

# PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund



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## PART I: PROJECT INFORMATION

Project Title:	Enabling countries of the transboundary Syr Darya Basin to make sustainable use of their groundwater potential and subsurface space with consideration to climate variability and change.		
Country(ies):	Kazakhstan, Kyrgyzstan, Tajikistan	GEF Project ID: <sup>1</sup>	
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	4984
Other Executing Partner(s):	UNESCO IHP	Submission Date:	
GEF Focal Area (s):	IW	Project Duration (Months)	60
Name of parent program (if applicable):	NA	Agency Fee (\$):	342,000
For SFM/REDD+ <input type="checkbox"/>			
For SGP <input type="checkbox"/>			

### A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
IW-3 (select)	GEFTF	3,500,000	17,500,000
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
Total Project Cost		3,500,000	17,500,000

### B. INDICATIVE PROJECT FRAMEWORK

Project Objective: To create the regional and national enabling environment for climate resilient, sustainable, conjunctive use of surface and groundwater resources in the Syr Darya Basin						
Project Component	Grant Type <sup>3</sup>	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
Component 1.: Enhancing knowledge and resources assessment capacity.	TA	1.1. Strengthened knowledge and monitoring capacity in countries enhances the role and improves the sustainability of groundwater resources in the Basin also in view of climatic variability and change.	1.1.1 Characterization and TDA of Syr Darya shallow aquifers - this includes an indicator based characterization of main aquifers, both transboundary and national (quantity, quality, flows, recharge including return flows, socio-economic aspects including an assessment of the role of women),	GEFTF	1,150,000	5,750,000

<sup>1</sup> Project ID number will be assigned by GEFSEC.

<sup>2</sup> Refer to the reference attached on the [Focal Area Results Framework](#) when completing Table A.

<sup>3</sup> TA includes capacity building, and research and development.

			<p>adopting basin-wide harmonized criteria, indicators, and hydro-geological maps, and a Transboundary Diagnostic Analysis identifying main issues of concern, their causes, and possible solutions.</p> <p>1.1.2. Regional reconnaissance of deep seated aquifers, based on existing and accessible data, with focus on salinity distribution, quantity, and geothermal energy content, in particular of the Shatlyk Sandstone Aquifer (Cretaceous), and of inter-mountain sedimentary basins.</p> <p>1.1.3. Monitoring networks - Design of monitoring networks for groundwater quality and flows based on agreed upon methodology and indicators, and on existing networks.</p> <p>1.1.4. Training program – Strengthening the capacity of national agencies in key technical aspects of groundwater management, including groundwater vulnerability mapping, modeling, and DSSs.</p> <p>1.1.5. Groundwater Information Management Systems - an essential groundwater management tool - established and regionally harmonized, enabling the storing, processing, visualizing and combining various types of data and information (geo-referenced maps, tabular data, images and descriptive texts). The System will be built at the pilot level in countries, to be possibly extended nation-wide.</p>			
Component 2.: Managing Subsurface Space	TA	2.1. Introducing the systematic consideration of	2.1.1. Managed Aquifer Recharge: preliminary	GEFTF	1,000,000	5,000,000

		<p>subsurface space utilization options improves countries ability to address climate variability and change, surface water flows variations, and environmental hazards.</p>	<p>basin-wide identification and assessment of technical and socio-economic pre-feasibility of large scale MAR schemes to increase storage capacity and resilience to CV&amp;C.</p> <p>2.1.2 Disposal of saline waters and waste waters in the subsurface: basin-wide assessment of technical and socio-economic pre-feasibility, and cost-benefit analysis.</p> <p>2.1.3 Small Scale Pilot demonstrations of MAR and of reinjection of treated wastewaters.</p> <p>2.1.4. Awareness raising at national and international levels on the possible utilizations of subsurface space.</p>			
<p>Component 3.: Providing Tools for Managing Groundwater Resources</p>	TA	<p>3.1. Country authorities, and land, water and urban area managers enabled to incorporate consideration of groundwater, climate variability and change, and gender into IWRM plans, SAP or equivalent processes, and water safety planning.</p>	<p>3.1.1. Regional review of existing water management policy and institutional frameworks, including transboundary cooperation/management schemes existing in the region (e.g.: Isfara and Khodzha-Bakirgan river basins)</p> <p>3.1.2. Scenario building - Scenarios of Water Futures for the Syr Darya Basin with a focus on climate variability and change incorporating new insights generated by the enriched knowledge base, built through participatory processes.</p> <p>3.1.3. Conjunctive Management Options – A Synthesis. The enhanced science based knowledge of the current state of the Basin’s groundwater resources, and the findings of the TDA translated into conjunctive management options, considering also the</p>	GEFTF	625,000	3,125,000

			<p>insight on possible futures gained under 2.1.2., at national and transboundary levels, and the results of the assessment of the role of women (1.1.1).</p> <p>3.1.4. Awareness and capacity of decision makers in governments (including national and international water agencies and organizations), and of land, water and urban area managers on the role of groundwater in IWRM and other planning instruments, raised through seminars, roundtables and study tours.</p> <p>3.2. Basin-wide exchange of information and experiences facilitates transboundary cooperation and replication of good practices</p> <p>3.2.1. Mechanism for the sharing of information and experiences among countries of the basin on groundwater assessment, monitoring and management within an IWRM context established, using also online communication tools.</p> <p>3.2.2. Coordination and exchanges with other relevant projects and initiatives, including the GEF supported ones, established and operational.</p>			
Component 4.: Fostering Policy Dialogue on Groundwater Management	TA	4.1. Raised awareness of decision makers and practitioners on existing legal instruments, guidelines and good practices related to groundwater governance, promotes adoption and advances national and regional policy dialogue.	4.1.1. National training programs on the principles, and experiences gained globally from the application of key directives, conventions and guidelines, including: UNECE Water Convention, EU WFD and Daughter Groundwater Directive; UN Non Navigational Uses Convention; UNGA Resolution on the Law of Transboundary Aquifers.	GEFTF	400,000	2,000,000
Component 5.: Dissemination and Communication	TA	5.1. Project experiences and lessons disseminated globally and regionally.	5.1.1 Project web site (following IW LEARN standards) created, IWENS produced, use of GEF 5 IW tracking tool and participation at GEF IW conferences and other IW LEARN activities ensured.	GEFTF	150,000	750,000

			5.1.2. Publication and dissemination of key project documents, workshop and conferences documentation, experience notes, hydro-geological and other maps, translated into regional languages.			
	(select)			(select)		
	(select)			(select)		
Subtotal					3,325,000	16,625,000
Project Management Cost (PMC) <sup>4</sup>				GEFTF	175,000	875,000
Total Project Cost					3,500,000	17,500,000

### C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
National Government	Kazakhstan	In-kind	3,000,000
National Government	Tajikistan	In-kind	2,000,000
National Government	Kyrgyzstan	In-kind	2,000,000
GEF Agency	UNDP	Unknown at this stage	4,000,000
Other Multilateral Agency(ies)	UNESCO IHP	In-kind and cash	4,000,000
Bilateral Aid Agency (ies)	tbd	Grant	1,000,000
Private Sector	tbd	Grant	500,000
Others	IGRAC	In-kind	1,000,000
<b>Total Cofinancing</b>			<b>17,500,000</b>

### D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) <sup>2</sup>	Total (\$) c=a+b
UNDP	GEFTF	International Waters	Kazakhstan, Kyrgyzstan, Tajikistan	3,500,000	332,500	3,832,500
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
<b>Total Grant Resources</b>				<b>3,500,000</b>	<b>332,500</b>	<b>3,832,500</b>

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project.

### E. PROJECT PREPARATION GRANT (PPG)<sup>5</sup>

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)<sup>6</sup></u>
• No PPG required.	_____	_____
• (upto) \$50k for projects up to & including \$1 million	_____	_____
• (upto)\$100k for projects up to & including \$3 million	_____	_____

<sup>4</sup> To be calculated as percent of subtotal.

<sup>5</sup> On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

<sup>6</sup> PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

- (upto)\$150k for projects up to & including \$6 million      100,000      9,500
- (upto)\$200k for projects up to & including \$10 million      \_\_\_\_\_      \_\_\_\_\_
- (upto)\$300k for projects above \$10 million      \_\_\_\_\_      \_\_\_\_\_

**PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF ROJECT ONLY**

Trust Fund	GEF Agency	Focal Area	Country Name/ Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
<b>Total PPG Amount</b>				<b>0</b>	<b>0</b>	<b>0</b>

MFA: Multi-focal area projects; MTF: Multi-Trust Fund projects.

## **PART II: PROJECT JUSTIFICATION**<sup>7</sup>

### **A. PROJECT OVERVIEW**

**A.1. Project Description. Briefly describe the project, including ; 1) the global environmental problems, root causes and barriers that need to be addressed; 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental cost reasoning and expected contributions from the baseline , the GEFTF, LDCF/SCCF and co-financing; 5) global environmental benefits (GEFTF, NPIF) and adaptation benefits (LDCF/SCCF); 6) innovativeness, sustainability and potential for scaling up**

#### *1.) the global environmental problems, root causes and barriers that need to be addressed*

The Syr Darya River, part of the Aral Sea Basin, is one of the largest and most important water arteries in former Soviet Central Asia. It runs along territories of four new states – Kyrgyzstan, Uzbekistan, Tajikistan, and Kazakhstan, and supplies water to a large part of population of the region. In particular it flows along the well-known Fergana valley, which is the most populated area in Central Asia. Several large reservoirs were constructed on the river before the end of the Soviet Union for a total volume of 40 km<sup>3</sup>. The regime of the reservoirs and water off take to numerous irrigational channels were centrally controlled and allowed timely distribution of water over the whole territory. With the collapse of the Soviet Union and creation of independent states, the operation regime of the upstream reservoir has become an issue, since the priorities and national interests of the new states were not always congruent. These contradictory interests of up and middle stream countries and the discharge of water from the upstream reservoirs in winter period for power generation, has resulted in flooding in the middle stream and accumulation of significant amount of water in the natural depression Arnasai. At the same time, the amount of river flow available for irrigation of summer crops is significantly reducing. Growing climatic variability and change, with rapidly shrinking glaciers and increased frequency of extreme events, is further complicating this already complex situation of land and water degradation, and almost total loss of the key environmental services provided by the freshwater ecosystems of the basin.

Solutions presented thus far by scientists, international institutions, and governments to ameliorate the problems in the Syr Darya, and more in general the Aral Sea Basin, have failed. To a large extent, this can be explained by the difficulties of reaching consensus on appropriate and effective management strategies. However, serious questions must also be raised whether the solutions proposed – solutions that focus almost exclusively on the equitable allocation of surface water flows – are destined to fail unless the entire resource including groundwater is considered. It is argued that any strategy for the management of water resources in Central Asia must have appropriate regard for the huge and so far largely disregarded groundwater resources present in the basin, and of their significant role in the overall water budget (according to the FAO groundwater accounts at present for only 5.6% of all the irrigated land in Central Asia).

Data suggest that a number of important aquifers occur in the region and many are transboundary. These internationally-shared resources must not only be managed in close collaboration with neighboring countries but also managed conjunctively with surface water as part of a fully integrated water resource management strategy. At present, the role and potential of groundwater is recognized within individual countries of Central Asia but its regional significance in the context of the Syr Darya Basin is rarely acknowledged.

Against this background, the project will attempt to strengthen the countries ability to evaluate the quantity and quality of their groundwater resources in the Basin, to assess the opportunities for improved sustainability that groundwater use will present, and to manage surface and groundwater in a conjunctive manner and within a framework of transboundary cooperation.

#### *2.) the baseline scenario and any associated baseline projects*

The project will build on a solid “baseline” represented by the many surface water related projects and research activities carried out in the region with the support of multilateral and bilateral assistance, and in particular by the work developed

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<sup>7</sup> Part II should not be longer than 5 pages.

by both the Implementing and Executing Agencies, which has resulted in a well balanced blend of initiatives aimed at introducing IWRM principles integrating climate change related issues (UNDP), and at assessing the existence and relevance of transboundary aquifers (UNESCO).

UNDP has long supported the countries in initiatives related to climate change and integrated water resources management in Central Asia, and has lately provided assistance on how to combine these two. UNDP jointly with the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan has launched in 2010 a new project on “*Integrated Water Resources Management and Water Efficiency Plan for Zarafshan River Basin*” (\$1.3m, UNDP). The purpose of this project is to develop a National IWRM and Water Use Efficiency Plan for Zarafshan River Basin (ZRB), to strengthen the legal and regulatory framework for the water sector, and to support the integration of water into relevant intersectoral policy frameworks including gender-mainstreaming approaches. IWRM and water efficiency use planning will take place within a single river basin, the Zarafshan, on a pilot basis where successful results can be scaled up to the national level during a possible second phase program. UNDP has supported Kazakhstan in the development of the “*National Integrated Water Resources Management (IWRM) and Water Efficiency Plan for Kazakhstan*” (\$2,900,000, UNDP, GWP, DFID, Norway). This project was the first in Kazakhstan to address specifically the achievement of the Millennium Development Goal for water supply and sanitation, and to introduce the principles of IWRM into national planning frameworks. A similar initiative has been developed in Tajikistan with the project “*Water Supply and Sanitation*” (\$4.1m, SDC, UNDP). Institutionalization of these principles is currently supported by the EU/UNDP regional project on “*Promoting IWRM and Fostering Transboundary Dialogue in Central Asia*” (\$4,500,000, EU, UNDP, governments), which emphasizes transboundary cooperation and information-exchange on water resources. In the area of climate change, UNDP has worked closely with the Ministry of Environment Protection on mainstreaming climate change policy into national frameworks, preparing low-carbon development programmes and participating pro-actively in the international negotiation processes related to implementation of the country’s UNFCCC commitments. Ongoing projects on climate change include “*Strengthening the capacity in the field of sustainable development through integration of climate change issues into strategic planning in the Republic of Kazakhstan*” (\$400,000, UNDP, government) and preparation of the third national communication to the UNFCCC (\$520,000, GEF, UNDP). The issue of climate change adaptation and its connection to the water sector are addressed in the regional Environmental Security Program – ENVSEC project “*Promoting Cooperation to Adapt to Climate Change in Chu-Talas Transboundary River Basin*” in which a set of adaptation strategies are developed and used as a pilot case for other river basins.

ENVSEC was established in 2003 by OCSE, UNDP, and UNEP. In 2004, NATO became an associated member of the Initiative. From 2006 onwards two new members strengthen the Initiative – the United Nations Economic Commission for Europe (UNECE) and Regional Environmental Centre for Central and Eastern Europe (REC). In addition to the Chu-Talas project, UNDP has developed numerous activities under ENVSEC in the fields of natural disaster preparedness and risk reduction for communities in high-risk districts in Kyrgyzstan, Tajikistan and Uzbekistan; transboundary cooperation of communities in the Ferghana Valley in an effort of sustainable development; strengthening coordination of project formulation and mobilization of resources for sustainable radioactive waste management in Central Asia; investigations on glacial melting in Central Asia.

The recently initiated regional “*Climate Risk Management Programme in Central Asia*” (\$12m, UNDP) aims to develop successful climate-risk management strategies in the region. In Kazakhstan the focus of the national project is on the implications of climate change on the water sector. The project aims to increase the resilience of local communities in the Almaty area to adapt to climate variability and climate risks through efficient water resource management in agriculture and through decreasing the risk of natural hazards occurrence. Regional cooperation as a way to support harmonized and coordinated disaster risk reduction policy implementation, support information exchange and ensure the efficiency of local, national, transboundary and regional disaster response is addressed through the project “*Enhancing Disaster Risk Reduction Capacities in Central Asia*” (\$1,600,000, EU, UNDP), which supports the formation of the Central Asian Center for Disaster Response and Risk Reduction. Other past projects in the field of water include the UNDP-Coca Cola joint project Rural Water Supply (\$140,000, Coca-Cola, UNDP), that worked to rehabilitate rural water supply systems. Finally, UNDP has collaborated with the government on a 2008 report “*Climate Change and Its Impacts on Kazakhstan’s Human Development*” and is currently working with the GoK on developing a government wide climate change adaptation strategy.

UNESCO is leading, together with the IAH, the worldwide Internationally Shared Aquifer Resources Management initiative – ISARM, a multi-agency effort aimed at improving the understanding of scientific, socio-economic, legal,



institutional and environmental issues related to the management of transboundary aquifers.

Within this context, UNESCO, together with its Category 2 Center for International Groundwater Resources Assessment – IGRAC and UNECE, is developing the ISARM Central Asia, a regional initiative aimed at promoting the sustainable use of transboundary aquifers (TBAs) by promoting awareness on transboundary aquifers as vital natural resources, especially among the policymakers, and to enhance international collaboration when it comes to sustainable management of these shared aquifers. ISARM Central Asia is:

- (i) Establishing a network of experts from different disciplines for identification and definition of internationally shared aquifers.
- (ii) Promoting scientific, legal, socio-economic, institutional and environmental assessment of internationally shared aquifer resources.
- (iii) Identifying several Case Studies of internationally shared aquifers and support multidisciplinary experts teams to conduct detailed investigations.
- (iv) Raising the awareness of policy and decision makers of the significant and importance of transboundary aquifer resources, forming a critical component of the world freshwater resources.
- (v) Disseminating the lessons learnt from Case Studies and encouraging policy and decision makers to incorporate appropriate internationally shared aquifer management.
- (vi) Promoting co-operation among experts from the different countries that share transboundary aquifers, through making available scientific tools, water resource management options and methodologies that apply to such aquifers.

ISARM Central Asia has so far identified and described 42 major transboundary aquifers in Central Asia, half of which belong to the Syr Darya Basin.

<b>ISARM Inventory of Transboundary Aquifers in Central Asia</b>	
Almos-Vorzik	Precaspian
Maylusu	Syrt
Sokh	North-Talas
Chu/Shu	South-Talas
Xorezm	Karaungur
Karatag/North-Surhandarya	Naryn
Dalverzin	Chust-Pap
Zafarobod	Sirdarya 3
Zarafshon	Yarmazar
Sulyukta-Nau-Isfara (AS17)	Chimion-Aval
North-Kazakhstan	Nanay
Preirtysh	Kasansay
South-Pred-Ural	Ahangaran
Zaisan	Kokaral
Tacheng Basin/Alakol	Syrdarya 2
Zharkent	Amudaryia 2
Tekes	Kofarnihon
Syr-Darya 1	Sherabad
Amu-Darya 1	Havost
Osh-Aravan	Dustlik
	Batken-Isfara-Shorsu (AS17a)
	Pretashkent

*3.) the proposed alternative scenario, with a brief description of expected outcomes and components of the project*

The proposed project specific objectives and incremental expected outcomes/activities are:

- (i) To strengthen the capacity of countries in the joint assessment monitoring, protection and sustainable exploitation of their groundwater resources (Outcome1.1. Strengthened knowledge and monitoring capacity in countries enhances the role and improves the sustainability of groundwater resources in the Basin also in view of climatic variability and change);

(ii) To raise awareness, including through pilot demonstrations, on the benefits that can be derived by the exploitation of deep seated aquifers and of their energy content, and by the use of subsurface space for systematic application of MAR practices and for storage and disposal purposes (Outcome 2.1, and 2.2, Introducing the systematic consideration of subsurface space utilization options improves countries ability to address climate variability and change, surface water flows variations, and environmental hazards).

(iii) To build the countries capacity in conjunctive surface and groundwater management (Outcome 2.1. Existing national and international water policy and institutional frameworks enabled to incorporate consideration of groundwater, climate variability and change, and gender into IWRM planning);

(iv) To assist countries in their dialogue on the legal and institutional aspects of groundwater management at the national and transboundary levels, with consideration of the provisions of the 1992 Water Convention (UNECE) on the protection and use of transboundary watercourses and international lakes, and of the 2008 UNGA Resolution on the Law of Transboundary Aquifers (Outcome 2.2. Basin-wide exchange of information and experiences facilitates transboundary cooperation and replication of good practices, and Outcome 4.1. Raised awareness of decision makers and practitioners on existing legal instruments, guidelines and good practices related to groundwater governance, promotes adoption and advances national and regional policy dialogue).

#### *4.) incremental cost reasoning and expected contributions from the baseline, the GEFTF, LDCF/SCCF and co-financing*

In order to accrue the above global benefits, the proposed project, thanks to the incremental GEF funding and to the expected large co-financing from countries and various donors, will expand the ongoing baseline work (see sections B.3. and A.1. 2) of UNDP and UNESCO in promoting IWRM and international cooperation on water issues in Central Asia, to allow countries to move to the next and higher level of actual implementation and testing on the ground of conjunctive surface and groundwater management options.

Moreover, thanks to co-financing from UNDP and funding from the Swiss Development and Cooperation Agency through UNESCO IHP, parallel and related activities will be carried out in Uzbekistan that will greatly contribute to the success of the project, and may lead to Uzbekistan full participation to this initiative.

Due to the lack of capacity in dealing with groundwater resources and subsurface space in a comprehensive manner, the countries of the basin, in absence of the proposed GEF funded initiative, will continue with the present fragmented approach to surface and groundwater resources management, and will be unable to fully capture the opportunities that conjunctive management of these resources will present to improve overall sustainability, and cope with increased climatic variability and change.

#### *5.) global environmental benefits (GEFTF, NPIF) and adaptation benefits (LDCF/SCCF)*

The global benefits that the project aims to produce fall into two categories:

- (i) Enhanced cooperation in the management of the transboundary groundwater resources of the Basin;
- (ii) Improved sustainable use of the services provided by the Basin ecosystems, also in view of climate variability and change.

The project fills a gap in present approach to water management in the region by launching a full fledged initiative to integrate groundwater, including transboundary groundwater, into water management practices and policies in the Syr Darya Basin. *The project will also represent a globally relevant demonstration of the important role of groundwater and subsurface space in coping with increased climate variability and change, balancing water uses, and improving overall sustainability and cooperation in complex transboundary contexts.*

1. In order to maximize the ability of the project to produce global benefits, its design includes specific elements that will emphasize the national benefits that integration of groundwater in water management policies and practices, and increased transboundary cooperation in water management will bring about. In particular:

Component 2.1, that will enable countries to incorporate consideration of groundwater, climate variability and change and gender into IWRM planning. Building the foundation for multi-country coordination and institutional strengthening for conjunctive surface and groundwater management will result in enhanced synergy and cooperation thus contributing to regional stability in an area that has been impacted by political tensions and armed conflict in the near past.

2. Component 3.1 that will strive to introduce the systematic consideration of subsurface space utilization options to improve countries ability to address climate variability and change, and environmental hazards. The increased awareness of the opportunities that subsurface space can offer in terms of storage of strategic groundwater resources, disposal/reuse of saline waters and return flows, health extraction, may determine the adoption of innovative solutions that will enhance the population welfare in the three riparian countries, and environmental sustainability.

#### *6) innovativeness, sustainability and potential for scaling up*

Consideration of groundwater and, more in general, of subsurface space, might open new development perspectives and present attractive opportunities for coping with the looming threats of climate variability and change, and with the need for balancing water uses and preventing the risks of large scale water quality degradation. This approach to addressing the water related sustainability challenges facing the basin is innovative, and in this sense the project represents a globally relevant demonstration that might be up scaled in the region and beyond.

In this respect, the proposed project will focus on the following three aspects:

1) Deep aquifers might become exploitable resources, like the Shatlyk aquifer, a thick water bearing sandstone of Lower Cretaceous age with lateral continuity over a vast area, known more for its gas reserves than for its supply of good quality water. It has been argued that the Shatlyk aquifer system might produce notable supplies of water in the foothills, and down gradient, where the water is more saline, its water could be used to re-establish vegetation in and around the Aral Sea.

2) Large scale managed recharge of aquifers may help solving some of the problems affecting sustainability in the Fergana Valley where since the winter of 1992–93, the operational regime of the upstream Toktogul reservoir on the Naryn river – the main tributary of the Syr Darya – has shifted from irrigation to hydropower generation mode. This significantly increased winter flow causing waterlogging, flooding and salinity issues in over 50% of the irrigated land, and reduced summer flow downstream of the reservoir. Consequently, excessive winter flow is diverted to the Arnasai saline depression, while water for summer irrigation is lacking. Storage of the excessive winter to flow temporarily in the upstream aquifers (“water banking”) of the Fergana valley for later use during the summer has been proposed by scientists.

3) The thermal energy content of deep aquifers should also be factored in. Geothermal resources in the region are abundant, and consist of thermal waters with temperatures in the range of 60-120C, but the use of thermal water is still in the initial stage.

**Geothermal energy in Central Asia** - Geothermal reservoirs were discovered during the testing of wells drilled for oil and gas exploration and production in Central Asia. Main thermal water areas are:

Amu Darya Basin; geothermal gradient 38 C/km, reservoir depth 2950 m, temperature 122C.

- |                          |                                                                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Surkhan Darya Basin; an aquifer produces 830 l/s of thermal water (65C).                                                                |
| <input type="checkbox"/> | Tashkent Basin; Lower Cretaceous reservoirs (2000-2500 m) contain thermal water, temperature 75-80C, TDS 1 g/l, total flow rate 500 l/s |
| <input type="checkbox"/> | Fergana Valley; aquifers in Neogene sediments produce thermal water, temperature 70-90C, flow rates ranging from 30 to 500 l/s.         |

**A.2. Stakeholders. Identify key stakeholders (including civil society organizations, indigenous people, gender groups, and others as relevant) and describe how they will be engaged in project preparation:**

Public Participation

The level of public participation in the decision making in each country is not clear; available information suggests that it still inadequate. It is also unclear which local stakeholders are involved in the management of groundwater and at what level, or what in fact is the level of access to information. There are examples, though, suggesting that efforts are being made. These include efforts in implementing the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention). The proposed project will hence act within a context where the principles of stakeholder involvement, while fully recognized by the national laws, are not yet translated into daily practice and at all levels – the water sector being no exception.

Main National and International Stakeholders

It is foreseen that the project will try to involve the following main national and international stakeholders:

Global Water Partnership for Caucasus and Central Asia (GWP CACENA)  
 The national ministries of agriculture and water resources of Central Asian countries  
 Executive Committee of the International Fund for saving Aral Sea  
 Basin water organizations “Amudarya” and “Syrdarya”  
 Coordination Meteorological Centre ICWC  
 International Commission on Irrigation and Drainage (ICID)  
 Kazakhstan Institute for Strategic Studies  
 Coordination Regional Dispatch Centre "Energy," Uzbekistan  
 Institute of Water Problems, Hydropower, and Ecology of the Academy of Sciences, Tajikistan  
 NGO Ecoforum, Uzbekistan  
 Regional Environmental Centre for Central Asia (CAREC), Kazakhstan  
 Socio-Economic Studies Centre, Uzbekistan  
 State Water Inspection, Uzbekistan  
 Central Asia and South Caucasus Water Utilities Association (CASCWUA)

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**Interstate Coordination Water Commission (ICWC)** Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan. On February 18, 1992 the five Ministers of Water Resources of Central Asian states signed an "Agreement on cooperation in joint management, use and protection of interstate sources of water resources" and this agreement founded the ICWC. Executive bodies of ICWC are River Basin Authorities (BWOs) SyrDarya and AmuDarya. BWOs are in charge of planning and managing water flow schedules and water resources distribution, as well as direct implementation of the decisions made by ICWC relevant to water allocation, schedules of water flow and releases, water quality control.

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The role of women

Women are increasingly recognized as water users and their participation is being encouraged. Where attention has been paid to governance structures, the skills and competencies of membership and capacity to represent the full range of users, user groups can act as vehicles for enhancing women’s access to productive resources. The comparison of three pilot Water User Associations (WUA) in the Kyrgyz Republic, Tajikistan and Uzbekistan showed that despite activity of women (especially in Uzbekistan), their representation in WUAs is low (ADB GWANET, 2008). In Kyrgyzstan, the mean

of female representatives for 15 WUAs is 5 persons or 7% of the total representatives, whereas 5 WUAs do not have female representatives at all. In Tajikistan, women hold chairman positions in 3 WUA (or 2.4%) and there are only 26 women or 0.19% among WUA's members. The data show that attention is not paid to participation of women in WUA management, and not having examples of leaders, women do not try to enter into Management Boards or become WUA managers. This can be explained by both current conditions of land and water use and poor awareness and knowledge among women about their rights. Though the share of women in agriculture is higher than that of men in Central Asia, decision-making positions are held mostly by men, especially in cotton sector, which accounts for over 50% of irrigated area. In the first place, women are busy with small subsidiary plots, whereas men control larger plots, though women constantly work in the field. This indicates to a need for rethinking of a role of women and their treating as land and water users for production purposes, not only for domestic needs.

**A.3 Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):**

The only risk that may hinder the ability of the project to reach its objective, is the lack of political support. This is considered highly unlikely given unanimous request from the countries for support in the field of groundwater management, and the very positive response obtained in occasion of the various consultations on project design that took place during preparation of the present concept. Proper mitigation measures have anyway been considered in the project design.

Given the nature of the project, oriented at improving science, establishing processes and creating enabling political environments, Climate Change will not have any impact on the project likelihood of success. Climate change and increased climatic fluctuations will on the other hand be taken into full consideration as part of the technical components of the project, from the assessment and diagnostic analysis, to the identification of needed priority actions needed to fully capture groundwater's ability to mitigate the impacts of climatic variability and change.

Risk	Level	Mitigation
Lack of sustained political support	low	The project design foresees activities that will strengthen country commitment through improved science and understanding, exchanges and consultations, awareness campaigns and capacity building.

**The participation of Uzbekistan:** Uzbekistan, one of the countries sharing the Syr Darya Basin and its surface and groundwater, will not be a direct participant to the project activities. At the national level however a number of related actions will be undertaken in parallel through co-financed programs (UNDP, UNESCO IHP), which will represent a valuable contribution to the project outcomes. Uzbekistan representatives will be invited as observers to all major project events and capacity building activities, and it is expected that Uzbekistan will be able to join the project at a later stage during execution.

**A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:**

The proposed project, in addition to strict coordination with the UNESCO ISARM, and other UNDP ongoing initiatives described as part of the baseline, and ongoing relevant GEF projects (Global Groundwater Governance Project, with FAO and UNESCO, and the Transboundary Waters Assessment Program – Aquifers Component with UNESCO and UNEP) will attempt to establish close coordination and exchanges with the following projects:

*(i) Sustainable groundwater management in Central Asia (IWMI), Uzbekistan*

Duration: September 01, 2011 - December 31, 2012

Since 1990, growing competition for water between different water uses in Syrdarya River basin reduced water available

for agriculture by 25%. Studies under "Sustainable groundwater management in Central Asia" initiated in 2005 investigate opportunities for using subsurface aquifers of the Fergana Valley for water storage and source of irrigation water. The main objectives of the Phase IV studies are: (1) To test and demonstrate to farmers a full package of groundwater irrigation technologies under different agro-ecological conditions of the Syrdarya River Basin in Uzbekistan, Tajikistan and Kazakhstan (The full package includes managed aquifer recharge, groundwater recovery and irrigation technologies suitable for small farms of the Central Asia); To assess impact of the upstream groundwater irrigation in the Syrdarya River Basin on the downstream water uses; To evaluate climate change impact on groundwater recharge in the Fergana Valley.

(ii) *Central Asia Energy-Water Development Program (CAEWDP), World Bank.*

Initially a four-year program, which aims to improve diagnostics and analytical tools to support the countries of the region in well-informed decision-making to manage their water and energy resources, strengthen regional institutions, and stimulate investments. The main components of the CAEWDP are:

Energy Development to promote highest value energy investments and management. Areas of focus include: infrastructure planning, winter energy security, energy trade, energy accountability, and institutional development;

Energy-Water Linkages to improve the understanding of linkages between water and energy at the national and regional levels. Areas of focus include: energy-water modeling, regional hydrometeorology, climate vulnerability, and energy-water dialogue;

Water Productivity to enhance the productivity and efficiency of water use in both agriculture and energy sectors. Areas of focus include: capacity strengthening, 3rd Aral Sea Basin Management Program, national action plans for water productivity, and rehabilitation of infrastructure.

The project also aims to coordinate and exchange information with other development partners currently involved in water issues in Central Asia, including the Asian Development Bank (ADB), the Islamic Development Bank (IsDB), the European Commission (EC), Eurasian Development Bank, UNECE, Germany (GIZ), Switzerland (SDC), UK (DFID), the US (USAID), and the Aga Khan Foundation.

## **B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

### **B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.**

The Central Asian Republics of Kazakhstan, Tajikistan, Kyrgyzstan, and Uzbekistan are landlocked countries dependent on a very fragile natural resource base. The Soviet legacy has left these countries with the remnants of highly integrated infrastructure and food production systems, now subject to different national administrations and divergent national agendas that hinder regional cooperation. Food and water security in the region is brittle, and the region has a history of political instability. While all four countries are variously engaged in defining strategies and plans for enhancing food security and surface water management, little attention has been so far given to the systematic assessment of the groundwater resources of the region, largely transboundary, and of their role in sustaining livelihoods and ecosystems, and in mitigating the effects of climate change and variability. The present project aims at filling this gap focusing on the Syr Darya Basin by setting the foundations for conjunctive management of surface and groundwater in this transboundary context.

Countries have demonstrated their high interest in this approach. In September 2011, UNESCO's International Hydrological Programme (IHP) with the support of the UNESCO Almaty Cluster Office for Central Asia (CA) in collaboration with the OSCE, held in Almaty a sub-regional workshop on: "Transboundary Aquifers in the Central Asia: An Integrated Approach for Multidisciplinary Study and Governance" in the framework of the International Shared Aquifer Resources Management (ISARM). The experts-hydrogeologists, representatives of competent government agencies, research institutions, NGOs and international organizations in Central Asia participated in this

event. All participants were nominated by the Governments of CA countries. The aim of the workshop was to discuss progress on the study of CA transboundary aquifers and to get familiar with the status of transboundary water management and internationally supported groundwater projects. While discussing the current situation on transboundary aquifers researches, as well as governance issues and development of cooperation in this field, participants articulated the need to promote the idea of sustainable groundwater management among decision-makers more actively to ensure that groundwater is fully taken into account in plans and projects on IWRM at the national and regional levels. Participants recognized that this topic is becoming more and more important in light of growing water demand in the region and climate variability and change related issues. *During the meeting it was underlined that there are no ongoing projects on groundwater in the region supported by international donors.*

Among other recommendations participants recommended to develop new data and criteria requirements for monitoring aquifers (particularly in the areas where the groundwater is the sole source of drinking water), create permanent, working models of aquifers etc. To develop this area the workshop's participants recommended initiating a project to exchange experiences between the hydro-geological services of CA countries and conduct training on the use of automatic systems for monitoring groundwater. At the same time it was pointed out that during preparation process of national programs for adaptation to climate change in CA, the lack of data and models of groundwater resources has been noted. In this regard, participants emphasized the importance of early initiation of programs to study the role and response/reaction of groundwater on the processes of climate change. In the framework of ISARM, the competent state bodies were encouraged to prepare proposals on how to develop and coordinate the development of hydrogeological maps of transboundary aquifers between the countries. Experts from different institutions and ministries of CA countries several times highlighted the need to improve the training system for professional hydrogeologists to bring them in line with modern standards. In this regard it was suggested that the interested agencies and donors implement projects on equipping specialized Universities with modern technical and methodological literature, facilitate the exchange of experiences and knowledge as well as establish communication between teachers and students on aquifers sustainable management. Workshop participants also expressed their strong desire and interest in having a multidisciplinary groundwater project which will help countries in these challenging and difficult issues, focused on the following: (i) Building capacity on groundwater policy, technical aspects and information monitoring and exchange across borders; (ii) Utilization of subsurface space in order to address CC, surface water flows and environmental hazards; (iii) Dialogue among stakeholders and raising awareness of decision makers on groundwater governance and policy; (iv) Elements on conflict prevention of the UNESCO "From Potential Conflict to Cooperation Potential" Programme (PCCP). The necessity and need to have such multidisciplinary transboundary water project for CA countries was very recently reiterated by CA experts during the last Regional Steering Committee Meeting and Sub-regional workshop "IWRM implementation in Central Asia – current practices and the way forward", organized by UNDP and UNECE under the auspices of the EU Water Initiative on 8-9 December 2011 in Almaty. The workshop participants welcomed the initiative of UNESCO and UNDP on preparing a regional project to assist Central Asian countries in the sustainable use of groundwater and the potential of underground space, and laid emphasis on the importance of expanding the project by including components aimed at strengthening the capacity of countries to assess, monitor, protect and use groundwater resources in a sustainable way, as well as at raising public awareness and promoting dialogue between the countries in transboundary aquifers management.

In response to the countries requests and manifested needs, UNESCO IHP - called by the UN General Assembly to support Member States in the implementation of the UNGA resolution 63/124 on "The law of Transboundary aquifers" and improve capacity in managing transboundary aquifers resources - and UNDP have prepared this project proposal, for submission to the GEF for funding.

## **B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:**

The proposed project perfectly fits the GEF 5 IW Strategy, as it will help to demonstrate the opportunities for enhanced sustainability that may be derived from the integration of consideration of aquifers, climatic variability and change, and gender mainstreaming into foundational, capacity building processes.

In line with GEF 5 IW Objective 1, the project in fact will build the foundations for integrated joint surface and

groundwater management in the Syr Darya basin, a transboundary region characterized by patterns of intensive and different or unbalanced uses of water resources resulting in shallow groundwater over-extraction, saline intrusion, and pollution of groundwater supplies and significant ecological and economic damage, reduced livelihoods for the poor, and increased tensions among downstream States. These impacts become exacerbated with increasing climatic variability. Use of water resources management plans/policies at the basin level integrating both surface and groundwater consistent with WSSD targets has been identified as an answer to balancing uses of water resources and inform tradeoffs.

In line with GEF 5 IW Objective 3, an enabling environment for action will be created through the development of a full fledged Transboundary Diagnostic Analyses for groundwater with special consideration of climate variability and change, stakeholder participation, building of future water scenarios and shared visions, testing of innovative practices and technologies. These enabling activities also focus on capacity building and technical assistance for legal and institutional aspects of multi-level governance reforms needed not only at the transboundary level but also at the sub-basin, national, and local levels.

### **B.3 The GEF Agency’s comparative advantage for implementing this project:**

The project, dealing essentially with capacity building and TA activities, falls squarely within UNDP’s mandate and comparative advantages. UNDP is highly experienced in the area of supporting foundational projects, including in the field of groundwater. UNDP has assisted in the creation or strengthening of 14 multicountry river basin Commissions. Moreover UNDP will be joined by UNESCO as executing agency, thus strengthening project execution in all aspects related to science of groundwater resources. This partnership will also allow the project to build on the accomplishments and networks of the UNESCO ISARM Central Asia Program.

<b>Baseline Co-financing – Project Title</b>	<b>Amount (US\$)</b>
<i>Integrated Water Resources Management and Water Efficiency Plan for Zarafshan River Basin</i>	1,300,000
<i>National Integrated Water Resources Management (IWRM) and Water Efficiency Plan for Kazakhstan</i>	2,900,000
<i>Water Supply and Sanitation</i>	4,100,000
<i>Promoting IWRM and Fostering Transboundary Dialogue in Central Asia</i>	4,500,000
<i>Strengthening the capacity in the field of sustainable development through integration of climate change issues into strategic planning in the Republic of Kazakhstan</i>	400,000
<i>Climate Risk Management Programme in Central Asia</i>	1,600,000
<i>Enhancing Disaster Risk Reduction Capacities in Central Asia</i>	12,000,000
<b>Direct Project Co-financing</b>	1,000,000
<b>Total</b>	27,800,000


### **PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**



**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):**  
 (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Nurlan Kapparov	Minister of Environmental Protection	MINISTRY OF ENVIRONMENTAL PROTECTION KAZAKHSTAN	22 OCTOBER 2012
Mr. Sabir S. Atadjanov	Director, Government Agency for Environment Protection GEF OFP	GOVERNMENT OF KYRGYZSTAN	22 NOVEMBER 2012
Mr. Talbak Salimov	Chairman of the Committee	COMMITTEE ON ENVIRONMENT PROTECTION, THE GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN	10 JANUARY 2013

**B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Adriana Dinu UNDP/GEF Officer-in-Charge		12 Feb. 2013	Vladimir Mamaev	+421 2 59337 267	vladimir.mamaev@undp.org