi) the participatory integrated WR management process (including planning), (vii) resource assessment, (viii) information management and exchange, (ix) demand management, (x) economic instruments, (xi) behavioral change, (xii) conflict resolution and (xiii) effective regulation (GWP 2004).

governance and management and capacity building should be an integral part of IWRM not a separate component. Substantial experience consistently indicates practical on-the-job participatory process training (learning-by-doing IWRM) is more effective than formal, didactic training (in IWRM subject matter).

Practical IRBM and Location of Pilot Projects

Kyrgyzstan and Tajikistan both prepared Road Maps for developing and implementing IWRM Strategies. OECD will now support Kyrgyz and, possibly, Tajik National IWRM Policy Dialogues (NPDs) to develop and implement priority institutional reforms. Establishment of National Water Councils are the first priorities. Strengthening Kyrgyz state supervision (regulation) and revision of the Tajik Water Code were their second priorities. Complementary vertical integration, subsidiarity and decentralization are also significant institutional challenges and remain to be addressed.

River basin organizations (RBOs) are usually organized in three levels: (i) a governing Board or Council, (ii) management Office or Secretariat, and (iii) representative stakeholders.⁴⁶ Therefore a recent institutional evaluation, of Kazakh IWRM Strategy implementation, focused on the structural limitations of Basin Councils (Strikeleva 2007). The evaluation found the BCs don't have full-time Secretariats, and dedicated staff, although these are necessary to perform even basic integrated river basin management (IRBM) functions. Councillors also need "training". However these are often symptoms, rather than causes, of more fundamental constraints. Therefore the next two paragraphs review IRBM functions and factors influencing the need and demand for RBOs.

A recent *River Basin Management* study, for the World Commission of Dams (WCD), proposed separation of the regulatory, resource management and operator/service provider IWRM functions (Millington 2000). In view of the study title and ecological principle, that river basins are the natural management unit, this implies these functions correspond to the national, river basin and local levels. The key IRBM functions are: (i) water balance assessment, (ii) policies and strategies, (iii) legislation supporting regulatory standards, (iv) planning and allocation, (v) surface and ground-water quantity and quality, (vi) inter-agency and community-driven coordination, (vii) capacity building and (viii) public awareness and participation. There is debate over the exact mandates – for example policy (river basin/resource) and licensing (national/regulation) - however planning is an integral part of the management cycle and separate "IWRM planning" is preferably avoided.

Recent research indicates that collaborative river-basin governance relationships, building on existing organizations, customary practices and administrative structures, is often more effective than creating new river basin organizations (RBOs - CAWMA 2007). Another recent *River Basin Management* study, confirmed water scarcity is an important variable that affects the process as well as the performance of decentralized RBOs. Increasing water scarcity, the number and severity of water resource problems and the number of organized user groups are all positively associated with initiation of reforms and performance of decentralized RBOs. However not all IWRM decisions and activities need to be organized at the basin scale. The lowest appropriate level may be a sub-basin or local government (World Bank undated). This finding is supported by studies of local governance for IWRM and WSS (Moench 2003, WSP 2003).⁴⁷

The previous discussion clearly indicates the need to improve the performance of gravity (Kyrgyzstan) and pumped (Tajikistan) irrigation systems growing wheat. As irrigation is the main water-consuming sector these activities should ideally be located in "river basins". The proposed transboundary strategy would work best if national IWRM activities were located in the shared Ferghana Valley (FV). However it may be more difficult to add value to the many donor-supported projects already located in the FV?⁴⁸ While the FV is in the Syr Darya River Basin, it is not a coherent sub-basin and the Amu Darya is the main Tajik "river basin". Furthermore Chui Oblast,

⁴⁶ The role of RBOs is to: (a) integrate the technical and participatory IRBM processes, (b) provide objective transparent technical advice and (c) facilitate representative stakeholder participation and informed inclusive decision-making.

⁴⁷ WWDR2 also summarizes UN experience with decentralization of water control and decision-making (UN 2006).

⁴⁸ For example the SADC Integrated Water Resources Management Ferghana Valley Project (see Tarnutzer 2007).

with 234,000 ha (35%) is the main Kyrgyz grain growing area not the FV. In Tajikistan there is more pumped irrigation in Sogd Oblast (55%), in the FV, than Khatlon Oblast (33%) in the Amu Darya Basin. However poverty is higher in Khatlon (78%) compared with Sogd (64%).

Therefore pilot irrigation activities should be located on the basis of multiple considerations, including river sub-basins as well as present system management capacity, need and/or stakeholder demand revealed by the IWRM process. Small hydropower pilots are likely to be located in isolated upstream catchments. However RWSS pilots might be located in the same service areas, or sub-basins, as the irrigation pilots. This would allow exploration of reported irrigation – RWSS interactions and cooperative management arrangements.

Present Institutional Situations

No organization is presently mandated, for either national or river basin-level IWRM, in either Kyrgyzstan or Tajikistan. The Kazakh Ministry, of Agriculture, Water Resources and Processing Industries, (MAWR) has Departments of Water Resources (irrigated agriculture) and Rural Water Supply. However sanitation is under the Ministry of Health's Department of Sanitation and Epidemiology. The State Agency for Environmental Protection and Forestry (AEPF) reports directly to the Office of Government. These Departments and AEPF are all reportedly represented at national, oblast and rayon government levels. The Ministry of Economic Development and Trade is responsible for social development and poverty alleviation at the national-level.

The Tajik Ministry, of Water Resources and Irrigation, (MWRI) is responsible for both irrigated agriculture and rural water supply and sanitation. The Ministry of Agriculture and Environmental Protection was recently reorganized, and renamed the Ministry of Agriculture (MOA), while the new Committee for Environmental Protection (CEP) was established under the Government. The Ministry of Energy and Industry is responsible for small hydropower. Operation and maintenance associations (OMAs) represent MWRI at oblast (Oblvodhoze) and rayon (Raivodhoz) levels. OMAs are fully responsible for both irrigation rehabilitation and management but share RWSS responsibilities with State Unitary Enterprises (Hodjagii Manzili Kommunalii).

Kyrgyz stakeholders are generally satisfied that their present Water Code (GOK 2005) provides an adequate legal basis, to initiate IWRM and IRBM, but Tajik national stakeholders now propose amending their earlier Water Code (GOT 2001). However the perceived deficiencies relate to the lack of adequate legal bases and rights to own irrigation facilities, introduce IRBM and apply economic demand management instruments (Pulatov 2008). Therefore it may be prudent to defer amendment of the Water Code until all stakeholders have more practical IWRM and IRBM experience and familiarity with the constraints, conflicts and trade-offs involved, for example, between economic and social benefits, equity and sustainability of vital ecosystems.

The Ili and Balkash River Basin

The Ili-Balkhash River Basin of 413 000 km², with 353 000 km² in Kazakhstan, is shared by Kazakhstan (60%) and China (34%) with a minor portion in the Kyrgyz Republic. It receives flows from precipitation in the Tien Shan ranges in south east Kazakhstan and also the Xinjiang-Uygul Autonomous Region of China. The basin river network of 118,000 km drains into Lake Balkhash--the third largest intercontinental water reservoir after the Caspian and Aral Seas. It is also one of the biggest lake ecosystems of the Earth.



River Ili gives about 80% of the whole of water discharge of the lake Balkhash, 70% of it is forming on the territory of China, where intensive development of agriculture develops hazard of further lowering of water discharge into lake Balkhash. Not only organic substances but also selenium and heavy metals ions, the basic sources of which are waste waters of tanneries of PRC.⁴⁹ The delta area provides the surface and groundwater hydraulic connection to the lake, playing the role of a natural regulator, supporting ecological equilibrium in the ecosystem, feeding a part of water reserves into the lake during dry years. Besides the rivers, there are about 24 thousand lakes and man-made reservoirs within the basin. The largest being the Kapshagai reservoir on the Illi River and the Bartorgai on the Chillik River.

With the population growth curve, agriculture, industry and urbanization in the western areas of China, there is of course going to be more water use from transboundary rivers of Ili and Ertys (from 0,5-1 to 2-4 km³/year) on the Chinese side, and the impact of this is accruing most clearly on a reduction in both the amount and quality of water flows reaching Lake Balkhash—adversely affecting poverty and livelihoods in the IBRB. In particular, this entails a series of the negative consequences for Kazakhstan both of social-economical (disorganization of some industrial enterprises, losses in fish and agricultural economy, water pollution with industrial wastes), and of ecological character (climate aridization, disturbance of the natural water balance and natural equilibrium)/ Lower part of the river Ile is subjected to especially large negative influence, to environment degradation and to loss of productivity of irrigated agriculture because of soils salinization. In connection with this, problems connected with rational utilization of land and water resources, ground- and surface-waters protection from impoverishment and pollution are very actual.

A historic interstate agreement was signed between Kazakhstan and the People's Republic of China (PRC) on 12 September 2002 which provides a basic framework for cooperation between the two countries in the economically, socially and environmentally sound development of the IBRB.

Need for proposed interventions in the Ili-Balkash

Given the past history of the Aral Sea's desiccation and the associated ecological crisis, Kazakhstan is very sensitive to the threats facing Lake Balkash at the tail end of the IBRB. The region defined by the basin also is of considerable significance from the standpoint of its unique natural systems and biological diversity. As population and economic pressures continue to rise, it is important that joint measures of the two riparian countries be taken now to establish the institutional and policy basis for the sustainable management of the IBRB. Momentum for improved regional cooperation for management of the basin has been created through signature of the interstate agreement on the use and protection of Transboundary Rivers between the two riparian countries and establishment of a permanent commission as stipulated by the agreement. Moreover, Kazakhstan—being a downstream country—has moved even further and developed a draft framework agreement on water use and allocation in transboundary river basins, a framework agreement on water quality monitoring and control in transboundary basins, and a draft IBRB management master plan, which yet to be discussed with PRC. At the moment, cooperation with PRC still remains at a level of water experts exchange visits to water facilities in the IBRB and information exchange on the contemporary use of water resources of the basin.

This component will build upon the results of UNDP Kazakhstan in a project on "National IWRM and WE Plan for Kazakhstan" and of the Central Asia Regional Environmental Center (CAREC) in a TACIS-funded project on sustainable development of IBRB. It corresponds with the goals and objectives of the EU regional strategy for Central Asia and its component on environmental management, as the project promotes cooperation along the transboundary river basins.

⁴⁹ Kanaeva R., *Ile-Balkhash basin: problems and perspectives of the stable development. EKVATEK –2004, part 1, pp. 39-40 (in Russian)*

**ANNEX 3 – COMMON FRAMEWORK FOR ADDRESSING WATER ISSUES IN CENTRAL ASIA
(UNDP-EC-UNECE-OECD FRAMEWORK AGREEMENT)**

ANNEX 4 – INDICATIVE TERMS OF REFERENCE

These TOR relate to the provision of technical assistance (TA) and management support services to foster transboundary dialogue, in Central Asia, by developing and implementing national integrated water resources management and water efficiency strategies (IWRM Strategies) in Kyrgyzstan and Tajikistan, and promoting transboundary dialogue in the Ili-Balkash River Basin. The separate Project Document forms an integral part of these TOR. In particular its Regional and National Water Sector Review (Annex 2) provides the context and defines the priority issues to be addressed.

Initial assessment indicates water sector organizations have limited staff and capacity to manage project implementation. Furthermore the project will introduce and adapt IWRM principles to suit Kyrgyz and Tajik conditions. Project Implementation Units (PIUs) will be located within the Kyrgyz Ministry of Agriculture, Water Resources and Processing Industries (MAWR) and Tajik Ministry of Water Resources and Irrigation (MWRI). In Kazakhstan, the PIU will be located within the Water Resources Committee (WRC). The PIUs, reporting to the International Project Team Leader (see below) will be responsible for daily project implementation and management, facilitating stakeholder participation, achieving the challenging, context-specific, balance between horizontal and vertical coordination, decentralization, management devolution, to the lowest appropriate level, and lower level organizational arrangements including staffing and capacity building. Initially dedicated (full-time) National Project Managers (NPMs) and sector Coordinators will staff PIUs. UNDP Technical Assistance (TA) will support PIUs and lower level organizations.

The International Project Team Leader and Governance Specialist (PTL) will have a degree in management, water resources or related discipline, and a proven track record of supporting practical governance and institutional reform, as well as project coordination or management. An advanced degree and experience of integrated water resources/river basin management (IWRM/IRBM), decentralization and large-scale participatory processes would be advantageous. He/she will provide management and capacity building support, to all NPDs, coordinate all TA inputs, UNDP expenditure and project reporting, and directly lead activities 1.6, 1.8, and 1.9, as well as 2.6, 2.8 and 2.9, and all activities under Output 3 & 4.

The international Participatory Process Specialist will have a proven track record of development, pilot implementation, documentation, capacity building and scaling-up of participatory processes for effective widespread replication. A degree in rural sociology, or related field, and experience of integrated water resources/river basin management (IWRM/IRBM), governance, decentralization and institutional reform would be advantageous. He/she will lead support to activities 1.7 & 2.7, and, for all outputs, facilitate participation in informed inclusive decision-making of: (i) the Kyrgyz MEDT and its Tajik and Kazakh equivalent, at national, river basin or local levels, and (ii) representative stakeholders.

The international Environmental Specialist will have an environment or similar degree and practical experience of strategic environmental assessment (SEA) and water sector environmental and aquatic ecosystem issues. An advanced degree and experience of IWRM/IRBM, governance, decentralization and institutional reform would be advantageous. He/she will coordinate all SEA activities in close cooperation with the Team Leader. For all outputs he/she will facilitate: (i) participation of the Kyrgyz AEPF and Tajik CEP, at national, river basin and/or local levels, (ii) management of national experts in pilot SEAs for the key political documents, (iii) and the incorporation of environmental considerations into informed inclusive decision-making for all relevant activities.

The national IWRM Institutions Advisors will both have management, water resources or similar degrees and thorough knowledge of all present water sector institutions, organizations, mandates and functions at the national, oblast and rayon levels. In particular he/she will facilitate efficient and effective local level organizational arrangements, staffing and capacity building for all outputs.

The national Environmental Specialists will have a degree in environmental management or similar discipline, practical experience of water sector environmental and aquatic ecosystem issues, and thorough knowledge of all present institutions, organizations, mandates and functions within the environmental protection at the national, oblast and rayon levels. The experience with strategic environmental assessment (SEA) and/or environmental impact assessment (EIA), and strategic planning in the field of environment would be advantageous. In particular he/she will facilitate efficient and effective local level organizational arrangements, staffing and capacity building for SEA activities within the project

The international Irrigation Management Specialist will have an irrigation or similar degree and practical investment planning, system development, participatory irrigation management (PIM) and management transfer (IMT) experience. He/she will lead support to activities 1.1 & 1.2, as well as 2.1 & 2.2.

The Rural Water and Sanitation and Small Hydropower Specialists will have relevant engineering or similar degrees and practical experience of investment planning and demand-responsive participatory process development (project rules) and implementation for sustainable rural WSS and SSHP facilities and CBOs. They will lead support to rural WSS activities 1.3, as well as 2.3 & 2.4 and SSH activity 2.5.

Intended activities and expected results

Activities 1.1 & 2.1: Gravity (Kyrgyz) and Pumped Irrigation (Tajik) Pilot Projects

Expected results:

- a) Feasibility studies (FSs) jointly prepares by oblast and/or rayon DWR or OMA and WUAs, with NGO support,
- b) A participatory performance assessment and diagnosis (PAD) process to improve performance and increase wheat production, in a Kyrgyz gravity irrigation system, and introduce wheat production in a Tajik pumped irrigation systems developed and pilot implemented.⁵⁰

Step 1: MAWR and MWRI select pilot systems based on IRBM considerations, system management capacity, demand for reform and economic, social, environmental criteria (these shall be based on outputs from SEA for key strategic documents i.e. activities 1.2 and 2.2) etc;

Step 2: Development of the PAD processes to identify wheat production constraints and formulate practical priority infrastructure, system management and agricultural interventions.

Step 3: Joint DWR or OMA and WUA feasibility studies, to meet donor's technical, economic, social, environmental and other requirements for possible funding, and preparation of system management and agricultural development plans to increase wheat production. FSs will consider public-private partnerships (PPPs) and practical measures to combat corruption.

Step 4: GOVs approve feasibility studies and promulgate initial generic PAD processes.

Step 5: WUA implementation and joint M&E of agricultural & system management plans;

Step 6: MAWR/DWR & MWRI/OMA evaluate/document the process for future replication.

Indicative methodological references are: performance indicators (Molden 1998), benchmarking (Cornish 2005), practical PAD for rehabilitation (improvement) and/or maintenance (Cornish, 1997, 1998, Skutsch 1998), system improvement (Albinson and Perry 2002), modernization (FAO 2007), Tajik policy reform and improved farm and water management (Hydrosult 2008), PPPs (World Bank 2007b), the UNDP – SNS Bank PPP alliance (WaterWiki), combating corruption (Sohail and Cavill 2007), WUAs and PIM (FAO 2003, Yakubov 2006, various Kyrgyz and Tajik WUASP

⁵⁰ NGO involvement is intended to facilitate introduction of the demand-driven approach and national capacity building.

material), system transfer (Frederiksen and Vissia 1998, FAO 1999) and Kyrgyz pricing and cost recovery (forthcoming Technical Assistance Consultants Report (TACR) for ADB 2004b).

Activities 1.2 & 2.2: Irrigation Investment Strategies, Plans and Financial Policies

Expected results:

- a) Realistic national irrigation investment plans, strategies and/or financial policies, informed by Activity A1 experience, prepared by MAWR or MWRI and NGOs and ready for potential donor funding.
- b) SEA(s) carried out for key documents as a part of their preparation promoting the best practice and international standards, to be also used as a pilot example for further development of this tool in the region.

Step 1: Select economic, social and environmental ranking criteria and method to assess investment priorities including trade-offs between: (i) recurrent and capital costs, (ii) capital infrastructure improvement and new development costs and (iii) subsidies and cost recovery.⁵¹ Inventories of all oblast irrigation systems, infrastructure condition and investment proposals. Synthesis of climate, land, water supply and demand data to define homogeneous agro-zones;

Step 2: Initiate SEA for key documents – (i). design the SEA approach and procedure, (ii) establish the SEA team, (iii) identify the key environmental issues, (iv) identify the key stakeholders

Step 3: Estimate capital and O&M costs for standard zones, systems and improvements;

Step 4: Design, conduct, analyse and interpret willingness-to-pay (WTP) and user report card (URC) surveys with respect to infrastructure improvements and O&M service delivery;

Step 5: Conduct SEA (in parallel with step 6) – (i) analyze trends for key environmental issues, (ii) analyze likely environmental impacts of the proposed investment priorities, (iii) propose mitigation / enhancement measures, (iv) carry out the stakeholders' consultations, (v) draft SEA report(s) to be included in the documents submitted for approval

Step 6: Financial/economic analyses of investment priorities, cost recovery & subsidies;

Step 7: Investment strategies, plans and financial policies promulgated by the GOVs.

References are: URC surveys (Balakrishnan & Lobo 2004) and investment planning (FAO 1996), Resource Manual to Support Application of the UNECE Protocol on Strategic Environmental Assessment. (UN and REC CEE, 2006), Good Practice Guidance on Applying Strategic Environmental Assessment (SEA) in Development Cooperation. (OECD DAC, 2006).

Activity 1.3: Kyrgyz RWSS Pilot Project

Expected results:

- a) ADB and/or WB/DFID Kyrgyz WSS systems and CBOs surveyed by an NGO, and
- c) DWS, DSE and CBOs supported to formulate/implement joint O&M arrangements to ensure their sustainability.

Step 1: In close consultation with ADB and/or the World Bank and DFID, MAWR selects representative donor financed sub-projects that preferably also meet IRBM considerations;

Step 2: NGO helps DWS/DSE develop/implement surveys to assess systems and CBOs;

Step 3: Analysis of the likely environmental effects of selected sub-projects implementation based on the principles of environmental assessment

⁵¹ Based on the principle that costs should be shared in proportion to the benefits received by society and water users.

Step 4: NGO helps DWS/DSE and CBOs diagnose both system and CBO sustainability constraints and formulate practical joint arrangements for sustained O&M and CBO capacity;

Step 5: The NGO supports DWS/DSE and/or NGOs in joint O&M of improved facilities. MAWR, DWS/DSE and the NGO evaluate and document the process for future scaling-up.

Activity 2.3: Tajik Rural Water Supply and Sanitation (RWSS) Pilot Project

Expected results:

- a) Tajik communities mobilized and supported by an NGO, with OMA and/or SUE support, to form representative democratic CBOs
- d) New CBOs empowered to plan, select, design, construct and manage their own water supply systems and household sanitation facilities to address the health and sustainability impacts of rural WSS service levels and project rules.

Step 1: MWRI selects pilot villages based on IRBM considerations and WSS coverage;

Step 2: The local NGO mobilizes communities, develops and delivers hygiene education (HE), to inform them of CBO responsibilities and OMA support, stimulates demand for WSS improvements and helps communities form representative CBOs;

Step 3: Analysis of the likely environmental effects of selected pilot projects based on the principles of environmental assessment (considering results from SEA – activity 2.4)

Step 4: The NGO develops and delivers HE and helps CBOs identify alternative water sources, formulate alternative water systems, make informed choices, about their preferred WSS technology and service levels, based on estimated costs and benefits, prepare feasibility studies and, after FS approval, design their preferred WSS facilities and arrange construction. The FSs will incorporate PPPs (if appropriate) and practical measures to combat corruption.

Step 5: GOT approves feasibility study and promulgates initial WSS preparation process.

Step 6: NGO helps CBOs supervise construction of improved WSS systems & facilities;

Step 7: NGO helps CBOs sustain operation and maintenance of their improved WSS facilities. MWRI, OMAs and the NGO evaluate and document the process for future scaling-up.

The main indicative references are: sustainability impacts of project rules (WSP undated) and health impacts of WSS service levels (see output A4 references below). Other indicative references are: the demand-responsive approach (DFID 1998, ADB 2006b, World Bank 2006a), output-based aid (GPOBA 2006a, 2006b), the UNDP – SNS Bank PPP alliance (WaterWiki.net), combating corruption (Sohail & Cavill 2007), and direct subsidies for the poor (World Bank 2000).

Activity 2.4: Tajik RWSS Investment Strategies, Plans and Financial Policies

Expected results:

- a) Realistic Tajik Rural WSS investment strategy, plan and financial policy, informed by practical Activity A.3 pilot experience, prepared by MWRI and NGO and ready for potential donor funding. This will consider health and sustainability impacts of WSS service levels and project rules respectively.
- b) SEA(s) carried out for key documents as a part of their preparation promoting the best practice and international standards, to be used as a pilot example for further development of this tool in the region.

Step 1: Select economic, social and environmental ranking criteria and method to assess investment priorities including trade-offs between: (i) recurrent and capital costs, and (ii) cost recovery and subsidies based on equitable cost sharing between society and beneficiaries.

- Step 2: Initiate SEA for key documents – (i) design the SEA approach and procedure, (ii) establish the SEA team, (iii) identify the key environmental issues, (iv) identify the key stakeholders
- Step 3: The NGO helps MWRI design and conduct representative surveys to assess: (i) the health impacts of different WSS service levels, (ii) service level associations with unit cost, consumption, collection time and existing coverage and (iii) beneficiary willingness-to-pay for alternative WSS technology and service levels to determine the need for WSS improvements;
- Step 4: Conduct SEA (in parallel with step 5) SEA will (i) analyze trends for key environmental issues, (ii) analyze likely environmental impacts of the proposed investment priorities, (iii) propose mitigation / enhancement measures, (iv) carry out the stakeholders' consultations, (v) draft SEA report(s) to be included in the documents submitted for approval
- Step 5: Financial and economic analysis, of both timesavings and health benefits, and application of the agreed ranking criteria and method to determine investment priorities and appropriate cost recovery and subsidy policies to ensure sustainability of systems and CBOs;
- Step 6: Investment strategies, plans and financial policies promulgated by the GOT.

The main indicative references are: sustainability impacts of project rules (WSP undated) and health impacts of WSS service levels (WHO 2004, 2007 and the Annex 2 statistical analysis).

Activity 2.5: Tajik Small-Scale Hydropower (SSH) Investment Strategies, Plans and Financial Policies

Expected results:

- a) MEI's present investment Strategy revised and/or updated with support by the NGO, based on: (i) assessment of recently completed small-scale hydropower (SSH) sub-projects, (ii) realistic unit costs and (iii) economic viability and sustainability of present installations and O&M arrangements.
- b) SEA(s) carried out for key documents as a part of their preparation promoting the best practice and international standards, to be used as a pilot examples for further development of this tool in the region.

- Step 1: MEI selects representative sub-projects and agrees the economic, social and environmental ranking criteria and method to assess investment priorities including trade-offs between: (i) recurrent and capital costs, and (ii) equitable subsidies and cost recovery;
- Step 2: Initiate SEA for key documents – (i) design the SEA approach and procedure, (ii) establish the SEA team, (iii) identify the key environmental issues, (iv) identify the key stakeholders
- Step 3: The NGO assists MEI to develop and conduct a survey of representative SSH installations, CBOs and joint O&M arrangements, diagnose constraints and formulate practical measures to alleviate them and assess unit costs and economic benefits;
- Step 4: Conduct SEA (in parallel with step 5) – (i) analyze trends for key environmental issues, (ii) analyze likely environmental impacts of the proposed investment priorities, (iii) propose mitigation / enhancement measures, (iv) carry out the stakeholders' consultations, (v) draft SEA report(s) to be included in the documents submitted for approval
- Step 5: Financial and economic analysis and application of ranking criteria to determine investment priorities, appropriate financial policies and arrangements for sustained O&M;
- Step 6: Revised investment strategies, plans and financial policies promulgated by GOT.

References are the Small Hydropower Construction Program 2007 – 2020 (GOT Decree N449 2006), the Small Scale Hydropower Development Strategy (MIE and UNDP 2007), the forthcoming TACR, for ADB 2004a, and the completion reports for two SSH sub-projects financed by UNDP.

Activities 1.6 & 2.6: Small Transboundary Sub-basin management agreement

Expected results:

- a) A pilot joint sub-basin management agreement, for equitable water, energy and O&M cost sharing, progressively developed, negotiated, signed, implemented, monitored and evaluated by the relevant Kyrgyz, Tajik and, preferably, Uzbek sub-basin authorities, assisted by an international NGO.

Step 1: MAWR, MWRI, the relevant local authorities and, preferably, Uzbek counterparts jointly select a small transboundary sub-basin with water, energy & O&M cost sharing issues.

Step 2: The parties jointly appoint an NGO to facilitate consensus building & conciliation;

Step 3: Local authorities assess/agree joint water, energy and O&M cost sharing issues;

Step 4: Local authorities develop/agree/sign water, energy and cost sharing agreement;

Step 5: The parties implement, monitor and evaluate equitable water, energy and cost sharing and document the process for future replication in other transboundary sub-basins.

Activities 1.7 & 2.7: Participatory IRBM Processes

Expected results:

- a) Practical participatory IRBM processes integrating outputs A1, A3, A5 and A9 progressively developed/implemented by MAWR, MWRI and their relevant local authorities, assisted by NGOs.

Step 1: With NGO and relevant local authority assistance MAWR and MWRI prepare stakeholder analyses and participation plans (SAPP), to facilitate representative government, private sector and civil society participation based on their rights, risks and responsibilities;

Step 2: Develop practical participatory IRBM processes that reconcile the requirements of horizontal inter-sectoral integration with vertical sectoral management, devolution to the lowest appropriate level (subsidiarity) and efficient effective sub-basin or local service delivery;

Step 3: The parties progressively implement, M&E and document the IRBM processes;

Step 4: The GOK and GOT promulgate their IRBM process for widespread replication.

Indicative references are: rights, risks and responsibilities governance tool (Bird 2006), institutional situation analysis (IWMI 2002) and IWRM (Tarnutzer 2007), in the Ferghana Valley, and practices for improved dam decision-making (UNEP 2007) which can be adapted to IWRM processes.

Activities 1.8 & 2.8: Other Priority Pilot Projects

Expected results:

- a) Progressive development and management of other practical pilot projects to address stakeholders' next highest priority issues facilitated by MAWR and MWRI, and assisted by their NGOs..⁵²

⁵² For example stakeholders' next highest priority IWRM issue and activity might include climate change adaptation, aquatic ecosystems or natural disaster mitigation as well as another irrigated agriculture or RWSS issue and activity.

- Step 1: Key stakeholders agree economic, social and environmental (taking into account the results from relevant SEA activities carried out within the project) ranking criteria and identify, assess, rank and reach consensus regarding their next highest priority IWRM issue;
- Step 2 Key stakeholders identify and assess a range of practical options, use the agreed criteria to rank and select their preferred solution which they then design and jointly approve;
- Step 3: Analysis of the likely environmental effects of selected sub-projects implementation based on the principles of environmental assessment
- Step 4 Stakeholders implement, monitor and evaluate the management aspects of their preferred solution while MAWR & MWRI document and promulgate the process for scaling-up.

An indicative reference is: Tajik community-based development capacity (McNeil 2004).

Activities 1.9 & 2.9: International River basin Management (IRBM) Institutional Reforms

Expected results:

- a) A context-specific IWRM (institutional reform) Strategy, to support stakeholders' priority IWRM issues/interventions at the river basin and/or local-levels, developed and implemented.

Step 1: MAWR/MWRI and NGOs assist key stakeholders to assess the strengths and weaknesses of present arrangements (enabling environment, organizations and management instruments), with respect to experience implementing and/or developing their priority outputs;

Step 2: Stakeholders reach consensus on context-specific institutional reform Strategy;

Step 3: Priority institutional reforms promulgated and implemented by GOK and GOT.

The main indicative references are: catalyzing institutional change (GWP 2004) and practical water resources institutions, stewardship and service delivery considerations (Frederiksen 1992, 2007).

An indicative approach would be to adapt indicators of water sector organizational performance and capacity (eg Hooper 2006, UNDP 2008, UN-Water forthcoming). However some of these assume all indicators are equally relevant or important and/or concentrate on institutional means, rather than service delivery objectives.⁵³ Therefore the institutional reform process might involve agreement of relevant standard institutional, and addition service delivery, indicators and selection of priority context-specific indicators. Agreed priority indicators could then be used to: (i) assess existing institutional arrangements and provide a benchmark, (ii) set institutional reform priorities and targets and (ii) monitor and evaluate the institutional reform process against agreed targets.

Activity 3.1: Functional Bilateral Commission and framework agreements for the Ili-Balkhash RB

Expected results:

⁵³ Service delivery indicators might include: (i) has the degree of water scarcity been agreed by representative stakeholders (RSHs), (ii) have perennial or seasonal water shortages been identified, (iii) have RSHs reached consensus and selected their priority IWRM challenge/s, (iv) has IWRM been devolved to the lowest appropriate level, (v) have RSHs identified and assessed a range of practical solutions to their priority IWRM challenge/s, (vi) have RSHs reached consensus and selected their priority IWRM solution/s, (vii) is planning & design of RSHs priority management solution/s underway (viii) is implementation of RSHs priority management solution/s underway, (ix) are RSHs monitoring and evaluating implementation of their priority solution/s and (x) have these management interventions had a positive impact on actual water quantity and/or quality?

- a) Joint Kazakh-Chinese Ili-Balkhash Commission strengthened through regular bilateral meetings at technical and political levels taking place;
- b) Permanent dialogue between Kazakh and Chinese governments established, and consensus achieved regarding cooperation and joint management of Ili-Balkhash resources.

Step 1: Provide technical and logistical support to the Governments of Kazakhstan and China for regular meetings of the joint Commission to ensure implementation of the 2002 agreement, and other regular meetings at technical level;

Step 2: Facilitate dialogue and mediate consensus between the two governments in view of Ili-Balkhash framework agreements on water quality and allocation with mutually agreed procedural provisions for transboundary cooperation and management of resources.

Activity 3.2: Documentation and RB master plan

Expected results:

- a) River basin master plan adopted and updated documentation established in the Ili-Balkhash river basin.

Step 1: Prepare background documentation as baseline, and establish the basis of a mutually accepted and continuously updated database of the Ili-Balkhash river basin system and all relevant resources, including the quantity and quality of surface and groundwater, land and biological resources, and others to be determined by mutual consent of the two parties;

Step 2: Facilitate the development and adoption of an Ili-Balkhash river basin (RB) master plan.

Activity 3.3: Public engagement

Expected results:

- a) Key stakeholders involved in major decisions, and the general public informed, about provisions of the sustainable management of the Ili-Balkhash river basin resources.

Step 1: Develop and enforce a strategy aiming at engaging key stakeholders in the transboundary dialogue and the developing of plans and decisions for the sustainable management of the Ili-Balkhash river basin's resources;

Step 2: Develop and implement a general public awareness and engagement strategy.

Activity 4.1: Regional Dialogue, IWRM Governance and Sector Capacity Building

Expected results:

- a) PIUs, MAWR, MWRI and Kazakh equivalent, and key national / local organizations adequately supported and/or trained by the project team, as to manage project task development and implementation and perform their IWRM roles and functions.
- b) The good practice of SEA in water management related planning demonstrated and serves as an example for its further promotion in other sectors.

Step 1: The PIUs will manage the Project, make suitable organizational arrangements, including dedicated staffing, and help the UNDP Consultants procure NGO support services;

Step 2: All key organizations will develop the capacity to perform their IWRM functions: (i) provide objective (not biased), transparent (clear to all stakeholders) and timely technical assessments and advice and (ii) facilitate informed (costs and benefits) inclusive (all affected stakeholders) decision-making regarding priority IWRM challenges and range of solutions etc.

Step 3: All involved stakeholders will built up their capacity in SEA, which will ensure the efficient integration of environmental considerations in specific water management related planning.

Step 4: PIUs manage development, implementation, M&E of all priority IWRM activities.

Indicative references are: practical local-level water governance (Moench 2003), action-learning capacity building (Oxfam 1997) & organizational capacity development (UNDP 2007, DFID 2003).

Indicators: - Investments Strategy, plans and financial policies	Plans and Financial Policies Revised investment strategy, plan and financial policy promulgated	4. Revised strategy promulgated							Nat Utilities & CBOs	0	4	71600 – Transport	7.3
		5. SEA						Nat Environment	0	4	72000 – Equipment & Operations	10.4	
Baseline: - Initial investment strategy													
											SUB-TOTAL ACTIVITY 3	124.8	
Task Force IWRM Governance and Institutions	1.6/2.6 Small Transboundary Sub-basin management agreement The GOVs jointly implement a transboundary sub-basin agreement for equitable water-energy-cost sharing.	1. Small TB sub-basin selected							Int IWRM governance	1	1	71200 – International Consultants	80.0
		2. Int NGO appointed							Int participatory process	1	1	71300 – Local Consultants	24.0
		3. Joint mngt issues agreed							Nat IWRM institutions	4	4	72100 – Contractual Services	180.0
		4. Basin agreement signed							Nat community develop	2	2	71600 – Travel	3.1
		5. M&E and process document										71600 – Transport	7.3
											72000 – Equipment & Operations	10.4	
											Sub-Total	304.8	
Indicators: - Transboundary sub-basin agreement - Participatory processes - Adequate management instruments - Policy reform processes - Project implementation quality	1.7/2.7 Participatory IRBM Processes Participatory processes promulgated and adopted by GOVs.	1. SH analysis/participation plan							Int participatory process	3	3	71200 – International Consultants	120.0
		2. Processes developed							Nat IWRM institutions	1	1	71300 – Local Consultants	36.0
		3. Processes implemented							Nat community develop	8	8	71600 – Travel	4.7
		4. Processes promulgated										71600 – Transport	10.9
											72000 – Equipment & Operations	15.6	
											Sub-Total	187.2	
Baseline: - No TB agreements in													
	1.8/2.8 Other Priority Pilot	1. Criteria and issues agreed							Int IWRM governance	1	1	71200 – International Consultants	200.0
		2. 1 st options selected/designed								1	1	71300 – Local Consultants	36.0

effect - No (participatory) management instruments - No institutional integration - Limited management capacity - Project implementation not yet started	Projects Participatory processes, for prioritizing IWRM issues and solutions, adopted & mngt aspects implemented.	3. M&E and process document									Int participatory	3	3	71600 – Travel	7.1	
											Int unallocated input	3	3	71600 – Transport	16.5	
											Nat IWRM institutions	6	6	72000 – Equipment & Operations	23.6	
											Nat community develop					
														Sub-Total	283.2	
	1.9/2.9 IRBM Institutional Reforms GOVs promulgate reforms	1. Institutional assessment 2. Institutional reform strategy 3. Promulgate strategy										Int IWRM governance	3	3	71200 – International Consultants	120.0
												Nat IWRM institutions	8	8	71300 – Local Consultants	32.0
														71600 – Travel	4.6	
														71600 – Transport	10.6	
														72000 – Equipment & Operations	15.2	
														Sub-Total	182.4	
4.1: Project Management, Sector Activity Support and Organization Capacity Building Efficient, effective implementation	1. Local level organizations etc 2. Action capacity building 3. Activity mngt support, M&E										Int IWRM governance	6	8	71200 – International Consultants	660.0	
												5	9	71300 – Local Consultants	112.0	
											Int participatory	4	7	71000 – Unallocated Personnel	460.0	
											Int Environmentalist	7	10	72100 – Contractual Services	233.3	
											Int unallocated input	14	14	71600 – Travel	37.0	
											Nat IWRM institutions	14	14	71600 – Transport	86.2	
											Nat community develop			72000 – Equipment & Operations	123.2	
														Sub-Total	1,711.	
														SUB-TOTAL ACTIVITY 4	2,669.	
														Contingency @ 10%	445.9	
														TOTAL A	4,900.	

ANNEX 6 – SEA CONCEPT NOTE

Introduction to SEA

The purpose of SEA is to ensure that environmental considerations inform and are integrated into strategic decision-making in support of environmentally sound and sustainable development. In particular, the SEA process assists authorities responsible for plans and programmes, as well as decision-makers, to take into account:

- Key environmental trends, potentials and constraints that may affect or may be affected by the plan or programme
- Environmental objectives and indicators that are relevant to the plan or programme
- Likely significant environmental effects of proposed options and the implementation of the plan or programme
- Measures to avoid, reduce or mitigate adverse effects and to enhance positive effects
- Views and information from relevant authorities, the public and – as and when relevant – potentially affected States⁵⁴.

SEA and Integrated Water Resource Management

As the World Bank (2007)⁵⁵ notes, even though SEA (applied to water resource planning and development) and IWRM originated from different professional interests and sectoral concerns, they share many concepts and characteristics. Both include the integration of environmental and social considerations into multi-sectoral decisions; both emphasize the importance of participatory and consultative approaches to decision making; both incorporate monitoring and evaluation of outcomes; and both seek to broaden the perspectives of planners beyond immediate sectoral issues. Thus, SEAs offer an additional tool to IWRM to introduce and integrate environmental considerations into water resources planning and management, and thereby support IWRM.

Opportunities to improve the integration of environmental issues in water resources by promoting the use of SEA occur at many levels – developing a national or sector water policy, drawing up river basin plans, establishing a river basin institution, implementing a national irrigation masterplan, identifying hydropower or urban water supply options, supporting transboundary water resources management and development, or instituting sectoral strategies or programs.

Overview of environmental assessment systems in Kyrgyz Republic and Tajikistan

The legislative and regulatory framework for environmental assessment has been already developed both in Kyrgyzstan and Tajikistan, but mainly targeted on the project level assessment (i.e. EIA – environmental impact assessment). These systems are largely based on the “state environmental expertise”⁵⁶ (SEE) mechanism formally established in the Soviet Union in the second half of the 1980s. A detailed overview of these environmental assessment systems is provided later in this Annex.

In general, the system of environmental impact assessment is functional on the national level, though it needs continuous development. Relevant legal provisions define obligations of the state authorities, project developer, as well as describe the framework for the public involvement. Since SEA generally has evolved largely as an extension of EIA principles, the existing procedures and practice for EIA can be used for development of the assessment of the strategic development documents.

⁵⁴ UNECE and REC CEE, 2007: Resource Manual to Support Application of the UNECE Protocol on SEA

⁵⁵ Strategic Environmental Assessment and Integrated Water Resources Management and Development Economic and Sector Work Environment Department World Bank, final draft, June 29 2007

⁵⁶ “Ekologicheskaya ekspertiza” is also translated as “ecological expertise,” or “environmental expert expertise.”

The Kyrgyz Republic as well as Tajikistan ratified the UNECE Convention on EIA in a Transboundary Context in 2001. Serious efforts are being made so that this Convention becomes an instrument integrated in the national legislation, could be easily applied in practice and contribute to cooperation of neighbouring countries without limiting their development.

SEA activities related to the project

SEA activities which are relevant to the project are subdivided in two groups: (i) core SEA activities and (ii) additional SEA activities. Their successful implementation will fulfil the objectives specified below.

Considering the current status of SEA in the region as well as the overall objectives of the project, the objectives regarding SEA to be achieved are defined as follows:

1. To apply the SEA within selected project activities in order to ensure key environmental considerations are taken into account throughout the project
2. To build capacity for SEA application among key actors in water management sector
3. To propose policy recommendations for further uptake of SEA in the planning related to water management
4. To promote SEA in the region of Central Asia

(i) Core SEA activities

Several SEA activities have been integrated into this project and these activities will be implemented as a part of the project. It will ensure the environmental considerations are properly taken into account in all major activities of the project (Objective 1 above). Policy recommendations will be suggested based on the practical experience with SEA application (Objective 3). The SEA integrated activities will further contribute the Objective 2 i.e. they will help to build necessary in-country capacity and establish SEA good practice in the water management related planning in Kyrgyzstan and Tajikistan. The core SEA activities will also provide a base for further promotion of SEA in the region of the Central Asia (Objective 4).

Core SEA activities include the overall coordination and capacity building (integrated in the Project Output 4) and specific pilot SEAs, which are proposed as a part of the preparation of the key planning documents (within indicative project activities 1.2, 2.2, 2.4 and 2.5). They are aimed to carry out pilot SEAs to develop and test the proposed methodological approach and tools.

All core SEA activities will be coordinated by the International Environmental Specialist in close cooperation with the Team Leader (within Output 4) and National Environmental Experts, pilot SEAs will be conducted by teams of the National Environmental Experts. The expected results are especially:

- Existing methodological guidance for conducting SEA for water management sector
- Pilot projects on SEA for specific planning processes within water management sector carried out to demonstrate benefits of SEA approach

SEA coordination and capacity building

The following steps are proposed to achieve the objectives and results specified above:

- Step 1: Prepare specific methodologies for SEA in water management sector
Based on the international guiding documents and national legal systems of environmental assessment in both countries, SEA methodologies will be drafted for application for the planning processes related to water management that are supported under this project . The methodologies will describe procedural aspects of the assessment, appropriate approaches, methods and tools. The draft methodologies will be discussed with relevant stakeholders prior their finalizing.

	Months	Comments
Intl Environmentalist	2	1 month for each country.

Nat Environmentalist – Kyr	2	
Nat Environmentalist – Taj	2	
Direct costs	-	

- Step 2: Prepare and implement the training for experts involved in the pilot SEAs
The objective of the training is to create a basic capacity of the key actors involved in the SEA pilots to understand the concept and main principles of efficient SEA, and its practical application of SEA in the IWRM sector.

Expert:	Months	Comments
Intl Environmentalist	1	Altogether 4 training for pilot SEAs / 1 week per each training
Nat Environmentalist – Kyr	1	
Nat Environmentalist – Taj	1	
Direct costs	8,000 USD	4 x 2-day course (one per each pilot SEA). USD 2000 is need for each course to cover room rental, translation, materials and accommodation/food or per diems for participants,

- Step 3: Evaluate the case studies on SEA application in IWRM and propose further SEA development
The pilot SEA cases conducted for key planning documents will be analysed and used for the preparation of policy recommendations for the use of SEA in the IWRM sector in Kyrgyzstan and Tajikistan. These recommendations will suggest actions to be taken for further uptake of SEA for the planning processes within water management sector in both countries

Expert:	Months	Comments
Intl Environmentalist	1	3 days per each SEA pilot, plus policy recommendations
Nat Environmentalist – Kyr	1	
Nat Environmentalist – Taj	2	
Direct costs	-	

Pilot SEAs

This TOR details the specific sub-steps for undertaking of pilot SEAs for the key documents that were generally outlined under the above project activities 1.2, 2.2, 2.4, and 2.5.

Each pilot SEA will be managed by the national Environmental Specialist, which will be in regular contact with the Team Leader, international Environmental Specialist and other project experts involved in the respective project activity. SEAs are expected to run in parallel with the preparation of the key strategic documents i.e. (i) Irrigation Investment Strategies, Plans and Financial Policies in Kyrgyzstan and Tajikistan, (ii) Rural Water Supply and Sanitation Investment Strategies, Plans and Financial Policies in Tajikistan, and (iii) Small-scale Hydropower Investment Strategies, Plans and Financial Policies in Tajikistan.

The objective of pilot cases is to conduct the SEA in accordance with the rules of international good practice and to ensure that the key environmental issues are properly considered in the planning and decision-making processes. The pilot SEA processes will be conducted in the following steps:

- Step 1: Initiation of SEA:

The specific SEA approach and procedure will be elaborated and agreed with the national project partners at the beginning of each planning process. The SEA team will be established for pilot SEA – i.e. the relevant project experts will be appointed or selected on competitive basis. This step will also include identification of the key environmental issues to be further analyzed, and the identification of the key stakeholders to be involved in the SEA process.

Expert:	Months	Project activity / Comments
Intl Environmentalist	2	4.1: Preparation of the detailed ToRs for SEA experts, preparation of the work plans for pilot SEAs
Nat Environmentalist – Kyr	2	1.2
Nat Environmentalist – Taj	4	2.2 (1 person month), 2.4 (1 person month), 2.5 (2 person months)
Direct costs	-	

- Step 2: Stakeholders consultations

The SEA component will provide recommendations on necessary consultations with relevant stakeholders to the relevant planning teams. These consultations will be carried out by the planning teams as a part of the preparation of the key documents. The environmental specialists (both international and national) will take part in the relevant consultations that concern key environmental issues.

Expert:	Months	Project activity / Comments
Intl Environmentalist	1	4.1: Preparation of the consultation plans for pilot SEAs, participating at the stakeholders consultations meetings.
Nat Environmentalist – Kyr	0,5	1.2
Nat Environmentalist – Taj	1,5	2.2 (0,5 person month), 2.4 (0,5 person month), 2.5 (0,5 person month)
Direct costs	-	The necessary direct costs (conference rooms' rental, printing and distribution of materials etc.) shall be covered by costs for the preparation of the key documents.

- Step 3: Undertaking of SEA:

The analytical tasks include (i) baseline analysis for the key environmental issues, (ii) analysis of the proposed objectives and priorities, (iii) analysis of the likely impacts of the proposed activities and measures, (iv) proposal of the mitigation and enhancement measures. All findings, results and conclusions are to be summarized in the SEA report, which will be submitted together with the document assessed.

Expert:	Months	Project activity / Comments
Intl Environmentalist	4	4.1: Supervising pilot SEAs, consulting SEA teams, revising SEA reports.
Nat Environmentalist – Kyr	7,5	1.2
Nat Environmentalist – Taj	14,5	2.2 (4,5 person months), 2.4 (4,5 person months), 2.5 (5,5 person months)
Direct costs	10,000 USD	This may include travel costs for SEA team experts; data purchase etc. and shall be distributed proportionally among project activities 1.2, 2.2, 2.4, and 2.5.

Time and financial allocation for core SEA activities

The following table provides summary of international and national environmental experts inputs needed both for coordination of the SEA activities – these shall be included within project activity 4.1 – as well as for pilot SEAs (in the project activities 1.2, 2.2, 2.4, and 2.5).

For International Environmentalist it includes time for overall coordination of core SEA activities (including supervision of pilot SEAs). The time allocation for National Environmentalists within project activity 4.1 is suggested in addition to already allocated time for pilot SEAs for key documents. The involvement of national environmental experts in the SEA element coordination is essential for its efficiency and acceptance by key actors in both countries.

Project activity	Time allocation			Direct costs
	Int Environmentalist	Nat Environmentalist		
		Kyr	Taj	
1.2	-	10	-	2,500 USD
2.2	-	-	6	2,500 USD
2.4	-	-	6	2,500 USD
2.5	-	-	8	2,500 USD
Subtotal		10	20	10,000 USD
4.1	11	4	5	8,000 USD
Total	11	14	25	18,000 USD
Total in USD	220,000	28,000	50,000	18,000 USD
Overall allocation for core SEA activities in USD			316,000 USD	

(ii) Additional SEA activities

The additional SEA activities will not directly funded from the project budget, but could be proposed for additional / extra funding from other sources. They are mainly linked to the Objectives 2 and 4 described above – the main aim of the additional SEA activities is to use the results and outputs delivered by core SEA activities integrated in the project (mainly experiences gained from pilot SEAs for the key planning documents) for SEA promotion in the region and further capacity building of all relevant stakeholders.

Additional SEA activities will strengthen integration of the environmental considerations in the relevant planning processes – both related to the water management as well as in other sectors. It will also enable sharing of information and lessons learned among stakeholders and countries in the region of the Central Asia.

Following activities are suggested to be implemented in order to achieve previously mentioned aims.

Regional SEA workshop

In order to use the project results and to promote SEA in other countries and sectors the regional SEA workshop is proposed as an additional activity.

The objectives of the workshop are:

- Exchange of experience with practical application of SEA in IWRM sector
- Identified needs for further SEA development in the region and in the other sectors
- Contacts established among key SEA actors in the region to enable further networking

The workshop shall be organized at the end of the project as 2-days long event. The presentations will include experiences with SEA application within the project as well as lessons learned with SEA capacity building (e.g. from NIS and/or SEE countries). It is supposed the workshop will be

attended by approx. 50 participants, with involvement of 3 international SEA experts and 6 national experts as lecturers.

The following table provides overview of costs for the workshop:

Activity	Inputs needed (number of working days)	Costs (1 WD Int Expert = 1,000 USD 1 WD Nat Expert = 100 USD)
Organizing and administrative issues (identification of participants, distribution of invitations etc.)	Int SEA expert: 15 WDs Nat SEA experts: 30 WDs	15,000 USD 3,000 USD
Preparing presentations	Int SEA experts: 6 WDs Nat SEA experts: 12 WDs	6,000 USD 1,200 USD
Attending workshop	Int SEA experts: 12 WDs Nat SEA experts: 24 WDs	12,000 USD 2,400 USD
Direct costs:	Room rental, interpreting etc.: Plane tickets for Int experts: Plane tickets for Nat experts: Per diems:	2,000 USD 12,000 USD 12,000 USD 900 USD
TOTAL:		66,500 USD

In-depth training on SEA

The aim of the training is to increase the expert capacity for conducting SEA in the region. The training will be focused on the environmental experts and planners.

The training will follow the latest developments in the field of SEA training⁵⁷. The training will be practice-oriented – it will use the principles of Harvard Business School case method, usually used for the MBA students. The goal of case work is to prepare trainees for the challenges of real life work. It is by far the most powerful way to learn the skills required to manage difficult tasks in real-life assignments. The main element of the training – case study – will be prepared on the basis of the pilot SEAs carried out for the key planning documents as an integral part of the IWRM project. The training materials provided to the participants on the paper form and on the CD will include:

- The training manual including short introduction, the case study and annexes (e.g. sources of information and key references on SEA, training programme)
- PowerPoint slides with the presentations
- Other materials (description of the introductory exercises, evaluation form etc.).

The training is proposed as 4-days long event, for maximum 20 participant and opened for experts from all countries in the region of the Central Asia (in order to share experience gained within the IWRM project in Kyrgyzstan and Tajikistan). It will be lectured by 2 international SEA experts, the training will be organized in cooperation with the national experts from the country, where the training will be held.

The following table provides overview of costs for the training:

Activity	Inputs needed (number of working days)	Costs (1 WD Int Expert = 1,000 USD 1 WD Nat Expert = 100 USD)
Case study development	Int SEA expert: 20 WDs Nat SEA experts: 10 WDs	20,000 USD 1,000 USD
Training material preparation	Int SEA expert: 5 WDs	5,000 USD

⁵⁷ It will use e.g. SEA training developed by the German Technical Cooperation (GTZ) and Capacity Building International (InWEnt) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

	Nat SEA experts: 10 WDs	1,000 USD
Organizing and administrative issues (identification and selection of participants, distribution of invitations etc.)	Int SEA expert: 5 WDs	5,000 USD
	Nat SEA experts: 10 WDs	1,000 USD
Training implementation	Int SEA experts: 14 WDs	14,000 USD
	Nat SEA experts: 7 WDs	700 USD
Direct costs:	Room rental:	500 USD
	Printing	500 USD
	Plane tickets for Int experts:	8,000 USD
	Per diems for Int experts:	1,400 USD
	Accommodation and per diems for participants:	18,000 USD
TOTAL:		76,100 USD

Study tour

The aim of the study tour is to increase understanding of SEA systems, its benefits and concept and to improve capacity for its implementation among state environmental and planning authorities in the region.

The study tour will be organized in European country with developed SEA system (e.g. UK, The Netherlands, or Czech Republic) for up to 20 participants. It will include meetings with:

- Relevant environmental authorities (SEA competent authorities at national and regional levels, nature protection authorities)
- Authorities responsible for planning in the key sectors (land-use planning, transport, energy, regional development etc.)
- Scientific institutions responsible for specific activities (environmental monitoring, environmental data analysis)
- SEA experts

The study tour will be prepared by the organization (NGO, environmental consultancy) in the target country, selected on competitive basis. It will require cooperation with the institutions / experts in the participants' countries responsible for in-coordination. The selected organization will be responsible for all administrative and organizational issues; it shall also provide the introductory lessons on the SEA system in the target country. The study tour shall be organized as 5 days long.

The following table provides indicative overview of costs for the study tour (it can differ based on the selected target country):

Activity	Inputs needed (number of working days)	Costs
		(1 WD Int Expert = 1,000 USD 1 WD Nat Expert = 100 USD)
Study tour organization and preparation (including arranging meetings, identification and selection of participants, distribution of invitations etc.)	Int expert: 5 WDs	5,000 USD
	Nat experts: 10 WDs	1,000 USD
Tour implementation (introductory lessons on SEA system, participants coordination)	Int experts: 5 WDs	5,000 USD
Direct costs:	Plane tickets for participants:	80,000 USD
	Accommodation and per diems for participants:	28,000 USD

TOTAL:	119,000 USD
---------------	-------------

Preparation of brochure and leaflets on benefits of SEA

The promotional materials – brochure and leaflets – will be prepared in order to distribute the information on SEA benefits and to explain the whole SEA concept to the public and other relevant stakeholders (NGOs, planners etc.).

The brochure (approx. 20 pages) will provide the overview of the main SEA principles – key analytical tasks of SEA, links to the planning procedures, public participation etc. It will be based on the international good practice in SEA, and it will also utilize the practical experience with SEA application for water management related planning within the project.

The main element of the leaflet will be scheme of the SEA process with the key steps and short explanation of its aim and importance. It will strengthen the possibilities for public involvement and participation in the respective steps of the SEA process.

Following table provides overview of costs for the preparation of the SEA brochure and leaflets:

Activity	Inputs needed (number of working days)	Costs (1 WD Int Expert = 1,000 USD 1 WD Nat Expert = 100 USD)
Brochure content preparation	Int SEA expert: 10 WDs Nat SEA experts: 20 WDs	10,000 USD 2,000 USD
Leaflet content preparation	Int SEA experts: 3 WDs Nat SEA experts: 5 WDs	3,000 USD 500 USD
Direct costs:	Translation into Russian language Graphic layout: Printing (brochure – 1000, leaflet – 5,000)	5,000 USD 3,000 USD 5,000 USD
TOTAL:		28,500 USD

Description of project SEA case studies and a comparative study on linkages between SEA and IWRM in case of Central Asia

The project will conclude by a comparative study on linkages between SEA and IWRM in case of Central Asia. This study will build on a previous World Bank global study on SEA and Integrated Water Resources Management which was prepared in 2007 but has not included any case from the EECCA region. The Central Asian study will examine specific experiences gained within this project. It will focus on the following specific linkages between SEA and IRWM:

- Process steps
- Issues address
- Methods used
- Arrangements for stakeholder consultation

The study will also include preparation of the SEA case studies which will follow format for reposting SEA case developed by the OECD/DAC SEA Task Team. The detailed description of each case will focus on:

- Context of the SEA case
- Approach and methodology used
- Issues addressed by the SEA
- Stakeholder engagement within the SEA
- Results of the assessment
- Provisions for monitoring and follow-up
- Link with decision-making
- Capacity building elements
- Concluding comments and observations

The case studies will be used in the UNDP on-line training on SEA, will be submitted to the OECD/DAC SEA Task Team, and will be disseminated within various web pages and networks (such as International Association for Impact Assessment)

It is suggested that the case studies and comparative study will be prepared only in English and will be peer reviewed by nominated from the World Bank, ADB and UNECE.

Activity	Inputs needed (number of working days)	Costs (1 WD Int Expert = 1,000 USD 1 WD Nat Expert = 100 USD)
Preparation of case studies	Int SEA expert: 10 WDs Nat SEA experts: 20 WDs	10,000 USD 2,000 USD
Preparation of comparative study on linkages between SEA and IRWM in Central Asia	Int SEA experts: 15 WDs	15,000 USD
Direct costs:	Peer review	6,000 USD
TOTAL:		33.000 USD

Summary budget table for all SEA activities related to the project

The table below provides complete overview of the costs for both core and additional SEA activities described above. The core SEA activities are covered by the IWRM project budget, additional SEA activities will be proposed for additional / extra funding from other sources.

Activity	Costs of experts work	Direct costs	Total
Core SEA activities			
SEA coordination and capacity building	238,000 USD	8,000 USD	246,000 USD
Pilot SEAs	60,000 USD	10,000 USD	70,000 USD
Subtotal	298,000 USD	18,000 USD	316,000 USD
Additional SEA activities			
Regional SEA workshop	39,600 USD	26,900 USD	66,500 USD
In-depth training on SEA	47,700 USD	28,400 USD	76,100 USD
Study tour	11,000 USD	108,000 USD	119,000 USD
Preparation of brochure and leaflets on benefits of SEA	15,500 USD	13,000 USD	28,500 USD
Description of project SEA case studies and a comparative study on linkages between SEA and IWRM in case of Central Asia	27,000 USD	6,000 USD	33,000 USD
Subtotal	140,800 USD	182,300 USD	323,100 USD
TOTAL	438,800 USD	200,300 USD	639,100 USD

Detailed overview of provisions related to environmental assessment in Kyrgyzstan and Tajikistan

Introduction

Kyrgyzstan and Tajikistan have operated environmental assessment systems since gaining their independence in the early 1990s. Some form of Environmental Assessment is required in both countries for projects but also for plans, programmes and most other decisions that may have significant environmental impacts. These systems are largely based on the “state environmental expertise”⁵⁸ (SEE) mechanism formally established in the Soviet Union in the second half of the 1980s.

The general purpose of the state environmental expertise (SEE) is to verify the environmental acceptability of a proposed activity, which in practice often means checking compliance with norms and standards in order to identify and ban “environmentally harmful” activities. SEE procedures are — due to their use as regulatory instruments — dominated by environmental authorities that not only direct the SEE process, but may also assess project documentation and issue mandatory decisions. While, this approach may be suitable for some project level activities, it seems inappropriate for plans and programmes where ministries of environment have a limited mandate to influence planning processes of other sectoral or regional authorities.

Legislative basis for SEE in both countries includes requirements for the proponents to submit “materials that are concerned with the assessment of impacts on the environment” to the SEE body. These “materials” are often known by their Russian acronym of OVOS⁵⁹ and are generally similar to EIA reports, though they are more standardised, often incorporated in technical project documentation and not always publicly accessible. At the level of plans and programmes, the term OVOS is not used and the content of “environmental assessment materials” for SEE of plans and programmes is not defined in detail. Thus, SEE of plans and programmes largely rely on whatever environment-related information is contained in the planning documentation.

A specific feature of SEE systems in both countries is the provision for public environmental expertise which could be organised by a citizens’ group and is a parallel to state environmental expertise. The initiators of public environmental expertise had mandatory access to planning documentation, and their conclusions had to be considered during a state environmental expertise. However, a public environmental expertise could only proceed if initiated by a registered NGO and endorsed by authorities. So far, only few such processes were organised in both countries.

Kyrgyzstan

The environmental assessment system in Kyrgyzstan is formed by the state environmental examination (SEE) conducted by governmental environmental agencies and assessment of environmental impact (OVOS) of proposed interventions performed by intervention initiators. The framework requirements for state environmental examination (SEE) and assessment of environmental impact (OVOS) in Kyrgyzstan are laid down in the Law on Environmental Examination adopted in 1999. The State environmental examination and OVOS are however required only for project-level decisions.

The Kyrgyz Republic ratified the UNECE Convention on EIA in a Transboundary Context in 2001, but has not yet joined its Protocol on Strategic Environmental Assessment developed within the framework of this Convention mainly because of initial in-country concerns about feasibility of full transposition of the SEA Protocol requirements into national SEE/OVOS system.

However, one pilot SEA has been carried out in this country for the Study of Integrated Development Plan of Issyk-Kul Zone (December, 2004). This JICA supported project identified 78 projects and programmes on integrated development of Issyk-Kul area for the period up to 2025 on the basis of thorough analysis of environmental issues and impacts. This plan includes a comprehensive section “Evaluation and Activities on Environmental Protection” which is a kind of

⁵⁸ “Ekologicheskaya ekspertiza” is also translated as “ecological expertise,” or “environmental expert expertise.”

⁵⁹ *Otsenka vozdeystviya na okruzhayushchuyu sredu.*

para-SEA process that was used for integrated planning of Issyk-Kul zone development. It identified an overall load of pollutants permissible pursuant to the international standards on lake water quality and became a reason for introducing changes in the projects on land use and development considered in the moderate growth scenario pursued by this plan. This assessment also recommended that amendments to the Law on Environmental Examination would be needed in order to take into account the role of local administration and local councils (keneshes) in environmental protection.

Tajikistan

In Tajikistan the detailed EIA procedure is stipulated by the law “On protection of nature” – the law. The legal framework for environmental assessment in Tajikistan is made up of two laws “On protection of nature” which defines several types of the planning documents to be subject of the assessment and “On environmental expert examination”. The detailed EIA (OVOS) procedure is also defined in the temporary regulation “On Environmental Impact Assessment”.

This legal framework requires an environmental expert examination for:

- Draft technical standards documents and methodological instructions that regulate economic and other activities, which that involve use of natural resources;
- Materials preceding projections of production force development and placement in the Republic of Tajikistan territory, inclusive of:
 - Draft state comprehensive and special target socio-economic, research and technological programmes;
 - Draft territory development master plans of free economic zones and areas with special nature management and economic activity regimes,
 - Draft sector development schemes, including industry;
 - Draft investment programmes involving nature management issues;
 - Draft comprehensive state programmes of environment protection.
 - Draft international treaties, contracts and agreements, inclusive of draft product sharing and concession agreements, and others that involve use of natural resources by and waste of a foreign investment project

The application of the environmental expert examination and EIA has been so far been confined only to proposed project. Proposed plans, programmes or strategies were not yet assessed in terms of their environmental impacts.

Tajikistan ratified the UNECE Convention on EIA in a Transboundary Context in 2001 through a decree by President of the Republic of Tajikistan “On joining the UNECE Convention on environmental impact assessment in a trans-boundary context”.

ANNEX 7 - REFERENCES

- ADB (2006a) *RRP for the Tajikistan Sustainable Cotton Sub-sector Project*;
- ADB (2006b) *Serving the Rural Poor: A Review of Civil Society-Led Initiatives in RWSS*;
- ADB (2004a) *Development of Community Based Micro-Hydropower Supply in Remote Rural Areas*;
- ADB (2004b) *Kyrgyz Study on Pricing Systems and Cost-Recovery Mechanisms for Irrigation*;
- Albinson & Perry (2002) *Fundamentals of Smallholder Irrigation – The Structured System Concept IWMI*
- Balakrishnan & Lobo (2004) *Towards User Report Cards on Irrigation Services – PAC Bangalore, India*;
- Bird (2006) *Rights, Risks and Responsibilities – a governance tool*, IAIA Governance Paper # 237;
- Carl Bro and Atkins (2007) *Long Term Strategy for the RWSS Sector in the Kyrgyz Republic*;
- CAWMA (2007) *Water for Food Water for Life – The Comprehensive Assessment of Water Management in Agriculture*;
- Cornish (2005) *Performance Benchmarking in the Irrigation and Drainage Sector – HR Wallingford*
- Cornish (1998) *Improved Irrigation System Planning and Management: Aids to Maintenance Incorporating Guidelines for Monitoring System Condition – HR Wallingford*
- Cornish and Skutsch (1997) *A Procedure for Planning Irrigation Scheme Rehabilitation – HR Wallingford*
- Cowi (2007) *A Note on Developing Financing Strategies in Water Supply and Sanitation*;
- DFID (2003) *Promoting Organizational Development: A Source Book of Tools and Techniques*;
- DFID (1998) *Guidance Manual on Water Supply and Sanitation Programmes*;
- Esrey (1996) *Water, Waste and Wellbeing: A Multicountry Study – American Journal of Epidemiology*;
- FAO (2007) *Modernizing Irrigation Management – the MASSCOTE approach – FAO I&D Paper No 63*
- FAO (2003) *Legislation on water users' associations – A comparative analysis – Legislative Study 79*;
- FAO (1999) *Transfer of irrigation management services – Guidelines - FAO I&D Paper No 58*;
- FAO (1996) *Guidelines for Planning Irrigation & Drainage Investment Projects Investment Centre TP 11*;
- FAO (1979) *Yield Response to Water – FAO Irrigation and Drainage Paper No 33*;
- Finney, C. (2008) *Personal Communication* quoting Mott MacDonald (2005) WMIP preparation study;
- Fewtrell and Colford (2004) *Water, Sanitation and Hygiene: Interventions and Diarrhoea – A Systematic Review and Meta-analysis*, World Bank Water Supply and Sanitation Sector Board;
- Frederiksen (2007) *Water Resources Management: Stewardship and Services*;

Frederiksen (1992) *Water Resource Institutions: Some Principles and Practices*, WB Tech Paper 191;

Frederiksen & Vissia (1998) *Considerations in Formulating the Transfer of Services in the Water Sector*;

GOK (2005) *The Law of the Kyrgyz Republic - Water Code*;

GOT (2001) *Law of the Republic of Tajikistan – Water Code*;

GPOBA (2006) *Regulation of WSS services: getting better services to poor people*, www.gpoba.org;

GWP & UNEP (2006) *Speedup of IWRM Objectives – 2005 Implementation in Central Asia – Annex C: Road Maps for developing and implementing Kyrgyzstan and Tajikistan IWRM Strategies*;

GWP (2004) *Catalyzing Change: A handbook for developing IWRM and water efficiency strategies*;

GWP (2000) *Integrated Water Resources Management – TAC Background Paper No. 4*;

GWP (undated) *Meeting the WSSD Targets on IWRM and WE strategies: A how-to guide*;

Haskoning (2003) for GEF and IFAS Water and Environmental Management Project *Study on National and Regional Water and Salt Management Plans - Draft Regional Policy, Strategy and Action Program*;

Hooper (2006) *Key Performance Indicators of River Basin Organizations*, www.iwr.usace.army.mil;

Hydrosult (2008) *Support for Monitoring Policy Reforms and Improving Farm and Water Management*;

IWMI and SICWC (2002) *Institutional Situation Analysis of Water Management in the Ferghana Valley*;

Kholmatov (2008) *Technical Situation Analysis* for preparation of a UNDP Project for Fostering Transboundary Dialogue, in Central Asia, by Developing and Implementing National IWRM Strategies;

Malano & Burton (2001) *Guidelines for benchmarking performance in the irrigation and drainage sector*

McNeil (2004) *Assessing capacity for Community-based Development: A Pilot Study in Tajikistan*, WBI;

Millington (2000) *River Basin Management: Its Role in Major Water Infrastructure Projects*, Thematic Review V.3 prepared as an input to the World Commission on Dams www.dams.org

Moench et al (2003) *The Fluid Mosaic: Water Governance in the Context of Variability, Uncertainty and Change – A Synthesis Paper – Institute of Development Studies*

Molden et al (1998) *Indicators for Comparing Performance of Irrigated Agricultural Systems – IWMI*

Mott MacDonald (2000) *Kyrgyz National Irrigation Rehabilitation Strategy and Action Plan*;

MWMI, UNDP and IFAS (2006) *Water Sector Development Strategy in Tajikistan*;

NSC and UNICEF (2006) *Kyrgyzstan Multiple Indicator Cluster Survey – National Statistics Committee*;

OECD (2008) *Terms of Reference – Financing U and R Water Supply and Sanitation in Kyrgyzstan*;

Oxfam (1997) *Capacity-Building: An Approach to People-Centered Development*;

Perry et al (1997) *Water as an Economic Good: A Solution, or a Problem?* IIMI Research Report 14;

Pruss et al (2002) *Estimating the Burden of Disease from Water, Sanitation & Hygiene at a Global Level*;

Pulatov (2008) *Institutional Situation Analysis* for preparation of a UNDP Project for Fostering Transboundary Dialogue, in Central Asia, by Developing and Implementing National IWRM Strategies;

Schaffer & Ashkenas (2005) *Rapid Results: How 100-day projects build capacity for large-scale change*;

SCS and UNICEF (2005) *Tajikistan Multiple Indicator Cluster Survey* – State Committee on Statistics;

Skutsch (1998) *Maintaining the Value of Irrigation and Drainage Projects* – HR Wallingford

Sohail and Cavill (2007) *Partnering to Combat Corruption in Infrastructure Services – A Toolkit* – WEDC;

Strikeleva (2007) *Project Evaluation* – Kazakh IWRM Strategies: Establishment of Basin Councils;

Tarnutzer (2007) *External Review Report - Integrated Water Resources Management Ferghana Valley Project Phase III: May 2005 to April 2008 for the Swiss Agency for Development and Cooperation*;

UN – Water (forthcoming) *Status Report on IWRM/Water Efficiency Plans for CSD 16*;

UN (2006) *World Water Development Report 2 – Water a shared responsibility*;

UN (2005) *Investing in Sustainable Development: Tajikistan MDG Needs Assessment*;

UN (2004) *Strengthening Cooperation for Rational and Efficient Use of Water & Energy in Central Asia*;

UNDP (2008) *Performance & Capacity of River Basin Organizations – Cross-case comparison of RBOs*

UNDP (2007a) *HDR – Fighting climate change – Human solidarity in a divided world*;

UNDP (2007b) *Water Governance Strategy – a follow-up to HDR 2006: Beyond Scarcity*;

UNDP (2007c) *Capacity Development Practice Note*;

UNDP (2006) *HDR – Beyond scarcity: Power, poverty and the global water crisis*;

UNDP (2005) *Central Asia HDR, Chapter 4 - Natural resource lifeline: water, energy & the environment*;

UNDP (2004) *Strategy and Project Activities to Support Improved Regional Water Management in CA*;

UNDP (2003) *National HDR – Tapping the Potential: Improving WR management in Tajikistan*;

UNEP (2007) *Dams and Development: Relevant Practices for Improved Decision Making*;

WHO (2007) *Water, Sanitation and Hygiene: Quantifying the health impact at national and local levels in countries with incomplete WSS coverage*, Environmental Burden of Disease Series, No. 15:

WHO (2006a) *Preventing Disease Through Healthy Environments: Towards an estimate of the environmental burden of disease*;

WHO (2004) *Evaluation of Costs & Benefits of Water & Sanitation Improvements at the Global Level*;

WHO (2003) *Domestic Water Quantity, Service Level and Health*, WHO/SDE/WSH/03.02;

WHO and UNICEF JMP (2006) *Meeting the MDG Drinking Water and Sanitation Targets: The Urban and Rural Challenge of the Decade*;

World Bank (2007a) *Kyrgyz Republic Poverty Assessment, Vol 1: Growth, Employment and Poverty*;

World Bank (2007b) *Emerging Public – Private Partnerships in Irrigation Development & Management*;

World Bank (2006a) *RWSS and Hygiene: A Review of 25 Years of World Bank Lending (1978 – 2003)*;

World Bank (2006b) *Disease Control Priorities in Developing Countries* (2nd ed), Jamison et al;

World Bank (2006c) *Global Burden of Disease and Risk Factors*, Lopez et al;

World Bank (2005a) *Republic of Tajikistan Poverty Assessment Update*;

World Bank (2005b) *PAD for the Ferghana Valley Water Resources Management Project*;

World Bank (2004a) *Water - Energy Nexus in Central Asia – Improving cooperation in Syr Darya Basin*;

World Bank (2004b) *A Revised Approach to World Bank and Development Partners' Involvement in the Area of Water – Energy Cooperation in Central Asia*;

World Bank (2004c) *Water Resources Sector Strategy: Strategic Directions for Engagement*;

World Bank (2003a) *Water Resources in Asia and Central Asia: Volume 1: Issues and Strategic Directions and Volume 2: Country Water Notes and Selected Transboundary Basins*;

World Bank (2003b) *Irrigation in Central Asia: Social, Economic and Environmental Considerations*;

World Bank (undated) *Institutional and Policy Analysis of River Basin Decentralization: The Principle of Managing Water Resources at the Lowest Appropriate Level—When and Why Does It (Not) Work?*

WSP (undated) *Making Rural Water Supply Sustainable: Report on the Impact of Project Rules*;

WSP (2003) *In Pursuit of Good Governance: Experiments from South Asia's Water & Sanitation Sector*;

WWF (2001) *Elements of Good Practice in Integrated River Basin Management – A practical resource for implementing the EU Water Framework Directive*;

Yakubov (2006) *The 2006 Follow-up Survey of 3 Pilot WUAs in the Ferghana Valley – IWMI & SICWC*;