



United Nations Development Programme
Country: Azerbaijan and Georgia

PROJECT DOCUMENT¹

Project Title: Kura II: Advancing IWRM across the Kura river basin through implementation of the transboundary agreed actions and national plans

UNDAF Outcome(s):

UNDP Strategic Plan / Regional Programme for Europe and the CIS (2014-2017)

Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded

Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.

Expected CP Outcome(s): N/A

Expected CPAP Output (s): N/A

Executing Entity/Implementing Partner: UNDP Istanbul Regional Hub

Implementing Entity/Responsible Partners: UNDP

Brief Description

The Kura II Project will address the priority needs in the ministerially endorsed Strategic Action Plan (SAP) through implementation of the SAP and national Integrated Water Resources Management Plans to strengthen and harmonize coordinated conjunctive transboundary ground and surface water management. The five components are: Support for institutional governance protocols; professional development and capacity building for water managers across sectors; stress reduction measures in critical areas; stakeholder education and empowerment; and, enhanced science for governance. The project has strong, multisectoral support in both countries and will support pending bilateral legal agreements.

Programme Period:	48 months	Total resources required	\$ 200,211,122
Atlas Project ID:	00094969	Total allocated resources:	\$ 200,211,122
Atlas Output ID:	00099024	• GEF	\$ 5,329,452
PIMS #	5325	• Other:	
Start date:	June 2016	o Government	\$ 1,540,000
End Date	June 2020	o UNDP	\$ 3,261,670
Management Arrangements	DIM (IRH)	o Other Agencies	\$ 190,080,000
PAC Meeting Date	TBD		

Agreed by (UNDP):

Date/Month/Year

¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

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Acronyms

AGP	Advisory and Guidance Panel
APR/PIR	Annual Project Review/Project Implementation Report
AZ	Azerbaijan
BSEC	Black Sea Economic Commission
CAP	Compliance Action Plans
CBO	Community Based Organizations
CI	Conservation International
DIM	Direct Implementation Modality
DPSIR	Drivers-Pressures-Status-Impact-Response decision support tool
DRR	Disaster Risk Reduction
EC	European Commission
EIA	Environmental Impact Assessment
EU	European Union
EU AA	European Union Association Agreement
EUWI	EU Water Initiative
EQOs	Ecosystem Quality Objectives
ESI	Environmental Status Indicator
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GE	Georgia
GEF	Global Environment Facility
GiZ	German Development Agency
HA	Hectare
IFI	International finance institutions
IPCC	International Panel on Climate Change
IPCCC	International Panel on Climate Change Convention
IRH	Istanbul Regional Hub, UNDP
IUCN	World Conservation Union
IWRM	Integrated Water Resource Management
IW:LEARN	International Waters Learning, Exchange and Resource Network (GEF supported)
JSC	Joint Stock Company
LTD	Limited
M&E	Monitoring and evaluation
MDG	Millennium Development Goals
MTE	Mid Term Evaluation
NATO	North Atlantic Treaty Organization
NEA	National Environment Agency (Georgia)
NICC	National Intersectoral Consultation and Coordination mechanism
NWPD	National Water Policy Dialog
PAP	Pollution Abatement Plans
PI	Process Indicator
PIF	Project Inception Form
POM	Program of Measures
PSC	Project Steering Committee
RBMO	River Basin Management Organizations
SAP	Strategic Action Program
SEA	Strategic Environmental Assessment
SESA	Strategic Environmental and Social Assessment
SRI	Stress Reduction Indicator
TDA	Transboundary Diagnostic Analysis
TE	Terminal Evaluation
ToR	Terms of Reference
TRACECA	Transport Corridor Europe- Caucasus-Asia
TWAP	Transboundary Waters Assessment Program under GEF
UNDP	United Nations Development Program

UNECE	UN Economic Commission for Europe
UNEP	UN Environment Program
USAID	United States Agency for International Development
USD	US Dollar
USSR	Union of Soviet Socialist Republics
WFD	EU Water Framework Directive
WTO	World Trade Organization
WUA	Water User Association

Background and Brief Project Description

1. The Kura River Basin is the main transboundary water system in the geopolitically challenging region of the South Caucasus. The participating countries of Azerbaijan and Georgia have undergone significant political and economic transition since the end of the Soviet Era and are now developing rapidly across a wide range of sectors. Together Azerbaijan and Georgia cover 94,760 square km and represent 88% of the Kura basin. The Kura is the main river in the eastern half of Georgia and its basin comprises 49.6% of the total Georgian territory. Over 69% of the surface area of Azerbaijan is in the Kura river basin including the Kura delta as it flows into the Caspian. The two countries have demonstrated strong commitment to cooperate towards transboundary integrated water resources management.

2. The foundational phase from 2011-2014 “Reducing Transboundary Degradation in the Kura Aras River Basin” developed a transboundary Strategic Action Plan (SAP) that was formally endorsed by Azerbaijan and Georgia in June 2014. The SAP actions derive from the Transboundary Diagnostic Analysis (TDA) recommendations as well as locally led national Integrated Water Resource Management (IWRM) Plans for Azerbaijan and Georgia. The national priorities in these plans are directly linked to the transboundary SAP. Implementation of the SAP leads to basin-wide harmonized efforts in integrated water resource management.

3. Recently both Azerbaijan and Georgia have indicated their commitment to modernize water management with harmonized approaches and shared information exchange in line with The EU Water Framework Directive (EU WFD). Together they seek to address the priority transboundary concerns of the TDA: changes in hydrological flows, deterioration of water quality, ecosystem degradation and flooding due to climate change. All of these are exacerbated by impacts of climate change. Currently a bilateral agreement in line with the UNECE Helsinki Convention is under negotiation to further support cooperation of management for shared water resources. Key stakeholders from all sectors in both countries are aware that outdated approaches and uncoordinated water management will have negative impacts on both economic and human development at the national and regional levels. They seek to avoid these negative externalities by implementing National IWRM Plans, the EU Association Agreement in Georgia and EU legislative approximation in line with the Presidential mandate in Azerbaijan. This includes developing intersectoral coordination protocols implementing the Strategic Action Plan (SAP) that addresses these priority issues at a regional level.

4. The surface and ground waters in this river system are the principal source of water for all sectors and users in both countries, including: industry, agriculture, hydropower, and municipal water uses. Potential over-extraction of surface and groundwater resources, uneven development rates and uncoordinated utilization of the shared natural resources represent challenges faced by both countries in the Kura Basin. SAP implementation for the Kura basin in Georgia and Azerbaijan, provides a key tool for sustainable conjunctive use of ground and surface water and enhancing water/food/energy/ecosystem security through the intersectoral water nexus approach to support integrated flow management.

5. The upstream-downstream dynamic, groundwater abstraction, and multiple sector demands of development in Georgia and Azerbaijan’s sections of the Kura basin pose challenges towards realizing sustainable development and improved water, food, energy and environmental security. This is a common challenge in all transboundary river systems, and innovative approaches employed in the Georgian and Azerbaijan sections of the Kura Basin can serve as a model for the harmonization of national plans and priorities to ensure more sustainable development through integrated planning and flow management.

1. Situation Analysis

1.1.Introduction: GEF support for the Kura II Strategic Action Programme

6. International waters, including ground and surface freshwater resources are increasingly fragile under growing pressures from climate change and unsustainable use. UN Water cites the International Panel on Climate Change prediction that water stress will increase in central and southern Europe, and that by the 2070's the number of people affected will rise from 28 million to 44 million. Summer flows are likely to drop by up to 80% in southern Europe and some parts of central and Eastern Europe.² The impacted populations are most frequently those who are marginalized, the poor, and women responsible for the care of young and elderly. Further, the impacts of decreasing volumes of available freshwater concentrates pollutants with negative impacts for humans and ecosystems. The deterioration of water quality and non-sustainable use of ground and surface waters is a leading threat to human populations in the 21st Century, including disputes between sectors and within and between countries over access rights. The GEF 6 International Waters Strategy emphasizes the need to balance uses between sectors and countries in a manner that emphasizes coordinated sustainable use to reduce negative impacts and increase opportunities for improved harmonized governance of shared ground and surface water resources.

7. GEF 6 International Water Strategy has the specific Goal "To promote collective management of transboundary water systems and implementation of the full range of policy, legal and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services" through Objective 2 to balance competing water uses in the management of transboundary surface and ground water. These are met through advancing conjunctive management of surface and ground water systems, and use of the water/food/energy/ecosystem security nexus. This is the requirement of all GEF funded fresh water projects that have completed the foundational phase of conducting the TDA, and endorsement of the SAP.

8. Since 1995, the GEF, through its International Waters (IW) Focal Area, has supported this approach. GEF supported fresh water projects bring together riparian States with concerned international agencies and regional organisations and other key stakeholders to address issues pertaining to the fresh water environment. Under these projects, science-based information on major transboundary environmental concerns are analysed, and root causes of environmental degradation are identified. Based on the results of these analyses (known as Transboundary Diagnostic Analyses or "TDAs"), countries jointly determine and agree upon priority actions to deal with these transboundary concerns, through the development and political endorsement of a Strategic Action Programme/Plan (SAP).

9. From 2004-2014 co-financing has been provided by the GEF to the countries of the Kura Aras Basin to support preparations for and implementation of a foundational capacity building phase for enhanced joint management of fresh water resources. During this phase the Full Sized Project "Reducing Transboundary Degradation in the Kura Aras River Basin" was implemented between 2011 -2014 involving three Kura-Aras riparians Azerbaijan, Georgia and Armenia. During this phase Armenia elected not to participate in the SAP implementation and the SAP was finalized incorporating commitments by Azerbaijan and Georgia to joint integrated management of the Kura River only.. Turkey has not played a formal role in the GEF supported activities to date, though there is an interest from Azerbaijan and Georgia in welcoming Turkey's participation in the current project as the headwaters of the Kura originate in Turkey and there is a strong precedent for transboundary cooperation between Azerbaijan, Georgia and Turkey in multiple other sectors, including transportation, energy markets, agriculture and others.

10. In 2014 through the development and GEF Council approval of the PIF, the GEF and UNDP agreed on the continuation of support to the Kura Basin as Azerbaijan and Georgia constitute 88% of the Kura Basin and recently both Azerbaijan and Georgia have indicated their commitment to modernize water management with harmonized approaches and shared information exchange

² UN Water, <http://www.unwater.org/water-cooperation-2013/water-cooperation/facts-and-figures/en/>

through the ministerial endorsement of the Kura River SAP. This will enable them to address the priority transboundary concerns of changes in hydrological flows, deterioration of water quality, ecosystem degradation and flooding due to climate change in line with modern European and international best practices approaches. Both the Government of Azerbaijan and the Government of Georgia recognize that steps must be taken together to sustainably address these issues. The very strong commitment of both countries towards harmonization of freshwater management for surface and ground waters, the pending agreement on bilateral use of shared water resources through the Helsinki convention, and strong national level commitments to upgrading management allows these countries and the Kura basin to serve as an important model for harmonized conjunctive water use strategies and use of the water nexus to support transboundary IWRM through the implementation of the SAP.

11. During the 2011-2014 foundational phase, the TDA addressed the priority transboundary issues of reduction and change in hydrological flow, deterioration of water quality, ecosystem degradation and flooding and climate change. The common root causes are: lack of incorporating economic value of services from water resources and ecosystems in sectoral development planning; lack of information of the costs of ecosystem degradation and water-borne pollution to the economy of the countries; lack of integrated and accessible data and analysis to support decision makers; and, continued reliance on outdated water management practices. The countries agreed the critical need to strengthen capacity, and to develop incentives to embrace transitional approaches to accommodate the emerging understanding of natural resource management that will lead to improved positive sum sustainable development and stress reduction.

12. Within the scope of the foundational phase project, National IWRM Plans were developed as National Action Plans to support the national level efforts and priorities to address the transboundary concerns. The SAP was developed from the recommendations stemming from the TDA, the Causal Chain Analyses, and the National IWRM Plans, to provide critical foundational support for future harmonization of national and transboundary efforts within and between sectors.

13. At the fourth Steering Committee Meeting of the UNDP-GEF Kura Aras Project 22 May 2014, National Focal Points from Azerbaijan and Georgia presented Letters of Endorsement for the SAP from their respective Ministers. During the summer of 2014 the GEF OFPs requested that the endorsed PIF for the two country Kura II project move forward for GEF support, based on strong commitments at the national and transboundary levels between the countries. The GEF Council approved this PIF 1 November 2014.

14. The present Project Document (Kura II Project) constitutes the main reference document for the implementation of the 4-year Full sized UNDP-GEF Project “Advancing IWRM across the Kura river basin through implementation of the transboundary agreed actions and national plans” (Kura II)³

15. Kura II Project implementation will be supported by the GEF through a financial contribution of USD \$5,329,452. The Kura II project will seek to foster collaboration with and among other projects and initiatives (both GEF and non-GEF) that are relevant to the SAP implementation. Co-financing commitments made by the countries, the private sector, UN Agencies, and international, regional and subregional partners amounted to approximately \$187 million USD. This includes the World Bank funded Irrigation and Land Development (ILMD) Project in Georgia, AzerSu JSC water development efforts including improved water use efficiency, and improved water quality, Amelioration Company of Azerbaijan efforts in improving water use efficiency, the EUWI+ Project supported by the European Union, and national government commitments.

1.2. The Kura River and the South Caucasus

16. The Kura River originates in far eastern Turkey, and flows to Georgia where its basin covers almost 50% of the country as the main river for the more arid eastern half of country. Major

³ Please note that the Kura II Project Acronym represents both the continuation of the UNDP-GEF Kura Aras Project, and focuses on continuation of that cooperation between the two countries of Azerbaijan and Georgia.

tributaries to the Kura (Mtkvari in Georgian language) flow from the Great Caucasus Mountains to the North in Georgia and the Lesser Caucasus Mountains to the south. These tributaries are fed by snow pack which accumulates annually and often has interseasonal and interannual snowpack in the Greater Caucasus. The Kura flows through the Georgian capital Tbilisi, and while it has not flooded in the city in the past century, recent flooding from small tributaries due to extreme weather events has received national and international attention in June 2015. The lesser Caucasus has only annual snowpack that melts in early spring and flows from the Khrami River in southeastern Georgia to the Kura about 20 km upstream from the border with Azerbaijan. The Alazani River, a large tributary that straddles the borders of Georgia and Azerbaijan, and the Iori River flow to the Kura as well, from the northeastern regions of Georgia. The transboundary Alazani aquifer spans eastern Georgia in the Alazani valley, and northwestern Alazani-Ganikh river basin in Azerbaijan. The Alazani and Ganikh Rivers join together just upstream from the Kura at the western portion of Azerbaijan just downstream from the border with Georgia. Together these rivers flow to the Mingachevir Reservoir, built in the 1950's to control flooding and serve as an important source of hydropower and irrigation water storage. The Ganja Chay River flows to the Kura just above Mingachevir and is a main source of water for Azerbaijan's second largest city of Ganja. The Kura River flows from Mingachevir to Sabirabad, where there is the confluence with the Aras River, and then the Kura meanders to its delta at Neftchala where it meets the Caspian Sea. In 2010 there were serious flooding from the Kura and Aras Rivers in Sabirabad resulting in high fatalities and property losses in communities around Sabirabad.

17. The Kura Basin is subject to seasonal flooding and droughts, and has become increasingly variable with climate change. The variation in flows has also created challenges to water management as the eastern portion of Georgia is quite arid and relies significantly on irrigation for agriculture which is rapidly expanding. In Azerbaijan, the climate is hotter, drier, and irrigation is currently more intense than in Georgia, though also expanding rapidly. The Kura River is the main water source for agriculture for a large portion of Azerbaijan, and the eastern half of Georgia. The transboundary Alazani Aquifer provides high quality fresh water for the northern portion of the Kura Basin, and is now being tapped for interbasin transfer at Qabala for supplying municipal water to Baku, the largest city in the South Caucasus.

18. Water from the Kura accounts for a significant percent of municipal water for riparian Azerbaijan communities, and is used for refuse disposal in both Azerbaijan and Georgia. As a result, water quality is problematic and improvement is significant transboundary priority.

1.2.1. Global significance of the Kura River

19. The ecosystems of the Kura basin, similar to the entire Caucasus Ecoregion, are highly diverse and include a broad range of landscapes, from semi-deserts and arid shrub lands to mesophytic relic broadleaf forests and alpine grasslands. These ecosystems harbor a variety of plant and animal species representing a mixture of Mediterranean, Eastern European, and Near Eastern floras and faunas, combined with a high proportion of regional endemics (reaching 20-30% of the total species number in certain taxonomic groups).

20. The Caucasus Ecoregion has been identified by Conservation International (CI) as one of the world's 25 biodiversity hotspots due to high species diversity and significantly threatened local ecosystems. The area identified by CI corresponds closely to the Kura river system. This demonstrates the ecological importance and fragility of this area. Notably, along the Kura there are important and unique dry-land riparian forests along the Kura, and the delta, where the Kura river flow into Caspian, contains many important wetland sites.

21. Over the last century, the biodiversity in the basin has been affected by extensive anthropogenic activities. Major impacts on the basin biodiversity include loss of species and habitats. Many flora and fauna species have become endangered or threatened and have been listed in IUCN, former USSR and National Red Books. The major threats to the biodiversity and habitats are: uncontrolled harvesting of flora and fauna, including poaching; habitat destruction as a result of the development of agriculture, hydropower development, and industries, and, climate change.

22. Additionally, the challenges that face the Kura River are mirrored in transboundary river systems throughout the world. The use of water resources at the sectoral levels for hydropower, agricultural, municipal uses, and industry has often taken precedence over environmental needs for water resources. The impacts of climate change increase the scarcity of water and lead to an increased need for rational use of water resources. The historical lack of attention to protection of key catchment areas, high levels of water abstraction and diversion for energy and agriculture and lack of enforcement of water quality standards have all degraded the environment. Further the lack of intersectoral coordination at the national and transboundary levels has resulted in development trends that are not sustainable in the light of climate change. Reliance on ground waters exacerbates these issues and the increased withdrawals to meet municipal needs trigger transboundary concerns about the critical need for conjunctive uses.

23. Like many places throughout the world, the governments are recognizing the importance of managing their water resources, especially under the threats of climate change. The government of Georgia has taken the steps to prioritize sustainable development in line with the EU Environmental Directives as part of their EU Association Agreement in 2014. In 2015 the Ministry of Environment and Natural Resources Protection, with the EU support, developed a detailed Road Map for efficient implementation of the environment and climate related actions envisaged by the Association Agreement. In January 2013, The President of Azerbaijan passed a decree prioritizing water management for Azerbaijan, including water quality and water quantity issues. Azerbaijan is aligning national laws with the EU Environmental Directives as well, though without a formal EU Association Agreement. These parallel steps have provided the critical context and political will necessary to shift towards more sustainable water use practices in the Kura Basin.

24. This sets the Kura River Basin in a unique position of serving as a model for trialing the most up-to-date approaches to water resource management transformation and integrated flow management. The challenges of historical low intersectoral coordination, prioritization of immediate economic benefits over sustainable environmental stewardship, and non-sustainable use of ground and surface waters in the face of climate change are endemic throughout the developing and developed world. The strong political will and support for coordination among all sectors now markedly distinguish the countries of Azerbaijan and Georgia. This sets a precedent for testing of approaches for water management in increasingly arid areas. The key need for capacity development to enable sustainable harmonized integrated transboundary water management coordination will enable the strategic priorities of GEF 6 International Waters to be tested and refined for replication in river basins around the world.

25. Steps taken to restore and preserve the ecosystem of the Kura River will also enable preservation of unique endemic species with important biodiversity and genome distinctiveness that may serve as critical sources of foods as climate change progresses.

1.2.2. Regional geopolitical context

26. The geopolitics of the South Caucasus is challenging and has been for centuries. The land mass, as critical land bridge between the Black Sea and Caspian Seas has been prone to invasions of massive armies throughout history, including ancient Greeks, ancient Persians, Romans, Vikings, and Mongols. More recently French and Russian explorers, as well as Ottoman Turks, and Soviet Armies have influenced the region. This shared history of the region makes the South Caucasus one of the most genealogically diverse areas in the world.

27. Azerbaijan and Georgia share a common history in the 20th Century under the Soviet Union. Historically there are strong ties between the two countries, as the Azerbaijani population is very closely linked to Turkey. There are significant populations of ethnic Azerbaijanis in the Kura basin portion of Georgia and Georgians have been traveling through Azerbaijan for many centuries. In the post-Soviet period there have been strong ties developed between Azerbaijan and Georgia that are marked by geopolitical interdependence as independent nations. Formalization of relations through bilateral ties is growing between Azerbaijan and Georgia, and trilaterally with Turkey. Regional agreements and organizations reflect the strong ties between the countries in light of larger geopolitical forces shaping the South Caucasus region. These are expanded upon in 1.2.4.4.

28. The wider geopolitics in the region includes the strong interests regarding the energy resources of the Caspian and Central Asia in the post-Soviet Period, combined with spheres of influence from Russia, Turkey, Iran, the EU and USA. In the 1990's and early 2000's the construction of oil and gas pipelines from Baku to Tbilisi to the Black Sea port of Supsa and Mediterranean port of Ceyhan in Turkey has served to bind Azerbaijan and Georgia and strongly link their economic interdependence. These pipelines are significant as they offer alternate routes for export of Caspian and Central Asian petroleum resources. The funding for these and support for them was drawn largely from the USA and Europe, as diversification of energy resources has been a priority for both in the 20th and 21st Centuries. As a result, these ties are quite strong in both countries and establishing strong relations with Baku and Tbilisi multilaterally and bilaterally.

29. Both Azerbaijan and Georgia have developed strong ties with Turkey, as a key trade partner with strong geopolitical influence. As noted above there are a number of formalized agreements between the three countries, and historically there are strong ties among the three. Azerbaijanis are ethnically very close to the people of Turkey and share a common linguistic heritage and culture. Historically there have been significant populations of Turks in Georgia as well, especially along the Black Sea coast. As a result the ties between Georgia and Turkey remain fluid and strong.

1.2.3. Water resources and human society in the Kura River

30. The portion of the Georgian population in the Kura Basin is approximately 60% of the total population at 2,729,600, with approximately 1,400,000 people in Tbilisi. In Azerbaijan, 56% of the country's population lives within Kura Basin with 5,222,600. However with the activation of the Qabala Aquifer pipeline inter-basin transfer, Greater Baku adds approximately 3,200,000 to the number of those dependent on the Kura Basin resources. This accounts for 90% the entire population of Azerbaijan that is approximately 9,235,100 people. The population of Azerbaijan is the only population in the wider region that is showing an increasing population size, demographically. This expansion of the population dependent on the shared waters of the Kura Basin casts a new light on the urgent need for rational water use that focuses on sustainable use, intersectoral coordination and conservation.

31. Without water resources, the countries of Azerbaijan and Georgia could not possibly thrive and their economic and social development will be at risk.

1.2.3.1. Historical Water Supply and uses

32. Tbilisi and Mskheta the historic capital of Georgia are founded on the Kura (Mtkvari) River. The hot springs of Tbilisi, which literally translates as warm waters, served as both a contributing reason to relocate the capital, and as a prized health remedy for many centuries as people from across the region sought the curative powers of the sulfur baths beside the historic old town in Tbilisi. Cultivation of vineyards in Georgia and specifically the Alazani Basin is notable due to the historic precedence for winemaking in the Caucasus that spans millennia. Indeed some of the earliest human remains have been discovered in the Kura Basin, suggesting an environment conducive to human habitation has existed here since before human records began. Within Azerbaijan, archeological records and prehistoric carvings from Gobustan on the Caspian Sea suggest that the Kura River Basin and surrounding areas also reflect ancient and prehistoric habitation of the basin.

33. Historically, use of water for localized irrigation spans millennia and was most recently expanded in the 20th Century when large portions of Azerbaijan and Georgia's Kura Basin was brought under cultivation in the Soviet era. The Soviet expansion of irrigation was significant for the settlement of rural Azerbaijan, especially under Stalin's regime. Similarly, Eastern Georgia was likewise shifted to agricultural production due to extensive irrigation networks. These networks have largely fallen into disrepair but in both Azerbaijan and Georgia significant investments are being made into rehabilitation and updating of irrigation technologies for increased efficiency.

34. Overall, Azerbaijan has significant part of fresh water withdrawal is used for agricultural purposes. However, in absolute volumes, agricultural water withdrawals in Azerbaijan significantly outpace Georgia, largely due to more arid conditions in the country as well as far larger area of land under irrigation. In Georgia meanwhile the largest volume of water withdrawal is targeted at drinking

water supply, both in percentages and well as in absolute volume, compared to Azerbaijan. It should be noted that these statistics represent abstraction rates prior to the activation of the Qabala Aquifer Pipeline, which is only very recently beginning operation.

35. Georgia consumes far less water overall per capita than Azerbaijan, largely due to higher precipitation, which makes rainfed agriculture possible in more parts of the country than in Azerbaijan. There is higher water consumption per capita for the Kura basin in Georgia compared the country average. Water use by all sectors except from hydropower generation is significantly higher in the Kura basin compared to Western Georgia. To this contribute the Capital Tbilisi, the largest municipal water user in the country and Kvemo Kartli region concentrating industries, both located in the Kura basin. In addition irrigation is predominant in eastern Georgia, having a significantly dryer climate than the western part of the country.

36. Water abstraction in Azerbaijan in 2011 totaled to 11,779.2 mln m³, of which 86.7% were collected inside the Kura basin (AzerStat 2012). Meanwhile, total water consumption in the country in 2011 amounted to 8,001.8 mln m³, divided over the sectors irrigation & agriculture was 71.8%, industry & manufacturing was 22.0% and municipal & drinking purposes was 4.9%. This does not account for the increased abstraction for drinking water for greater Baku which began after this data was collected.

37. Total water abstraction in Georgia within the Kura basin from natural sources in 2010 amounted to 11,081.87 mln m³, including for hydropower generation, of which 345.33 mln m³ was abstracted from groundwater resources (GE-MEP 2014), used for drinking water purposes only. In total 835 mln m³ water was consumed in the Kura basin in Georgia, excluding the hydropower generation sector. From these 44% (365 mln m³) was consumed by municipal water supply sector, 30% (250 mln m³) – industries and 18.5% (155 mln m³) - by irrigation. (GE-MEP 2014). It should be noted that since 2012, the expansion of rehabilitated irrigation has increased 3.6 times from 24,000 HA to 88,000 HA today.

38. The increased use of hydropower was also the advent of the Soviet era, initially with small scale hydropower developments for electricity generation up to larger scale reservoirs like Mingachevir and large hydropower generation potential. Though the hydropower use is non-consumptive, it does impact integrated flow management in many critical ways when held in reservoirs or diverted from natural channels.

39. Municipal wastewater treatment also was introduced during the Soviet era, though primary treatment was most commonly used, if at all, and most Soviet era waste water treatment facilities have long since fallen into disrepair. Further, municipal plumbing has also deteriorated since the Soviet era and requires substantial investments to update lines, pumps and resources to avoid costly and potentially catastrophic losses of water resources.

40. In both countries it is estimated that losses across sectors account for between 19% and 32% of abstractions due to outdated pipes and standard losses. In some municipal areas that number is much higher, and risk of damage to piping systems can cause serious cross contamination as inflow and sewage lines are often placed together. In both countries efforts are underway to curb these losses and reduce these risks.

1.2.3.2. Cross-sectoral water uses

41. Across the water nexus approach there are four main sectors that are represented for water/energy/food/environment security – municipal water, hydropower, agriculture and environment. These are interdependent and closely linked as use by one sector will impact available resources for other sectors at any given time. The “water nexus” functions as a tool to assist decision makers to best balance water uses at any given time through integrated flow management in support of overall IWRM. The objective is to maximize sustainable benefits of available water resources in the wider socio-economic context necessary for sustainable development. In cases where there are trade-offs between sectors, the integrated flow management seeks to mitigate negative impacts and enhance positive benefits wherever possible, including supporting regional integration. In the Kura Basin these sectors are all present and growing. The economic and social development of both Azerbaijan and Georgia are closely linked to these

sectors and require balanced use of water among different sectors, especially in light of climate change impacts. The environment is included as a sector, as protection of ecosystems is critical in the healthy functioning of ground and surface waters that serve as the source of water used by other sectors.

42. In Georgia, the main water using/nexus sectors are:

- Environment as a critical catchment area for the Kura basin
- Energy and hydropower as a vital source of energy for both domestic use and export to Azerbaijan and Turkey. Approximately 93% of Georgia's electricity comes from hydropower sources
- Agricultural is planned to be significantly revived in the Kura basin in Georgia with expansion of irrigation and updating of approaches to water use
- Municipal water resources are being updated as well, as both protection of drinking water resources from groundwater and waste water management have become increasingly prioritized in Georgia

43. Table 1 shows the 2011 breakdown of the contribution by sector for GDP and the employment by sector for Georgia. The high level of economic and employment focused on the service sectors suggest that balancing growth in Georgia towards industry and agricultural both of which are water dependent sectors. It is expected that as the irrigation expands that employment in agriculture will increase, though the imbalance between the contribution to GDP and employment suggests that efforts to increase professional farmers may be beneficial. This is a key opportunity to support education and capacity building in line with modern irrigation practices to improve rational water use. Since 2012, irrigated land in Georgia's Kura basin has grown from 24,000 HA to 88,000 in July 2015.

Table 1 Economic Sectors by GDP and Employment for Georgia

Georgia	Agriculture	Industry	Services
Contribution to GDP	9.3%	23.5%	67.2%
Employment by Sector	1.3%	34.7%	64.0%

Sources: National Statistics Office of Georgia - www.geostat.ge

44. In Azerbaijan the main water nexus sectors are slightly different from Georgia, as Azerbaijan is a petroleum rich nation. Nonetheless as a downstream country with a growing population and increasing dependence on ground waters, the main sectors warrant review. In Azerbaijan the main water nexus sectors are:

- Environment as a critical catchment area for the Kura basin, as well as the responsibility for water quality in rivers and ground waters
- Agriculture as an important source of employment, food security and sustenance to the population
- Municipal water which is critical for the population reliant on ground water and surface waters, as well as waste water disposal which is undergoing significant development across the country
- Hydropower is increasing in importance as an alternative energy source, but currently is less developed than the thermal power sector. Prospective hydropower development will require close coordination with other sectors.

45. Table 2 shows the 2011 breakdown of the contribution by sector for GDP and the employment by sector for Azerbaijan. The influence of the petroleum sector is noted in the industrial sector, as support to this sector accounts for a large portion of the GDP as is common in petroleum rich economies. This is also reflected in the industrial employment percentages. The service sector contributes less to GDP but is an important sector for employment over all. The agricultural sector shows proportionally small contribution to GDP, however is a significant source of employment. As water resources are increasingly impacted by climate change, disruption to the agricultural sector can have potentially serious social implications for the populations dependent on agriculture for employment. Additionally, as almost a third of the population of Azerbaijan is in Baku, which now

receives a significant portion of drinking water from interbasin transfer from the Kura, careful protection of the catchment for the Alazani Ghanik River and Aquifer system is vital.

Table 2 Economic Sectors by GDP and Employment for Azerbaijan

Azerbaijan	Agriculture	Industry	Services
Contribution to GDP	5.5%	62.2%	32.3%
Employment by Sector	37.9%	12.8%	49.3%

Sources: State Statistical Committee of the Republic of Azerbaijan www.azstat.org

46. It should also be noted that in both Azerbaijan and in Georgia the environment plays a critical role in national security as flooding events of varying scales create significant loss of life and property in the Kura Basin. The application of the water nexus would not have avoided recent tragedies, with serious events in Azerbaijan in 2010, and Georgia in 2012 and 2015. However, inclusion of approaches to flood mitigation in line with the EU Floods Directive that emphasize natural flood management using environmental infrastructure is shown to create low cost, natural and beneficial reduction in the economic and human costs of flooding events. In the Kura Basin, this continues to be an important component of the integrated water resources management.

1.2.3.3. Key stakeholders

The Kura River system is important to wide array of people both within and outside of the basin. These stakeholders fall into variety of different groups and categories. The major stakeholder categories and representative bodies are given in Table 3. The labels “Competent Authorities” refers to the EU WFD approach which classifies stakeholders into those who have state sanctioned authority in water management, and “Interested Parties” as those who are interested, and often involved in water management issues. This distinction is used throughout this document, and expanded upon in Annex 10 “Stakeholder Involvement Plan”.

Table 3 Stakeholders for Water Management in the Kura River

Stakeholder Type	Primary Stakeholders	Secondary Stakeholders
<i>Government Bodies - Competent Authorities</i>	<ul style="list-style-type: none"> Ministry of Ecology and Natural Resources of AZ Ministry of Environment and Natural Resources Protection of GE Ministry of Agriculture of AZ Ministry of Agriculture of GE Ministry of Energy of GE Ministry of Emergency Situations of AZ Ministry of Regional Development and Infrastructure of GE National Environmental Agency of GE National HydroMet of AZ Subnational Regional and Municipal Authorities Pending River Basin Management Organizations Local and region/rayon governments 	<ul style="list-style-type: none"> Ministry of Finance of AZ Ministry of Finance of GE Ministry of Foreign Affairs of AZ Ministry of Foreign Affairs of GE Ministry of Health of AZ Ministry of Labor, Health and Social Affairs of GE Ministry of Economy and Sustainable Development of GE Republic of Azerbaijan State Agency on Alternative and Renewable Energy Sources
<i>International Organizations/ Bilateral Donors - Interested</i>	<ul style="list-style-type: none"> Caspian Environment Program/Tehran Convention European Union/European Commission 	<ul style="list-style-type: none"> WTO BSEC Conservation International UNEP

Stakeholder Type	Primary Stakeholders	Secondary Stakeholders
<i>Parties</i>	<ul style="list-style-type: none"> • <i>UNECE</i> • <i>World Bank</i> • <i>Asian Development Bank</i> • <i>European Bank for Reconstruction and Development</i> • <i>FAO</i> • <i>USAID</i> • <i>GiZ</i> 	<ul style="list-style-type: none"> • <i>IPCCC</i> • <i>Regional Economic Organizations</i> • <i>Regional Trade Organizations</i> • <i>Shared Water Partnership</i>
<i>Civil Society - Interested Parties</i>	<ul style="list-style-type: none"> • <i>National Universities</i> • <i>World Wildlife Fund</i> • <i>Local and National Environmental NGOs</i> • <i>Local Community Based Organizations (CBOs)</i> • <i>National Women's Economic Empowerment Organizations</i> • <i>Local and National WUA</i> • <i>National Research Organizations</i> 	<ul style="list-style-type: none"> • <i>Regional and International Universities</i> • <i>International Environmental NGOs</i> • <i>Global Water Partnership</i> • <i>International Research Organizations</i>
<i>Private Sector - Competent Authorities (CA)/ Interested Parties (IP)</i>	<ul style="list-style-type: none"> • <i>AzerSu JSC (CA)</i> • <i>Georgian Water and Power, LTD (CA)</i> • <i>United Water Supply Company of Georgia, JSC (CA)</i> • <i>Amelioration and Water Management JSC Azerbaijan (CA)</i> • <i>United Amelioration Systems Company of Georgia, JSC (CA)</i> • <i>Farmers and farmers organizations (IP)</i> • <i>Cement Manufacturing (IP)</i> • <i>Aquaculture/Fishermen (IP)</i> 	<ul style="list-style-type: none"> • <i>Georgian State Electric System</i> • <i>Energy transit sector including Pipeline Operation Companies</i> • <i>Tourism Industry</i> • <i>SOCAR (as infrastructure investor)</i>

1.2.4. Existing political commitments and declarations of intention

47. Several international political commitments and declarations of intention have been initiated and agreed by the Kura II Countries that signal a strong willingness to sustainably use, manage and protect the Kura River and its resources. These are supported by the ratification by Azerbaijan and Georgia of a series of global and regional treaties and conventions.

48. In addition to these commitments it is important to note that Georgia has recently signed an Association Agreement with the European Union. This is a clear commitment by the Government of Georgia to harmonize national laws and policies with those of the European Union, including adherence to the EU Water Directive, the Daughter Directives to the EU Water Directive, and other EU Environmental Directives. Daughter Directives of the EU WFD address specific water management challenges, specific to issues such as bathing waters, flooding, waste water management, etc. Alignment of these is the upmost priority for Georgia and progress in this direction is rapidly advancing. In Azerbaijan the Government has opted not to sign a formal EU Association Agreement, but has at the highest levels have declared that laws and policies of Azerbaijan will be brought into line with those of the EU independently of an Association Agreement. In this sense, both countries, through their own approaches, are moving strongly towards the adoption best practices of the EU in water resources management. These recent developments set a strong foundation for implementation of the SAP and continuation of sustainable collaboration between the countries.

1.2.4.1. The Strategic Action Program for Reducing Transboundary Degradation in the Kura Basin

49. At the request of Azerbaijan and Georgia, the UNDP-GEF Foundational Project “Reducing Transboundary Degradation in the Kura-Aras River Basin” was established with the goals of supporting the riparian states to 1) identify the principal threats to the shared transboundary water resources of the Kura River Basin and to determine the root causes, and 2) to develop and help implement sustainable plans for water policy, legal and institutional reforms, and investments to address these threats at the national and transboundary level. This foundational project completed the Updated TDA, National IWRM Plans, and with strong support of the countries, developed the Strategic Action Program to address priority transboundary issues. In May 2014, both Azerbaijan and Georgia submitted formal letters of endorsement from the focal point Ministers to UNDP-GEF in support of the the “Strategic Action Program for Reducing Transboundary Degradation in the Kura Basin”. The full text of the SAP is in Annex 1, while it is summarized here.

50. This Strategic Action Program (SAP) presents the collaborative effort of Azerbaijan and Georgia, and serves as a guidance document with direct linkages between national priorities and shared transboundary concerns. The national priorities and detailed plans to address them are in the supporting documents of the National Integrated Water Resources Management (IWRM) Plan for Azerbaijan, and the National IWRM Plan for Georgia. These National Plans provide the detailed steps each country may take, based on its national capacity, availability of resources and priorities. This SAP provides the overview of the agreed shared concerns and the general means to address them.

51. The foundation of the SAP is the Basin Vision, and the four Ecosystem Quality Objectives (EQOs) that were agreed by the Steering Committee of the UNDP-GEF project led by the National Focal Points in 2007 and reaffirmed in 2013. The agreed Long-term Basin Vision is: *“To achieve sustainable development and maintain ecosystem functions in the Kura River Basin through reducing transboundary degradation and improving environmental management in order to ensure ecosystem services, economic well-being, and health and security in all riparian countries.”* The four agreed Ecosystem Quality Objectives are:

- To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services;
- To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin;
- To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin; and,
- To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities.

52. The SAP provides the guidance toward accomplishing these objectives and was developed through extensive cooperation with Azerbaijan and Georgia through strong support of the National Focal Points who facilitated this process on behalf of their respective ministries and governments. In addition to the direct guidance from the National Focal Points, wide arrays of national experts from these countries have provided their inputs into the development of the National Plans as well as the SAP.

53. The SAP was developed and approved by Azerbaijan and Georgia to be implemented at the highest level of executive power. It defines the priority areas for action to resolve the most urgent issues identified in the Updated Transboundary Diagnostic Analysis (TDA), and within each country through the coordinated implementation of the National Plans. SAP implementation also provides support to the facilitation of national level efforts by helping the governments to coordinate donor initiatives to optimize benefits and reduce redundant efforts at the national and transboundary level. This coordinated implementation will enable the countries to harmonize experiences, lessons learned and allocate resources where appropriate. The implementation of the SAP will support the execution of the National Plans that in turn will have cumulative positive impacts on the overall Basin.

54. The rapid approval of the PIF for the project outlined in this document further emphasizes the strong support from the governments of Azerbaijan and Georgia to move forward towards SAP Implementation. The national level commitments toward the Kura II project for SAP implementation have been further strengthened since the SAP was signed, and has potential to serve as a critical mechanism for intersectoral cooperation at the national and transboundary levels for Azerbaijan and Georgia.

55. The SAP was designed to link closely with the national level commitments to approximating EU Directives. The implementation of the SAP will also support the countries to meet national level commitments while at the same time meeting shared objectives towards improved management of the Kura River through harmonization of approaches management strategies.

1.2.4.2. Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes

56. Azerbaijan and Georgia are in the process of finalizing the bilateral agreement under negotiation on “Cooperation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin” supported through UNECE in line with the UNECE 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes. This legal framework is highly compatible with the UNDP-GEF foundational project activities supporting development of national IWRM Plans and links closely to the Georgian EU Association Agreement and Azerbaijani approximation of EU legislation. There are close linkages between the bilateral agreement and the implementation of the SAP. The SAP was designed to strengthen and reinforce the countries abilities to successfully meet their commitments under this agreement. In turn, the bilateral agreement will serve to further support the efforts of the countries to implement harmonized integrated water resource management.

1.2.4.3. International agreements on environment

57. In addition to the above mentioned cooperation mechanisms Azerbaijan and Georgia have signed and ratified a large number of important regional and global Conventions intended to support cooperation and coordination for the management of natural resources. These commitments are in alignment with SAP implementation and mutually reinforcing.

Table 4 International Environmental Agreement to which Azerbaijan and Georgia are Parties

Name of Convention	Date	Status* in Azerbaijan	Status* in Georgia
<i>Ramsar Convention on Wetlands of International Importance</i>	1971	R	R
<i>Paris Convention for the Protection of World Cultural and Natural Heritage</i>	1972	R	S
<i>International Convention for the Prevention of Pollution from Ships</i>	1972	R	R
<i>Convention on International Trade in Endangered Species of Wild Fauna and Flora</i>	1973	R	R
<i>Geneva Convention on Long-range Transboundary Air Pollution</i>	1979	R	R
<i>Bonn Convention on the Protection of Migratory Species of Wild Animals</i>	1979	R	R
<i>Bern Convention on the Conservation of European Fauna</i>	1979	R	R
<i>Vienna Convention for the Protection of Ozone Layer</i>	1985	R	R
<i>Montreal Protocol on Substances Depleting the Ozone Layer</i>	1987	R	R
<i>Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal</i>	1989	R	R
<i>Espoo Convention on Environmental Impact Assessment in Transboundary Context</i>	1991	R	NS
<i>Rio Convention on Biological Diversity</i>	1992	R	R
<i>Framework Convention on Climate Change</i>	1992	R	R

Name of Convention	Date	Status* in Azerbaijan	Status* in Georgia
<i>Convention on the Transboundary Effects of Industrial Accidents</i>	1992	R	NS
<i>Protocol on Water and Health of Helsinki Convention on Protection and Use of Transboundary Watercourses and International Lakes</i>	1992	R	S
<i>Helsinki Convention on Protection and Use of Transboundary Watercourses and International Lakes</i>	1992	R	NS
<i>Paris Convention on Combating Desertification</i>	1994	R	R
<i>Kyoto Protocol of UN Framework Convention on Climate Change</i>	1997	R	R
<i>Aarhus Convention on Access to Public Information, Public Participation in Decision-making and Access to Justice in Environmental Matters</i>	1998	R	R
<i>Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemical and Pesticides in International Trade</i>	1998	NS	A
<i>Stockholm Convention on Persistent Organic Pollutants</i>	2001	R	R

*Note Status= S – Signed; R – Ratified; A- Accession NS – Not Signed

1.2.4.4. Regional cooperation for Azerbaijan and Georgia

58. Azerbaijan and Georgia are connected by several important regional initiatives for energy, transport and agriculture. These linkages set a strong foundation for regional cooperation for water management.

59. The Baku-Supsa and Baku-Tbilisi-Ceyhan oil pipelines, and the Baku-Tbilisi- Erzurum gas line are key energy infrastructure projects in the region. These pipelines export the Azerbaijan petroleum resources from the Caspian basin. The construction of these lines has enabled Azerbaijan to benefit from export of oil and gas resources to international markets in the past decade. Additionally, Georgia also benefits, from transit fees, and from the sale of electricity produced from hydropower resources, especially in western Georgia. Georgia is able to export this electricity to both Turkey and Azerbaijan, enabling Azerbaijan to potentially sell more petroleum resources abroad.

60. In addition to energy transport, the two nations are also working on the "Baku-Tbilisi-Kars" railway which would connect them to Europe via Turkey. The eventual realization of this transport line will significantly impact the trade and movement of populations across the Azerbaijan-Georgian-Turkish region. There is also close cooperation as part of the EU supported Transport Corridor Europe- Caucasus-Asia (TRACECA) which brings rail and highways in Georgia and Azerbaijan to European standards, while supporting the Baku-Tbilisi-Batumi/Poti rail networks via Black Sea rail ferry to the West linking with Bulgaria and Romania.

61. In 2004 Azerbaijan and Georgia established Intergovernmental Commission for Economic Cooperation. The primary objectives are: improving relations based on international agreements, memorandum, reports, communiqués, and other agreements on the development of bilateral economic and scientific-technical cooperation; taking into account mutual interests and opportunities, discussions and accepting decisions pursuant to economic collaboration between the Republic of Azerbaijan and Georgia; looking for prospective directions of economic cooperation and development of long term programs, financial industrial groups, creation of joint ventures, direction production, as well as other forms of economic cooperation and mutually beneficial cooperative relations; expansion of goods nomenclature and improvement of the structure of export-import trade, science, technology and modernized production, based on the scientific-technical cooperation between the two countries through the development of proposals on improving foreign trade; coordination of activities between ministries, departments and other central and local executive bodies on the issue of bilateral cooperation.

62. In March 2013 Azerbaijan, Georgia and Turkey approved the Trilateral Sectoral Cooperation Action Plan for 2013-2015 that determined concrete actions and cooperation plans in all major fields of mutual interest. In light of this, trade between Azerbaijan and Georgia continues to grow rapidly. Georgia's main exports to Azerbaijan are cement, locomotives, and other vehicles, mineral and chemical fertilizers, mineral water, alcoholic beverages, glass and glass products, and pharmaceuticals. Azerbaijan exports petroleum and petroleum products natural gas, plastic products, furniture and construction materials. Azerbaijan is ranked second after Turkey in total trade with Georgia. Georgia ranks 13th with Azerbaijan due to the large export of petroleum resources to Europe. There are also significant investments in Georgia by Azerbaijan, including the construction of energy pipelines and transportation lines. The State Oil Company of the Azerbaijani Republic (SOCAR) takes part in a recently established co-investment Fund, which invests in spheres such as energy, infrastructure, industry, agriculture, and tourism.

63. Both countries are members of the Organization of the Black Sea Economic Cooperation and Black Sea Trade and Development Bank an international financial institution that was formed 24 January 1997. It supports economic development and regional cooperation by providing trade and project financing, guarantees, and equity for development projects supporting both public and private enterprises in its member countries. Objectives of the bank include promoting regional trade links, cross country projects, foreign direct investment, supporting activities that contribute to sustainable development, with an emphasis on the generation of employment in the member countries, ensuring that each operation is economically and financially sound and contributes to the development of a market orientation. In June 2012 the Trabzon Declaration, trilateral Azerbaijan, Georgia, and Turkey was signed to create a business environment conducive to business sector cooperation.

64. Over all there is a strong foundation for Azerbaijani and Georgian cooperation on multiple economic and regional spheres provide an important impetus for the continuation of strengthened ties between Azerbaijan and Georgia. Both governments now recognize the importance of shared water resources as economically valuable and socially necessary. The mutual dependence of the countries to protect the waters of the Kura Basin. The existing network of shared energy, transport, economic, and cultural institutions can serve as the driver to further solidify cooperation between Azerbaijan and Georgia to rationally use and protect the ground and surface waters of the Kura Basin and the ecologically sensitive and important catchment areas in line with international best practices and the EU Directives.

1.3. Baseline Analysis

65. The attention to water resource management in the Kura Basin has been an ongoing challenge throughout the Post-Soviet period. As the countries are in transition, development of natural resource priorities has been internally focused. Georgia prioritized over-all hydropower development in 2006 and now is seeking to protect and preserve critical ecosystems, and balance economic sector growth. Azerbaijan initially prioritized oil and gas development and now has prioritized water resource management by Presidential decree, resulting in rapidly developing improvements in the water management and distribution systems.

1.3.1. Threats to the Kura

66. Despite the levels of effort from the national governments and the donor community in addressing transboundary water management issues, the steps to prioritize, diagnose and develop strategies to address these challenges did not emerge rapidly. The 2011-2014 Foundational Phase of the UNDP-GEF Kura Aras project conducted an updated Transboundary Diagnostic Analysis (TDA) based on the prioritized transboundary issues identified in 2005 during the 2005-2007 PDF-B Phase of UNDP-GEF support for the Kura Aras River Basin. The priority issues identified and investigated in the Foundational Phase are: (1.) **variation and reduction in hydrological flow**; (2.) **deterioration of water quality**; (3.) **ecosystem degradation**; and, (4.) **flooding and climate change**. The updated TDA included an analysis of social and sectoral economic trends from the participating countries that showed that if these issues are not addressed they will continue to become increasingly intractable while significantly harming potential for sustainable development.

These priority transboundary issues already have significant social, economic and environmental impacts on coordinated development in the basin, and if not urgently addressed in a harmonized manner, there is risk of increasing tensions throughout the region. Immediate attention to these issues in Georgia and Azerbaijan based on international best practices can serve as a strong model for cooperation to the wider region.

1.3.1.1. Variation and reduction in hydrological flow

67. The TDA presents evidence of a notable overall decline in hydrological flows, especially in the downstream basin. The decline in flow metering stations and observed inconsistencies in the data create challenges in current and future development, and will need to be addressed by the countries. Further, the TDA shows that the impacts of declining water availability, ecosystem degradation and the super impact of potential competition over water resources use emerged in the causal chain analyses focusing on climate change, irrational water use, competing demands on water resources from multiple sectors, need for reliable information on available resources, and need for integrated planning for water resources management.

68. The TDA's analysis of river flows, especially the temporal changes that have been observed over the last decades, is based on available records of river flows of over more than half a century. The current hydrological regime of the Kura river basin is the result of a range of both natural and anthropogenic factors. Seasonal and annual flow volumes typically reflect variable climate conditions, specifically temperature and precipitation, determining surface-groundwater flow components as well as evapotranspiration. Water abstraction for human needs has been a feature of the Kura river basin since ancient times. While it is difficult to separate the impacts of climate change on the river from those of increasing abstractions, analytical evidence of recent changes in climate indicates the scale of impact on river flows.

69. The main impacts on the environment due to the variation and reduction in hydrological flow include:

- Degradation of riverine ecosystems and natural landscapes;
- Worsening of biological processes such as fish spawning;
- Reduction of the natural self-cleaning ability of rivers for organic pollutants, and increasing of the concentration of all pollutants, including their extended transportation downstream; and
- Changes to groundwater recharge and outflow regimes and the direct interrelationships between aquifers and rivers, impacting the water quality and quantity of both systems.

70. The main socio-economic impacts of the variation and reduction in hydrological flow are reduced access to water in sufficient quantity and quality for drinking and other domestic purposes, and to meet the needs of other sectors of the economy, including:

- Reduced productivity of agricultural land in some areas due to lack of irrigation water, and related reduction of income in the agricultural sector;
- Negative impact on the quality of agricultural products, and related health effects among the population due to irrigation with contaminated water;
- Poor state of sanitation systems, with increased cases of infectious waterborne diseases, and related increase in water treatment and health costs;
- Reduced efficiency and rate-of-return on investments in the hydropower sector;
- Irrational use of groundwater resources in attempt to replace the lost river flows; and
- Loss of some commercial fish populations in reservoirs by blocking spawning routes.

71. The root causes of variation and reduction in hydrological flow include the need to increase funding for water management and need to improve water use efficiency at all levels. However, the most important root cause is the limited capacity for water resources management throughout the basin. This limited capacity encompasses a number of different general needs in water management: more effective governance (regulation, law, enforcement, and institutional capacity), improved intersectoral coordination, national and transboundary cooperation on information exchange, increased staffing and staff retention, proper education in modern approaches to IWRM, improved supply of equipment and monitoring.

1.3.1.2. Deterioration of water quality

72. Deterioration of water quality is a national and transboundary issue that is addressed on the national level and will benefit from standardization at the transboundary level. Currently, as Georgia and Azerbaijan assess water quality through different standards, the EU WFD methodology provides a strong basis towards obtaining improved, comparable empirical evidence throughout the basin. The countries are moving in this direction at this time. The impacts of deteriorated water quality include, among other things, ecosystem degradation, decline in human health, and loss of GDP due to impacts on the labor force and costs of pollution. The causes of water quality deterioration are land, air and water discharge of pollution, while a reduction in available water increases the concentration of pollutants. These causes are due to a low level of regulation enforcement, a need for improved information for decision-making, and a need for clear incentives to reduce pollution. The root cause is the current lack of information on the real costs of water pollution in the Basin's river systems.

73. The observed deterioration of water quality in the river basin is a progressively serious problem for the countries of the basin, especially in relation to the increasing demand on water resources in each country as it strives to meet the needs of future development plans. These threats are intensified by anticipated impacts of climate change on water quantity and quality in the basin. The quality of surface waters is also influenced by factors such as the hydro-morphological, hydro-geological and hydro-chemical features of the river basin.

74. Harmful pollutants enter the waters of the Kura river from numerous land-based sources such as industrial and mining enterprises, agricultural runoff, subsistence farming practices in rural areas, and, in particular, from aging municipal sewer systems in large urban areas. Many cities and large industrial enterprises in the Kura basin today do not have water treatment plants. The existing wastewater treatment plants are not sufficient to process waste acceptably. These causes issues of downstream pollution in both countries, first nationally and then across borders.

75. The main environmental impacts caused by deterioration of water quality include:

- Ecosystems degradation, characterized by altered productivity of ecosystems due to changes in nutrient balances and eutrophication;
- Changes in ecosystem species composition, including the loss of endemic and rare species of aquatic flora and fauna, increase of invasive species, and increased susceptibility to pests;
- Increased soil contamination in flooding zones, and downstream spreading of contaminants;
- Damage and contamination to groundwater resources.

76. The socio-economic impacts of water quality deterioration include:

- A significant loss of labor productivity due to more frequent occurrences of waterborne diseases, which not only negatively affect overall economic productivity, but also strain healthcare budgets and facilities, and impact family members needed to care for the afflicted;
- Losses to economic development as water requires costly pre-treatment before basic industrial and domestic uses;
- Loss of agricultural productivity as contaminated soils are less fertile and may increase the need for more agro-chemicals to meet needed production levels;
- The deterioration of water quality also results in loss of potential income in aquaculture and ecotourism, as well as general tourism; and
- Overall costs of contaminated water resources of the river to socio-economic development of the basin increasing significantly over time.

77. Deterioration of water quality restricts the water availability for certain uses and increases the cost of its treatment. Despite availability of water in adequate quantities in certain rivers, they may not be suitable for use because of their poor quality, leading to water scarcity.

78. The root causes of water quality deterioration are the need for reliable information for decision makers, harmonization of water quality standards between the two countries, as well as the need for proper information on the real costs of pollution in water and river systems to the national economies and public health. The information collected by monitoring agencies is valuable, but the analysis and presentation do not fully reach its potential to help decision makers develop and

enforce stronger pollution-reduction regulations. Further, the data presented to decision makers must be meaningful and based on best practices for information sharing and decision support for improved water resources management. In addition, experience has shown that technically trained decision makers must also be able to justify costs of increased monitoring, increased enforcement and improved water management to other decision makers. This information should also include the costs of the water pollution to the state. The links between water quality degradation and socio-economic costs, environmental cost and losses to overall GDP, including lost labor costs, lost land productivity costs, and the eventual costs of cleanup of damaged areas, must be calculated and shared with decision makers.

1.3.1.3. Ecosystem Degradation

79. The issue of ecosystem degradation is pervasive throughout the basin and is related to a decline in hydrological flows and deterioration of water quality, conditioned by direct and indirect impacts of human activities. The information currently available on ecosystem health has many gaps, making it difficult to adequately gauge the decline clearly. Loss of species richness and decline in biodiversity are marked throughout the basin, although more information to systematically account for these losses is needed. The decline of ecosystem functions negatively affects the ability of ecosystems to buffer the impacts of human activities. This leads to a decline in ecosystem services and subsequently causes loss in income, as well as increased costs for the national governments and local communities. In addition to the general causes of ecosystem degradation listed above, others include: unsustainable natural resource use, unsustainable land management practices, fragmentation and loss of natural spaces, a lack of information on ecosystems and an uneven approach to natural resources management.

80. Today, large patches of natural ecosystems in the Kura basin have been transformed by human activities. About a quarter of the basin remains in reasonable natural condition, while less than 12 percent of the basin, mainly forest, is considered pristine vegetation. Only about 5% of natural riparian forests in the South Caucasus remain intact today. Natural steppes, traditionally used as winter pastures have become overgrazed and have taken on the character of semi-deserts as their soil quality and species composition have been extensively modified. Further, the natural steppes and semi-deserts of the Kura lowland have mostly been destroyed by the development of irrigated agriculture.

81. Environmental impacts include:

- Loss of the protection and natural filtering in key catchment areas needed to purify ground water and cleanse surface waters;
- Change of the hydrological flow of the rivers;
- The loss of floodplain wetlands, due to diking and land conversion for agriculture also causes a reduction in the intrinsic purification capacity of the river's aquatic ecosystems;
- Lost buffering of natural processes like flooding, erosion, sedimentation, pest infestations;
- Decrease of the natural regulatory service of the aquatic environment to handle pollution, as changes in aquatic micro- and macro-flora and fauna affect the decomposition of organic waste and other pollutants; and
- Degradation of the vegetation cover causes erosion processes that result in irreversible losses of soil fertility, which will hamper any future vegetation restoration initiatives.

82. Social impacts include:

- Loss of ecosystem services that provide important constituents of human well-being, including the basic necessities of life: food, shelter, clear air and water, personal safety, protection from natural disasters;
- Loss of natural biological, chemical and physical ecosystem processes that provide valuable services to humans including meat, fish, fuel wood, medicines and water;
- Increased risk of damage to human life due to flooding is increased as a result of the decreasing of natural floodplains;
- Loss of opportunities to benefit from a clean and healthy environment, including eco-tourism opportunities throughout the basin; and
- Loss of the river ecosystem as a social good and as social infrastructure used for recreation and educational purposes.

83. The main cause of ecosystem degradation - the disruption of ecological processes, the destruction, fragmentation and degradation of habitats (aquatic and terrestrial) and their natural flora & fauna diversity - in the Kura Basin is the ongoing development of economic activities throughout the basin, mainly since the 1950s without paying proper attention to the environmental flow requirements. Lack of pollution abatement strategies for water use sectors led to deterioration of the imbalance in the ecosystem components. This trend shows the root cause for ecosystem degradation as being the general lack of inclusion of ecosystem values, functions, and services in the development process. A lack of effective economic valuation of ecosystem services in the Kura river basin allows these outdated practices to continue, further degrading ecosystems through the basin.

1.3.1.4. Flooding

84. The issues of flooding are sporadic but pervasive throughout the Kura river basin. Flooding is first of all a natural process, and contributes to the natural and healthy functioning of ecosystems. However, with climate change and increased human populations there has also been an increase in the frequency and severity of these events. The impacts of flooding events include the loss of property, loss of life, with the super impact being the added costs to governments for repairs to infrastructure, compensation for damaged or destroyed property, and loss of GDP. The causes beyond climate change are partially due to ecosystem degradation from overgrazing and deforestation in some areas within the basin, as well as construction and agricultural activities in flood prone areas. Additional causes include: flooding response structures that lead to increased damages, outdated understanding of natural flood cycles within the ecological processes, and lack of coordination between upstream and downstream communities in impacted areas. The key root cause in this area is outdated flood risk management practices.

85. The environmental impacts of flooding are both positive and negative when they occur within moderation.

86. The positive environmental impacts include:

- Refreshing water flows in wetlands and peripheral water bodies, including nutrients, genetic diversity, and fresh sediments;
- Spreading nutrients onto lands, including floodplain forests and recharging soils; and
- Clearing blockages to river flow as part of the natural cycle.

87. The negative environmental impacts include:

- Increased inundation and waterlogging in areas where water is stagnant due to poor drainage;
- Severe loss of species including plants in extreme flooding; and
- Increased mudflows, erosion, and loss of soil fertility in extreme flooding.

88. The socio-economic impacts of flooding include:

- Loss of human life and property, destruction of crops, permanent damage to agricultural and other land, loss of livestock, destruction of important civic infrastructure, disruption to water and electricity supply, transport & communication networks, education and health care;
- Deterioration of health due to the spreading of waterborne diseases caused by the floods directly and through loss of water supply systems, and the disruption of access to medical care, which may cause short term and long term impacts on the health of the affected people;
- Loss of livelihoods as economic activities come to a standstill due to disruption of communication links and other infrastructure, which may take a long time to restore, leading to production losses in agriculture, industry, etc.;
- High costs of relief and recovery, including initial emergency relief, the cost of relocation of people, rehabilitation of property, etc.; and
- Loss of resources can lead to high costs of goods and services, also delaying development.

89. The root cause of high flood risk and extensive flood damages in Azerbaijan and Georgia is the continued reliance on outdated flood protection measures, based on localized structural solutions rather than developing and implementing integrated national flood management plans, in

which due attention is paid to interlinking measures at the transboundary river basin level. Developing an early warning system for flood forecasting using modern techniques will enable the region countries to cooperate together to mitigate the negative impacts of floods. While the information on climate change as a cross-cutting issue impacting on flooding frequency, magnitude, and damage is limited, a variety of country analyses hint at ongoing intensification of climate-related extremes – temperature and precipitation, including flooding and heavy rain. Increases in frequencies and in magnitudes of flooding have been recorded across Europe and in many other countries. The widespread nature of this phenomenon is a serious indication that global climate change is at the root of it.

1.3.1.5. Linkages between issues

90. The cross cutting issue of climate change is addressed through a review of climate change predictions for the basin and the impacts this will have on the four transboundary issues. Climate change is expected to cause an increase in temperatures, decrease in precipitation, increased glacial melting, and increase in evapotranspiration.

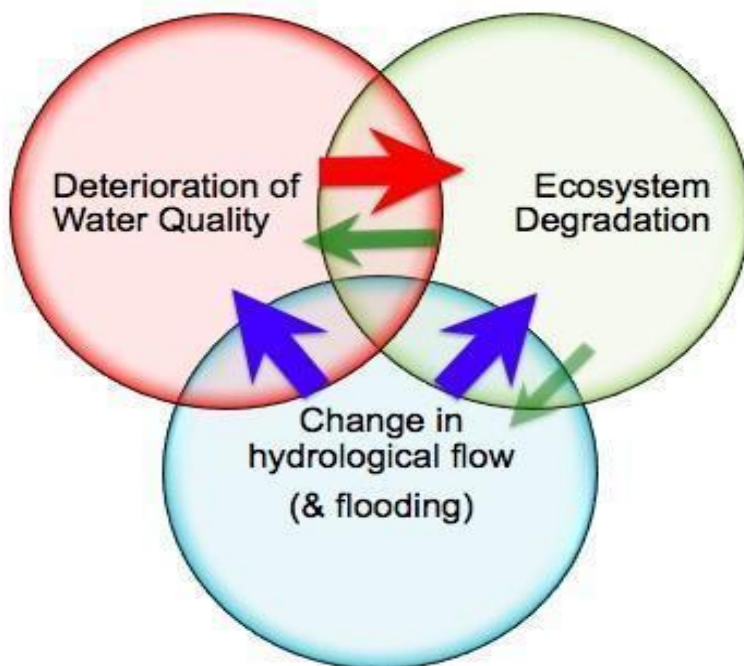


Figure 1 Linkages between Transboundary Issues

impacting issue, it points to the issue receiving the impact. The size and the transparency of the arrows reflect the strength of the impact.

91. As noted throughout the causal chain analyses for each of the transboundary issues discussed previously, there are often overlaps between issues and mutual impacts of each issue on the others. The complexity of these issues is common in ecological systems where dynamic interactions lead to shifts in natural conditions. In the causal chain analyses the relationships within the issue are analyzed, however there are the relationships between the issues that must be considered as well.

92. The diagram above provides a graphic representation of the impacts that the transboundary issues have on one another. The arrows between the circles indicate the impact relationship. The color of the arrow corresponds to the

93. The relationship between change in hydrological flow (and flooding) and deterioration of water quality is a strong, unidirectional relationship. The decline in water resources — less water in the river — results in a concentration of pollutants in the water. In the event of flooding, water quality is negatively impacted because of the overflow of systems such as tailing ponds for mines, sewage systems, and agricultural fields, from where land based source and non-point source pollutants are washed into the river system. In contrast, the deterioration of water quality has neither an impact on changes in hydrological flow, nor on flooding. Large debris in the river may impact flooding, however that is beyond the project scope for “deterioration of water quality.”

94. The relationship between deterioration of water quality and ecosystem degradation is more complex and interdependent. This was defined in the causal chain analyses but deserves additional attention here, as these linkages are quite important when considering remediation efforts. As indicated in the figure above, the stronger of the two impacts is the negative impact of water quality deterioration on the ecosystems, which results in ecosystem degradation. This includes poor quality water reducing the capacity of the river system to function optimally. Various flora and fauna within the river system that are beneficial and widely diverse are not able to thrive in poor water quality. Additionally, the poor water quality leads to an increase in species that are more tolerant, which

creates balance shifts within the ecosystem. Poor water quality also negatively impacts the ecosystem conditions on land, especially when irrigation of fields uses this water. The ecosystem balance as a whole is seriously jeopardized by the deterioration of water quality and decline in hydrological flows.

1.3.2. Common Root Causes

95. The TDA completed during the foundational phase of the UNDP-GEF project identified the root causes of the transboundary and shared water management challenges. The over-arching root cause is the lack of effective planning and implementation, due to lack of dedicated resources and capacity. This stems from:

96. - Lack of economic value of services from water resources and ecosystems in economic development planning – water resources and ecosystem services have been taken for granted, as the monetary value of these services has not yet been clearly understood. Without an assigned monetary value for ecosystem and water resource services, it is difficult to convince decision makers from key sectors to invest in the water and environment sectors. Instead, the preservation of ecosystems and shared water management are framed as negative sum trade-offs between competing developments without clearly defined economic benefits.

97. - Lack of information of the costs of ecosystem degradation and water-borne pollution to the economy of the countries – ecosystem degradation results in loss of services and potentially earned benefits, and water-borne pollution both creates negative externalities for development downstream while also creating losses of potential assets at the source. Without a clear accounting of these costs, including public health costs that are largely borne by women, there is no incentive to change practices that result in ecosystem degradation and pollution.

98. - Lack of integrated and accessible data and their analysis for decision makers – data that are available on water resources and ecosystems contain gaps, are sectorally based and not exchanged and analysis of information is often not presented in accessible formats to optimize informed decision making towards improved management practices.

99. - Continued reliance on outdated water management practices – the legacy of discipline-specific and sector-exclusive water management practices. Countries need strengthened capacity, support and guidance, and incentives to embrace transitional approaches to accommodate the emerging understanding of natural resource management that will lead to improved positive sum sustainable development.

1.3.3. Long-term solutions

100. The countries of Azerbaijan and Georgia are very aware that water management is increasingly critical to their long term sustainable social and economic development. As a result of this, they have taken steps to indicate strong commitments towards collaboration in the co-management of the ground and surface waters of the Kura Basin.

1.3.3.1. Long term vision for the Kura Basin

101. Previous sections of this Project Document highlighted the strong dependence of sustain economic growth, social well-being, and political stability in the Kura Basin (and beyond) on the sustainable use of the ground and surface waters of the Kura River.

102. Within the region, broad intersectoral consensus has emerged on: the need harmonize integrated water resource management in line with the EU Water Framework Directive and international best practices; the need to address the critical and common root causes of the national and transboundary degradation in the Kura River waters; and the necessity of mainstreaming climate change adaptation and considerations across all sectors with a stake in the water resources of the Kura River. This consensus was largely achieved through the foundational support provided by the GEF during the period from 2011-2014.

103. In this context the following long-term vision for the Kura River Basin was developed and adopted through the SAP:

“To achieve sustainable development and maintain ecosystem functions in the Kura River Basin through reducing transboundary degradation and improving environmental management in order to ensure ecosystem services, economic well-being, and health and security in all riparian countries.”

104. This long-term vision for the Kura Basin acknowledges that increasing environmental pressures and demands for fresh water resources are made more severe by climate change and population growth. The sustainable provision of services from water resources will require substantial improvements in the coordinated use of resources among the difference sectors and social groups with a stake in sustainable integrated water resources management.

105. Awareness has grown within the region that urgent steps must be taken towards the implementation of an integrated and well-coordinated, multi-sector and multi-level governance model for the adaptive management and sustainable conjunctive use of ground and surface waters of the Kura Basin. This is echoed in the increasing commitments to align with the principles of integrated water resources management, balancing water use needs with the water nexus, and implementation of programs and practices of the EU Water Framework Directive in both Azerbaijan and Georgia.

106. As noted in section 1.2.4.1, The Vision of the ministerially endorsed SAP is supported by the four agreed Ecosystem Quality Objectives (EQOs), which in term are met by reaching a set of ten strategic outcomes. The structure of the SAP with summarized Objectives and Outcomes is shown below:

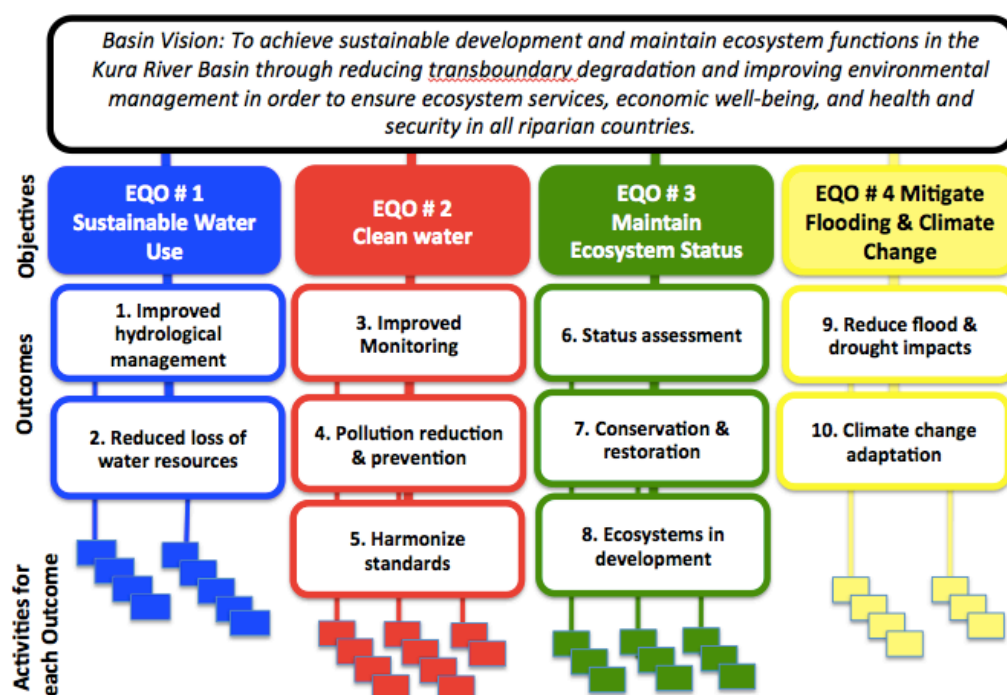


Figure 2 Kura River SAP Vision, EQOs, and Strategic Outcomes Structure

107. The specific details of each Strategic Outcome including the agreed expanded activities for each outcome are detailed in the full text of the SAP in Annex 1.

1.3.3.2. SAP Development and National IWRM Plans

108. The SAP was developed with the strong support of a wide array of national water management experts from across the main sectors in Azerbaijan and Georgia. The multi-staged process for SAP development was based on both international best practices within GEF IW, and concurrently strengthening national level commitment through development of National IWRM Plans as the National Action Plans.

109. This approach allowed the countries to both prioritize their own needs and those of the wider region. In most cases these overlapped and linked quite strongly while building on national level priorities. These inputs took place over a 2.5 year span from late 2011 to mid-2014. Annex 1 contains the detailed methodology of the highly country driven SAP development process. The final outcome was the SAP which was endorsed by the Minister of Ecology and Natural Resources in Azerbaijan and the Minister of Environment and Natural Resources Protection in Georgia in May-June 2014.

110. The SAP is firmly supported by National IWRM Plans that focus on national level needs for improved integrated water resource management, as shown in *figure 3*. Teams of national experts with the guidance of international experts developed the National IWRM Plans in 2013. The National Priorities in the National IWRM Plans were based on multi-sectoral consensus, and solutions to address these priorities were developed by these teams. In the areas of improved water quality, protection of water ecosystems and climate change adaptation, the concerns and solutions are nearly parallel.

111. The priorities in Azerbaijan for balanced and rational water use recognize the importance of institutional support for these approaches. Georgia is approximating the EU directives through the EU Association Agreement, and recognizes the need for institutional support for IWRM and River Basin Management Organizations (RBMO) formation. In both these cases, there are linkages, as Azerbaijan is aligning with the EU Directives, and includes Rational Water Use in that approach. Concurrently Georgia's institutional support for IWRM/RBMO includes rational water use.

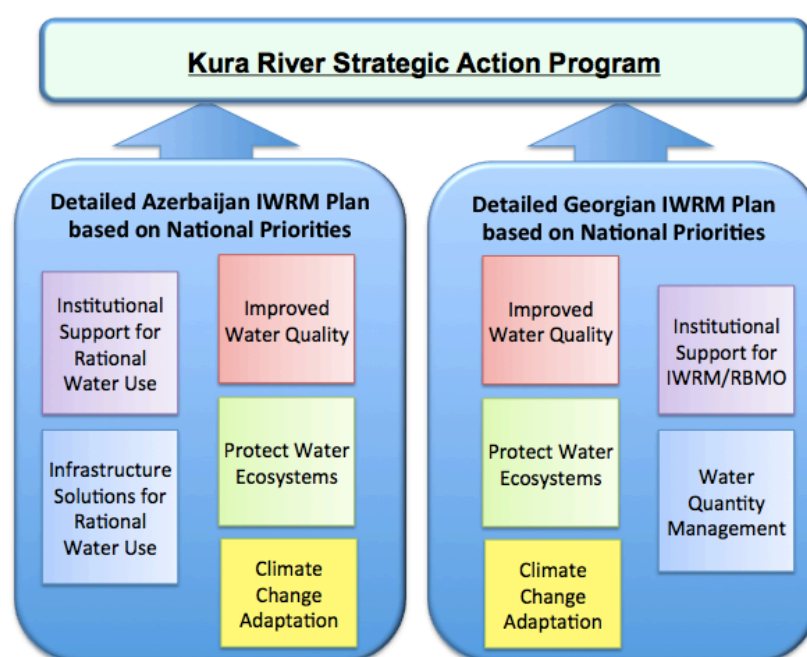


Figure 3 National IWRM Plan Support for the Kura SAP

112. The Georgian prioritization on Water Quantity Management stresses the importance of assessing and managing the water resources at the national level, in order to support improved management. In Azerbaijan, due to the availability of financial resources as a petroleum exporting country, infrastructure solutions for improved rational water use was stressed. Currently Azerbaijan is investing a significant sum into upgrading the water distribution infrastructure, and the importance of ensuring that water infrastructure includes water conservation is seen as a critical need for Azerbaijan. In both countries the National IWRM Plans strongly support the SAP, and implementation of these national plans and the SAP will occur in tandem, further strengthening the national level ownership of the SAP and it's outcomes while also ensuring the sustainability of these efforts after GEF support concludes.

1.3.4. SAP implementation baseline: progress and gaps

113. Within Azerbaijan and Georgia, and the wider South Caucasus region, including Turkey, Iran and Armenia there have been many water focused projects at the national and regional level since early 2000. The development of the SAP is the accumulation of those efforts and reflects the countries commitment to addressing integrated water resources management. The SAP builds on the lessons of the earlier projects and those that have contributed to building the national level awareness and capacity of national experts.

1.3.4.1. Regional projects prior to the Kura II

114. The overview of regional projects that precede the SAP implementation addressed a range of issues tied the SAP Strategic Outcomes. These projects are outlined in *Table 1.3.5.1*, that shows the transboundary donor funded water projects since 2000 to 2015 in the Kura Basin. These projects have focused on a wide range of water issues and the objectives of the projects are reflected the columns beneath the EQOs, and numbered SAP Strategic Outcomes presented in section 1.3.3.2 above. The national projects are summarized in Annex 2.

115. Not all of the donor driven projects were able to reach their objectives, however the consistent national interest in pursuing these projects shows a strong baseline foundation for the SAP. This also demonstrates a collective national, regional and international commitment to addressing priority transboundary water management concerns reflected in the SAP. Of the 27 regional projects that have come before the Kura II Project, most have had some degree of success, and have left strengthened capacity in the region which has prepared the countries to take the step to formally committing to the SAP, through its endorsement. Further, this shows that future efforts of Kura II and other international projects will be conducted with in a framework for cooperation and collaboration between the countries and with a strong awareness of the requirements of these commitments to action.

Table 5 Donor Supported Regional Projects in the Kura Basin pertaining to the SAP

	EQO 1 Sustainable water use		EQO 2 Improved Water Quality			EQO 3 Maintain Ecosystems			EQO 4 Flooding & Climate Change		Cross cutting Institutions
SAP Strategic Outcomes:	1	2	3	4	5	6	7	8	9	10	
1. Water Management in the South Caucasus, USAID, 2000-2004	X		X		X						X
2. South Caucasus Water Program, USAID, 2005-2008	X	Xhave	X		X						ec,cv
3. EU/TACIS Kura Basin			X		X				X		Xec
4. Reducing Transboundary Degradation in the Kura-Aras Basin, UNDP-SIDA, 2003-2005	X										X
5. Reducing Transboundary Degradation in the Kura-Aras Basin (Armenia, Azerbaijan, Georgia, Iran) UNDP GEF2004-2007	X	X	X	X	X	X	X	X	X	X	X
6. Improving Civil Society Involvement in the Kura Aras/Araks River Basin Management, UNDP, 2005-2007	X			X		X				X	X cv
7. Science for Peace Program - South Caucasus River Monitoring , NATO, 2002-2008	X		X		X						X
8. Trans-boundary cooperation for hazard prevention in the Kura-river basin, The Federal Environmental Agency of Germany (UBA) 2003-2006		X		X					X		
9. Critical Ecosystem Partnership Fund, GEF with WWF						X	X	X			
10. REC Caucasus Water Program EU, USA, 2001-??											X
11. Support to the Trans-boundary Management of the Kura River Basin, EU TACIS 2007-2010	X		X	X	X				X		
12. Water Governance in the Western EECCA Countries, EU TACIS , 2008-2010	X	X	X	X	X						
13. Implementation of the UNECE Water Convention and development of an agreement on the management of transboundary watercourses shared by Georgia and Azerbaijan, UNECE/OSCE/EU 2009-2010					X						X
14. REC Caucasus " Creation of Enabling Environment for Integrated Management of the Kura-Aras Transboundary											X

	EQO 1 Sustainable water use		EQO 2 Improved Water Quality			EQO 3 Maintain Ecosystems			EQO 4 Flooding & Climate Change		Cross cutting health issues
SAP Strategic Outcomes:	1	2	3	4	5	6	7	8	9	10	
Rivers Basin " Program, EU, USA 2010											
15. Regional Climate Change Impacts Study for the South Caucasus Region, UNDP/OSCE 2009-2010							X		X	X	
16. Water Resources Management of Agroecosystems in South Caucasus NATO 2007-2010	X	X									
17. Village Development Planning (VDP) Focus Water (between Azerbaijan and Georgia) Swiss FDFA Research programme on Environment and security, 2010-2011	X										X
18. Finnish Environment Institute (SYKE) project Georgia Waters –capacity building on the Water Monitoring and Management in Georgia 2011-2014 with Azerbaijan in Lake Jandar			X		X	X	X	X	X		
19. EU Kura II-III - Trans-Boundary River Management Phase III for the Kura River basin, EU, 2008-2013			X	X	X	X					X
20. ENVSEC project Support for the management of transboundary watercourses shared by Georgia and Azerbaijan, ENVSEC/OSCE, 2010-2014					X						X
21. EU project implemented by Rec-Caucasus Prevention, Preparedness and Response to Man-made and Natural-Disasters in the ENPI East Region" (PPRD-EAST) EU, 2011-2014				X					X		
22. UNDP GEF Reducing Transboundary Degradation in the Kura Aras River Basin, GEF, 2011-2014	X	X	X	X	X	X	X	X	X	X	X
23. Grant for Trainings for IWRM Masters Curriculum for the South Caucasus, NUFFIC and GWP AZ, 2014	X		X		X			X	X	X	X CV
24. EU project Environmental Protection of International River Basins Project (EPIRBP), EU, 2012-2016	X		X		X	X					
25. Pilot testing of water nexus methodology in the Alazani River Basin, UNECE, 2001-2004	X	X						X	X	X	
26. German Federal Environmental Agency project implemented by WWF - Advise to Governments of Armenia, Azerbaijan and Georgia in the development of strategies to protect freshwater ecosystems in the South Caucasus, Germany, 2014-2015	X					X	X	X			
27. "Environment and Security in South Caucasus" Phase 2, SWISS 2012-2014	X						X				
28. Prevention, Preparedness and Response to Natural and Man-made Disasters in the EaP Countries – PPRD East 2 , EuropeAid/135314/C/SER/MULTI 2014 – 2018				X					X	X	

116. For **EQO # 1: To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services**, there has been a great deal of regional and national work done in this regards, and the work has progressed from the assessment of hydrological resources towards efforts to reduce losses and improve efficiency. Few projects focus specifically on the hydrological management or increased efficiency issues other than those that directly address irrigation needs.

117. Historically in the South Caucasus the measurement of surface waters was separated from ground waters, creating challenges in assessing a reliable water balance for each country. Further the hydrological measurement information that has been collected over almost a century remains largely in hard copy, in multiple volumes. Efforts have been made in both countries to work towards digitizing these records from hard copies, however this process is extremely labor intensive, and in cases where it has been done, it generally is done only for specific sub basins, and has not been developed for the full Kura Basin. The key lesson informing this EQO is that one cannot manage what cannot be measured.

118. For **Strategic Outcome 1. Improved Hydrological Management** there progress that has been made to date has focused on: assessment of hydrological resources using modern approaches, upgrading hydrological monitoring stations, and developing the links between hydrological flows and environment.

119. Previous regional projects that included assessment of water resources was often challenged the data availability in non-digital forms. This created a challenge for creating reliable GIS information and information on changes in flow rates in the past century. The USAID funded projects emphasized development of GIS databases, and increased capacity of experts who worked as private consultants to the Ministries. Further challenges included the separation of ground water management from surface water management, as during the Soviet era ground water was viewed as strategic mineral resources. Despite these challenges a baseline of hydrological information has been collected that needs to be synthesized and reviewed for use with updated modeling approaches in both countries.

120. In both countries, this increased awareness of the need to digitize data for improved integrated management, combined with a growing understanding of the potential benefits of balancing water needs between sectors and countries has resulted in the Strategic Outcome for improved hydrological management. The remaining gaps include:

- Lack of clear accounting of water resources across Kura for a basin water balance
- More information is needed to be able to accurately model water resources using up to date technologies
- Increased demands on ground water resources due to interbasin transfer will need close transboundary observation and monitoring to support bilateral development
- Lack of a common strategy to share water resources between users and countries
- Impacts of climate change are difficult to gauge due to incomplete information
- Environmental flows for the wider basin difficult to recommend, update and restore without reliable historical data in digital form.

121. **Strategic Outcome 2. Reduced loss of water resources** has fewer regional projects focusing on this issue as a result of the challenges of measuring and monitoring flows discussed above. Nonetheless there is a growing awareness in the past 10 years that impacts of climate change are altering flows and available water resources. The recent modernization of water infrastructure at the national level has increased the focus on reducing flows and ensuring water is getting to where it is needed most. At the regional level, this has been a concern of some projects, primarily EU, UN, GEF and NATO supported, who recognize the increasing strategic importance of improving water use efficiency.

122. Previous regional projects that have focused on steps towards improving efficiency have mainly stressed improved efficiency standards to protect the environment and reduce negative impacts. Improved efficiency have not generally been the main thrust of the projects, though included as recommendations towards improvements in water management. As climate change impacts have become increasingly dire, and the potential disruptions to available ground and surface water resources, regional projects have increasingly pushed for improved water efficiency within the region. National experts are increasingly concerned about this issue and governments are eager to address this in an intersectoral manner, and in a transboundary manner.

123. In order to fulfill this strategic outcome, several key gaps must be filled. These gaps are:

- Need for increasing use of updated technologies and practices for water conservation and increased efficiency
- No clear articulation of the economic benefits of water conservation
- No incentives for conservation without economic valuation of water services to national and regional economy
- Need for increased appreciation of water resources in the environment among different stakeholders
- Need to increase awareness of public across the region of the important social and economic benefits of water conservation

124. **EQO # 2: To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin** is a critical transboundary issue in the Kura Basin and often cited as a leading source of yet unresolved tensions between countries. The highest number of internationally funded projects so far focused on water quality management issues with varying degrees of success. These projects have ranged

from general overviews of the different causes of low water quality, to in-depth training on methodologies to assess water resources. In the past decade additional challenges emerged as the countries adapted different water quality parameters in the countries, making standardized comparison of monitoring data extremely difficult.

125. On a more promising note the introduction of the EU Water Framework Directive and daughter directives have increased the opportunity for realignment of water quality parameters and management practices in line with the approaches advocated by the EU. As a result of this, with both Azerbaijan and Georgia adopting these approaches, it is anticipated that these differences will be overcome. The UNECE Helsinki Convention and the pending agreement between Azerbaijan and Georgia will further support the harmonization efforts, once the agreement is finalized. However, prior to this formal legal agreement, both countries have signaled a strong willingness to address this issue at the national and regional levels through the endorsement of the SAP.

126. **Strategic Outcome 3. Improved water quality monitoring programs** continues to be a challenge for the region. Over a third of all regional projects to date have focused on water quality monitoring and have had varying degrees of success in building national and regional capacities. Though the paths towards this have been separate there is still a strong awareness that it is important to build capacity and continue to strive towards aligning approaches between countries. Over the span of international investment in regional projects the water quality monitoring approaches have become increasingly more sophisticated. While this is promising, it also comes with challenges when methodologies and approaches to monitoring are not consistent between projects.

127. Over the past 15 years regional projects have focused intensively on water quality monitoring. Initial efforts focused on chemical monitoring and development of field and laboratory practices in line with international practices. During this early time, national priorities have not supported the extension of monitoring activities to the degree necessary to build on the efforts of these projects and often after projects ended, monitoring practices returned to more familiar approaches.

128. As time passed, internationally funded regional projects increased their emphasis on water quality monitoring to align more closely with the emerging international best practices of the EU Directives. The EU Kura II and Kura III project introduced field monitoring for biomonitoring to serve as proxy for longer term water quality compared to the snapshot effect of chemical monitoring. This approach was embraced by both countries, and additional projects were asked to continue to apply this approach. The UNDP-GEF Kura Aras Project and Finnish supported project on Lake Jandar coordinated closely to continue to support these efforts and expand regional capacity. The subsequent EU “Environmental Protection of International River Basins Project” continued work with biomonitoring as well. However, this project hired international experts who advocated a different sampling methodology which jeopardized the reliability of time series data analysis. As the countries increasingly use sophisticated approaches to monitoring it will be critical to identify and agree on standardized approaches for all monitoring in order to protect the continuity of the data collected within and between countries.

129. Fortunately both Georgia and Azerbaijan are eager to work in this direction and to take necessary steps to bring the water quality monitoring and data analysis into line with international best practices. This increases the relevance of work to be done by current donor driven projects in the field of water quality monitoring to ensure that both national laboratories are adequately prepared to meet these commitments.

130. Despite significant international investment in regional water quality monitoring practices, the following gaps still remain:

- Lack of standardization of approaches and methods within and between countries
- Need for strong and consistent quality control and quality assurance in field collection and laboratories practices
- Until recently funding for basic monitoring costs were largely covered by donors for non-standard monitoring and when donor supported monitoring ended, monitoring also ended.

- There is a high attrition rate of trained staff to other organizations, agencies and professional positions
- Despite projects efforts there are still weak understanding beyond top experts of the strong links between water quality, water quantity and environmental degradation

131. **Strategic Outcome 4. Pollution reduction and prevention** is the logical next step after water quality monitoring. Many projects recommend reduction and prevention tied to water quality monitoring results. Attention to addressing pollution abatement concerns is now coming to forefront of government agendas. Actual actions towards reduction and prevention are still needed. Again what is not clearly monitored is difficult to manage, however in this case clear progress is being made thanks to the foundation set by previous regional projects.

132. Many of the earlier regional projects recommend reduction and prevention measures for water pollution. These recommendations stem from experiences in water quality monitoring, and the awareness that water quality pollution in the region is based on the degradation of infrastructure, as well as inherited industrial and pollution management practices that did not align with international norms. Further this legacy pollution, especially in industrial areas, creates a challenge for governments tasked with addressing these, when resources are limited.

133. In the past, taking steps to actively address pollution was a lower priority for governments tasked with multiple demands for economic growth and stabilization. Fortunately the attention to active pollution reduction and prevention is increasing with national budget lines for this pollution abatement also increasing in part thanks to the efforts of earlier projects recommendations. The challenge remains though to take actions, on all necessary fronts. In many cases this is being done more at the national levels, though there is clearly a benefit of coordinating this as possible to increase technical and information exchange.

134. The current gaps remaining in pollution reduction and prevention include:

- Lack of clear action plan to abate pollution for the region that attends to priority transboundary pollution concerns, and possible contamination of shared ground waters
- Identification and assessment of point and non-point source pollutants are still not well developed still
- Need to identify consistent methodologies for hotspot identification for regional experts
- Lack of enforcement support to reduce pollution at the source
- Lack of polluter pays principal and incentives for improving management of pollutants
- Lack of access to green technologies for polluting industries
- Lack decision support on prioritizing pollution abatement
- Low understanding of the costs of pollution to national and regional economies in terms of economic costs
- Low understanding of the costs of pollution to national and regional economies in terms of social costs, esp. related to gender roles and care for those most impacts by low water quality.

135. **Strategic Outcome 5. Harmonization of water quality standards** has been an ongoing priority of regional projects funded by the US AID, GiZ, UN, EU and others. The challenges to this have been the countries taking different routes towards the realization of agreed water quality parameters and standards. The standards are now more different than they were at the end of the Soviet Era. However the governments of Azerbaijan and Georgia are both working toward overcoming this. There are strong national, regional and international incentives for harmonization of water quality standards, especially with the presence of the EU Water Framework Directive and the pending bilateral agreement based on the Helsinki Convention.

136. Currently there are strong national, regional and international incentives for harmonization of water quality standards between Azerbaijan and Georgia. The commitment of both countries to approximate the environmental management approaches of the European Union strongly supports commitment to harmonization with each other. Though this has not yet been formalized the pending UNECE Bilateral agreement provides support for doing this in a sustainable manner, in line with the

SAP Strategic Outcomes and Ecosystem Quality Objectives. Without the many prior projects this would have been a much more difficult milestone to reach.

137. The positive trends noted for this Strategic Outcome still must overcome the following gaps:
- Need for actual harmonization plans for water quality monitoring standards
 - Protocols for data sharing and joint monitoring
 - Agreement on the UNECE Helsinki Convention and associated bilateral agreement
 - Mechanism in place for agreement on standards and joint monitoring
 - Shared regional database needs development with protocols on information access etc.
 - Capacity at the national and regional level to apply common approaches and use databases for improved regional water management

138. **EQO # 3: To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin.** The stewardship of the river ecosystem has been a long term priority for regional water projects though actual focus on the environment has not emphasized this in project implementation. Comparatively the number of regional projects focusing on ecosystem status related to water is low compared to water quality and water quantity as well as flooding. In several cases such as the WWF projects, the ecosystem has been given priority. There is still a critical need to build a basin wide database of river ecosystems, including documentation of flora, fauna and hydrogeomorphology to better track endemic species and the impacts of climate change and development across the region.

139. In most regional project the water quality assessments are linked to ecosystem status, and this is becoming a much stronger trend in line with EU WFD, and desire to update methodologies to calculate environmental flows. The previous UNDP-GEF projects have taken strides to strengthen the relationship between ecosystem functions and over all social and economic benefits of sustainable development.

140. More recently reviews of ecosystem functions have been included in regional projects on water security and water nexus though without a strong regional database it is difficult to track changes and impacts. The data that does exist is not collected into a single database and coordinated in a manner that allows for reliable access. There is a high level of national expertise in specific disciplines such as ichthyology, river hydromorphology and botany, though there has not yet been accumulated into a single set databases.

141. In the international community and regionally there is an increasing awareness of the importance of ecosystems to river system health as economic resources. The challenge of this is that modern water economist and environmental economists are still developing methodologies for assessment of the value and contribution of services that can be measured in comparison to other sectors. Recent regional efforts, including the pilot testing of the UNECE water nexus in the Alazani Basin, and OECD/Finnish project on Lake Jandar have attempted to develop these but have not yet successfully shown application of economic models to environmental resources. In light of the challenges from the previous projects the SAP seeks to address these through the following Strategic Outcomes:

142. **Strategic Outcome 6. Assessment of the status of river ecosystems** In the past most regional projects on rivers looking at Quality and Quantity, less on integration with ecosystem management. The UNDP-GEF Kura Aras Projects have included the ecosystem degradation as a priority transboundary concern, though collection of reliable time series data on this has proven to be a significant challenge. There are some excellent experts who have strong experience in specific areas of ecology but overall an ecological assessment remains elusive. In the 2011-2014 UNDP-GEF Project the demonstration project component introduced the approach of Rapid Ecological Assessment and provided both training and fieldwork with this to support environmental flow calculations. This initial effort demonstrated that there is a strong need to build this approach into a more integrated and ecosystem based assessment system across the region with a larger set of experts working closely together in the future to assess the status of the ecosystems. The outputs of

this should be documented with specific time series data of seasonal shifts and inter-annual changes.

143. The EU WFD will require the application of ecosystem status within the development of River Basin Management Plans. Initial efforts under the recent EU Projects have moved in that direction however there is not a clear assessment of river system ecology from these. The current EU project due to end in early 2016 was supposed to create a regional database of macro-invertebrates; however that has not yet materialized. The EU Kura Projects did provide sampling and laboratory equipment, including digital microscopes for photographing and cataloging endemic macro-invertebrates. Due to the value of biomonitoring for water quality assessment, most recent regional projects have focused on macro-invertebrates for biomonitoring, but there is a need to expand this for a more complete ecosystem status approach.

144. There are currently several significant gaps that remain for the assessment of ecosystems. These are:

- Lack of understanding of ecosystems as integrated system with flora, fauna, geomorphology and climatic conditions
- Lack of regional information on ecosystem characteristics
- Lack of updated information on species status
- Lack of regional database of endemic species, including macro-invertebrates
- Need for information on river system functions for more developed environmental flows calculations
- Need information to gauge impacts of climate change on ecosystem

145. **Strategic Outcome 7. Conservation & restoration of river ecosystems.** While some previous projects have focused on conservation of river systems, the regional efforts have primarily provided recommendations in this direction. Select projects have delved into this, especially related to flood management and economic benefits, but actual restoration and conservation have yet to be demonstrated. Nonetheless the governments in Azerbaijan and Georgia both recognize that it is important to move forward on restoration and conservation measures once clear guidance is provided.

146. Early efforts to tie river ecosystem conservation to economic benefits have been initiated with the Azerbaijan Flood Plain Forest Study under the UNDP-GEF Kura Aras Project, and the Finnish funded Lake Jandar project, though these only provided recommendations. It will be critical to build on these initial efforts, and international experiences in river restoration.

147. The gaps that exist for this Strategic Objective are:

- Lack of resources dedicated to conservation and restoration
- Lack of experience in restoration practices
- Multiple layers of authorities required to do river restoration
- Need to demonstrate cost and benefits of restoration
- Demonstration of potential links with EU Floods Directives, and application for the EU WFD Program of Measures

148. **Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning.** This strategic outcome stems from the awareness of the countries that the social and economic value of the ecosystem has not been sufficiently included in national and regional planning. Currently, the experience of modern environmental stewardship in planning has been based on donor requirements for environmental impact assessments (EIAs), Strategic Environmental Assessments (SEAs) and Strategic Environmental and Social Assessments (SESAs). Many national experts are increasingly aware that economic valuation assessment of ecosystem services is emerging. This combines with an growing interest at the regional level of the EU Environmental Directives on EIAs, SEAs and through the water nexus approach advocated by a large number of international donors.

149. The countries are increasingly aware that there is a need to value the ecosystem services to balance development in impacting water resources. Currently, most experience in incorporating this

into national planning is based on experience with international finance institutions (IFIs) requirements for EIAs and SEAs. In general the economic valuation for ecosystem services has not been well incorporated by regional donor funded projects, beyond recommendations. The UNDP-GEF Kura Aras project root cause analysis of ecosystem degradation demonstrated that this is a critical area for development.

150. A challenge that the countries face is the awareness that though the international community is developing economic valuation assessment approaches these are still nascent and difficult to implement, especially with lack of clear data on ecosystem functions. Within the countries there is a growing interest at the regional level for inclusion of environmental economic concerns in to planning and development. This was demonstrated with the UNECE piloting of the water nexus methodology, though the outcome from that regional project did not meet expectation, the discussion between regional and sectoral actors was an important step in this direction. The additional impetus for this is based on the EU Directives on EIAs and SEAs.

151. The current gaps towards reaching this strategic outcome is:

- Lack of strong information on ecosystem functions
- Lack of tried methodologies for application of economic valuation of ecosystem services at the national and regional levels
- Need to demonstrate applied benefits of this approach to decision makers
- Need for economic valuation of ecosystem services to be accessible to decision makers and public to influence planning
- Need to harmonize EU EIA and SEA Directives applications across the region to demonstrate benefit

152. **EQO # 4: To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities.** It is no longer possible to discuss water management issues without acknowledging the important impact of climate change. The more extreme weather that is experienced in the Kura Basin reflects trends felt around the world. Severe flooding, droughts, extreme heat and unexpected freezes all impact water management and development. The costs of these in human lives and loss of property are growing more serious and regional projects have been advocating for increased attention to these issues. Flooding and droughts are increasingly persistent challenges in the Kura Basin, and are closely linked to climate change impacts. Additionally, the tragic flooding events in Azerbaijan in 2010, and the recent 2015 flash flood in Tbilisi draw international attention.

153. **Strategic Outcome 9. Reduction of hazards due to floods and drought.** In addition to the attention to recent extreme flooding events, 2014 is the driest year in recorded history in Kura. The 2003-2006 project Trans-boundary cooperation for hazard prevention in the Kura-river basin supported by the Federal Environmental Agency of Germany was one of the first to address this, and others focusing on DRR at the national and regional level continue to draw attention to the need for transboundary notification in the event of severe weather events including flooding and drought.

154. The UNDP GEF Kura Aras Project focused on flooding as a priority transboundary issue in the region, and made a series of recommendations including assessment of the economic costs of flooding events, and need to adopt the EU Floods Directive as a preventative measure. Further recommendations also included attention to droughts and development of a regional drought index to enable information exchange and increased water conservation measures to be implemented.

155. This Strategic Objective has several critical gaps that must be addressed at the regional level to more thoroughly reduce negative impacts of extreme weather events, including flooding and droughts. These gaps include:

- Need to implement the EU Floods Directive
- Critical need to develop transboundary emergency flooding notification protocols
- Need to develop drought alert index for the Kura Basin
- Need to begin to develop proactive flood mitigation rather than crisis response based approach

156. **Strategic Outcome 10. Harmonized Climate Change Adaptation.** In the 15 years since regional projects have been active in water management in the Kura basin there have been a rapidly increasing awareness of climate change among stakeholders. Regional projects have addressed climate change impacts on water resources with increasing urgency. Increasingly regional projects and national projects are taking steps to mitigate the impacts of climate change, and to work to gauge the impacts specifically on water resources.

157. The UNDP GEF Kura Aras Project in 2005 was one of the first to include climate change as a cross cutting issue. Other projects, such as UNDP/OSCE Regional Climate Change Impacts Study for the South Caucasus emphasized the importance of this issue. The UNDP GEF Kura Aras Project from 2011-2014 addressed this in the TDA, including the impacts on water resources through desk studies on climate change impacts on water, and the trend analysis on how sectoral development plans combined with climate change would impacts availability of water resources across the region.

158. The UNECE project piloting of the water nexus methodology in the Alazani began to draw attention to the importance of balancing water uses in increasing uncertainty due to climate change, however, this initial effort did not sufficiently explore approaches needed for this. Nonetheless, the application of the water nexus emphasizes the importance of climate change adaptation measures, and the countries are open to exploring this further.

159. There are several significant gaps that will need to be addressed for this Strategic Outcome to be realized. These include:

- More detailed information needed on impacts on water resources
- Adaptation measures require conjunctive use plan for ground and surface waters
- Water conservation measures in all sectors will be critical
- Increasing need to empower stakeholders at all levels to adapt to climate change

160. The large number of regional projects focusing on water resource management in the Kura Basin had built a strong foundation for the SAP. Unfortunately, not all of these projects were successful in meeting their objects, and due to time, geographic and other extenuating constraints there was not reliable or ongoing coordination between projects. Often the priorities of donor organizations did not align with coordination on the ground between donors to maximize benefits for the countries. Also the scope and scale of projects often were adjusted due to constraints of partner organization.

161. In other cases there has been strong coordination between projects that is critical for the region. The UNDP GEF Kura Projects have worked to coordinate when possible with other donor driven projects. In some cases, such as coordination with the EU Kura II and Kura III project there was a strong benefit to the countries, as there was continuity in efforts. In the future, both countries are taking a much more proactive role in supporting and facilitating coordination between donors. It also behooves all the donor organizations to strive to coordinate to best serve the needs of the countries.

1.3.5. Barriers to success

162. There is a strong recognition of the importance of IWRM and transboundary coordination in both Azerbaijan and Georgia. To date, the actual implementation of the IWRM approaches have been challenged by weak regional cooperation, low institutional capacity, lack of funding, as well as attrition of qualified national experts from the government bodies to more lucrative private sector positions. Earlier international project efforts ranging from the late 1990's to 2013 were focused on basic assessments, monitoring capacities and instruction in technological approaches. These were largely based within single sectors and when projects ended, the activities they supported stopped. Recommendations from earlier projects focused on institutional developments, but the countries have been challenged to adopt these due to state

budget allocations to other more immediate socioeconomic priorities, as well as challenges from other sectors that are focused on economic development without full consideration of sustainable resource use.

163. In both countries the situation is one of somewhat uneven growth and shifting capacities within the countries as political and economic transitions continue. The awareness of the need to implement IWRM and coordinate between sectors in both countries is growing quickly, but the capacity to do so successfully so far is uneven. Further, unless approaches to IWRM and cross sectoral coordination between Azerbaijan and Georgia are harmonized, there is a high probability that future coordination between countries, in line with the basin approach to IWRM, will become increasingly difficult if different trajectories are followed. There is currently a small window of opportunity to support that co-development as into the national laws, water codes, regulations and institutional capacities.

164. As noted above the UNDP-GEF foundational project developed a transboundary SAP, the impetus to continue harmonization of national and regional plan implementation, requiring further support through improved political will and awareness of economic benefits from long-term sustainable development. In the Kura basin there is a growing appreciation of this link among some decision makers but these linkages are not yet fully understood. This includes: the critical ties to ecosystem preservation, sustainable water quality and water quantity management in line with international best practices; growing impacts of climate change and emerging tensions between sector-driven water users. Further, without external guidance there is a high probability that realization of intersectoral water resource management will not be harmonized between countries and tensions over water quantity, quality and availability will increase within the region. There is a likelihood that governments will continue to pursue sectoral economic development based on the political power of specific ministries at the cost of long-term sustainable development within and between the countries. In a transboundary setting of a shared basin, barriers towards effective national and transboundary coordination are exponential. Failure to harmonize efforts at the local, national and transboundary levels will result in increased insecurity across the basin. These barriers include:

Policy & Regulatory

- Difficulty enforcing existing and planned national and regional regulatory frameworks and legal protocols to protect water resources and the ecosystems upon which they depend;

Institutional

- Insufficient investment in capacity building to meet the specific needs and conditions across the basin and within the countries;
- Lack of ability to prioritize water resource management across the basin, though the allocation of government resources among some states is increasing;
- Low levels of harmonization of plans and approaches, as demonstrated by incompatible water quality standards between countries, resulting in a potential increase in tensions;
- Challenges meeting commitments to the bilateral agreement under negotiation on *Cooperation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin* due to existing challenges to institutional capacities;

Knowledge/informational

- Lack of updated information on surface and groundwater resource availability, including flow and recharge rates, and the impacts of climate change, and its use in the multi-sector development path;
- Lack of coordinated information to support an understanding of ecosystem-based management approaches that include attention to sectoral demands towards improving overall economic conditions;
- Lack of sustained human resources and financial capacity to meet the required commitments of the EU Association Agreement in Georgia and approximation of EU Directives in Azerbaijan; and,

Technological

- Lack of application of technologies that can serve multiple benefits in water resource management and reduce costs of irrational water losses, pollution and environmental degradation.

165. If not adequately addressed, the lack of institutional capacities, legal arrangements, knowledge/information-sharing protocols and access to technologies will continue to remain major barriers to the effective implementation of national IWRM plans and water management harmonization in line with the agreed and endorsed SAP.

1.3.6. Business as Usual versus the Alternative Scenario

166. Implementation of the Kura SAP is not a foregone conclusion. While there may be circumstances that would mitigate its implementation, there is strong support from both countries towards its active implementation.

167. If the SAP is not implemented with support of GEF it is likely that national level plans and commitments will continue. The large number of projects implemented in the region prior to this SAP implementation project demonstrates the strong national and regional commitment towards addressing transboundary water management. However the lack of coordination between previous regional projects also suggests that without this pending SAP implementation project there is a high likelihood that project coordination at the regional level and perhaps national levels will remain low. Prior projects driven by donor priorities in the region and working under differing timetables often functioned unknown to one another or without strong cooperation. While this can occur the result is a waste of resources, time and opportunities to further improve integrated water resources management in the Kura basin.

168. The countries are aware of the shortcomings that have resulted in regional projects as a result of failure to coordinate with each other and with national initiatives. A decline in overall donor oriented funding to the region further stresses the importance of improving the coordination between projects to maximize benefits. Additionally if projects do not work together there is an increasing likelihood that objectives set by the countries themselves may not be met, even at the national levels.

169. The **alternative scenario** based on GEF support for SAP implementation provides a systematized Ministerial endorsed common structure within which national and regional donor projects can coordinate to address transboundary priority issues as developed by the countries themselves. The implementation of the SAP will also support the countries coordination with each other and between sectors with in each country in a manner that has not been achieved to date. The baseline foundation is very strong for SAP implementation and SAP approval was largely based on the recognition of national benefits, as well as transboundary improvement to water quantity management, water quality, ecosystems and in response to threats from flooding and climate change. Achieving and recognizing national benefits from transboundary cooperation insures the long-term national and regional support for these efforts.

170. The countries of Azerbaijan and Georgia are growing increasingly aware of the importance of integrating water resource management across sectors and between countries. Water is no longer viewed as a public good available in unlimited supply, but rather it is now viewed as a critical economic resource that is potentially scarce and increasingly valuable. Both countries recognize that SAP implementation will provide critical support for water management in a sustainable manner as impacts of climate change are increasingly felt. The forthcoming project is clearly based on SAP objectives and outcomes. It places national level priorities for increasing self-sufficiency as a primary driver of economic and environmental cooperation between sectors and countries. The emphasis on building national and regional level capacity for sustainable integrated water resource management implementation in line with the EU directives and international commitments will serve to empower the countries to forge a new path that can serve as a critical model for other countries and other transboundary river basins in the future.

171. Stakeholders from multiple sectors in both Azerbaijan and Georgia were vital to the development of the national IWRM plans and regional SAP. Recently in meetings with representatives from all key sectors a common theme of the importance of quickly moving forward with SAP implementation through national and regional capacity building for institutional support, stress reduction measures, stakeholder involvement and science for governance and improved tools informed decision-making were prioritized. In all meetings with all levels including NGOs the private sector, academics, and government bodies including Ministries of Environment/Ecology, Ministry of Emergency Situations, Ministry of Agriculture, Ministry of Energy and Ministry of Economic and Sustainable Development, and Ministry of Regional Development and Infrastructure, as well as municipal water agencies, and development agencies, the shared message was that this GEF funded initiative is welcome and needed and should begin as soon as possible.

2. Project Strategy

2.1. Rationale and Incremental reasoning, for global, regional, national and local benefits

172. The updated baseline on water resources management clearly identified gaps in both countries. These gaps together with the strong national and regional support for the SAP provide optimal conditions for the Kura II Project. In addition to catalyzing harmonization efforts and building sustainable management practices across the basin, the Kura II Project further strengthens regional ties in other sectors, and within the water sector through support to the countries to meet their pending commitments towards shared water management under the Helsinki Convention. This project conforms closely with GEF-6 International Water Focal Area Strategies, and GEF support will provide critical incremental benefits towards fulfillment of the SAP objectives. Further, this project can serve to showcase local, national, regional and global benefits of building strong coordination in arid river basins for sustainable development.

2.1.1. Conformity of the Project with GEF Policies and Focal Area Strategies

173. The SAP implementation initiative project provides critical linkages between the countries to meet the GEF-6 International Waters Focal Area key outcomes in Objective 2 *Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and to enhance multi-state cooperation.*

174. In line with **Program 3: Advance Conjunctive Management of Surface and Groundwater Resources** the project will address **Outcome 3.1 of the GEF IW Focal Area Strategy** regarding improved governance of shared water bodies, including conjunctive management of surface and groundwater through regional institutions and frameworks for cooperation lead to increased socio-economic benefits: Kura II project seeks to provide key support to the governance of the Kura River in line with the UNECE bilateral agreement Joint Commission once that comes into effect. Prior to that, the project will enhance regional governance by supporting harmonized national regulations including updating environmental flows methodologies, strategies for improved water use efficiency, intersectoral and integrated planning protocols, pollution abatement plans, support to water management policy coordination at national and transboundary levels, and establishment of the Kura River Public Private Partnership to act as an advisory organization to the project, the anticipated Joint Commission and the sustainable management of the Kura River

175. In line with **Outcome 3.2 of the GEF IW Focal Area Strategy** to increase management capacity of regional and national institutions to incorporate climate variability and change, including improved capacity to manage floods and droughts. This project will strengthen national capacities to implement IWRM plans and cross-sectoral initiatives through concerted capacity building on environmental flow management, strengthened capacity for enforcement of laws, and improve capacity for information management to strengthen decision making in light of climate variability. Additionally, stakeholder involvement will target all levels to support climate change adaptation strategies employed across the region by impacted groups, including woman, marginalized communities, youth and rural populations. Information systems for adaption to climatic variability and change and sustainable groundwater use will be featured to support intersectoral development planning and strengthen the stakeholders' participation including local communities in all aspects of water resources management.

176. **Program 4: Implementation of the Water/Food/Energy/Ecosystem Security Nexus** via **Outcome 4.1** Increased water/food/energy/ecosystem security and sharing of benefits on basin/sub-basin scale underpinned by adequate regional legal/institutional frameworks for cooperation, is addressed by the Kura II SAP implementation project. In addition to the efforts outlined above, this project will focus on supporting the information systems needed to enhance science for governance by strengthening coordinated transboundary monitoring, information management and data analysis systems for IWRM, water nexus implementation

through integrated flow management and climate change adaptation including conjunctive uses of ground and surface waters. This will be done through a range of efforts including standardizing hydrological flow information management systems, applying environmental economics to sectoral water uses, developing a system for assessment of the river ecology for improved environmental security, and strengthening the institutionalization of information exchanges between sectors, and between countries.

177. Additionally this project will implement cross cutting activities that will support the realization of the three outcomes through stress reduction projects in critical areas, and stakeholder activities.
178. The stress reduction measures in critical areas on reduction of factual water losses align with **Outcome 3.2 of the GEF IW Focal Area Strategy** through improving the capacity to manage floods and droughts at local and national levels that can be shared regionally. It will also align with **Outcome 4.1 of the GEF IW Focal Area Strategy** for increased water/food/energy/environment security, as it will work to address improved water efficiency in different sectors that in turn will support the overall amount of water available.
179. The stress reduction measures in critical areas on pre-feasibility studies for pollution abatement plans to improve ecosystems and water quality will align with **Outcome 3.1 of the GEF IW Focal Area Strategy** on improved governance of shared water bodies through regional institutions for increased socioeconomic benefits through providing the countries with a means to cooperatively address key national and transboundary pollution issues, especially those that are negatively impacting women as caregivers for those who fall ill from exposure to upstream pollution, which very seriously impacts socio-economic development. This pilot also aligns with **Outcome 4.1 of the GEF IW Focal Area Strategy** for increased water/food/energy/environment security, by providing a mechanism to improve ecosystem security through improved ecosystem health with improved water quality.
180. Similarly the stress reduction measures in critical areas on river restoration aligns with **Outcome 4.1 of the GEF IW Focal Area Strategy** for increased water/food/energy/environment security, by demonstrating stress reduction measures to improve environmental security and resilience. Additionally the restoration of rivers will improve the capacity of national and regional bodies to adjust to climate variability especially floods and droughts by reviving natural river ecosystem processes.
181. Stakeholder activities to be undertaken in the Kura II Project support all three outcomes through expanding the awareness of water management issues and responsibilities across sectors and at all governance levels through the development of an empowered professional IWRM Trainers Network. The capacity for improved governance, management capacity and sectoral coordination will be the focus of academic conferences within the basin to support training of water management professionals in compatible approaches to the interdisciplinary approach to modern water management. Informing public, stakeholders, marginalized groups, women and youth of their critical role in water management at the household, community, national and regional levels, as well as learning from their innovations to adapt to climate change will empower them to become more pro-active in all sectors they are involved in, and will support the realization of socio-economic benefits of balancing competing water demands through cooperation and collaboration. All of this will be showcased through Kura project active participation in GEF IW:LEARN activities and other regional and international forums.

2.1.2. Incremental reasoning

182. In the framework of implementing the SAP and National IWRM Plans, the GEF funding will enable the consolidation of country and transboundary efforts to reduce transboundary degradation of the Kura river basin through harmonized IWRM implementation. This will strengthen water/food/energy/environmental security at the national and transboundary levels, and encourage ecosystem-based management, by implementing the full range of policy, legal and institutional reforms towards the sustainable use of river ecosystems at the

national and transboundary levels. This will also support the linkages of water to other regional regimes for energy, transportation, and culture. The GEF resources will support incremental activities including:

- Component 1: will strengthen the framework for the implementation of IWRM, by supporting the harmonization of legal, institutional and regulatory protocols within and between countries for more effective governance of the shared river system and its water resources for strengthened water/food/energy/environmental security in line with pending bilateral agreement under negotiation on *Cooperation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin*.
- Component 2: will strengthen the capacity of the institutions responsible for implementing IWRM in the sub-basins, the countries, and at the transboundary level across sectors. This will support the long-term implementation of the bilateral agreement. This will also seek to support harmonization in approaches across sectors and between countries for more effective sustainable development and improved water/food/energy/environmental security.
- Component 3: will showcase demonstrations through small scale projects to reduce stressors on water, with the intention to upscale these and attract investments in larger-scale solutions to address the challenges of ecosystem degradation for transboundary benefits.
- Component 4: will empower stakeholder to play an active and innovative role in IWRM implementation from a wide range of perspectives. By building awareness of the challenges, and turning to stakeholders for possible solutions, ownership of these solutions will be enhanced, and the potential for low cost initiatives leading to sustainable results increased.
- Component 5: will strengthen monitoring, data assessment and analysis systems in support of improved decision making, and increased exchange of comparable information and analyses between sectors and countries for improved and harmonized water resources management. This will increase applied water/food/energy/ecosystem security and climate change adaptation including conjunctive uses by increasing the empirical understanding of necessary decisions to be made to realize the shared benefits of cross sectoral coordination.

183. As noted in Section 1.3.6 the incremental benefit of the Kura II project is also providing critical linkages between national level projects currently underway and those that are planned, as well as between sectors and governmental bodies of Azerbaijan and Georgia. Both countries have voiced a strong desire to strengthen ties and coordination in the application of cross-sectoral water management for improved transboundary relations. The SAP demonstrates the specific steps the countries wish to take together for improved water management, endorsed by the focal ministries in each county. Further, Section 1.2.4 above emphasizes the increasing economic and political ties between Azerbaijan and Georgia in a wide range of sectors. Including transboundary water management within these cooperative practices strengthens the regionalization of environmental management practices and increases food-energy-water-environmental security aspects of the basin for Azerbaijan and Georgia. The level of commitment that both countries are poised to make to this, and the important role of the Kura II project will compound the benefits from GEF playing a catalytic role for this cooperation.

2.1.3. Global, regional, and national benefits

184. Under the guidance of the Kura II project, it is expected that improvements in transboundary water management will be realized through both national and transboundary harmonization; in the longer term, as the SAP is implemented, improvements in the environmental and water resource status of the Kura should be clearly discernable. Implementing policy, legal and institutional reforms agreed to under the Kura SAP, with strengthened bilateral commitments

and providing the two countries with relevant information, capacity and management tools will facilitate achieving these environmental status improvements and enhance water/food/energy/environmental security. For example, support to strengthened integrated planning protocols between sectors, and facilitating the harmonization of planning between sectors and countries by means of information sharing will enable the countries to build confidence at the national and transboundary levels for improved water management and strengthened regional cooperation regimes. This opens opportunities for developing shared solutions, exchanging lessons learned and potentially for creating higher levels of management harmonization at other economic and resource-dependent levels. Further, application of IWRM and the water nexus for integrated flow management will help the countries to meet commitments and goals to international agreements, through the application of practices that lead to improved sustainable development at the local, national and transboundary level, even under the threat of climate change.

185. The significant importance of the Kura River system to Georgia and Azerbaijan, to water and food security, socioeconomic development, and regional cooperation remain paramount and underscore the significant global environmental benefits the proposed project would deliver in terms of improving transboundary waters governance and management. The significant commitment by both countries to the SAP and their respective national IWRM plans, combined with the tangible progress Georgia and Azerbaijan have made in reaching consensus on a regional legal framework in line with the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Water Convention) through the bilateral agreement under final negotiations on Cooperation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin, further underscores the value added GEF can provide in furthering transboundary cooperation in the volatile South Caucasus. As the GEF supported processes go forward, it is very possible that the concrete measures Azerbaijan and Georgia have taken to improve transboundary cooperation could be catalytic and encourage broader participation by other Kura and Aras river riparians and the project will continue to facilitate dialogue towards this end.
186. This project will allow the two countries to test the implementation of nationally-constructed IWRM Plans as part of the transboundary SAP. The implementation of priority measures to address national and transboundary concerns will enable them to move towards more sustainable development and integrated resource management nationally and across the basin. The foundational phase GEF IW Project fostered the approach of National IWRM Plans leading to the shared priorities in the SAP to be tested for effectiveness. In the standard GEF IW approach the TDA is developed, then based on its recommendations the SAP emerges, from which subsequently the National Action Plans are drafted. As the IWRM plans for Azerbaijan and Georgian are nationally constructed concurrently with the SAP and the TDA, with only the guidance of international experts, the likelihood of more effective IWRM application at the national level and in support of the transboundary level is much higher. This is due to the highly participatory approach of these plans that foster a strong sense of country ownership of the processes and outcomes. It also highlights the very important role GEF can play in providing catalytic support to regional cooperation.
187. It is critical that countries are supported to do at the national level what they are also being asked to do at the transboundary level as noted in the GEF 6 IW Strategy. This will require staged implementation, with the proposed stage focusing on institutional, regulatory and capacity building in preparation for the development and management of larger-scale investments to reduce environmental stresses in the long term. This approach will ensure that there is a shared understanding of cause and effect relationships in water resource management to address transboundary challenges. The Kura II project will ensure capacity development based on the same principles in both countries, and promote the sense of local ownership of both national and transboundary solutions. This will increase confidence within and between states, support the norm of learning by doing to empower all stakeholders, and build lasting linkages for long-term sustainable development. This will also enhance regional

institutions and shared regimes for transportation, energy, and culture through enhanced water/food/energy/environmental security and integrated flow management.

2.2. Kura II Project: catalyzing SAP implementation

188. As part of the strategic approach to achievement of a long-term vision for the Kura River basin environment in the Kura II project both short-term actions to be implemented within the first five years and medium-term actions to be completed within 6 to 10 years have been proposed under the Kura SAP.
189. The aim of the Kura II Project is to support the implementation of the SAP during a four-year project period to catalyze and harmonize actions within and between the countries so that they will have the capacity to move forward with less dependence on donor support. This approach will enable the countries to implement sustainable IWRM governance, stress reduction measures and decision support system based on their own strong and common foundation. As per the SAP, these actions will be in line with the EU WFD and will support international best practices. To date, the countries have experienced many approaches to international project implementation ranging from donor driven efforts that are largely external to the needs and conditions within the countries, to more participatory, hands-on projects that are highly interactive and responsive to the challenging realities that require more incremental advancements to be sustainable. This second approach is shown to increase national and regional ownership of the project that drives long term sustainable implementation. The Kura II Project will also make efforts, as agreed by the countries to develop synergies with the planned EU funded EUWI+ EAST project to further support the countries to approximate the EU WFD towards long term sustained transboundary management.
190. As a result the Kura II project will facilitate substantial implementation of the IWRM approach in the Kura River basin in line with the EQOs and strategic outcomes in the endorsed SAP that was developed through a highly participatory approach. There is a strong appreciation of the importance of learning by doing, empowering stakeholders, and understanding that working from a strong capacity base will support large-scale advancements upon which sustainable outcomes are built. Within the SAP development process, stakeholders recognize advancements are needed, and they have specifically asked for harmonized support in making those advancements based on meaningful professional development efforts tied to educational support for current and future generations. This will support the ongoing cycle of institutional governance protocols enabling stress reduction measures that then inform science for governance that then supports further advancements in institutional governance.
191. As part of the project rationale and sustainability strategy, increased awareness of the importance of IWRM implementation among broader stakeholder communities including the private sector and international and regional development banks will become increasingly important. Expansion of both the scale of actions and the scope of the programmatic efforts of the SAP are planned and the countries, in line with national and regional priorities, will pursue a progressive shift from facilitation of governance arrangements to full-scale implementation of management actions.
192. The full implementation of the entire SAP will require longer-term ongoing and sustainable actions from both countries. The Kura II project will create an enabling environment and enhance capacities for SAP implementation further supporting cooperation between sectors and countries for improved river basin management in line with international best practices.

2.2.1. Kura II Project Component Linkages Strategy

193. The Kura II project consists of five complementary and interlinked components as illustrated in *Figure 5* below. The five components reflect the project rationale and strategy. They are

designed to collectively deliver the project objective: *Sustainable integrated water resources management in the Kura River basin using the water-energy-food-ecosystem security Nexus through implementation of agreed actions in the SAP.*

194. The transboundary issues addressed in the TDA and SAP share common root causes. The Kura II Project addresses those root causes to enable and empower stakeholders at all levels to sustainably reduce transboundary degradation of the Kura River, while improving and harmonizing management capacity across the basin. Each project component bundles outputs and activities to address each of the EQOs and Strategic Outcomes from the SAP. Together the outputs and associated activities under a single project component typically contribute to more than one SAP strategic outcome.
195. The many contributors to the SAP recognize in this context that structural changes and enhanced professional management capacity are essential preconditions for further advancing efforts and impacts to larger spatial and institutional scales. However it is important to acknowledge that results from such changes in terms of effective region-wide improvements and environmental and socioeconomic conditions in the Kura may only be fully obtained in the long-term.
196. The Kura II Project Components are:
1. Establishment of effective cross sectoral IWRM governance protocols at the local, national and transboundary levels in the Kura Basin
 2. Strengthening national capacities to implement multi-sectoral IWRM in the Kura basin
 3. Stress reduction in critical areas and pre-feasibility studies to identify investment opportunities for improving river system health
 4. Targeted education and involvement projects to empower stakeholders in implementing local / national / regional actions in support of SAP implementation
 5. Enhancing science for governance by strengthening monitoring, information management and data analysis systems for IWRM

STRATEGIC COMPONENTS OF THE KURA II PROJECT

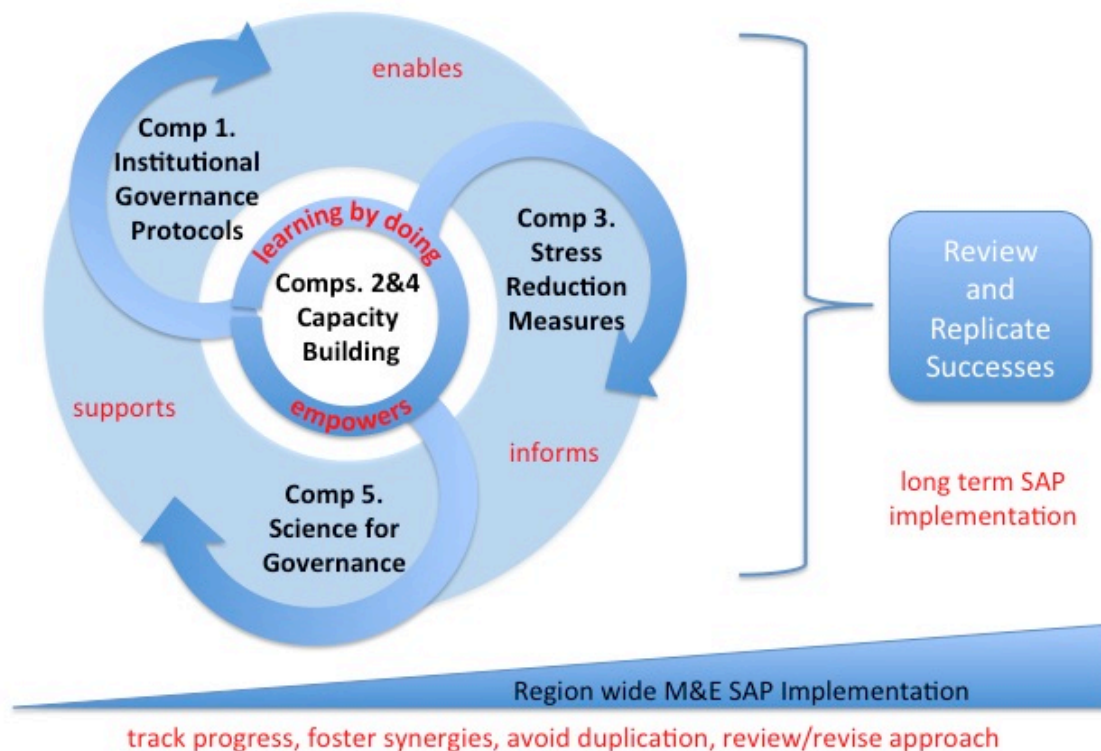


Figure 4 Complementary linkages, and catalytic effects on overall SAP implementation of the Components of the Kura II Project

197. In recognition of the above, the Kura II project supports strengthening institutional governance protocols for IWRM (Project Component 1) and the increase in human and institutional capacity and knowledge (Project Components 2 and 4) will benefit with a progressively implemented measures. These enable stress reduction measures such as applying technologies to improve water efficiency, and integrated flow management that can be expanded based on early results under (Project Component 3). In addition high priority investments needed to achieve large scale stress reduction through pre-feasibility studies for pollution abatement in the medium-term will be analyzed under the Kura II Project and associated investment opportunities and options will be identified as part of Component 3. These will serve as key learning opportunities for professional stakeholders at the national and local levels.
198. The critical aspect of the Kura II project enhanced science for governance (Project Component 5) will strengthen monitoring information management and data analysis systems for use in IWRM, integrated flow management, and will focus on strengthening decision support systems necessary for enhanced intersectoral and transboundary water management and further improved governance. This component will inform sound IWRM decision-making that will further support institutional governance protocols, while also raising the professional capacity of those who will implement these efforts in the short, medium and long term, through sustainable training support. In line with accepted GEF IW policy, the project will purchase the necessary computer equipment and cost-effective software to ensure that both countries are able to use complimentary approaches to resource management, modeling, and decision support systems. This will further facilitate information sharing and harmonization of water management practices.

199. These components will be interlinked and support long-term SAP implementation through sustainable capacity building and professional development designed to continue after project completion. This way the Kura II Project is expected to spearhead a larger scale process that will lead to enhanced water-food-energy-environmental security through balancing water demand and supply, while supporting advancements in national and regional water management practices. This will be done through the concerted balancing of sectoral, human development, and environmental needs across the Kura Basin in Azerbaijan and Georgia.
200. Synergies among other projects and initiatives in the Kura II region will be fostered through the monitoring and assessment frameworks, and the knowledge management and exchange mechanisms developed and implemented under Project Components 1 and 5. These will further provide the means to track progress towards specific and overall objectives of the Kura SAP. This will offer meaningful guidance for project managers and practitioners, local, regional and national governments and stakeholders and donors alike. It will facilitate both adaptive management and identification of opportunities for synergies and collaboration for improved coordination of efforts between Azerbaijan and Georgia.
201. The above approach is consistent with the aim of achieving enhanced human well-being through IWRM by addressing several of the most critical root causes of degradation of the Kura river basin. Component 1 will address the need for enhanced policy and regulatory protocols as well as institutional mechanisms for water management at the national and transboundary level. Component 2 will address the need for knowledge and information for water management professionals working in the countries in various sectors and will standardize approaches between the countries. Component 4 will also address the important need for knowledge and information among interested parties (compared to competent authorities targeted in Component 2) including the wider water consuming public. Component 3 will address technological opportunities to apply approaches that can serve to benefit water resources management at the local national and regional level levels. Component 5 will combine technological management of information needed to support stronger decision-making in concert with professional development within Component 2.
202. The five components of the Kura II project and their associated outcomes and outputs are further described in greater detail under section 2.3. The Table 6 below shows how root causes identified under the Kura Aras TDA and SAP will be addressed through different project components.

Table 6 Kura II Project addressing root causes identified under the Kura TDA/SAP

PROJECT COMPONENT	ROOT CAUSES THAT THE COMPONENT WILL ADDRESS (outputs)
1. Improved IWRM Protocols	<ul style="list-style-type: none"> • Continued reliance on outdated water management practices (1.1, 1.2) • Lack of economic value of services from water resources and ecosystems in economic development planning (1.2, 1.5) • Lack of information of the costs of ecosystem degradation and water-borne pollution to the economy of the countries (1.4) • Lack of effective planning for water resources (1.2, 1.3, 1.4, 1.5) • Lack of ability to prioritize water resource management (1.5) • Low levels of harmonization of sectoral plans and approaches (1.5, 1.6) • ...
2. Strengthening IWRM Professional Capacity	<ul style="list-style-type: none"> • Insufficient investment in capacity building to meet the specific needs (2.1) • Lack of information on the real costs of pollution of water and river systems to national economy (2.1) • Lack of economic valuation of water services (2.1) • Lack of sustained human resources and financial capacity to meet commitments (2.2) • Difficulty enforcing existing and planned regulations (2.3) • Lack of integrated and accessible data and their analysis for decision makers

PROJECT COMPONENT	ROOT CAUSES THAT THE COMPONENT WILL ADDRESS (outputs)
	(2.4) • ...
3. Stress Reduction in Critical Areas	<ul style="list-style-type: none"> Continued reliance on outdated water management practices (3.1) Lack of application of technologies that can serve multiple benefits in water resource management (3.1, 3.2) Lack of reliable & useful information for decision makers (3.2) Lack of information on ecosystem services (3.3) Outdated flood management practices (3.3) ...
4. Targeted Education & Stakeholder Engagement	<ul style="list-style-type: none"> Lack of economic value of services from water resources and ecosystems in economic development planning (4.1) Lack of information on ecosystem services (4.1) Insufficient investment in capacity building to meet the specific needs (4.2) Lack of coordinated information to support an understanding of ecosystem-based management approaches (4.3) Lack of sustained human resources and financial capacity (4.4) ...
5. Improved Science for Governance	<ul style="list-style-type: none"> Lack of updated information on surface and groundwater resource availability (5.1) Lack of economic valuation of water services (5.2) Lack of information on the real costs of pollution of water and river systems to national economy (5.2) Lack of information on ecosystem services (5.3) Lack of coordinated information to support an understanding of ecosystem-based management approaches (5.3) Lack of integrated and accessible data and their analysis for decision makers (5.4) Lack of reliable & useful information for decision makers (5.4) Lack of ability to prioritize water resource management (5.4)

203. The Kura II Project components and the outputs within them are interlinked and designed to support and reinforce the long-term sustainability of the efforts of the project within and between the countries in line with the SAP Strategic Objectives. The interrelated nature of this is shown above in Figure 5. All components and outcomes are aligned with actions in the Kura River SAP, address the key root causes, and reflect the consensus on regional priorities. Specific linkages with specific Strategic Outcomes from the SAP are highlighted for each output. The linkages are shown in Table 7 below, and expanded upon in the subsequent sections.

Table 7 Linkages Between Components and Outputs with SAP EQOs and Strategic Objectives

		EQO 1 Sustainable Water Use 1. Improve Management 2. Reduce Losses		EQO 2 Improved Water Quality 3. Imp. Monitoring 4. Imp Quality 5. Harmonize Standards			EQO 3 Maintain Ecosystems 6. Status Assess 7. Conserve & Restore 8. Ecosyst. In Dev.			EQO 4 Flooding & Climate Change 9. Flood & Drought 10. CC Adapt	
	SAP Outcomes and Kura II Outputs:	1	2	3	4	5	6	7	8	9	10
Comp. 1 Institutional Governance Protocols	1.1 Environmental Flow Methodology										
	1.2 Water Use Efficiency										
	1.3 RBMO Institutions										
	1.4 Pollution Abatement Plans										

	1.5 Intersectoral Coordination											
	1.6 Public Private Partnership											
Comp. 2 IWRM Professional Development/ Cap. Building	2.1 IWRM Professional Development											
	2.2 RBMO Capacity											
	2.3 Enforcement & Compliance											
	2.4 Information Management											
Comp 3 Stress Reduction Measures	3.1 Reduce Water Losses											
	3.2 Pre-feasibility Studies											
	3.3 River Restoration E-Flows											
Comp. 4 Stakeholder Education & Awareness	4.1 ToT for IWRM Stakeholders											
	4.2 IWRM Academic Conferences											
	4.3 Social Marketing Campaigns											
	4.4 Local Climate Change Adaptation											
	4.5 IW:LEARN											
Comp. 5 Science for Governance	5.1 Hydrological Modeling											
	5.2 Socio-Economic Assessment											
	5.3 River Ecosystem Assessment											
	5.4 Data Exchange Protocols											

2.3. Project objective, components, outcomes and outputs

204. The Kura II Project objective is: *integrated water resources management in the Kura river basin to address water-energy-food-ecosystem security nexus with integrated flow management through the implementation of agreed actions in the SAP*. This will be accomplished through working with the national and regional priorities outlined in the SAP and National IWRM Plans developed under the foundational phase of the project.

205. Within this context, the Project will kick-start and catalyze the implementation of the Kura River SAP, through a series of outputs their associated activities structured under five distinct project components. These components are divided by approach, rather than by environmental issues, and as such the EQOs and Strategic Outcomes of the SAP are cross cutting through the Project Document. This fosters integration, and encourages measures taken to address key root causes while enabling the countries to develop and enhance the necessary capacities to implement efforts sustainably into the future. Project outputs will address the different root causes of environmental degradation described under Section 1.3.2.

206. The sections below provide a detailed accounting of each Project Component, with an introduction, the impetus and outputs addressing the root causes, and the specific Outcome of each component. Within each Component the specific outputs are then presented with a summary of the need for the specific output, the linkages with the Kura SAP Strategic Outcomes/ Strategies.

207. The overview of the outputs below provides anticipated guidelines for experts including those conducting the activities of the output. The activities are presented as guidance for project management; indicators for success are based on anticipated available information. The involved parties will always include the project team and those project stakeholders most directly involved in the activities, the targeted beneficiaries are those who will most directly benefit from the activities of the output. Main deliverables provide a concise review of what will be produced by output. Direct linkages outline how and outputs are tied together within and across components. In the event that there are discrepancies in interpretation of the

outputs and activities this text will take precedent over the Project Results Framework.

2.3.1. Project Component 1: Establishment of effective cross sectoral IWRM governance protocols at the local, national and transboundary levels in the Kura Basin

208. Stakeholders highlighted the lack of coordination between sectors for water governance as significant challenges throughout the TDA, the National IWRM Plans, and SAP development. These challenges include lack of coordination and notification between sectors, lack of information sharing, lack of harmonized planning at the sector level, and lack of mechanisms to support collaboration at the national and regional levels. The root causes of lack of effective planning for water resources lack of ability to prioritize water resources management, and low levels of harmonization of sectoral plans and approaches have limited improvements in water management across the basin. Both countries are eager to improve this.
209. Both Azerbaijan and Georgia are working to align their water management practices and protocols with those of the EU WFD. The Kura II Project is dedicated to supporting this alignment with the EU WFD and international best practices for transboundary water management. Addressing these and other root causes will become critical to overcome the institutional hurdles which serve as barriers to modernizing water management practices at the national and regional levels. It is now widely recognized and accepted that, there is a need to review, clarify, expand and/or harmonize institutional and organizational mandates, and associated policies and legal frameworks.

2.3.1.1. Impetus and outputs addressing the root causes

210. The actions to enhance institutional governance arrangements were incorporated under the different strategies of the SAP. They have been inspired by, and have been further shaped through the political consensus-building process that was followed during SAP development. Under COMPONENT 1 and through the outcomes and outputs described below, the Kura II Project will enhance coordinated institutional arrangements through national (**Outputs 1.1, 1.2, 1.3, 1.4**) and transboundary levels (**Outputs 1.5, 1.6**).
211. The TDA and National IWRM plans strongly emphasized the critical need to modernize approaches from the root cause of continued reliance on outdated water management practices. *Updating of regulations for environmental flow calculations methodology* including climate change and competing water demands are addressed in **Output 1.1**. In both countries there is continued reliance on Soviet era calculation methodology for environmental flows that do not account for severe fluctuation due to climate change or provide sufficient water to maintain ecosystem functions during drought events. Both countries have voiced a strong desire to more comprehensively include the environment as a stakeholder in water flow management and allocation by modernizing this approach in line with integrated flow management. This is in line with international best practices and the tenets of the EU WFD to be supported by the project.
212. Further improvements to modernize water management and to address the root cause of continued reliance on outdated water management practices, and the lack of ability to prioritize water resource management are included in **Output 1.2 - Improved water flow management regulatory strategies** in response to climate change and severe weather including droughts and flood preparedness. Activities under this output will support rational water use, save waste water reuse and support for preparedness and response to floods in the Kura basin. This will also address the root cause identified in the TDA - lack of effective planning for water resources is linked to lack of economic value of services from water resources and ecosystems and economic development planning, and the root cause low levels of harmonization of sectoral plans and approaches.
213. The need to systematically update water management practices in line with the EU WFD and international best practices will be the focus of **Output 1.3 institutional support for river**

basin management organizations and local authorities. This will support both Azerbaijan and Georgia to develop governance protocols in support of the approaches advocated for national and transboundary water management advocated by the EU. This will include institutional support for stakeholder involvement and for gender mainstreaming, in line with EU and international best practices.

214. The important TDA root cause on water quality degradation is the lack of information at the cost of ecosystem degradation and waterborne pollution to the economies of the countries in the region. Attention to this issue now requires more than monitoring, it requires the development of *pollution abatement plans developed with key stakeholders* in **output 1.4**. These plans will also include compliance plans to enable incentives for pollution reduction to be applied effectively. The approach of the EU WFD and related directives will be applied to pollution abatement measures.
215. Repeatedly in the TDA and national IWRM plans the lack of harmonization of sectoral plans and approaches was viewed as a significant root cause and barrier to modernization of water management practices. **Output 1.5** *support to intersectoral water policy coordination and harmonization at the national and transboundary levels* via meetings and targeted training for stakeholders will support the countries in addressing and overcoming the barriers resulting from this root cause. This will also serve as a foundation for a bilateral working group that can support the UNECE Bilateral Agreement Kura River Commission, once that agreement is finalized. In the case that the bilateral agreement is not finalized during the UNDP-GEF Kura II Project implementation, the project will take steps in the final year to provide guidance for the creation of a bilateral working commission to support continuation of experience, information and data exchange that will support continued sustainable cooperation between the countries, facilitated by the initial efforts of this project.
216. In order to strengthen the water management practices and increase the appreciation of the economic value of services from water resources and ecosystems in economic development planning **output 1.6** *Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies* with a focus on creating win/win scenarios for water use and environmental protection will support the countries to address key root causes that hamper modernized water resources development in line with international best practices. This will involve applied approaches to improve water use and technologies across the basin.

2.3.1.2. Outcome 1

Regional, national and local legal, policy and regulations harmonized within the Kura basin for strengthened IWRM implementation, including harmonized intersectoral coordination with environment, agriculture, energy, municipal water and industrial sectors

217. It is anticipated that the successful implementation of this project component will lead to the further consolidation of comprehensive, coordinated and integrative governance arrangements in the Kura II. In Georgia, this will include support to the implementation of the EU Association Agreement Road Map developed in 2015. In Azerbaijan it will include this will include the elaboration of amendments to the Water Code of Azerbaijan on the implementation of the principles of basin management of water resources; and development of draft legal acts on the implementation of the principles of basin management of water resources.

2.3.1.3. Outputs under Component 1

Output 1.1 Updated regulations for environmental flow calculation methodology

218. Hydrological management practices should include attention to natural functions and processes of river systems. The current assessment methods for determining environmental flows in Azerbaijan and Georgia are based on the Soviet era approach that uses a 35% of

average annual flow as the minimum flow. As a result, there are often important tributaries that run dry in summer months, because water is diverted for agricultural or energy purposes. Improved methodologies based on international best practices, first based on calculation of historical monthly trend averages and standard deviations, and then on more advanced approaches using ecosystem functions and integrated flow management will improve over all protection of the environment and sustainability of natural hydrological systems. The approach to the calculation methodology will be conducted through an intersectoral and interministerially negotiated process. Guidance from international experts will be sought to provide sufficient knowledge transfer, and a staged approach to implementation will be developed.

219. The application of improved environmental flows calculation methodology will support the conservation and restoration of critical river ecosystems, by enabling the appropriate regulatory approaches to be applied to sectoral development in a way that ensures sufficient water to protect the environment of the river system in line with other human needs including irrigation and diversion for energy use. This will also encourage mainstreaming of river ecosystem protection into development planning across sectors including irrigation, groundwater withdrawals for municipal purposes, and hydropower. This is closely aligned with the principles of the EU WFD approach to planning. Protection of the river ecosystems will improve the resilience to climate change impacts including severe weather events such as flooding and severe drought.

220. Linkages to the Kura SAP Strategies include:

Strategic Outcome 1. Improved Hydrological Management by taking steps to include measures to protect the environment and increase sustainability

Strategic Outcome 7 Conservation & restoration of river ecosystems through measures to protect the environment of river systems

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by increasing the impacts of water abstraction into planning approaches based on updated methodologies.

Strategic Outcome 9. Reduction of hazards due to floods and drought by increasing river system resilience and natural infrastructure for flood and drought mitigation

Strategic Outcome 10. Harmonized Climate Change Adaptation by improving measures to increase river system resilience

221. Overview: International consultants with expertise in hydrology, river system ecology, and environmental law will be hired to review and recommend appropriate environmental flows methodologies based on available data in each country. The approach will be based on staged implementation, building on currently available information and developing the methodology to become more sophisticated as additional information on the flows, climate change, stakeholder needs, and ecosystems become available.

222. Activities include:

- 1.1.1 Plan for increased monitoring and enforcement of environmental flows within 1 year in selected sub-basin based on existing information
- 1.1.2 Plan for updated environmental flow methodology, including monitoring approach and evaluation criteria accepted by appropriate Ministries for trial in sub basin within 1 year based on existing information
- 1.1.3 Proposed updated methodology applied in at least 1 sub basin in each country for 1 full year for seasonal cycle started by month 18, to test approach in full seasonal cycle
- 1.1.4 Trial methodology in sub basin with local firms (universities) in order to test and refine the methodology across seasons to determine accuracy and effectiveness by month 36, with recommendations for applying within/across the basin
- 1.1.5 Ministries accept the proposed methodology for environmental flow calculations within 4 years or sooner

223. Indicators for gauging success include:

- ✓ Calculation methodology for E Flows updated based on available information measured by percent change of standard deviation of flow from historical norm of natural flow from previous approach (PI)
- ✓ Percent change in monthly flow impacts from previous to updated calculation methodology (SRI)
- ✓ Percent change in sectoral plans in final year of project applying environmental flows to planning (PI)
- ✓ Agreed status criteria including environmental flows by month 42 of project (Pre-ESI)
- ✓ Demonstrated impacts of environmental flow changes measured by percent change in standard deviation from “natural flows” compared to 2011 regulations and impacts (increased areas “restored”, percent rivers not running dry in summers, extension of flood plain fauna and flora downstream from abstraction point, based on surveys in selected areas – these will be measured as part of output 5.1 and 5.3) (SRI)

224. Involved Parties:

International consultants and national experts, ministry of ecology/environment, local authorities, impacted stakeholders

225. Targeted beneficiaries:

Ministry of ecology/environment, Ministry of agriculture, Ministry of energy, municipal water supply companies, downstream water users, and stakeholders actively involved in ecosystem protection.

226. Main deliverables from Output 1.1:

The main deliverable from output 1.1 is a common methodology for calculating environmental flows based on best available information, historical information, and international best practices. The stress reduction measures for output 3.3 on river restoration will serve as an opportunity to trial this methodology in applied settings in critical areas. The methodology will be further developed as additional information based on river ecosystems becomes available in line with output 5.3.

227. Direct Linkages:

Output 1.1 links most closely with output 3.3 on river restoration to serve as an opportunity to trial this methodology in applied settings in critical areas, and output 5.3 on developing a river ecosystem assessment program to support and environmental flow regulation and impact development and climate change. Additional linkages are with outputs 2.1 and 2.3 in component Two on capacity building focusing on implementation and enforcement of environmental flows. Output of 4.1 on improving training for IWRM for the wider public to increase water use efficiency is also linked to this output.

Output 1.2 Improved water flow management regulatory strategies

228. This output focuses on water demand management across sectors for improved security for food, energy, municipal water and the environment with integrated flow management. It is critical to update approaches to ecological management so water is used more efficiently by sectors, and more can remain in the river system overall, especially in times of water stress. Anticipated climate change impacts in the Kura basin include increasing temperatures, increasing severe weather events, and decreasing precipitation across the basin. As a result addressing water management through the lens of climate change for a sustainable adaptation practices will be critical. It will be imperative to reduce losses of water resources in systems where water is not reaching the users who need it. High rates of water losses are being addressed in municipal and agricultural uses it will be critical to continue to support these. At the request of the countries, this component will support the exchange of hydrological information between countries to facilitate transboundary management approaches.

229. It is also critical in light of climate change that the countries are prepared for extreme weather events including droughts and floods and that that preparation is in line with international best practices. In Georgia there is a strong need to support flood preparedness

in the Kura basin with identification of flooded hazards and risks to minimize the loss of life and increase transboundary emergency notification processes.

230. Linkages with Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management through improved across sectoral water use and increased efficiency.

Strategic Outcome 2. Reduced loss of water resources through improved efficiency measures and balanced uses.

Strategic Outcome 7. Conservation and Restoration of river ecosystems by helping balance the demand and integrate flow management

Strategic Outcome 8. Ecosystems in development planning by increasing the institutional governance coordination for flow management

Strategic Outcome 9. Reduction of hazards due to floods and drought by developing strategies at the national and regional levels to mitigate negative impacts from floods and droughts

Strategic Outcome 10. Harmonized Climate Change Adaptation by sharing experiences and exchanging information at the region wide level between Azerbaijan and Georgia

231. Overview: the project will contract international water use efficiency consultants to work with local legal experts, water management experts, and climate change experts to develop national and regional reports on current water use status and efficiency. This team will develop approaches for integrated flow management in line with the water nexus and informational materials for stakeholders. They will also develop reports on current legal frameworks for water use efficiency, wastewater reuse, and working with the project team support for preparedness and response to floods in the Kura basin.

232. Activities include:

- 1.2.1 Develop plans to address gaps in regulatory protocols to encourage efficient water use based on assessments in 5.1, 5.2 and updated review of laws, regulations and enforcement mechanisms
- 1.2.2 Within 12 months national level reports developed on waste water reuse regulation and potential
- 1.2.3 National level recommendations on updated protocols presented within 42 months of project start up based on output 5.1 and recommendations based on lessons learned
- 1.2.4 Preparation of flood hazards maps and flood risks maps of the Kura Basin by using existing available information

233. Indicators for gauging success include:

- ✓ Water efficiency included in national and sectoral plans by number of additional references to water efficiency and demand management in laws, regulations and sectoral plans compared to 2012 Baseline (PI)
- ✓ Verifiable estimates of water saved from application of regulations on water efficiency (SRI)
- ✓ Percent of basin covered by flood hazard & risk maps (PI)
- ✓ Agreed river system status criteria includes integrated flow management (Pre-ESI)
- ✓ Number of Gaps in regulatory protocols for efficient water use identified and filled (PI)
- ✓ Number of incentives developed to encourage more efficient water use (PI)

234. **Involved Parties:**

Ministries of ecology/environment, Ministry of energy, agriculture, and municipal development organizations, ministry of emergency situations regarding flood management

235. **Targeted beneficiaries:**

Water users across the basin, users and downstream communities, ministries of energy agriculture municipal development and ecology, Ministries of finance

236. **Main deliverables from Output 1.2:**

Strategies and approaches for improve water efficiency across sectors, mitigating the negative impacts of climate change and improving national and regional water/food/energy/environmental

security through integrated flow management. The precise format and number of strategies and approaches will be based on initial stock taking and baseline assessments for each country and across the basin.

237. Direct Linkages:

Output 1.2 links directly with output 1.5 on support for intersectoral water management policies, 3.1 showcasing technologies for improved water efficiency, 4.4 on showcasing the local innovations for climate change, and improve decision-making support systems for a hydrological management in Outputs 2.1, 2.4, 5.1 and 5.4

Output 1.3 Institutional support for River Basin Management Organization (RBMOs) and local authorities

238. The application of EU WFD requires the development and support of RBMOs to implement intersectoral water management approaches. This output is cross cutting for most of the strategic outcomes in the SAP. It serves as a critical aspect of alignment of national and local approaches to water management with that of the EU WFD for both Azerbaijan and Georgia. This includes necessary support to national legal platforms to support the formation and development of RBMOs. While the Kura II project will not develop specific River Basin Management Plans (RBMPs), building on efforts of previous and future EU funded projects specific to the implementation of the EU WFD, the Kura II Project will support the countries to develop appropriate mechanisms to support the RBMOs and development of RBMPs.

239. Under the EU WFD, RBMOs have the task of developing River Basin Management Plans (RBMPs) and implementing an agreed Program of Measures (POMs) in order to improve the ecological status of the river system within a specific basin. This will also support the countries to harmonize water quality standards as part of the EU WFD approach for transboundary river basin management. Currently in Azerbaijan and Georgia river basin management organizations are under development and while several donor supported projects have drafted preliminary river basin management plans, the capacity of the organizations to support the implementation is yet to be fully developed. This output will not replicate those efforts, nor develop RBMPs or POMs but instead will support the institutions charged with oversight and support of RBMOs, RBMPs and POMs through support by providing the functional and technical guidance.

240. To date, in both Georgia and Azerbaijan the formation of River Basin Management Organizations with RBMP are mainly donor driven, and implementation is nascent. These initial efforts are housed within the Ministry of Ecology and Natural Resources of Azerbaijan and Ministry of Environment and Natural Resources Protection of Georgia. These have included preliminary RBMPs in the sub basins of Alazani and Ganikh Basins under the EU Kura II and Kura III projects, and the Agstef-Chay and Black Sea sub basins of Adjara in the EU EPIRB Project. In both countries these initial efforts have demonstrated the challenging lack of institutional capacity at national and local levels to develop and sustainably implement plans. The national level administration for RBMPs is clearly within the ministries responsible for environment, yet effective RBMPs and RBMOs in line with the EU WFD requires multiple sectors and multiple layers of administrative coordination with clear delegation of institutional authority. There is a lack of subnational administrative division for sub-basin delineation in both countries that also hampers the effective organization and implementation of these RBMPs and RBMOs. In Georgia, the EU Association Agreement is a strong impetus to the government to address these challenges. The Water Resources Department in Ministry of Environment and Natural Resource Protection in Georgia is moving towards the initial formation of basin-wide organizations but needs clear institutional mandates to do this. In Azerbaijan, the Ministry of Ecology and Natural Resources is charged with the formation of RBMOs, and the National IWRM Plan currently under review with the Cabinet of Ministers will enable the Ecology Ministry, Ecological Policy Department to take responsibility for oversight and support of the RBMOs and RBMP implementation. In both countries they acknowledge that institutional support at a national level for RBMOs and RBMPs is critically needed. The earlier efforts of other donor driven projects to develop RBMOs has demonstrated the need to assign institutional authority for RBMOs to a specific ministry and to charge them with

coordinating with other agencies and ministries for optimal outcomes. Both countries recognize that is critical to build national capacity for oversight and support of RBMOs, to successfully implement RBMPs and POMs sustainably.

241. Linkages with Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by modernizing management approaches

Strategic Outcome 3. Improved water quality monitoring programs by updating approaches in line with the EU WFD

Strategic Outcome 4. Pollution reduction and prevention by supporting the development of POM's including pollution abatement

Strategic Outcome 5. Harmonization of water quality standards by aligning practices and approaches in line with the EU WFD

Strategic Outcome 7. Conservation & restoration of river ecosystems by including them supporting River ecosystems in RBMPs

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning through updating practices for river basin management.

Strategic Outcome 9. Reduction of hazards due to floods and drought by supporting institutions to mitigate negative impacts from floods and droughts

Strategic Outcome 10. Harmonized Climate Change Adaptation by establishing nested institutions able to address flow management challenges due to climate change

242. Overview: The project will contract an international expert with significant experience in supporting countries in approximating the EU WFD and appropriate institutional measures to support the sustainable implementation of these approaches.

243. Activities include:

- 1.3.1 Based on appropriate international best practice provide methodology of implementing EUWFD at national level
- 1.3.2 Based on appropriate international best practices review and recommend improvements to institutions to support RBMO/local authorities and intersectoral exchange/coordination within 18 months including stakeholder involvement and gender mainstreaming practices
- 1.3.3 Develop EU WFD implementation guidance materials including information exchange mechanisms as per Output 5.4 within 36 months to support broad stakeholder inclusion approaches
- 1.3.4 Within 42 months strengthen functional and technical capacity of current RBMO in at least 2 sub practical recommendations

244. Indicators for gauging success include:

- ✓ Successful application of institutional support measures by percent change in number of recommendations implemented resulting from approach with RBMO (PI)
- ✓ Number of interventions developed based on RBMPs and Program of Measures (POMs) (PI)
- ✓ Number of interventions funded by competent authorities and under implementation from RBMPs and Program of Measures (PI)
- ✓ Amount of allocated government resources for implementation of RBMPs and Program of Measures (PI)

245. **Involved Parties:**

International Consultants, and national experts, Focal Point Ministry, other key ministries, private sector and other government agencies involved in water management based on agreed needs and assessment.

246. **Targeted beneficiaries:**

Focal point ministries and other key ministries, private sector, government agencies, academic sector, and water management professionals in current and future generations are key beneficiaries.

247. **Main deliverables from Output 1.3:**

A set of clear functional and technical guidance documents to support relevant authorities in the implementation of the EU WFD based on initial stock taking conducted in each country, in line with specific needs and priorities.

248. **Linkages for Output 1.3:**

This output links most closely with output 2.2 on capacity building for institutions to implement RBMPs, and output 4.1 which will include training for RBMOs local competent authorities and interested parties in line with the EU WFD. This will also link closely with output 5.4 on harmonization of approaches and information exchange.

Output 1.4 Pollution abatement plans developed with key stakeholders

249. Azerbaijan and Georgia have benefited from multiple projects on water quality monitoring in the past 15 years. There is high awareness of challenges at the local national and transboundary level and it is now time to take action towards abating point source pollution, where possible. This output is designed to support the countries to develop pollution abatement plans (PAP) and environmental compliance action plans (CAP) for pollution abatement in line with international best practices, including the EU WFD, and best available technologies. This will include the EU WFD pressure-impact analyses, and risk assessment guidelines, and support the implementation of EU WFD compliant Program of Measures. Compliance will be based on a combination of both positive incentives and punitive measures to improve water conditions in the Kura basin.

250. Linkages to the Kura SAP Strategies:

Strategic Outcome. 3. Improved water quality monitoring programs by supporting water quality surveillance in specific hotspots areas.

Strategic Outcome 4. Pollution reduction and prevention by taking active steps to reduce and prevent pollution of water bodies.

Strategic Outcome 5. Harmonization of water quality standards by using standard best practices for abatement purposes in both countries.

251. Overview: A team of international experts including water quality and an environmental economist will be hired to work with local experts to develop pollution abatement plans and training in pollution abatement linked with outputs 2.1, 2.3 and 3.2

252. Activities include:

- 1.4.1 Within 12 months *all of point and non-point sources identified and included in the cadaster with pollution maps for point sources*
- 1.4.2 *Conduct pollution source assessment, and determine causes* and based on this develop water quality surveillance strategy and provide technical assistance on how to *make an Environmental Compliance Action Plan monitoring network* in the Kura River (identification of sampling points) within 18 months
- 1.4.3 Within 30 months of completion of cadasters for water quality, *develop country specific plans for pollution abatement based on BAT and BEP for priority areas*
- 1.4.4 *National reports identifying the costs of water quality degradation to national GDP*, including loss of economic productivity disaggregated by gender and sector, by 24 months and promote financial mechanisms for improving water quality within the CAP

253. Indicators for gauging success include:

- ✓ Constructed PAP/CAPs with abatement and compliance indicators detailed in text (PI)
- ✓ Number of sites eligible for PAP/CAP within water quality surveillance monitoring network (PI)
- ✓ Number of potential financing sources and mechanisms for pollution abatement including polluter pays principle precautionary principle and International finance institutions support. (PI, Pre-SRI)
- ✓ Number of pollutants per site verified (PI)

- ✓ Number of sampling points the water quality surveillance monitoring network actively sampled (PI)
- ✓ Percent of basin covered by water quality cadasters(PI)
- ✓ Number of implementable recommendations for pollution abatement (PI)
- ✓ Based on BAT and BEP for priority areas number of sites identified for pollution abatement in the basin(PI)

254. Involved Parties:

International consultants, and local consultants, working with ministries of ecology/environment, specifically water quality departments, enforcement departments, and compliance departments

255. Targeted beneficiaries:

Ministries of ecology/environment, water users downstream including agriculture, municipal, and environment users, industries updating technologies and approaches, ministry of agriculture, municipal water companies, caretakers of those impacted by poor water quality

256. Main deliverables from Output 1.4:

Pollution abatement plans for Azerbaijan and Georgia, with compliance action plans, and shared information on pollution abatement financing mechanisms for full-scale plan implementation.

257. Direct Linkages

Output 1.4 has direct linkages to output 2.1 and 2.3 on professional development for pollution abatement and enforcement measures. This will directly link and inform output 3.2 for prefeasibility studies for select priority pollution abatement plans. There are also close linkages with output 1.6 emphasizing the use of green technologies. These efforts in pollution abatement will also tie in with efforts focused on the EU WFD, RBMPs and POMs.

Output 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels

258. At the request of the governments of Azerbaijan and Georgia, this output will provide strengthening of intersectoral water policy coordination and harmonization at the national level and at the transboundary levels. Previously the EU Water Initiative was successful in developing this process, and future projects, including the EUWI+ East, will continue to support this. The Kura II Project will work in conjunction with those efforts, as per the request of the countries to further support and expand those efforts. The aim is to further strengthen the linked basin approach to water management in the EU WFD. It is critical to provide opportunities for experts and officials from the key water management sectors and both countries to meet together, to discuss technical and institutional issues and strengthen support for activities at the national and regional levels. This effort will also support stronger ties between countries by sharing experiences, successes and challenges at the regional and international level through study tours to address share and inform common challenges faced by water managers. This will also include the support to facilitate a transboundary hydrology and hydro-geologist working group to share information and coordinate management strategies. This output will help the countries to establish harmonized water quality standards based on the experiences of the International Commission on Protection of the Danube River during its early formation.

259. Linkages to Kura SAP Strategies:

Strategic Outcome 1. Improved hydrological management by emphasizing the importance of shared challenges and common solutions to priority national and transboundary water management issues

Strategic Outcome 5. Harmonization of water quality standards by providing opportunities to share and learn how to address common water quality management challenges

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by incorporating and showcasing the benefits of integrated water management across sectors

Strategic Outcome 9. Reduction of hazards due to floods and drought by supporting institutional collaboration to mitigate negative impacts from floods and droughts

Strategic Outcome 10. Harmonized climate change adaptation by establishing collaborative relationships and institutions able to address flow management challenges due to climate change

260. Overview: Working with national focal points, and broader sectoral representatives, the project team will support a set of national meetings and regional meetings to include study tours as well as an international study tour based on common shared concerns.

261. Activities include:

- *1.5.1 Meetings and workshops for NRPD/ Intersectoral water team members and associates* to highlight what each sector is doing, provide trainings/workshops on specific approaches towards harmonization of approaches to water management held twice per year in each country and two regional meetings per year with documented training materials available on line in local languages. Special side meetings to support professional mentoring for women and disadvantaged groups in water management. As needed, bilateral topic specific working groups will be supported to address shared priority issues, including coordinated conjunctive ground and surface water management.
- *1.5.2 Study tours at local, national and regional levels*, with one tour per year per country
- *1.5.3 International study tour to observe intersectoral projects* implementation, including challenges and successes, for potential replication in the Kura basin within 24 months

262. Indicators for gauging success include:

- ✓ Number of sectors represented at national and regional meetings (PI)
- ✓ Pre-and post-workshop and study tour perceptions surveys for participants to test for sectorally integrated understanding of water management (PI)
- ✓ Number of follow-up activities done at local national and regional level (PI)

263. Involved Parties:

Members of the national water policy dialogue, extended sectoral involvement, and targeted stakeholder groups as appropriate.

264. Targeted beneficiaries:

Representatives of ministries including environment/ecology, agriculture, energy, municipal and regional water development, emergency situations, water management companies, and amelioration companies, and other relevant stakeholders.

265. Main deliverables from Output 1.5:

Improved relations and strengthened linkages between key stakeholders in in water management in the Kura basin in Azerbaijan and Georgia, with functioning bilateral working groups to address priority transboundary issues

266. Direct Linkages

The linkages for output 1.5 are cross cutting. Close collaboration will be sought with output 1.6 on public private partnerships and throughout other outputs and components emphasizing the importance of intersectoral and transboundary cooperation for improved water management.

Output 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies

267. In both Azerbaijan and Georgia the public and private sectors stand to benefit substantially from the application of green technologies for improved water efficiency and environmental

protection. As both countries embrace modernized approaches to water management there is also an increasing awareness of technologies and approaches that both save water resources and protect the environment. These are money-saving approaches for the Long term that can have cumulative benefits for users in the private and public sectors. Highlighting and showcasing these approaches and their application in the basin will provide opportunities and incentives for the public and private sector to adopt and employee these approaches.

268. Linkages to Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by increasing the awareness of approaches to water management that our cost-saving and environmentally beneficial

Strategic Outcome 2. Reduced loss of water resources through improved water use efficiency technologies

Strategic Outcome 5. Harmonization of water quality standards by providing opportunities to improve and share lessons and approaches that will reduce impact on water quality

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by incorporating and showcasing green technologies and their benefits in and private sector

269. Overview: the project will work with international experts experienced in green technologies for improved water management and local experts to develop and encourage use of green technology. This include awareness raising for the public and private sectors specific to individual sectors including reports on the economic benefits of green technology for water use, and implementation of a Green (Or Blue for water saving) Business of the Year Award program to be awarded to various categories, including Small, Medium and Large Businesses, Women Owned Businesses, and New Businesses (less than 5 years), and by sectors. These awards will be a visible recognition of improved water management practices implemented by businesses, and will use the appropriate logos for display within the business.

270. Activities include:

- 1.6.1 Based on recommendations of PSC and NWPD recruit core members of the PPP to receive priority support towards green business development within 6 months of project start up, and meetings held 2 times per year with the National Water Policy Dialog/Interministerial committee meetings
- 1.6.2 Within 12 months complete Report on Economic benefits of green technology for water use in national languages
- 1.6.3 Within 12 months develop metrics for green-businesses to determine baseline and improvements for improved water management
- 1.6.4 Within 18 months develop sector specific catalog of green technologies for sustainable water use and income generation, with source database on line, updated bi-monthly
- 1.6.5 Working with PPP develop “Green Business Award Program” to be awarded annually starting in year 2, based on sectors and improvements

271. Indicators for gauging success include:

- ✓ Number of private sector organizations involved in the public private partnership (PI)
- ✓ Amount of economic benefit possible for use of green technology for water use in the short medium and long-term (PI)
- ✓ Number of businesses applying green (blue) technologies for improved water management from baseline (SRI)
- ✓ Number of agreed metrics for green businesses to determine baseline and improvements in water management (PI)
- ✓ Number of businesses receiving sector specific catalog for green technologies and income generation measured through website hits and formal distribution channels (PI)
- ✓ Number of candidates and winners of green business of the year award (PI)

272. Involved Parties:

Membership of the NRPD, project steering committee, and PPP, working with international consultants and local experts.

273. Targeted beneficiaries:

Public and private sector businesses using water resources

274. Main deliverables from Output 1.6:

A set of guidance materials, awards, and incentives for application of green technologies to improve water management and strengthening of public and private partnerships across water dependent sectors

275. Direct Linkages

Output 1.6 will link very closely with output 1.5 supporting intersectoral coordination, with output 3.1 on improving water efficiency in different sectors, and with output 4.4 on innovative approaches to climate change adaptation. The public private partnership will have many cross cutting benefits for all components and for water users across the basin.

2.3.2. Project Component 2: Strengthening national capacities to implement multi-sectoral IWRM in the Kura basin

276. During the development of the SAP, TDA and national IWRM plans for Azerbaijan and Georgia, stakeholders consistently identified increasing capacity of water management as a top priority need. Across the region there is a very high level of discipline specific capacity in water management but there is a lack of integrated and interdisciplinary approaches and applications. Meeting this need to integrate approaches is now critical to successful IWRM application. In order to most effectively catalyze the SAP implementation it is crucial that the countries have strong integrated professional capacities to modernized water resource management in line with national and regional commitments.

277. In the previous phase of the UNDP-GEF Kura Aras project, a capacity needs assessment on the anticipated opportunities for professional IWRM trained managers was conducted. This study revealed an increasing number of positions for professional water resource managers especially for those with experience in IWRM. Additionally those who were currently working in the field have stated they feel the need for increased professional development opportunities and training in line with their current and pending responsibilities. In order to most effectively implement SAP at the national and regional level it is critical that trainings on water management are harmonized and professional development opportunities are shared based on common core curriculums. Capacity building efforts in this component to will be closely linked with other outputs and activities based on subject matter and opportunities for cross linkages through professional development.

2.3.2.1. Impetus and outputs addressing the root causes

278. Capacity building to catalyze sustained SAP implementation through professional development opportunities is a critical driver that moves the SAP and Kura II project forward. Enabling the countries to implement the SAP, supported by learning by doing approaches, increases long-term sustainability. Concerted professional development supports increased ownership of the SAP and its benefits. In both countries capacity building across sectors for professional water managers has been at the forefront of recommendations through the TDA national, IWRM Plans and SAP development processes.

279. The root causes being addressed by strengthening IWRM professional capacity are cross cutting and critical to the success for water management in line with modern practices. The root cause causes of insufficient investment in capacity building to meet specific needs other countries, lack of information on the real cost of pollution of water and river systems to national economies, and, lack of economic valuation of water services are all directly

addressed by **output 2.1**. This output strengthens capacity of professional water managers through on-the-job training with key needs being met for improved transboundary and national water management across and between sectors.

280. Commitments at the national, regional and international level by governments to improve water management in line with the EU WFD will require significant increases in trained professionals at the local and River basin level. The root causes, lack of sustained human resources and financial capacity to meet commitments, will be addressed by **output 2.2**. This output will enhance capacity for institutions to implement river basin management plans and development of curriculum for professional development for those who are overseeing and implementing these plans and organizations.

281. In the Kura basin a significant challenge that has been listed in the root causes in the TDA national plans, and SAP is the difficulty of enforcement of existing and planned regulations. This root cause will be addressed by **output 2.3** to strength and capacity for enforcement of laws and regulations that protect the ground and surface water resources and environmental flows. The bodies charged with these responsibilities will benefit from on-the-job training in monitoring and enforcement as well as ensuring compliance through appropriate incentive structures.

282. The TDA highlighted the root cause of lack of integrated and accessible data and analysis for decision-makers. **Output 2.4** addresses this strengthening capacity for information management and data analysis for enhanced IWRM decision-making support working with professionals who are currently charged with developing and implementing monitoring and data analysis. These will be linked to current and planned efforts of ministries in Azerbaijan and Georgia and will facilitate IWRM information coordination and analysis. Improved decision support systems are critical to balancing water needs and sustainably meeting demands with limited resources.

2.3.2.2. Outcome for Component Two

“Enhanced capacity for sectoral ministries and agencies to successfully harmonize and implement national IWRM Plans”

283. The national plans and commitments of Azerbaijan and Georgia will significantly benefit from harmonization of approaches in professional development of on-the-job training to ensure complementary approaches to water management in the basin, drawing from the topics and approaches that have been developed under the TDA National plans and SAP. Realization of improved capacities that are linked between countries across the basin will further strengthen sustainable implementation of the SAP and other national and regional commitments. Special efforts will be made to ensure that gender balance is included among the training participants, and that gender mainstreaming is included within the trainings as appropriate.

2.3.2.3. Outputs for Component Two

Output 2.1 Capacity building training programs for IWRM professionals for different target groups

284. It is critical that water managers and IWRM professional in different sectors share common understanding to water management approaches. In both Azerbaijan and Georgia there is an increase awareness of the need to build capacity at the national level. In Azerbaijan ministries and joint stock companies are conducting training for staff specific to their mandates. Recently AzerSu contracted French company CHF Suez to develop and implement training programs on increased efficiency across the organization. Baku State University has worked closely with UNESCO IHP to develop hydrological trainings also. And in Georgia the Ministry of Environment Protection has initiated The Center for Environmental Information and Education that this output will be closely linked to as well. Further UNDP-

GEF Partner organizations such as Cap-Net have developed courses that contribute to this initiative, and will be shared across platforms as appropriate. In all cases it will be critical to avoid duplication of efforts and to build on successes of other projects and initiatives. It is recommended that in the Inception Phase, coordination measures are developed and solidified with these and other capacity building initiatives.

285. This output will contain elements which can be linked to most of the regional level Kura SAP Strategies, and most specifically through:

Strategic Outcome 1. Improved Hydrological Management through improved professional ability to use hydrological modeling and implement the water Nexus

Strategic Outcome 3. Improved water quality monitoring programs through enhanced monitoring and data analysis for improve decision-making and successful pollution abatement enforcement.

Strategic Outcome 6. Assessment of the status of river ecosystems through inclusion of the River ecosystem in the decision-making processes and increasing overall understanding of ecosystem functions in the water management process.

286. Overview: In this Output, as with all those focusing on capacity building, international consultants with expertise in capacity building on specific topics as identified in the capacity needs assessment. It is anticipated that these will include experts in environmental and water resources economics, river system ecology assessment, gender mainstreaming and stakeholder involvement, international climate change adaptation, and pollution abatement planning and compliance. These experts will further assess specific needs, and develop training curriculum and materials and conduct interactive on-the-job trainings for water management professionals in ministries and across agencies, supported by the project team. The curriculum and training materials will be developed into online courses, in national languages for future generations of trainees to use.

287. Activities include:

- *2.1.1 Gap analysis of sectoral capacity needs for water managers* within 9 months of start-up: this is to ensure that we are linking as closely as possible with other training programs and on filling the most immediate needs for professional development in the region.
- *2.1.2 Establish interministerial water training center* within 9 months: this dedicated space will house the appropriate technology needed for trainings and capacity development as well as information resources for water managers. In Georgia this will be coordinated with the Center for Environmental Information and Education and in Azerbaijan will be tied closely with Ministry of Ecology. All computer equipment, training materials, and other resources will be transferred to the Focal Point ministries upon project completion in accordance with UNDP rules and regulations.
- *2.1.3 Development of interlinked on-the-job trainings for IWRM Professionals* within 12 months of project start-up: These trainings will be conducted by international professionals and experts and will link to other activities as appropriate within the project both nationally and regionally.
- *2.1.4 Conduct at least 6 topic specific on-the-job training curriculum* for 24 months between months 12-36, with quarterly face to face meetings and updates. At the inception phase these will be finalized based on the gap analysis. These topics will likely include environmental and water resources economics, river system ecology integration, cross sector integrated flow management with environmental flows, stakeholder and gender mainstreaming, climate change and adaptation for water managers, and pollution abatement planning and compliance.
- *2.1.5 Develop online trainings based on curriculum*: a database of available curriculum created in first 6 months of trainings and updated quarterly: development training materials will include online secured certification systems, which can be managed by the ministries, in national languages in order to further expand capacity building efforts in the region. This will link with the Cap-Net Virtual University for water management as agreed by all parties.
- *2.1.6 Document trainings and training materials available online for certification of subsequent generations of water managers* beginning after 30 months: all materials

developed for training will be accessible through the project webpage. The IW:LEARN servers will host the Kura II project webpage after project completion for long term sustainable use of training materials. All materials will be provided to ministries for inclusion on webpages, for updates as appropriate. Ministries will control the certification process for their own staff for future use.

288. Indicators for gauging success include:

- ✓ Number of identified gaps in capacity filled by trainings across sectors (PI)
- ✓ Pre- and post-training aggregated test scores (PI)
- ✓ Number of training components applied professionally by the water managers by end of project (PI)
- ✓ Number of discernible inputs to professional capacity of trainees (PI)
- ✓ Number of trainings accessed through online materials (PI)
- ✓ Aggregate results from Surveys of supervisors of trainees prior to training and upon completion of trainings (PI)
- ✓ Number of sectors involved actively in training activities (PI)
- ✓ Cost per trainee aggregated by training (PI)

289. **Involved Parties:**

International Consultants, Focal Point Ministry, other key ministries, private sector and other government agencies involved in water management based on agreed needs and gap assessment. Representatives from the academic sector will also be involved to support longer-term facilitation of these capacity building efforts.

290. **Targeted beneficiaries:**

Focal point ministries and other key ministries, private sector, government agencies, academic sector, and water management professionals in current and future generations are key beneficiaries.

291. **Main deliverables from Output 2.1:**

Case and country specific curriculum for professional development for water managers, trained national experts in critical need water management areas, training materials and online certification preparation courses for use by subsequent generations of water managers in the Kura Basin.

292. **Direct Linkages:**

The activities will link with environmental flows, climate change adaptation and water nexus pollution abatement planning and other activities in component one. They will also link with all projects in component three, component four, and component five. This will be based on prioritized and critical needs in focal point and key ministries.

Output 2.2 Enhanced capacity for institutions to implement river basin management plans

293. As both Azerbaijan and Georgia are moving towards approximation of the EU WFD it will be critical to ensure that there are sufficient numbers of water management professionals trained in the approaches to river basin management in line with the EU WFD. While previous projects have provided initial training to selected experts, this effort, combined with output 4.1 will extend the training for improved applications by competent authorities and interested parties in line with the EU WFD standardized approaches to river basin management. This training will not develop full RBMPs or POMs, but it will support organizations in the development of these. It will also provide training for those who will be responsible for longer-term implementation and oversight of the EU WFD at the national regional and local levels to ensure long term sustainable implementation of the EU WFD.

294. This output will contain different elements which can be linked to the regional level Kura SAP Strategies:

Strategic Outcome 3. Improved water quality monitoring programs through application of the EU WFD approaches to water quality monitoring in line with river basin management plans, including reference conditions for biomonitoring

Strategic Outcome 4. Pollution reduction and prevention through implementation of the EU WFD pollution abatement plans within programs of measures of RBMPs

Strategic Outcome 5. Harmonization of water quality standards through application of standardized approaches water quality management in line with the EU WFD

Strategic Outcome 6. Assessment of the status of river ecosystems by use of EU WFD approaches to river system status approach for river basin management

Strategic Outcome 7. Conservation & restoration of river ecosystems; through implementation program measures for improving ecosystem status of river systems

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by applying EU WFD approaches to improving inclusion of river ecosystem status with RBMPs and RBMOs

Strategic Outcome 9. Reduction of hazards due to floods and drought by supporting countries capacities in application of the EU Floods Directive, as daughter directive of the EU WFD

295. Overview: An international consultant with expertise in supporting development and implementation of the EU WFD and capacity building for RBMOs will be recruited internationally. This expert will support the needs assessment and based on this, develop curriculum for training and on-the-job professional development for those charged with oversight and implementation of RBMOs, RBMPs and development of POMs. All curriculum materials will be developed into online training courses, translated into national languages, and provided to the ministries for use with subsequent generations of RBMO facilitators.

296. Activities include:

- *2.2.1 Needs assessment for selected localized river management organizations* within 9 months: the needs assessment will be for capacity development for RBMOs and those who will be supervising them, as well as those implementing the RBMPs in selected basins. The intention is to avoid redundancy of efforts and to improve application of the EU WFD at the local, national and regional levels.
- *2.2.2 Capacity building plans for trial in targeted areas based on best practices* initiated within 12 months, with updates every 4 months: capacity building plans will be developed based on capacity needs assessment and on international best practices from similar systems new to implementing the EU WFD. This will include supporting countries to identify reference conditions for biomonitoring approaches
- *2.2.3 Application of trial capacity building for targeted area based with regular trainings on site 3 times per year with RBMP/POMs:* the capacity building trainings we'll be focused on a smaller scale targeted area and will work with organizations and international experts experience with RBMPs and POMs based on the EU WFD. Once this has been trialed in select sub-basins it will be expanded more broadly for national use.
- *2.2.4 Strategy for expansion of capacity building efforts to additional targeted areas* by 24 month: the intention is to expand the RBMO training trainings for wider use across the Kura basin in Azerbaijan and Georgia, and potentially internationally with other countries who are also approximating the EU WFD approaches.
- *2.2.5 All training materials on line with trainings initiated* 9 months prior to project completion: All training materials including online certification program in national languages will be available for uploading onto ministry webpages and updating as appropriate after the project completion
- *2.2.6 Draft and share lessons learned reports:* to ensure insure long term sustainable benefits lessons learned will be compiled from initial efforts and subsequent efforts and shared with ministries and agencies responsible for River basin management organization training in the future.

297. Indicators for gauging success include:

- ✓ Number of competent authorities and interested parties represented in RBMOs training (PI)
- ✓ Percent of basin covered at baseline and at project completion by RBMPs (PI)
- ✓ Allocation out of support for RBMOs by government budgets and/or additional donor support (PI)
- ✓ Number of implementable measures linked to SAP with in the POMs for RBMPs (PI)
- ✓ Number of RBMOs and oversight organizations trained (PI)
- ✓ Number of sectors involved in RBMOs training (PI)

298. Involved Parties:

International Consultant on EU WFD Implementation

299. Targeted beneficiaries:

Focal Point Ministry, other key ministries, ministry officials charged with oversight at river basin management organizations and planning, organizations implementing are RBMPs, trainers for RBMO's, and other competent authorities

300. Main deliverables from Output 2.2:

National needs assessments for implementation of EU WFD capacity building curriculum and training materials, and online training materials with certifications. Key stakeholders and confidence authorities trained to support and facilitate development and implementation of compliant RBMOs, RBMPs and POMs

301. Direct Linkages:

This output links very closely with output 1.3 institutional support of river basin management organizations, and 4.1 that includes training interested parties in EU WFD and RBMOs roles and responsibilities.

Output 2.3 Strengthen capacity for enforcement of water resources protection laws and regulations

302. Across the former Soviet Union the challenge of enforcement of laws and regulations to protect ground and surface water resources are an ongoing challenge that Azerbaijan and Georgia are both eager to address. This output provides critical professional development and training in skills and approaches needed to successfully enforce and implement newly developed laws and regulations for improved integrated water management. These will be complimented by the trainings in conjunctive ground and surface water modeling in Output 2.4.

303. This output will contain different elements which can be linked to all the regional level Kura SAP Strategies, and specifically to:

Strategic Outcome 1. Improved Hydrological Management through improved enforcement of updated environmental flows methodology and existing water codes.

Strategic Outcome 2. Reduced loss of water resources through the enforcement of existing water conservation measures and updated water codes

Strategic Outcome 4. Pollution reduction and prevention for enforcement of updated laws and regulations on pollution in line with national and international commitments

Strategic Outcome 7. Conservation & restoration of river ecosystems through improvement of river system management including environmental flows

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by establishing clear guidelines for enforcement of ground and surface water protection measures

Strategic Outcome 9. Reduction of hazards due to floods and drought by implementation and enforcement of regulations in line with the EU WFD and EU Floods directive

304. Overview: An internationally recruited expert will consult with national enforcement bodies to develop an needs and gaps assessment, develop capacity building strategies for party

enforcement issues, develop a responsibilities matrix and anticipated enforcement budget, and develop curriculum and training materials for an extended professional development course for enforcement bodies. This training will include capacity building efforts in groundwater monitoring, capacity building in conjunctive ground and surface water modeling approaches. Collaboration with international partners, including UNESCO IHP and IGRAC, and others is being sought by UNDP-GEF IW to further enhance the benefits of these efforts. These materials will be the basis for the online certification course to be shared with the ministries.

305. Activities include:

- *2.3.1 Assessment of needs and gaps in enforcement capacity, including roles for water pollution and water allocation, laws and equipment, for existing and anticipated regulations, and identify enforcement priorities* within 9 months: This will enable the project to target the needs and fill gaps for enforcement efforts including assessment of critical equipment needs.
- *2.3.2 Develop capacity building strategy working with enforcement bodies, to address enforcement priorities* by 12 months based on gap needs assessment to ensure priority areas are covered by on-the-job training and professional development activities
- *2.3.3 Develop budget for enforcement needs and staged budget allocation strategy with enforcement responsibilities matrix* within 18 months, based on the prioritize budget and needs, a staged budget allocation strategy will be developed and prioritized equipment purchased in line with GEF rules and available project budget.
- *2.3.4 Conduct targeted 24 month trainings for prioritized enforcement areas with on-the-job trainings:* in order to ensure the effectiveness of trainings and use of equipment to protect ground and surface water resources and river ecosystems.
- *2.3.5 Develop report with recommendations for sustaining effective enforcement mechanisms*

306. Indicators for gauging success include:

- ✓ Number of laws and regulations not complied with at baseline compared to numbers of laws and regulations brought into compliance (PI)
- ✓ Percent change in water quality compliance by parameter (SRI)
- ✓ Number of incentives developed for improved compliance (PI)
- ✓ Based on output 5.3, notable empirical changes in ecosystems status during extended trainings period (ESI)
- ✓ Percent increase in enforcement due to equipment purchases (SRI)
- ✓ Number of people trained in enforcement and actively working professionally in the enforcement field (PI)
- ✓ Average number of citations given for violations of water resource protection laws and regulations in months at baseline and end of project (PI)
- ✓ Number of incentives applied for improved compliance. (PI)

307. Involved Parties:

International consultant on the environmental enforcement capacity development, Focal Point Ministry, other key ministries, enforcement agencies, monitoring agencies, and others as appropriate.

308. Targeted beneficiaries:

Those agencies and individuals charged with oversight and enforcement as well as compliance with national laws and regulations for terminal protection.

309. Main deliverables from Output 2.3:

Improved enforcement capacity in appropriate agencies, Responsibilities matrix, equipment to support enforcement in line with UNDP and GEF procurement rules, training materials, online certification courses in national languages.

310. Direct Linkages

The activities in this output will link closely with pollution abatement activities in Component 1, and Component 3, and the Science for Governance information gathered in Component 5

Output 2.4 Strengthened capacity for information management, data analysis for enhanced IWRM decision-making support

311. This output will contain different elements which can be linked across the SAP and most specifically to the regional level Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management including improved assessment and analysis of hydrological information

Strategic Outcome 5. Harmonization of water quality standards through improved analysis of disbursement of pollutants and analysis of impacts

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning through increased awareness among decision-makers and improved use of tools to assess impacts of development river ecosystems

312. Overview: An international consultant with expertise in Decision Support Systems, Hydrological Modeling, and Water Resources Planning will be recruited to conduct the needs and gap assessment, advise in the selection of software programs, develop curriculum, and conduct extended on-the-job-training for selected professionals from Focal Point and key ministries, with the support of the project team. The curriculum and training materials will be developed into an online course, in national languages for future generations of trainees to use. These approaches will be closely linked to the successful implementation of the EU WFD in both countries and will support coordinated implementation of the Framework Directive and Daughter Directives.

313. Specific activities include:

- *2.4.1 Assessment of needs and gaps in information management, data analysis for IWRM and identify decision support priorities* within 9 months. This will enable the project to target areas of top priority need where gaps are most prevalent.
- *2.4.2 Develop capacity building strategy working with information producing and management bodies, including indicators development, modeling, intersectoral GIS use, and analysis to address priorities* by 12 months. Decision support requires integrated information, training in hydrological modeling for use in decision support systems, data analysis and time series assessment for optimal investment and intervention impacts.
- *2.4.3 Develop staged budget allocation strategy for information data management needs and equipment with agreed intersectoral responsibilities matrix, including quality control for data, and models applications* within 18 months. This will reduce redundancy between sectors and increase collaboration for water resource data collection and analysis. Decision support software will be purchased in line with GEF and UNDP procurement rules.
- *2.4.4 Conduct targeted 24 month trainings for prioritized information management and decision support areas with on-the-job trainings.* In order to maximize and support capacity building efforts trainings will be conducted in line professional development and focus on priority needs of on-the-job training participants in order to maximize the benefits of this activity.

314. Indicators for gauging success include:

- ✓ Number of gaps at baseline assessment and filled at end of project (PI)
- ✓ Percent change increase in digitized data and accessibility for use by decision-makers (PI)
- ✓ Number of intersectoral information exchange linkages formalized at national and transboundary levels at baseline and end of project (PI)
- ✓ Number of gaps identified compared to number of gaps filled through training efforts (PI)
- ✓ Baseline and end of project perception surveys of participants and participant supervisors (PI)
- ✓ Percent of basin covered by intersectoral GIS modeling at baseline and end of project (PI)

315. **Involved Parties:**

International Consultant with expertise in decision support systems, hydrological modeling, and water resources planning, Focal Point Ministry, other key ministries, information management

specialists, data analyst for water quality, water quantity, and ecosystem management, GIS specialists, hydrological modelers for ground and surface waters, academic sector training in modeling and decision support management

316. Targeted beneficiaries:

Decision makers in focal ministries and across different sectors, and those supporting them to balance water needs and demands across sectors.

317. Main deliverables from Output 2.4:

Applied decision support system for IWRM, with hydrological modeling system for surface and ground waters. Trained national experts able to use modeling software and decision support systems. Training materials and certification for use by subsequent generations. Software for GIS and modeling use customized for Kura Basin.

318. Direct Linkages

The materials developed and people trained in this deliverable will work closely with environmental flow calculations, and hydrological information management from *Component 1 and Component 5*.

2.3.3. Project Component 3: Stress reduction in critical areas and pre-feasibility studies to identify investment opportunities for improving river system health

319. In both Azerbaijan in Georgia there have been significant numbers of regional and national level projects focused on improving water management. The TDA showed that the river ecosystem has been significantly altered by human activities and is increasingly degraded. Previous projects have focused on institutional and process measures to improve monitoring and management. At the national level governments are taking steps to improve conditions through investment in wastewater treatment and improved rational use of water, and coordination with other key stakeholders. The benefits of these efforts are clear. Additional efforts need to be made to demonstrate improvements and stress reduction measures in critical areas to improve ecosystem functions for up-scaling nationally, regionally and internationally.

320. This component will feature a series of ecosystem stress reduction measures to be tested and replicated for to improve healthy ecosystem functions. In cases where linkages can be built with other ongoing national and regional efforts these will be sought out and further developed to maximize impacts.

2.3.3.1. Impetus and outputs addressing the root causes

321. The need to demonstrate stress reduction efforts in critical areas is based on several root causes from the TDA outlined in the national IWRM plans, and the SAP. Several of these address multiple root causes and provide solutions to shared challenges. The root cause continued reliance on outdated water management practices and the root cause lack of application of technologies that serve multiple benefits in water resources management will both be shown to be effective Address by **output 3.1** on increasing rational use of water.

322. The root cause lack of application of technologies that conserve multiple benefits and water resource management is also addressed by **output 3.2** on pollution abatement plans that will include green technologies as possible and appropriate. The root cause lack of reliable and useful information for decision-makers will also be addressed by **output 3.2**.

323. **Output 3.3** will address root cause lack of information on ecosystem services and may address outdated flood management practices through select river restoration projects. River restoration is especially beneficial for integrated flow management in line with the EU floods directive.

2.3.3.2. Outcome for Component Three

“Stress reduction in critical areas, and pre-feasibility studies in support of investment opportunities to improve river system health”

324. It is critical to begin to take measures to reduce stresses in the basin and to improve the ecosystem functions. Both Azerbaijan and Georgia are moving in this direction and through this component will focus on how to address priority ecosystem degradation concerns in critical areas. This will also serve as a key local, national, regional, and international learning opportunity for methods of improving and showcasing benefits to river ecosystems. These efforts will be closely monitored, documented, assessed, and expanded as appropriate by the countries. During the Inception Phase of the Project, and based on specific baseline data collected in the first year of the project, specific detailed ToRs for these Outputs will be developed for each country in close collaboration with the relevant stakeholders. These will be customized to suit the specific needs of each country and each specific case, and will seek to maximize benefits while also highlighting optimal knowledge transfer locally, nationally, regionally, and globally.

2.3.3.3. Outputs for Component Three

Output 3.1 Showcase technologies to reduce factual water losses in different sectors

325. In Azerbaijan and in Georgia there is an interest in any need for Green technologies to reduce water losses in agriculture and municipal water sectors. This output will provide an opportunity for cross sector benefits to be realized through coordination and cooperation as well as testing approaches to increased water efficiency. Application of these water saving green technologies will be closely documented including costs and benefits for appropriate up-scaling and further water use reduction by the sectors by the countries and for showcasing nationally, regionally and internationally.

326. Component Outputs links to Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by improving water efficiency and reducing pollution impacts

Strategic Outcome 2. Reduced loss of water resources through testing green technologies for increasing water efficiency

Strategic Outcome 9. Reduction of hazards due to floods and drought by increasing water efficiency in different sectors

Strategic Outcome 10. Harmonized Climate Change Adaptation by sharing lessons learned in improved water management for climate change

327. Overview: Two international consultants with expertise in water saving technologies for municipal water management and low water use irrigation technologies will be hired by the project. These experts will support an assessment of the water supply and demand system for each sector in each country, develop preparation plans for the baseline measures, budget, evaluation criteria with scaling/replication strategy, and refine stress reduction indicators. Recommendations for appropriate technologies on the appropriate scale will be made in-line with available budgets and final outputs, will be tested and results will be reviewed in a report with clear measures for stress reduction impacts and up-scaling replication strategy in both sectors in both countries.

328. Activities include:

- *3.1.1 Develop national assessment reports of physical water supply and demand for agricultural and municipal sectors with prioritized recommendations* within 12 months. This report will serve as a baseline against which to gauge impacts of water saving technologies.
- *3.1.2 Prepare plans for enhanced efficiency for agricultural and municipal consumption* within 18 months. These plans will specify location, expected benefits and technologies to be used as well as measurement criteria and metrics.

- *3.1.3 Demonstrate 4 sector-specific water use efficiency interventions and lessons learned for up scaling from each country within 39 months, with testing being undertaken for at least 18 months and regular measurements taken of impacts compared to a control study case. Final reports will include lessons learned and recommendations for up scaling and replication.*

329. Indicators for gauging success include:

- ✓ Amounts of water and amount of money saved by application of green technologies at the local and national levels compared to costs and 5, 10 and 20 years spans. (SRI)
- ✓ Amount of water saved in test group versus control group (SRI)
- ✓ Cost of losses for control group versus test group costs for technologies over five-year and ten-year time spans. (SRI)
- ✓ Number of stakeholders adopting new green technologies (SRI)

330. Involved Parties:

International consultants on improved water efficiency in agriculture and municipal water, representatives of amelioration companies, representatives of municipal water supply companies to support and facilitate applications of technologies.

331. Targeted beneficiaries:

Focal Point Ministry, other key ministries, amelioration companies, municipal water use companies, water user associations, targeted municipal water users depending upon recommendations.

332. Main deliverables from Output 3.1:

Green technologies applied to reduce use of water losses, as well as water savings and recommendations for up scaling at the local, national, and international levels.

333. Direct Linkages

This output links directly with output 1.2 on increasing water efficiency and the water nexus in light of climate change, and output 1.6 on trialing green technologies with private partnerships. Component 2, output 2.1 on improved hydrological management capacity building and environmental economics links to this output. Output 4.4 on innovations for climate change adaptation ties to this output as a possible source for water saving technologies. Output 5.2 on economic cost-benefit per unit of water used also links directly to this output.

Output 3.2 Conduct pre-feasibility studies for select projects identified in pollution abatement plans.

334. The pollution abatement plans developed under component 1.4 will be prioritized and select projects identified for the project to conduct pre-feasibility studies to address the most urgent and accessible transboundary and national pollution hotspots. These pre-feasibility studies will be conducted in-line with donor requirements and approaches in order to procure support for full scale feasibility studies and pollution abatement implementation in the shortest term possible. Pollution abatement approaches under discussion for potential consideration include constructed wetlands, and river buffer protection to mitigate inflow during high water/flooding events.

335. Linkages to Kura SAP Strategies:

Strategic Outcome 4. Pollution reduction and prevention through direct measures to reduce pollution

Strategic Outcome 6. Assessment of the status of river ecosystems inline with pre-feasibility studies assessments practices

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning through demonstration of pre-feasibility for pollution abatement and solicitation of funding mechanisms

336. Overview: In line with output 1.4 on pollution abatement plan, and the EU WFD approaches to water management, an international expert will be contracted to support development and oversight of the pre-feasibility studies for pollution abatement. Working with key local and national stakeholders, prefeasibility studies will be developed for a presentation to the government, private sector, and donor community. The pre-feasibility studies will be done in line with national and donor requirements. Support for full-scale implementation pollution abatement implementation for select areas will be sought based on these studies.

337. Activities include:

- *3.2.1 Identify two top priority water quality hotspots working with NWP, PPP, and key stakeholders from Component 1*, within 9 months, based on pollution abatement plans developed and output 1.4.
- *3.2.2 Identify pollution abatement projects to maximize impacts for stress reduction* in line with the pollution abatement plan development in Component 1, and in collaboration with capacity building efforts in Component 2, within 12 months.
- *3.2.3 Conduct study tour for key stakeholders to learn about technologies and approaches used in similar cases in 24 months*. This will be done in coordination with output 1.5 and output 1.6 on increasing green technologies in the private sector.
- *3.2.4 Conduct costed and detailed prefeasibility studies with detailed evaluation criteria, stakeholder analysis, expected benefits, and alternate approaches* with final recommendations for presentation to governmental and private sector at the 36 months of project with international and national experts.

338. Indicators for gauging success include:

- ✓ Improvement expected from implementation of pollution abatement (SRI)
- ✓ Baseline indicators and metrics developed to determine scale and scope of improvements once investments are made (PI)
- ✓ Amount of support and interest measured by pre-commitments from donors and other sources (PI)
- ✓ Willingness of stakeholders to engage in and adopt pollution abatement measures based on perception survey outcomes aggregate outcomes. (PI)
- ✓ Anticipated costs and benefits based on output 5.2 of pollution abatement activity implementation compared to baseline (PI)
- ✓ Number of potential opportunities for replication of technologies apply in pollution of a treatment plan (PI)

339. Involved Parties:

International Consultant on pollution abatement, enforcement and compliance agencies, local authorities and stakeholders near area to be addressed

340. Targeted beneficiaries:

Focal Point Ministry, other key ministries, ministry officials charged with oversight of enforcement and planning, organizations/companies implementing pollution abatement measures, local and regional beneficiaries of improved environmental conditions, and donor organizations.

341. Main deliverables from Output 3.2:

The pre-feasibility studies completed in line with national and collection of data to meet requirements for delivery to potential funders to address priority pollution abatement measures for an improved water resource management.

342. Direct Linkages

This output links directly to output 1.4 on development of pollution abatement plans, and is closely linked to outputs 2.1 and 2.3 on pollution abatement planning compliance and enforcement capacity building.

Output 3.3 River restoration projects for improved ecosystem health using integrated flow management

343. In order to optimize stress reduction measures it will be critical to restore important to restore critically impacted river areas of the river using integrated flow management. This may be done as part of flood mitigation measures in line with the EU floods directive, and other priorities as determined in the initial phase of the project. This may include the application of the environmental flows methodology, at the request of the government and in line with national priorities. The selection of sites and approaches for river restoration will be based on national priorities and preferences and degree of transboundary impact. The effort of river restoration through integrated flow management will be closely monitored to include community involvement, stakeholder participation and ecosystem impacts at the site and downstream. While only a small reach of the river will be restored within the scope of the project, this will be closely documented and shared for lessons learned and up-scaling by local and national agencies as appropriate. Additionally lessons learned and experiences will be shared regionally and internationally through appropriate sources.

344. This output will contain different elements which can be linked to the regional level Kura SAP Strategies:

Strategic Outcome 6. Assessment of the status of river ecosystems through close study of area to be rehabilitated

Strategic Outcome 7. Conservation & restoration of river ecosystems through demonstrating river restoration in key areas by ensuring flow addresses all sectoral needs, including the environment

Strategic Outcome 9. Reduction of hazards due to floods and drought through use of natural infrastructure of river systems to buffer negative impacts

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by showcasing the applied benefits of integrated flow management

Strategic Outcome 10. Harmonized Climate Change Adaptation by sharing and exchanging data outcomes locally, nationally, and internationally.

345. Overview: An international river system ecologist specializing in restoration using integrated flow management will be contracted to work with national experts and local firms to select key sites and conducts coping studies with recommendations, provide detailed plans with the baseline information for selected sites, oversee and undertake river restoration activities and produce reports including impact assessment and replication strategies. This work will take place in close collaboration with local stakeholders, competent authorities, and appropriate ministerial representatives.

346. Activities include:

- *3.3.1 Identify prioritized sites suitable for river restoration projects to maximize impacts for stress reduction* in collaboration with capacity building efforts in Component 2, within 12 months, in order to maximize the learning and capacity building benefits of this effort.
- *3.3.2 Develop detailed river restoration plans for specific sites* within 18 months, and collect baseline data and anticipated social, economic and environmental benefits in line with Components 4 and 5.
- *3.3.3 Initiate river restoration activities using integrated flow management*, documenting progress and key lessons learned with close monitoring of costs and impacts. Within 24 months of project start up
- *3.3.4 Conclude initial river restoration project* at least 6 months prior to project completion with detailed replication strategy and lessons learned to be used for future activities on river restoration in line with the EU WFD, and EU floods directive.

347. Indicators for gauging success include:

- ✓ Change in baseline to completion assessment of river ecosystem status (ESSI)
- ✓ Kilometers of river impacted by river restoration activities (SRI)

- ✓ Number of stakeholders involved in river restoration activities, including diverse city of stakeholder groups represented (PI)
- ✓ Amount of baseline information available and end of project information available on ecological functions of restored area (Pre-ESI)
- ✓ Amount of information about river restoration using integrated flow management shared with local communities nationally and regionally through project information measures including social media (PI)
- ✓ Size of the ecosystem impacted by river restoration activities (ESSI)
- ✓ Cost and potential benefits measured in economic terms (ESSI)
- ✓ Numbers of lessons learned for use and replication (PI)

348. Involved Parties:

International Consultants, local consultants, appropriate ministerial representatives, local stakeholders and competent authorities, National firms or universities conducting the restoration activities.

349. Targeted beneficiaries:

Focal point ministries, local impacted communities, RBMOs, educational institutions, impacted downstream communities.

350. Main deliverables from Output 3.3:

Restored reaches of river ecosystems, with key lessons learned and methodologies developed for use of integrated flow management to be replicated locally, nationally, and internationally.

351. Direct Linkages

This output links to Component 1 Outputs 1.1 on environmental flows, 1.2 on improved efficiency, 1.3 in support of river basin management organizations, Component 2 output 2.1 on improved capacity river ecosystem assessment and environmental flows, and Component 5 output 5.1 on hydrological flow modeling and output 5.3 on staged river system ecological assessment program.

2.3.4. Project Component 4: Targeted education and involvement projects to empower stakeholders in implementing local / national / regional actions in support of SAP implementation

352. Integrated water resource management requires educated stakeholders who are empowered at the local, national and regional level to support agreed basin wide activities. In the SAP Azerbaijan and Georgia articulated the need to empower stakeholders in order to increase benefits and ownership of improved water resources management. In the previous phase of the UNDP-GEF Kura Aras project stakeholder involvement focused extensively on the development of a common IWRM Masters curriculum for major universities in the basin. Baku State University has approved the curriculum and will begin recruiting students for classes starting autumn 2016. Tbilisi State University is close to finalizing all approvals, it is anticipated that courses will start within the scope of the upcoming project. This component will build upon that and other efforts to involve stakeholders in water resource management in line with the EU WFD. The targeted education and stakeholder involvement efforts are designed to support and benefit SAP implementation.

2.3.4.1. Impetus and outputs addressing the root causes

353. **Output 4.1** will support a training of trainers for various water-use oriented stakeholder groups, many of whom are not working directly as professional water managers, and yet have an ongoing interest and investment in sustainable water use. The root causes this output addresses includes lack of economic valuation of services from water resources and ecosystems and economic development planning, and a lack of information on ecosystem

services. Stakeholders who do not understand the value of ecosystem services and water resources are more likely to use water unsustainably.

354. The root cause of a lack of investment and capacity building to meet specific water management needs is addressed through **output 4.2**. This output will support academic IWRM conferences with higher education institutions and support joint topic specific training and capacity building for future water managers who are students in the IWRM masters programs.

355. **Output 4.3** on social marketing campaigns to support stakeholders to understand the role in water management will address the root cause - lack of coordinated information to support and understanding of ecosystem based management approaches. **Output 4.4** will address the root cause lack of sustained human resources and financial capacity through encouraging innovations for climate change adaptation related to water management by stakeholders at all levels. **Output 4.5** coordination with the international waters learning exchange and resources network (IW:LEARN) will further strengthen and support efforts to address root causes that are shared across multiple river basins and other water management systems.

2.3.4.2. Outcome

Stakeholder Education with academic, civil society, private sector, and local communities to gain experiences to increase their involvement in national and regional IWRM applications and innovations.

356. Long term sustainable use of river ecosystems will depend on multiple stakeholder groups becoming actively invested in making improvements to river system management. This component supports efforts in that direction to increase the scope of stakeholder education, civil society, private sector, gender mainstreaming organizations, and others in sustainable river basin management. Each of the activities will contribute to this and serve to empower stakeholders to act rather than rely on government to address all critical water management needs in light of climate change impacts.

2.3.4.3. Outputs for Component 4

Output 4.1 A team of diverse professional IWRM trainers to work with stakeholders

357. In order to most effectively implement IWRM it is critical that stakeholders and interested parties as well as competent authorities are well informed of their roles and responsibilities. By training a diverse set of IWRM trainers the project can broaden impact and increase stakeholder involvement. Stakeholder groups to be trained may include academic institutions, NGOs, Water User Associations, RBMO's interested parties and local authorities, journalist and media, women's empowerment organizations, youth organizations, and others.

358. Linkages to the Kura SAP Strategies include:

Strategic Outcome 1. Improved Hydrological Management by increasing the number of stakeholder improves actively invested and improving water management

Strategic Outcome 2. Reduced loss of water resources by increasing stakeholder in understanding with specific stakeholder groups of impacts of irrational water use

Strategic Outcome 3. Improved water quality monitoring programs by engaging local stakeholders in activities specific to water quality monitoring

Strategic Outcome 4. Pollution reduction and prevention by increasing stakeholder understanding of pollution prevention measures

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by empowering stakeholder groups to have a voice and ecosystem protection

Strategic Outcome 10. Harmonized Climate Change Adaptation by raising awareness of climate change impacts on water resources and sharing common solutions

359. Overview: Based on the stakeholder analysis survey in 5.2, local experts and international experts focusing on areas such as media and communications, hydrology, river ecosystem, EU WFD RBMOs, WUAs, youth involvement and gender mainstreaming will be hired to develop and implement training curriculum for select stakeholder groups. These trainings on local stakeholder capacity building efforts will focus on specific needs of targeted stakeholder groups and training recipients will become trainers themselves to raise awareness and educate specific stakeholder groups. All materials developed will be translated into national languages and available online for additional access and capacity building.

360. Activities include:

- *4.1.1 Conduct stakeholder analysis survey to determine training needs, willingness to participate, and incentives to change water use behaviors* by stakeholder groups within 9 months of project start up. This will be done in close coordination project stakeholders.
- *4.1.2 Establish a targeted recruitment of IWRM trainers for stakeholders groups* to draw from academic institutions, NGOs, WUAs, RBMO/local authorities, journalism/media, women's organizations, youth organizations and others, within 9 months of project startup, and design internship program.
- *4.1.3 Establish training curriculum, specific to stakeholder types, for training of trainers, and recruit national and international experts to provide trainings* within 12 months of project start-up for WUAs, women's empowerment groups, journalists, RBMO, youth organizations.
- *4.1.4 Conduct at least 6 topic specific training curriculums for trainers, and support training outreach programs*, with quarterly face to face meetings and updates to ensure longer term sustainability of efforts and benefits.
- *4.1.5 Development of online trainings based on curriculum of developed trainings*. Database created in first 12 months and updated quarterly
- *4.1.6 Training materials on line for certification of subsequent generations* beginning by 24 months with evaluation of impacts to be given to ministries after project completion, including the Georgian Environmental Information and Education Center.

361. Indicators for gauging success include:

- ✓ Number of stakeholder groups trained (PI)
- ✓ Number of stakeholders reached through additional training activities (PI)
- ✓ Number of training modules developed (PI)
- ✓ Number of IWRM Trainer certificates (in person and online) awarded by end of project (PI)
- ✓ Willingness to cooperate and interested in training aggregated by stakeholder group in survey (PI)
- ✓ Number of hits on webpage by quarter for training materials (PI)
- ✓ Number of trainers trained by end of project (PI)
- ✓ Number of contact hours with trainers by the end of project (PI)
- ✓ Number of contact hours of trainees with stakeholder groups by end of project (PI)

362. Involved Parties:

Project team, project officer, select stakeholder groups, universities (including interns from IWRM programs), WUAs, RBMOs, women's empowerment organizations

363. Targeted beneficiaries:

Local stakeholder groups, including, youth, women, farmers, riparian communities, journalist, universities, WUAs, RBMOs, as well as key ministries and the private sector

364. Main deliverables from Output 4.1:

A set of training curriculum and materials, As well as certified trainers to support improved stakeholder involvement in water management in Azerbaijan and Georgia

365. Direct Linkages

This output went directly with output 1.3 in component one find River basin management organizations, output 2.1 on capacity building for professional water managers.

Output 4.2 Annual academic IWRM conferences

366. In order to support the ongoing linkages between Baku State University and Tbilisi State University IWRM MSc students and lecturers, the project will support IWRM Academic conferences on specific water management topics. This output will also provide topic specific trainings for IWRM masters students through joint trainings to focus on a priority needs areas. Additionally international academics will be invited to participate in these activities and conferences. If possible these conferences and trainings will be linked two other similar initiatives to maximize exposure and benefit for water managers, academics, and graduate students.

367. This output will contain different elements which can be linked across most of the SAP Strategic Outcomes, and specifically to the regional level Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by supporting future water managers and providing additional training support for them.

Strategic Outcome 5. Harmonization of water quality standards by supporting harmonized approaches to water quality

Strategic Outcome 6. Assessment of the status of river ecosystems by increasing the overall understanding of river ecosystems as critical to successful water management

Strategic Outcome 9. Reduction of hazards due to floods and drought through improved understanding of approaches for flood and drought management and future generations of water managers.

Strategic Outcome 10. Harmonized Climate Change Adaptation by increasing the profile and the amount of research done on impacts of climate change on water systems and sharing that information at the national, regional, and international levels.

368. Overview: working with local universities, the project will contract specific departments to oversee and arrange academic conferences, trainings for masters students, and help determine gaps in training to be filled for masters students through joint trainings.

369. Activities include:

- *4.2.1 Determine themed annual academic conferences to be held each year* working with national universities, and other water management organizations, and as possible the private sector also.
- *4.2.2 Sponsor academic IWRM conferences for lecturers and IWRM MSc and other graduate students* from national and regional institutions to present research related to improving water management in the Kura Basin in two day regional academic conferences, possibly linked to other academic or area specific events
- *4.2.3 Sponsor joint IWRM MSC trainings for 1 week annually on selected topics* in line with themed topics to be presented at annual academic conference to be presented by regional and international academic experts
- *4.2.4 Training materials available on line for certification of subsequent generations* beginning in 24 months

370. Indicators for gauging success include:

- ✓ Number of academic articles presented at conference (PI)
- ✓ Number of academic articles published in peer-reviewed journals after presentation conferences (PI)
- ✓ Number of recommendations developed as a result academic inputs adopted at local and national levels (PI)
- ✓ Number of masters students training topic specific activities approaches to water resource management from key universities (PI)
- ✓ Number of joint transboundary academic papers produced and published in peer-reviewed journals (PI)
- ✓ Percent change in number of students enrolled in Masters curriculum programs from baseline and annually during project cycle (PI)

371. Involved Parties:

Main universities including Baku State University and Tbilisi State University

372. Targeted beneficiaries:

Universities, lecturers, graduate students, ministries, agencies and private sector hiring future generations of professional water managers.

373. Main deliverables from Output 4.2:

Academic journal articles for peer-reviewed, strengthen the ties between national universities and masters programs, common training for future water managers and curriculum and training materials available online.

374. Direct Linkages

Output 4.2 is cross cutting, across all components and many outputs as Masters students will graduate to facilitate ongoing efforts and SAP implementation. As possible and appropriate graduate students in the IWRM Masters programs will be offered internships with the Kura II project during the project cycle, and internship programs will be developed as appropriate for post project implementation.

Output 4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management

375. Social marketing campaigns use approaches employed by the advertising industry to inform and shift behaviors of stakeholders. In this project social marketing campaigns will be developed to help stakeholders understand their role and water management including turning off the tap, conserving water and avoiding activities that lead to surface and groundwater pollution. These campaigns have been used successfully around the world for water, And Environment, and public health issues. They must be designed specific to cultural understanding of messages. They can be extremely effective and empowering to stakeholders facing the impacts of climate change on water resources.

376. This output will contain different elements which can be linked to the regional level Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by increasing understanding of stakeholders of the importance of water management for sustainable development

Strategic Outcome 2. Reduced loss of water resources through targeted media campaigns encouraging water conservation among all users

Strategic Outcome 4. Pollution reduction and prevention by increasing awareness of hazards due to pollution and low cost prevention measures

Strategic Outcome 9. Reduction of hazards due to floods and drought by encouraging water conservation and responsible land use near rivers

Strategic Outcome 10. Harmonized Climate Change Adaptation by sharing ideas and information on climate change impacts on shared water resources

377. Overview: An experienced international social marketing expert will be hired to work with local communication experts to develop social marketing campaigns at the local and national levels targeting specific stakeholder groups.

378. Activities include:

- *4.3.1 Develop strategy for staged targeted social marketing campaigns for stakeholders to include use of social media, public information materials, and metrics to gauge impacts within 15 months based on stakeholder analysis survey in 5.2*
- *4.3.2 Design at least 4 social marketing campaigns to be implementing in at least 3 stages for gender mainstreaming, farmers and water user association members, RBMO/local authorities, and municipal water users within 18 months working with international, regional and national experts and interns*

- *4.3.3 Conduct mid term review of impacts to determine effectiveness of campaigns and adjust accordingly, within 30 months*
- *4.3.4 Conduct social media educational and outreach activities to increase exposure of efforts within 30 months*
- *4.3.5 Conduct end stage stakeholder analysis to gauge impacts and draft report on replication, and recommended next steps at least 4 months prior to project completion*

379. Indicators for gauging success include:

- ✓ Number of stakeholders targeted, number stakeholders reached (PI)
- ✓ Number of webpage hits and social media statistics (PI)
- ✓ Impacts based on stakeholder analysis, and outreach activities (PI)
- ✓ Percent change in perceptions from baseline Survey in 5.2 to end of project survey (PI)
- ✓ Number of downloads of informational material from webpage and social media sites (PI)
- ✓ Replication of efforts by private sector and other stakeholder groups (PI)

380. **Involved Parties:**

International social marketing expert, national stakeholder communication experts, national focal point ministries and stakeholders providing advice and guidance, private sector municipal water companies and others

381. **Targeted beneficiaries:**

Focal point ministries, other ministries, private sector municipal water companies, general public, and other targeted stakeholder groups.

382. **Main deliverables from Output 4.3:**

A set of culturally specific social marketing campaigns directed towards increasing water efficiency and reducing pollution by specific stakeholder groups.

383. **Direct Linkages**

Output 4.3 will link very closely with 4.1 on raising awareness of stakeholder groups through training of trainers, and serves as a cross cutting output with other components and many other outputs.

Output 4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water

384. Adaptation to climate change related to water management is done at every level of society.

This output is developed to support local stakeholders to showcase their innovations for water conservation and improved management at the local, national, regional, and international levels. By hosting local competitions and providing recognition for these efforts and innovations in specific categories including age group, gender, innovation area such as water conservation or ecosystem benefits, localized efforts can be shown and judged using social media in order to encourage stakeholder innovations from all generations.

385. This output will contain different elements which can be linked to the regional level Kura SAP Strategies:

Strategic Outcome 1. Improved Hydrological Management by developing and supporting stakeholder innovations to improve water use efficiency and reduce climate change impacts

Strategic Outcome 2. Reduced loss of water resources by supporting and expanding innovations of local stakeholders to wider audiences

Strategic Outcome 9. Reduction of hazards due to floods and drought by encouraging stakeholders and empowering them to mitigate negative impacts from flooding and drought

Strategic Outcome 10. Harmonized Climate Change Adaptation by showcasing innovations from local stakeholders to adapt to climate change impacts on water resources at the local, national, regional, and international levels

386. Overview: project staff and key stakeholders will review local stakeholder innovations for climate change adaptation for water resource management and bring attention to these through a concerted media effort.

387. Activities include:

- 4.4.1 *Identify and nominate select stakeholder innovations for first year awards for innovations* working with NRPD members, IWRM Trainers, Interns and PPP
- 4.4.2 *Conduct local and national competitions to encourage innovations from stakeholders on adaptation measures related to water management*, to be held annually, as part of social marketing and public outreach campaign
- 4.4.3 *Promote replication of innovative adaptation measures at national and regional technology conferences, through social media, and through international forums*, within 18 months and updated quarterly

388. Indicators for gauging success include:

- ✓ Number of innovation submitted (PI)
- ✓ Number of categories for awards (PI)
- ✓ Number of awards given (PI)
- ✓ Number of social media hits for innovations (PI)
- ✓ Number of stakeholder innovations shared at regional and international forums (PI)
- ✓ Costs and benefits of innovation applications (PI)

389. **Involved Parties:**

Members of the NRPD, PPP, members of the project steering committee, social media experts

390. **Targeted beneficiaries:**

Local stakeholders, organizations and agencies able to use innovations, empowered stakeholders facing climate change.

391. **Main deliverables from Output 4.4:**

A set of innovations for climate change adaptations by local stakeholders showcased at local, national, and international forums for increased awareness raising and empowerment.

392. **Direct Linkages**

Output 4.4 links directly to output 1.2 on improving water efficiency in light of climate change. It also links closely to output 3.1 on use of green technologies for water conservation.

Output 4.5 Project information and experiences shared through the coordinating offices, contributing to GEF International Waters Learning Exchange & Resource Network (IW:LEARN) activities supported

393. The GEF International Waters Learning Exchange and Resource Network provides critical support to International waters projects through trainings, conferences, and information exchange opportunities. The previous Kura Aras project benefited significantly from opportunities provided by IW:LEARN, and served as a key showcase for successes of that project to the wider international waters community. Maintaining linkages with IW:LEARN activities enables projects to share challenges and benefits and improve governance at the local, regional, and international levels. In accordance with all GEF International Waters Projects, 1% of the GEF grant will go towards IW:LEARN activities (incl. production of project experience notes, participation in IW:LEARN Biannual Global Waters conferences, participation in regional workshops, face-to-face project exchanges and other IW:LEARN activities).

394. Links to the Kura SAP Strategies are wide ranging and most specifically:

Strategic Outcome 5. Harmonization of water quality standards by emphasizing common and shared approaches to improve water quality and freshwater systems

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by increasing examples of application of the water Nexus and economic approaches to freshwater river system management

Strategic Outcome 10. Harmonized Climate Change Adaptation by increasing awareness of options for climate change adaptation related to water management in arid regions

395. Overview: The project team and National Focal Points, and other stakeholders, will participate in related IW:LEARN activities including the GEF International Waters Conferences held every two years.

396. Activities include:

- 4.5.1 *Contribution of at least 6 Experience Notes to IW:LEARN* covering project activities and lessons learned with at least 2 drafted by year 2 of project
- 4.5.2 *Participation in regional and international IW:LEARN conferences and trainings*, pending availability
- 4.5.3 *Project Key Stakeholders Participate in GEF International Waters Conference(s)* during project implementation

397. Indicators for gauging success include:

- ✓ Number of experience notes drafted, and accessed on web page (PI)
- ✓ Number of participation opportunities for projects staff and project stakeholders (PI)
- ✓ Number of project to project exchange opportunities as a result of IW:LEARN coordination (PI)
- ✓ Number of capacity development modules shared with CAP-net, through IW:LEARN (PI)

398. **Involved Parties:**

Project staff and key stakeholders

399. **Targeted beneficiaries:**

Project staff and key stakeholders

400. **Main deliverables from Output 4.5:**

Experience notes based on Kura II project activities and outputs, and regional and international conference participation highlighting transferable lessons learned.

401. **Direct Linkages:**

Output 4.5 is cross cutting for SAP implementation.

2.3.5. Project Component 5: Enhancing science for governance by strengthening monitoring, information management and data analysis systems for IWRM

402. Component five addresses critical urgent needs identified within the TDA, National IWRM plans, and regional SAP: The need to make scientific information accessible for improved governance for balanced and sustainable water management is critical internationally and within the Kura River basin. Monitoring agencies collect information however this information is not readily accessible and presented in a format that supports environmentally beneficial decision-making across sectors. Further information exchange within countries and between needs to be facilitated to support long-term beneficial cooperation.

403. This component is intended to access data collected historically and by previous projects and develop systems that will enhance its use in the national and regional decision-making processes. The systems will modernize data on water resources river systems and its application for use across sectors. This includes modernized approaches for hydrological information, including conjunctive ground and surface water modeling, applying economic and social benefits and costs of water uses, creating a regional river ecosystem database to support decision-making at all levels and creation of protocols for a water resource information management, monitoring, data analysis and exchange. Combined these efforts will significantly

enhance the ability and capacities within the countries and the basin to more effectively and sustainably use water resources.

2.3.5.1. Impetus and outputs addressing root causes

404. During the SAP development process national priorities were identified by government representatives to address key root causes of unsustainable water resource use. These priorities are supported at the national level with national plans and commitments, and through the TDA process.

405. The root cause lack of updated information on surface and groundwater resource availability is directly addressed by **output 5.1** on improved assessments of geographic distribution of ground surface waters and seasonal fluctuations. The root cause lack of economic evaluation of water services is directly addressed by **output 5.2** on assessment of the economic and social costs and benefits per unit of water used in different sectors. Also root cause lack of information on the real cost of pollution of water and river systems to national economies is addressed by **output 5.2**.

406. **Output 5.3** on the staged river system ecological assessment program to support environmental flows regulations and impacts the development and climate change on river systems addresses the root causes lack of information on ecosystem services and lack of coordinated information to support and understanding of ecosystem based management approaches.

407. **Output 5.4** supporting protocols for data information exchange including water quantity and quality within and across sectors and countries addresses the root causes of: lack of integrated and accessible data and their analysis for decision-makers, Lack of reliable and useful information for decision-makers, and, lack of ability to prioritize water resources management.

2.3.5.2. Outcome 5

Azerbaijan and Georgia using integrated monitoring, and information management systems for sustainable IWRM at national and transboundary levels

408. Achieving this outcome is a critical objective of both Azerbaijan and Georgia in order to meet national and international commitments and to facilitate improved harmonization of water resource management in the Kura basin. This is in line with the commonly accepted approaches to the EU WFD. This as a top priority for governments in both countries and between sectors. Sustainable water resource management at the national and transboundary levels will benefit the region significantly with economic social and political ties further strengthened. This outcome will be achieved with a support of the outputs below.

2.3.5.3. Outputs for Component 5

Output 5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations

409. Currently information on ground and surface water availability and seasonal fluctuation is not fully understood. In order to most effectively balance water demands in the basin it is critical to be able to access this information using the most up-to-date approaches in water management, including conjunctive ground and surface water modeling approaches. The project will work to develop monitoring approaches that can accomplish sufficient data collection, including use of historical data, and data collected as part of the International Panel on Climate Change Convention reporting processes. While the project will not purchase monitoring equipment directly with GEF funds, additional support from international partners, such as UNESCO IHP, IGRAC and others is being sought to update systems for improved ground and surface water monitoring, including water quality. This will focus in both

countries in areas of shared ground and surface water resources. These assessments will include exchanges of experiences among specialists from both countries to ensure common approaches and understanding. This output will play an important role in sustainable development for Azerbaijan and Georgia, in line with the approaches of the EU WFD and international best practices. It is critical to harmonize vital to harmonize water management approaches based on common measurements and shared information.

410. Linkages to the Kura SAP Strategies are cross cutting and most specifically include:

Strategic Outcome 1. Improved Hydrological Management by providing updated reliable information for ground and surface water managers using state-of-the-art modeling approaches

Strategic Outcome 3. Improved water quality monitoring programs based on modeling and disbursement of pollutants

Strategic Outcome 5. Harmonization of water quality standards based on share information and improved standardized hydrological modeling approaches

Strategic Outcome 9. Reduction of hazards due to floods and drought through application of software that provides long term basin wide oversight of flood hazards and drought occurrences

Strategic Outcome 10. Harmonized Climate Change Adaptation by employing updated technologies to gauge the impacts and take a adaptive measures to climate change

411. Overview: The project will contract national and international experts on surface and groundwater and develop software compatible databases for use by water management professionals across sectors to improve hydrological modeling and decisions based on improved information access and analysis.

412. Activities include:

- 5.1.1 Assessment of available ground and surface water availability in river basin within 12 months, working with local and national stakeholders and relevant institutions.
- 5.1.2 Analyze the historical hydromet station data along the river basin to estimate the seasonal variability along the river within 18 months in order to form a clear sense of trends in hydrological flows.
- 5.1.3 Conduct intersectoral trainings on hydrogeological modeling software and use of GIS and remote sensing techniques for delineation of ground water aquifers within 24 months working with national counterparts charged with undertaking this responsibility.
- 5.1.4 Apply the hydrogeological modeling in one sub basin for each country within 36 months to include water quality and waste water discharges from point source pollution based on available information for expansion in end of project with support of key stakeholders. Based on resulting data ideally, it would be possible to define groundwater pollution, their regime, water level changes and amounts available for consumption.
- 5.1.5 Develop the final report on the basis of the historical materials and the results obtained by means of detailed hydro-geological observation works and hydro-monitoring studies regarding the respective sections on the territories of each country within 42 months.

413. Indicators for gauging success include:

- ✓ Number of sectors using hydrological modeling software and GIS with remote-sensing at beginning midpoint and end of project (PI)
- ✓ Percent of basin covered and Azerbaijan and Georgia by digital data suitable for effective modeling (PI)
- ✓ Percentage of hydrological data eligible for use by modeling software (PI)
- ✓ Number of GIS layers completed for sub basins (PI)
- ✓ Number of GIS layers completed basin wide (PI)
- ✓ Number of specialists trained and use of modeling software (PI)
- ✓ Number of sectors represented in hydrological modeling training (PI)

414. **Involved Parties:**

Sectoral hydrologist from different ministries, academia, and the private sector, modeling experts and GIS experts, and international hydrologist as well as local groundwater and surface water specialists

415. Targeted beneficiaries:

Ministries and agencies charged with water management, decision-makers, and others processing information on hydrological flows for professional use

416. Main deliverables from Output 5.1:

National teams trained to use hydrological modeling approach is in-line with international best practices, for use in applying the water nexus with integrated flow management and to inform and climate change adaptation measures at the national and basin levels.

417. Direct Linkages

Output 5.1 links directly to output 1.1 on calculation of environmental flows, and output 1.2 on water use efficiency and climate change adaptation, Component 2 output 2.1 on professional water management capacity building, and output 2.4 on strengthened capacity in information management for decision-makers.

Output 5.2 An assessment of the economic and social benefits per unit of water used in different sectors

418. Economic and social assessments of the cost and benefit per unit of water used by different sectors will provide important information for decision-makers at all levels in Azerbaijan and Georgia. Approaches for determining the economic value of ecosystem services and water resource use will be based on the most advanced information available, and results cross correlated with a wide scale stakeholder analysis conducted in line with social science best practices. This approach will coincide with international best practices and the EU WFD approaches to river basin management planning. This combined approach will enable standardized measures for decision-making between and across sectors, leading to more sustainable water management at the national and basin levels.

419. Linkages to the Kura SAP Strategies include:

Strategic Outcome 1. Improved Hydrological Management through an improved understanding of the costs and benefits all units of water in different sectors

Strategic Outcome 2. Reduced loss of water resources by encouraging water conservation for economic improvement

Strategic Outcome 4. Pollution reduction and prevention by you applying economic instruments for water quality management an improvement

Strategic Outcome 5. Harmonization of water quality standards by standardizing the costs of water used across sectors and between countries

Strategic Outcome 6. Assessment of the status of river ecosystems by including social and economic users of water resources

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by providing sources for economic incentives to preserve river ecosystems

Strategic Outcome 9. Reduction of hazards due to floods and drought by better understanding the costs and benefits of improved water management

Strategic Outcome 10. Harmonized Climate Change Adaptation by providing economic incentives for climate change adaptation measures and shared approaches

420. Overview: the project will contract international environmental economics expert and international social scientist with environmental experience to work with local experts in irrigation, hydropower, and municipal water supply. A baseline assessment report with available data will be produced, stakeholder analysis survey to gauge priorities of stakeholder groups will be conducted to provide empirical measures of perceptions of stakeholders regarding perceptions of water management, and costs and benefits of water resources. The international experts will then train sector representatives on the integrated nexus approach for water pricing for cost recovery and polluter pays principles. Guidance for developing operation and maintenance costs for water sector management including environmental

agricultural, municipal water, and hydropower sectors will be delivered to ministries and other competent authorities.

421. Activities include:

- *A. 5.2.1 Conduct a baseline assessment of available data sources* based on all key sectors within 12 months
- *5.2.2 Conduct stakeholder surveys on water use, water quality and anticipated water needs across sector based users*, within 15 months
- *5.2.3 Train sector representatives on integrated nexus approaches* for: Water pricing, cost recovery, and pollute pays principals starting within 24 months
- *5.2.4 Develop O&M costs for water sector management* including environmental, agriculture, municipal water and hydropower sectors to deliver to ministries within 24 months
- *5.2.5 Determine market transaction prices*, using inductive methods with econometric estimation of production and cost functions for agriculture and energy, and municipal water demand functions within 36 months
- *5.2.6 Construct models for deductive methodologies for mathematical programming*, value-added and alternative costs modeling within 36 months

422. Indicators for gauging success include:

- ✓ Level of baseline economic, social and hydrological information available compared to end of project (PI)
- ✓ Stakeholder survey results on perceptions of water users on water quality, water use and unanticipated water needs across sectors with compared to 2005 survey and end of project abbreviated study (PI)
- ✓ Application of market transaction prices and deductive methodology models in the decision support systems by sector (PI)
- ✓ Effective and realistic O&M cost for water sector management (PI)
- ✓ Number of sector representatives trained on integrated flow management approach, and number using these in professional applications (PI)

423. Involved Parties:

National and international consultants, sector and ministry representatives and economists, RBMOs, academicians

424. Targeted beneficiaries:

Focal ministries, sector and ministry representatives and economists, decision makers, RBMOs, water user associations, NGOs, others

425. Main deliverables from Output 5.2:

A modernized and sophisticated social and economic assessment all the cost and benefit per unit of water used by sector and economic mechanisms for improving and supporting intersectoral water management.

426. Direct Linkages

Output 5.2 links most directly with Component 1, especially output 1.2 on the water nexus, Component 2 output 2.1 including professional development for water managers, and output 2.4 on enhance decision support systems.

Output 5.3 Staged river system ecological assessment programs

427. Impacts of climate change and development are felt on the River ecosystems everywhere. Currently there is not a standardized river system ecological assessment program in place, based on staged information analysis and data collection. Following up on the previous projects efforts in rapid ecological assessment, this output will begin to build a data base and information collection system that will provide sufficient information to judge the impacts of development and climate change on ecosystems in the Kura basin. This will provide critical support to environmental flows regulations and impacts of development and climate change

on river systems. This assessment is also critical to the successful long-term implementation of the EU WFD and international best practices.

428. Linkages to the Kura SAP Strategies include:

Strategic Outcome 1. Improved Hydrological Management by increasing the understanding of the impacts of environmental flow regulation and management

Strategic Outcome 6. Assessment of the status of river ecosystems by creating a program to systematized data information collection and access.

Strategic Outcome 7. Conservation & restoration of river ecosystems by providing baseline and time series information and analysis

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by providing reliable empirical and comprehensive information through a rigorously design System of data management for on the River system ecology

Strategic Outcome 10. Harmonized Climate Change Adaptation by providing definitive empirical evidence changes and support for targeting measures to reduce negative impacts

429. Overview: working with international ecological expert consultants our local ecologists as well as local firms/universities to conduct assessments over 24 months the project will develop a data collection system for basin wide river ecology focusing on flora, fauna geomorphology, climate and ecosystem stress indicators.

430. Activities include:

- 5.3.1 Assessment of available data, and report on information gaps and needs within 12 months to begin population of database.
- 5.3.2 Develop 2 year plan for assessment to be extended at the national level following the project within 18 months working with national and international universities
- 5.3.3 Create database for ecological assessment to include macro-invertebrates, indicator species and reference conditions guidelines as appropriate, within 18 months
- 5.3.4 Create ecosystem classification structure within 18 months
- 5.3.5 Begin to fill data base to include species counts and seasonal flow variation within 21 months working with local authorities, universities and ministries
- 5.3.6 Develop final report on Kura River Ecosystem with recommendations for sustainable research to support continued data collection by 42 months

431. Indicators for gauging success include:

- ✓ Number of indicator species identified for river system health (PI/Pre ESI)
- ✓ Number of endemic species identified and cataloged (PI/Pre ESI)
- ✓ Number of reference conditions criteria identified (PI/Pre ESI)
- ✓ Number of categories for classification of river ecosystems (PI/Pre ESI)
- ✓ Percent increase in database completion for ecosystem status (PI)
- ✓ Number of indicators from baseline assessment compared to midpoint and terminal assessment (PI)
- ✓ Number of sampling campaigns conducted (PI)
- ✓ Percent change in available information (PI)
- ✓ Number of stakeholder groups accessing information (PI)

432. **Involved Parties:**

International ecological expert and local experts firms to conduct assessment plans, ecological ministry experts

433. **Targeted beneficiaries:**

National Focal ministries, protected area management authorities, national monitoring agencies, climate change experts, NGOs, private sector, development authorities

434. **Main deliverables from Output 5.3:**

A database and parameters for collection of data on ecosystems in the basin to inform decision makers on the impacts of climate change and development

435. **Direct Linkages**

Output 5.3 links closely to output 1.1 on environmental flows in component 1, to output 2.1 on training for professional water managers, 2.4 on improved decision support systems and output 2.4 in Component 2, and to output 3.3 on river system river restoration projects

Output 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.

436. Both Azerbaijan and Georgia recognize the importance of data and information exchange including water quantity and water quality within and between sectors for sound IWRM decision making at the national and transboundary levels. It is also a top regional priority to meet commitments regarding bilateral exchanges of information in line with modern water management practices including the EU WFD. This output will facilitate that effort in order to improve cooperation and reduce confusion over transboundary concerns for water management. The UNECE Bilateral Agreement for the Kura River places high importance on data and information exchange between countries in line with the Helsinki Convention. This output supports the countries to prepare to meet their commitments to the protocols for this, as well as to the Helsinki Convention Protocol on Water and Health, to which both countries are party. At the request of the countries, this will also support the initial development of a transboundary working group of hydrologists and hydrogeologists to support coordinated conjunctive use of shared ground and surface water resources. The harmonization of data and information collection, analysis and exchange will enable both countries to communicate findings and share results for improved transboundary water management. This closely aligns with the best practices in international transboundary water management and the successful implementation of the EU WFD.

437. Linkages to the Kura SAP Strategies include:

Strategic Outcome 1. Improved Hydrological Management by encouraging information change between sectors and countries.

Strategic Outcome 2. Reduced loss of water resources by supporting mechanisms to balance water use and water demand across sectors and between countries

Strategic Outcome 3. Improved water quality monitoring programs by updating and improving national laboratories inline with ISO standards

Strategic Outcome 5. Harmonization of water quality standards by supporting and agreed set of parameters and indicators to show the status of water quality in the trans boundary setting

Strategic Outcome 6. Assessment of the status of river ecosystems by standardizing data exchange on river ecosystems between countries

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning by providing standardized mechanisms for River ecosystem protection and development planning

Strategic Outcome 9. Reduction of hazards due to floods and drought by creating a form for sharing of information including emergency notification

Strategic Outcome 10. Harmonized Climate Change Adaptation by openly exchanging information and experiences on climate change adaptation to maximize benefits across the basin.

438. Overview: the project will contract an international water quality expert to work with local water quality experts with experience in standardization and harmonization of data and information exchange. This will be supported through development of the shared database for entry by approved authorities and training staff of appropriate authorities from both countries on access of harmonization indicators to improve information exchange.

439. Activities include:

- *5.4.1 Develop sets of agreed indicators for information exchange for water quantity, quality and all project outputs to be shared in an annual “State of the Kura River” Report.*
- *5.4.2 Review and update current regulations on water quality in line with EU/WFD within 12 months*
- *5.4.3 Harmonize the laboratory analysis methodologies and standard operating procedures for sampling and analysis of water quality including quality control and quality assurance and standardized calibration within 36 months*
- *5.4.4 Develop a harmonized regional database from an agreed set of indicators to show status of water quality status in TB status within 36 months, and may include agreed indexes based on shared experiences*
- *5.4.5 Outline steps for ISO 17025 accreditation for both national laboratories within 24 months*
- *5.4.6 Train staff on use of harmonization measurements and indicators within 36 months*
- *5.4.7 Detailed final report on harmonization with assessment of work to date and recommendations for next steps by 42 months*

440. Indicators for gauging success include:

- ✓ Number of commonly agreed indicators and parameters (PI/Pre ESI)
- ✓ Number of standard operating procedures harmonize between laboratories (PI/Pre ESI)
- ✓ Percent of database categories for common indicators actively used and agreed by end of project (PI/Pre ESI)
- ✓ Number of regulations brought into compliance with the EU WFD (PI/Pre ESI)
- ✓ Percent of staff and laboratories trained on use of harmonize measures and indicators (PI)

441. **Involved Parties:**

International experts on harmonization of water quality management protocols, national experts on water quality, water quality laboratory staff, academics

442. **Targeted beneficiaries:**

Ministry of environment/ecology, national monitoring agencies, water quality monitoring agencies in other sectors

443. **Main deliverables from Output 5.4:**

A shared set of common and agreed indicators for water quality monitoring between Azerbaijan and Georgia, including shared monitoring parameters, approaches, and indices in support of bilateral agreements.

444. **Direct Linkages**

Output 5.4 links most directly with output 2.4 on improve decision support systems, output 5.1 on improves the Logical modeling, and with pollution abatement plans and pre-feasibility studies in output 1.4, and output 3.2

2.4. Country and regional ownership: eligibility and drivenness

445. During the UNDP GEF Kura Aras Project, the Kura River SAP was formulated between 2013-2014 following a highly participatory approach. The process involved significant inputs from national experts for the TDA, National IWRM Plan development and SAP development through the Regional Technical Task Team. The National Focal Points provided critical guidance for the development of the SAP, including prioritization of common concerns, and strategic outcomes, as well as output level recommendations.

446. When the third country participating in the 2011-2014 UNDP-GEF Project declared its intention not to continue involvement in the SAP development process, there was a strong push from the governments of both Azerbaijan and Georgia to stay the course and continue to move forward with a two country SAP. Both governments worked diligently to move the process forward, culminating in the Ministerial endorsement of the SAP in May 2014.

447. The Kura II PIF (GEF ID 6962) was submitted to the GEF Secretariat, and was included in the GEF Council Work Program prepared for the 45th GEF Council Meeting in November 2014. Following approval, the Project Document has been drafted with PPG support from GEF, and includes a highly participatory approach. The development of the Kura II Project document has included meetings with key sectors in both Azerbaijan and Georgia, donors, and stakeholders, to provide comments on the project overview and activities, as well as to include opportunities for strengthening linkages in ongoing and upcoming activities. Following individual meetings with stakeholders, a national level meeting was held in each country, chaired by the National Focal Points. These meetings served as an opportunity for consultants to provide an overview of the individual meetings, and to discuss issues of national and regional interest related to the project among various sectors and stakeholder groups. During these meetings extremely strong support for moving the Kura II project forward, and national and regional hopes for the project to start as soon as possible were expressed.
448. The Draft Project Document was prepared based on comments and shared with stakeholders for review. A regional meeting was held in October 2015 in Baku, with representatives from Ministry of Environment/Ecology, and representatives from ministries of agriculture, energy, emergency situations, regional development and infrastructure, and municipal water supply and irrigation companies to discuss and agree on the final draft of the project document, to further ensure strong country ownership and drivenness of the project.
449. This will be further ensured through the project coordination with ongoing national and regional initiatives to be formalized during the inception phase of the project. This will be supported by project coordination and management arrangements specifically tailored to this purpose (Section 5.1) through the Stakeholder Involvement Plan (Annex 7), and the Communication Strategy to be developed and approved in the Inception Phase of the Project.

2.5. Co-ordination with other related initiatives

2.5.1. GEF co-funded initiatives

450. The Kura II Project will link with several ongoing GEF funded efforts. These projects will provide support to the Kura II Project and benefit from the approaches, experiences and lessons learned to share with the wider international waters community. These Projects include:
451. **IW:LEARN (GEF International Waters Learning Exchange and Resource Network):** This Project seeks to strengthen knowledge management capacity and promote learning of disseminated experiences, tools and methodologies for transboundary waters management – across and beyond the GEF IW portfolio, together with a global network of partners in order to improve the effectiveness of GEF IW and partner projects to deliver tangible results and scaled-up investments. (GEF ID 5729; <http://iwlearn.net/>) The Project works with UNDP, UNEP and has various execution partners. The PIF is approved, and Project Document is currently under development. It is most relevant to information sharing and harmonization, as well as application of new approaches such as the water nexus and climate change adaptation strategies.
452. **CAP-NET UNDP-GEF Capacity Network** Cap-Net is an international network for capacity development in sustainable water management. It is made up of a partnership of autonomous international, regional and national institutions and networks committed to capacity development in the water sector. CAP-NET is linked to Stockholm International Water Institute, and ties to the UN MDGs and SDGs. This project is currently under implementation, and is most relevant to the capacity building efforts in Components 2 and 4.
453. **GEF Flooding in Mountain Communities Projects in Azerbaijan and Georgia** are UNDP Country Office implemented projects that focus on climate change adaptation strategies for rural communities impacted by severe flooding events. Their work includes

components on IWRM trainings for local communities, and increasing awareness of climate change adaptation strategies. These projects are currently under implementation and will share experiences at the national levels with the Project for transboundary learning pertaining to flooding and climate change adaptation in component 4.

2.5.2. Other relevant initiatives

Table 8 Planned regional initiatives in the Kura Basin

Project Name, timeframe and budget	Summary	Linkages	Status
EU Project on River Basins 2016-2020 20 Million Euro 6 countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine)	Support to river basin development combined with National Water Policy Dialog Meetings. Focus on <ul style="list-style-type: none"> • Policy to align with EU Directives • RBMP implementation in select basins • Communication and Stakeholder involvement <i>Agreed to formalize linkages for next phase</i>	Outputs: <ul style="list-style-type: none"> • 1.2 • 1.5 • 2.1, 2.2, 2.3 • 4.1 • 5.4 	Planned and under development
UNECE – Bilateral Agreement on Kura River (budget pending)	Finalization of Bilateral Agreement on Kura River in line with UNECE Helsinki Convention <i>Agreed to strengthen formal ties upon signature by both countries</i>	Outputs: <ul style="list-style-type: none"> • 1.5 • 5.4 	Pending
ENVSEC project Strengthening preparedness for floods and landslides in South Caucasus (Subject to fundraising) 2016-2018, € 800,000	Objective: To strengthen early warning and preparedness capacities for natural disasters in Armenia, Azerbaijan and Georgia, with specific focus on floods and landslides Outcomes/deliverables: 1. Flood and landslide hazard, vulnerability and risk maps: Azerbaijan/Georgia - in the Kura river Basin for selected sites including transboundary areas 2. Flood and landslide risk assessments for the most susceptible areas in each of the three countries	Outputs: <ul style="list-style-type: none"> • 1.1 • 1.2 • 3.3 	Pending funding
ENVSEC project Support for the management of transboundary watercourses shared by Georgia and Azerbaijan – Phase II (Subject to fundraising) 2016-2018, € 290,000	Objective: to assist the Governments of Azerbaijan and Georgia in finalizing and implementing the “Agreement between the Governments of Azerbaijan and Georgia Outcomes/deliverables: 1. Signed Agreement between the Government of the Republic of Azerbaijan and the Government of Georgia on Co-operation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin 2. Joint Commission established for transboundary management and its Action Plan	Outputs: <ul style="list-style-type: none"> • 1.5 • 5.4 	Pending funding

454. In addition to coordination with regional and transboundary projects, the Kura II Project will also establish linkages with relevant national level projects supported by donors including the World Bank, FAO, EBRD, USAID, GiZ, ADB, and those supported by the governments at the national and local levels. It is anticipated that significant opportunities for coordination, interactive learning and strengthened country and regional leadership will emerge from these efforts. These national initiatives are outlined in Annex 2 for further review.

2.6. Cost-efficiency and effectiveness

455. The Kura II project has been designed to be cost-efficient and effective in several different ways:

456. From a project execution perspective, cost-efficient use of the project budget will be achieved by keeping expenditure on project management down to less than 5% of the total budget. This will be achieved through “smart choices” in terms of staffing & operating the PCU, facilitated through the mainstreaming of project governance & execution processes with the work plans & agendas of the existing national and regional organizations with a mandate or well - recognized supportive role for improved IWRM.
457. Cost-effectiveness of the GEF contribution is also achieved through the leveraging of a substantial co-financing contribution, which, at the time of Project Document submission for GEF approval, reached already above USD 170 million or a co-finance to GEF ratio exceeding 30:1. Further actions have been embedded in the project results frameworks that are expected to lead to a further increase of total project-related investments. These will be tracked and included in annual reports.
458. The project has also been specifically designed to substantially enhance cost-effectiveness of the broader national, regional and international efforts aimed at achieving the objectives of the Kura SAP; Kura II project activities put a strong focus on creating the enabling conditions (e.g. strengthened governance arrangements and capacity, and enhanced coordination and cooperation among the many regional initiatives) that will then support increased effectiveness and sustainability of on-the-ground actions and investments.
459. Coordination arrangements with key stakeholder organizations will be reflective of the comparative advantages of each organization and as such (a) lower the operational costs of the PCU; (b) allow to reach a much broader community and variety of stakeholders, and (c) enable a much more efficient and effective implementation of a large range of actions. Not only does this offer a cost effective solution for project execution, but it (d) further assists with the strengthening of these organizations and their role in the project and applied IWRM, and thereby contributes to the sustainability of the project intervention and outcomes.
460. With its focus on the root causes of environmental degradation and on enhancing coordination, collaboration and synergies, the GEF incremental cost co-financing for the Kura II Project will thus result in a much higher return on the investments from the different national activities in the region, in terms of more substantial and wide-ranging impacts and more sustainable results. Without the GEF funds the regional and global benefits expected of the investments made by other programs, projects and initiatives, related to the SAP, would not be fully realized.

2.7. Project Indicators and Impact Monitoring

461. For indicators to be useful, they must be clearly informative, simple, and catalytic to trigger action in the event that they are not being met, and if they are, provide guidance on steps forward.
462. Sets of monitoring indicators have been suggested for each output and highlighted in the PRF. In the inception phase of the project, the Project Team will work with key project stakeholders to determine the most appropriate and accurate output specific indicators to use in support of sustainable monitoring of baselines, conditions and impacts over the span of the Kura II project and beyond. This effort will work to harmonize indicators between countries for social, economic, environmental, ecosystem status, stressors, etc. in order to most effectively gauge the changes occurring as a result of project and SAP implementation, and impacts of development and climate change.
463. Throughout its execution, the Kura II Project will implement and use a solid Monitoring and Evaluation (M&E) framework, to track and evaluate progress, and monitor impacts. This framework will be consistent with GEF and UNDP requirements (see also Section 6), and will take reference of the expected outcomes and outputs described under Section 2.3 (see the Project Results Framework, Section 3).

464. This M&E framework will complement the Kura SAP that emphasized national indicators and monitoring shared between countries throughout SAP implementation. For the Kura II Project M&E framework, the following considerations are of special relevance:

- as a project that catalyzes SAP implementation, and with its strong focus on being a catalyst for governance processes, most Kura II Project Indicators (especially those from Components 1, 2, 4 and 5) fall under the “Process Indicators” Category, though there are some key Stress Reduction Indicators, as well as “Pre-Ecosystem Status Indicators” that once they have been developed and metrics established will serve as the basis for gauging ecosystem status during SAP implementation as agreed by the countries
- independent of the indicator category, special efforts have been undertaken to use as much as possible SMART indicators and targets under the Project Results Framework (“logframe”) in Section 3
- reference is further made to the mandatory use of the GEF IW tracking tool

465. As part of the process of the Kura II governance arrangements (Component 1), and participation of relevant stakeholder groups (Component 2 and 4), more specific “Stress Reduction”, “Environmental Status” and “Socio-economic Status” Indicators and associated targets can then be defined and refined, to measure impacts of the project and the cause and effect relationships necessary to empirically show improvements to the socio-economic status and environment status. These relationships are outlined in the Indicator Framework, Figure 2.7, below. By addressing root causes, indirect and direct causes, it is anticipated there will be changes in the environmental and socioeconomic impacts, and thus avoiding the crisis of super impacts

466. These will then become part of the overarching M&E Framework for SAP implementation, and their use can then also be mainstreamed into the “State of the Kura River” Report(s). Both are developments that will be supported through the activities under Kura II Project Component 5, in line with information sharing protocols.

467. The information, approach, indicators, and analyses will be carefully tracked and shared at the national, regional and international levels, including through the IW:LEARN consultative process.

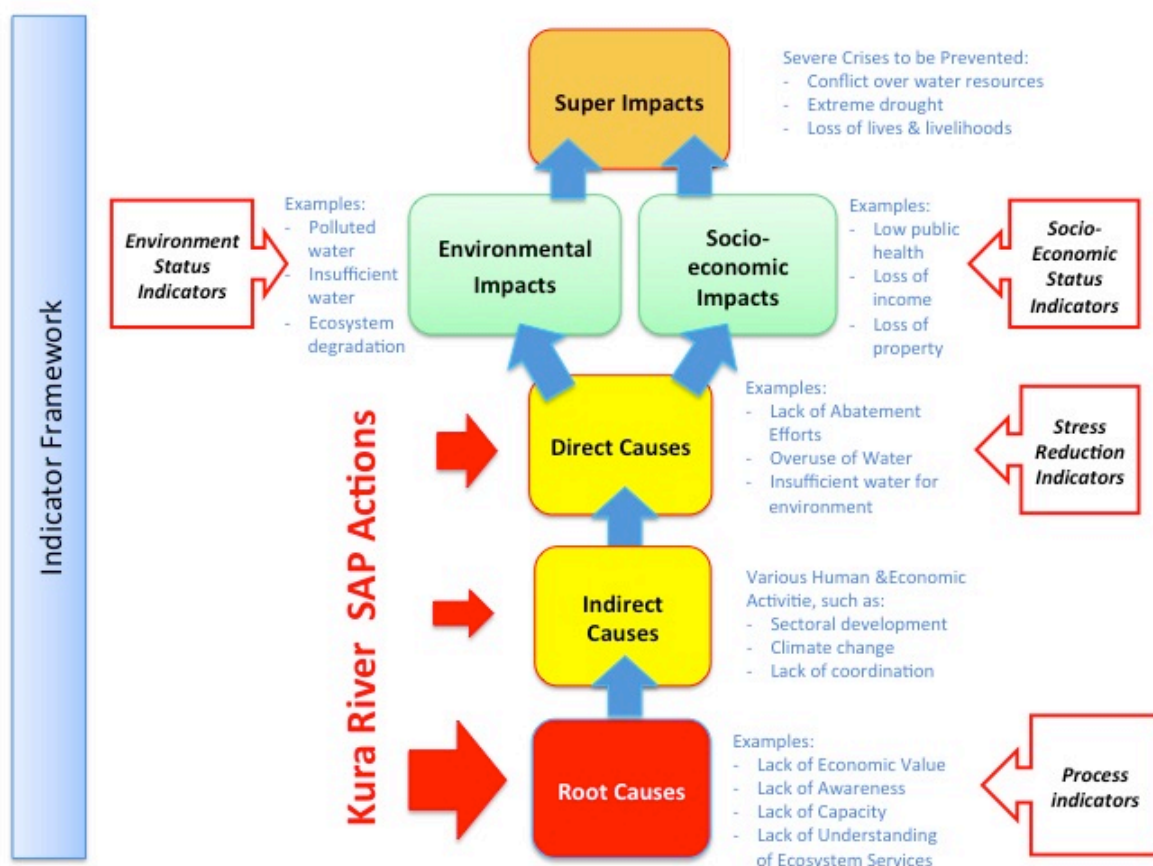


Figure 5 Indicator Framework for the Kura River SAP

2.8. Risks, and Mitigation Strategies

468. The following risks to successful project implementation are known at the time of the project document development. The unknown risks will be dealt with on an ad hoc basis in line with UNDP and GEF best practices. A “Risk mitigation log” will be kept throughout project implementation, and will be initiative by the Regional Project Coordinator in the inception phase of the Kura II Project.

Table 9 Risks and Mitigation Strategies

<i>Risk</i>	<i>Level</i>	<i>Mitigation</i>
a. Political instability could affect the implementation of actions at country or regional level	Medium	The project will promote coordination among various actors from the outset, and is designed to provide a key supporting role to support coordination and collaboration among sectors in both countries, and to provide a project governance structure that emphasizes building and sustaining linkages.
b. The multiplicity of interventions for SAP implementation without effective coordination could limit the expected results and duplicate	Medium	The project will establish the group of partners to better manage intervention efforts and provide a platform for synergy and complementarity as agreed for the SAP implementation, using the GEF IW Indicators framework, to help partners managing results and impacts on the ecosystem.

<i>Risk</i>	<i>Level</i>	<i>Mitigation</i>
efforts		
c. Environmental variability and climate change could alter ecosystem processes and functions, and reduce ecosystem services.	Low	A demonstration activity has already been carried out to evaluate the impacts of climate variability and change on river flows and ecosystem, related to environmental flows. Providing a sound methodology for calculations of environmental flows in light of climate change will further guide adaptive management to meet global changes. Implementation of IWRM plans will aim to incorporate Climate Variability and Change.
d. The efforts may become fragmented among components, and other initiatives resulting in low return on investments	Low	The Kura SAP was regionally endorsed and constitutes a formal reference framework for coordinated action. Incorporation of existing and planned initiatives as well as lessons learned from previous efforts outlined in Section 1.3 directly aims at mitigating this well-recognized risk. Leading role in execution of SAP Strategies for (sub-) regional organizations with a formal mandate adds authority to the quest for better integration and coordination. Increased awareness exists among projects, programs and initiatives of the need for enhanced coordination, and is being formalized through the Project Preparation Phase and Inception Phase of this project.
e. Lack of maintained parallel commitments from Governments and potential donors for sustainability beyond the life of the project	Low	Strong coordination with, and involvement of governments and other donors in the implementation of the Kura SAP will be promoted through Project Component 1. Development of investment plans, sustainable financing strategies, contemplated under the Project. Further the volume and scope of baseline projects underscores the strong level of dedication to improved national and regional water management.
f. Limited public awareness and interest in ecosystem management and reluctance to change	Low to Medium	The project will directly AND indirectly engage (e.g. through the partners, under the broader partnership to be established under Component 4) with the wider stakeholder community to increase awareness and to emphasize and showcase local benefits of ecosystem-based management approaches. Stakeholders will be empowered to address water management issues through efforts, and in combination with the EU WFD.
g. Limited scientific data and information and limited willingness of responsible authorities to share	Medium	Strong attention under SAP Strategies and Kura II Project is placed on enhanced data & information management. Development of regional-level or national data policy will be the key in many cases. Coordinated development of "research strategies" that identify knowledge gaps, can assist in increasing the proportion of research that is demand-driven and thus help increasing the relevance of the knowledge base.
h. Significant differences in participating countries size and economic drivers may impact on feasibility of project outcomes & outputs	Low	In the regional and international context, the strengthening of the sub-regional bodies will subsequently lead to the further empowerment of the member states. This will help to balance relative strengths and priorities, and actually provides an incentive for all countries to support the project outcomes. Additionally, the project will encourage cooperation by generating opportunities for countries to share their expertise with others. Networking and coordination among bodies, organizations and initiatives will allow maximizing the levels of support that can be provided in the context of the project.
i. The countries may not finalize the UNECE bi-lateral agreement during	Medium	In the case that the bilateral agreement is not finalized during the UNDP-GEF Kura II Project implementation, the project will take steps in the final year to provide guidance for the creation of a bilateral working commission to support continuation of data exchange that will support continued sustainable

<i>Risk</i>	<i>Level</i>	<i>Mitigation</i>
the implementation of the project		cooperation between the countries, facilitated by the initial efforts of this project.
j. The project is not successful in engaging stakeholders across sectors	Medium	During the Project Preparation Grant a detailed effort was undertaken to assist with the identification and discussion with the different stakeholder groups. During the project inception phase, an over-arching Project/SAP Communications Strategy will be developed. Active involvement of local, national and regional bodies, organizations and partners with broad constituencies and well-established stakeholder relationships in the execution of the projects will distribute the weight of efforts and allow to engage a much broader stakeholder community. Project capacity building recruitment will emphasize the benefits to participating organizations at all levels.
k. Project Coordination Unit and Management Team incapable of effectively executing and managing a highly complex project	Medium	Clear distribution of responsibilities among GEF Agency and among the Management Support Team and Project Coordination Unit (PCU). Budget allocation adequate to support efficient, effective and stable PCU (within limits allowed - GEF management cap). Continuous promotion of concept of regional and national-level project ownership, to enhance the effective support base for PCU. Due consideration, up to the extent feasible, of recommendations from Kura Aras MTE and TE: well-thought composition of PCU (project budget and GEF management cap allowing), with thoughtfully developed ToRs and robust screening of candidates.

2.8.1. Climate adaptation for Kura II actions and activities

469. A critical aspect of the Kura II Project and the Kura SAP is the improved management of transboundary surface and ground waters, and balancing water use needs between sectors in light of the impacts of climate change. The threat of climate change in the Kura Basin is very real and efforts to improve long term sustainable use of water resources and is implicit in the agreed SAP Long-term Basin Vision: *“To achieve sustainable development and maintain ecosystem functions in the Kura River Basin through reducing transboundary degradation and improving environmental management in order to ensure ecosystem services, economic well-being, and health and security in all riparian countries.”*

470. This is further supported by the vision of UNDP Water and Ocean Governance Programme is *“to achieve integrated, climate-resilient, sustainable and equitable management of water and ocean resources, and universal access to safe water supply and sanitation, through improved water and ocean governance.”*

471. Together these visions inform and support the cross cutting nature of climate change adaptation in the Kura II Project. Each component will address climate change impacts and climate change adaptation through appropriate mechanisms to ensure that the countries are sufficiently capable to diagnose impacts on water resources, discern the costs of impacts, and allocate water resources in the most sustainable and environmentally robust manner.

472. Adaptation measures include the following efforts, *inter alia*: updating of environmental flows calculation methodologies; accounting for water uses costs and benefits per unit of water; implementation of modeling technologies to best apply conjunctive use approaches; improved water efficiency; inclusion of stakeholder innovations for climate change adaptation; assessment of river ecosystems to gauge climate change impacts; and, sharing of information between countries in order to support climate change adaptation measures.

473. Climate change will be mainstreamed into the program of activities and the overall management of the Kura II Project (e.g. development of the detailed stakeholder involvement plan, the project communication strategy, the action plans, pre-feasibility studies, etc.). During the further fine-tuning, execution and adaptive management of the Kura II Project, reference will further also be taken of the recommendations in the GEF IW:LEARN Guidance

2.9. Sustainability

474. The sustainable use of goods and services from Kura River is the overarching objective of the Kura River SAP. Ensuring the sustainability in time of the processes and outcomes that are expected to lead to the achievement of this objective was a special consideration during the entire Kura River SAP and Kura II Project formulation process:

- The 4-year Kura II Project is embedded within and catalytic to the implementation of the politically endorsed SAP. The SAP itself is embedded within the context of the countries aim to work towards shared national and regional priorities for improved sustainable IWRM implementation.
- SAP actions and project outcomes, outputs and activities are reflective of the needs and priorities, and existing plans and commitments of the Kura II countries and associated regional and national governance bodies and development partners (see Section 1.3).
- The project will embed its activities within the context of ongoing national governance processes, and target the delivery of project outputs and outcomes in alignment with, and link with national priorities, and regional commitments that may place during the project implementation period. This effort is reflected in the design of the project results framework and project work plan, under which clear references are made to the ongoing governance processes.
- Coordination with Kura II project partners to further fully involve their constituencies, regional and national-level ownership over the project will be maximized.
- All efforts, including capacity building will be documented and shared with stakeholders in the basin for current and future generations of water resources managers. All materials will be uploaded to the Kura II project webpages and hosted in perpetuity by IW:LEARN UNEP servers, and Ministry servers as appropriate.

475. Combined, the previous points will contribute to ensuring the continuity of efforts initiated, and the sustainability of outcomes achieved under the project, well beyond the project's own lifespan.

476. Some further examples of how sustainability of project processes and outcomes has been considered in the project's design are given below:

Sustainability of processes

477. Through the project's activities, the alignment of the multi -level, nested regional governance framework set forward under the EU WFD and supported by the SAP are support to fill gaps and establish missing linkages, and will strengthen capacity and help building shared experiences. The EU WFD transboundary water management approach will be supported by national commitments for both Azerbaijan and Georgia. The development of a sustainable financing strategy at the national levels to support for the regional governance framework during the project will further ensure continued operations of the enhanced bilateral linkages.

478. It is further expected that, through the region-wide collaboration on the development of a "State of the Kura River" report and web portal under Project Component 5, the GEF – promoted TDA/SAP approach—a process which is designed to undergo periodic updates- can become mainstreamed within the work program an emerging regional organizations with a key mandate or well-recognized long-term role in management in the Kura River.

479. National and regional inter-sectoral coordination and consultation for an improved water management will be promoted under the Kura II Project. This will link with efforts to increase the application of IWRM benefits across sectors, enhance information exchange and create a

commonly accepted set of hydrological metrics, including economic valuations, needed to support decision making within and between sectors.

Sustainability of environmental and socio-economic outcomes

480. By promoting an approach to water management that includes identification of priorities, institutional support for implementation, concerted on-the-job training for capacity building to enable the countries to achieve the priorities, and the establishment of clear monitoring and evaluation indicators including baselines will be used throughout the project. This will be supported by linkages between outputs and activities, strengthening stakeholder involvement across sectors, including both competent authorities and interested parties in the process, empowering the local stakeholders to act in light of climate change impacts, and providing the necessary tools to support decision-making and information exchange. This approach will support the multifaceted approach to dealing with environmental flows calculations, pollution abatement planning, increased water efficiency, improved information management, and approximation of the EU WFD and daughter directives.
481. The implementation of projects for stress reduction in critical areas, Including improved water efficiency, pre-feasibility studies, and river restoration projects, will be closely monitored to enhanced benefits, And show potential positive outcomes from replication.
482. Achieving sustainability of project outcomes will also be given full consideration focusing on the need to mainstream climate change adaptation with robust solutions and resilient outcomes in the development and execution of specific activities and initiatives under the SAP.

Stakeholder buy-in

483. Active involvement of stakeholders from many sectors and levels of society in project implementation is considered critical to achieving buy-in for project processes and outputs and thus an overall essential factor to the success and sustainability of projects like this. The project will therefore promote and engage in the use of inclusive and participatory approaches whenever possible. Special attention will be given to fostering the involvement of women local groups and communities that are highly dependent on food, water, and income directly from the Kura river.

2.10. Replication & up-scaling of results

484. It is recognized that a major up-scaling of the efforts in the region will be essential to achieve the overall longer-term objectives of the SAP. The proposed Kura II project is specifically aimed at catalyzing the implementation of the broader SAP through increasing the capacity of those who will ultimately be implementing the national plans and the Kura River SAP.
485. In addition to catalyzing SAP implementation, through the five distinct components of the Kura II project it is specifically designed to encourage and facilitate uptake of lessons learned and replication of scaling up of best practices within the Kura region and beyond.
486. The Kura II project will create the supporting platform required for such future replication and up-scaling within the region as it will strengthen the institutional frameworks in Component 1, and strengthen the human and institutional capacity in Component 2, test and replicate solutions on Components 3, foster better coordination, and empower education among stakeholders in Component 4 and support enhanced science for governance at the national and regional levels in Component 5.
487. In the short term, i.e. during the execution of the Kura II project moderate up-scaling of early results will be taking place under various components. Additionally outputs are designed to be linked to enable up-scaling and replication through the development process. In all cases awareness will be raised and used to elaborate and refine approaches, with the subsequent

generations of trainees, professional water managers, and stakeholders continually kept in mind.

488. This will provide the basis for substantial expansion of the actions needed to achieve the overall SAP objectives and more fully contribute to the SAPs overarching long-term goal. In the medium to long-term, up-scaling will also include the gradual expansion of the scope of the Kura II actions from their initial focus on specific IWRM area approaches to fully integrated water management in the countries of Azerbaijan and Georgia.

489. In this way, the project is also expected to increase the potential of major global environmental benefits during the next decade, by testing innovative approaches to fresh water management across sectors in applied situations, refining these approaches based on lessons learned, and sharing of these through regional and global water management exchange networks.

3. Project Results Framework

Outcomes & Outputs and Indicators ⁴	Baseline	Milestone and Project Targets	Source of Verification	Risks and Assumptions
Component 1: Establishment of effective cross sectoral IWRM governance protocols at the local, national and transboundary levels in the Kura Basin Outcome 1: Regional, national and local legal, policy and regulations harmonized within the Kura basin for strengthened IWRM implementation, including harmonized intersectoral coordination with environment, agriculture, energy, municipal water and industrial sectors				
1.1 Updated regulations for environmental flow calculation methodology <u>Indicators:</u> P.I. 1.1 Calculation methodology for E Flows updated based on available information measured by percent change of standard deviation of flow from historical norm of natural flow from previous approach SRI.1.1 Percent change in monthly flow impacts from previous to updated calculation methodology Pre-ESI 1.1 Agreed status criteria including E Flows across the basin in line with EU WFD by	There is bi-lateral interest in updating environmental flow approaches, including those explored in the Foundational Phase. Sufficient information still is needed updated regulations for enforcement mechanisms for a staged approach. The previous Kura Aras Project emphasized need to update environmental flow calculation from the 10% average annual flow used in the Soviet era to more closely approximate seasonal flows using updated staged statistical and ecosystem based approaches. In AZ National Science Foundation is supporting early work in Ganga Chay Basin.	1.1.1 Plan for increased monitoring and enforcement of environmental flows regulations by month 12 in selected sub-basin based on existing information 1.1.2 Plan for updated environmental flow methodology, including monitoring approach and evaluation criteria accepted by appropriate ministries for trial in sub basin by month 12 based on existing information 1.1.3 Proposed updated methodology adopted in at least 1 sub basin in each country for at least 1 full year started by month 18 to test updated approach 1.1.4 trial methodology in sub basin to conclude by month 36 for review (Linked to Output 3.3) 1.1.5 Ministries will accept the proposed methodology for environmental flow calculations within 4 years, process started by end of project	Report on the support plan (incl. description of the current baseline, with available information) Draft methodology of calculation of environmental flow Summary report/indicators on achieved progress Lessons learned reports from sub-basin trials Updated methodology for application in practice National reports on introduction of environmental flows into water management legislation or strategy Report on environmental status criteria to include E Flows across the basin.	Assumption: Trialing of updated flows calculations in sub basin can be transferred (Link to Output 3.3) Assumption: sufficient historical data is available for selected sub basins (Link to Output 5.1) Assumption: There is strong political will at the national level to support the timely development and adoption of updated regulations and plans (Link to Output 1.5) Risk: potential conflicts between sectors over the use and management of resources across seasons (Link to Output 1.5) Risk: Very lengthy processes associated with the development and adoption of national legislation and plans

⁴ Indicators: PI = Process Indicator, SRI = Stress Reduction Indicator, ESI = Environmental Status Indicator, Pre ESI = Prerequisite for Environmental Status Indicator, in line with GEF requirements. All indicators assume baseline measures are established within the initial phase of the project implementation.

month 42 of project				
<p>Output 1.2 Improved protocols water flow management regulatory strategies</p> <p>P.I 1.2.1 Water efficiency included in national and sectoral plans by number of additional references to water efficiency and demand management in laws, regulations and sectoral plans</p> <p>SRI. 1.2.1 Verifiable estimates of water saved from application of regulations on water efficiency</p> <p>P.I. 1.2.2 Percent of basin covered by flood hazard & risk maps</p> <p>Pre-ESI. 1.2 Agreed river system status criteria includes integrated flow management</p>	<p>Current water management policies do not sufficiently support coordinated rational water use. In Georgia new Water Law is anticipated to be delivered to Parliament, with sub-laws including tariffs in line with the EU Association Agreement.</p> <p>To apply the water nexus for integrated flow management there is a need to account for climate change impacts. This will improve regional water-energy-food-environmental security, and requires protocols to support flow management coordination.</p> <p>Harmonization of flood risk management with European practice is one of the priority areas for the region for effective management of flood risks resulting in reduction of casualties.</p>	<p>1.2.1 Develop plans to address gaps in regulatory protocols to encourage efficient water use based on assessments in 5.1, 5.2 and update review of laws, regulations and enforcement mechanisms</p> <p>1.2.2 Within 12 months national level reports developed on waste water reuse regulation and potential</p> <p>1.2.3 National level recommendations on updated protocols presented within 42 months of project start up based on output 5.1 and recommendations based on lessons learned</p> <p>1.2.4 Preparation of flood hazards and risks maps of the Kura Basin by using existing information</p>	<p>National level proposal for legislation amendments for efficient water use, including baselines, to minimize losses, support sustainable groundwater use, and promote safe wastewater reuse</p> <p>Sectoral guidelines for improved water use efficiency to support sustainable surface and groundwater use, and promote safe wastewater reuse</p> <p>Integrated flow management/ Water nexus informational materials and applications for decision makers, RBMO/local authorities</p> <p>National level recommendations based on outcome of 5.1 and lessons learned</p> <p>Support for preparedness and response on floods in the Kura Basin</p>	<p>Assumption: Updated laws will be accepted by parliament and may be effectively enforced.</p> <p>Risk: local SH/WUA rejection of reuse approach</p> <p>Risk: Intersectoral disagreements on water use efficiency</p> <p>Assumption: Sufficient information regarding withdrawals of water available (linked to Output 2.1, 2.4, 4.1, 5.1)</p>

<p>1.3 Institutional support for River Basin Management Organization and local authorities</p> <p>PI 1.3.1 Percent change in number of recommendations implemented resulting from approach with RBMO</p> <p>PI 1.3.2 Number of interventions funded by competent authorities and under implementation from RBMPs and Program of Measures</p>	<p>The countries are rapidly moving towards approximating EU water management approaches. This requires appropriate authority is assured to RBMOs and institutions to inform decision making regarding water use by local and national authorities. Both RBMO and local basin authorities will need institutional mandates to function-effectively.</p> <p>Previous projects have developed RBMPs but bodied do not have authority to implement or supervise these. Appropriate institutional structures are needed to support RBMO and local authorities in order to ensure sustainability.</p>	<p>1.3.1 Based on appropriate international best practices, provide methodology of implementing EUWFD at national levels with institutional support to RBMOs</p> <p>1.3.2 Based on appropriate international best practices review and recommend improvements to institutions to support RBMO/local authorities and intersectoral exchange/ coordination within 18 months</p> <p>1.3.3 Develop EU WFD implementation guidance materials including information exchange mechanisms as per Output 5.4 within 36 months</p> <p>1.3.4 Within 42 months strengthen functional and technical capacity of current RBMO at least 2 sub practical recommendations</p>	<p>Institutional review reports for RBMO/local authorities and inter-sectoral coordination</p> <p>Recommendations for improved institutional support to RBMOs</p> <p>Guidance materials for RBMOs and supervising institutions</p>	<p>Assumption: suitable sub basin RBMO/local authorities for trialing of EUWFD approach (linked to outputs 2.2 and output 4.2)</p> <p>Risk: climate change impacts could vary water availability during trial period</p>
<p>1.4 Pollution abatement plans developed with key stakeholders.</p> <p>PI 1.4.1 Constructed PAP/CAPs with abatement and compliance indicators detailed in text</p> <p>P1 1.4.2 Number of sites eligible for PAP/CAP within water quality surveillance monitoring network</p> <p>PI 1.4.3 Number of potential viable financing</p>	<p>Current pollution abatement plans are nascent for water pollution, and are based on permitting that requires more robust enforcement. Previous projects have focused on water quality monitoring but not on actual abatement and compliance measures.</p> <p>In Azerbaijan regulations will be updated before 2016. In Georgia new legal mechanisms are under development in line with the EU Association Agreement.</p>	<p>1.4.1 Within 9 months all of point sources identified and included in the cadaster with pollution map for point sources</p> <p>1.4.2 Conduct pollution source assessment, and determine causes and based on this develop water quality surveillance strategy and provide technical assistance on how to make Environmental Compliance Action Plan monitoring network in the Kura River (identification of sampling points) within 18 months</p> <p>1.4.3 Within 30 months of completion of cadasters for water quality, develop country specific plans for pollution abatement based on BAT and BEP for</p>	<p>Cadaster of pollutants</p> <p>Report on types of pollution and surveillance monitoring network design map</p> <p>Draft pollution abatement and compliance action plans working with key enforcement and polluters</p> <p>Reports on green alternatives for pollution abatement</p> <p>Reports and location of financing</p>	<p>Assumption: Link with pollution abatement activities in Output 2.1 to develop strategic abatement approaches, and Output 2.3 to build enforcement capacity, and Output 3.2 to showcase effective approaches</p> <p>Assumption: willingness of polluting sector/industry to participate in abatement plan development (link to output 1.6)</p> <p>Assumption: Sufficient national capacity to enforce pollution abatement plans (linked to Output 2.3)</p>

mechanisms for PAP implementation		<p>priority areas</p> <p>1.4.4 National reports identifying the costs of water quality degradation to national GDP by 24 months and promote financial mechanisms</p> <p>1.4.5 By 38 months a common report on pollution abatement financing mechanisms for large scale interventions</p>	<p>mechanisms promotion workshop</p> <p>Report to be submitted to ministries on pollution abatement strategies and environmental compliance action plans</p>	
<p>1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels</p> <p>PI 1.5.1 Number of sectors represented at national and regional meetings (PI)</p> <p>PI 1.5.2 Pre-and post-workshop and study tour perceptions surveys for participants</p>	<p>Movement toward harmonization of water management approaches, including harmonization of water quality standards needs further support. The EUWI supported National Water Policy Dialogue (NWPD) Committees are moving forward in Georgia with support to sub laws for water. In Azerbaijan, additional support will be needed, in line with multi-sectoral water use.</p>	<p>1.5.1 Meetings and workshops for intersectoral water team/NWPD members and associates to highlight what each sector is doing, provide trainings/workshops on specific approaches towards harmonization of approaches to water management held 2 times per year in each country and 2 regional meetings per year</p> <p>1.5.2 Study tours at local, national and regional levels, with 1 tour per year per country</p> <p>1.5.3 International study tour to observe intersectoral projects within 24 months</p>	<p>Meeting minutes, including agenda and lists of participants</p> <p>Documented training materials available on line in local languages</p> <p>Training documentation</p> <p>Participation of members at neighboring countries NWPD Meetings and trainings</p>	<p>Assumption: continuation of the EU Water Initiative National Water Policy Dialog Meetings and or similar coordination</p> <p>Assumption: willingness of parties to share information and experiences (links with output 2.4 and output 5.4)</p>
<p>1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies</p> <p>PI 1.6.1 Number of private sector organizations involved in the PPP</p>	<p>Green technology is not yet well known in Georgia and Azerbaijan, though there is an initiative within Ministry of Economic Development within the Department of Sustainable Development that will increase this. Within Azerbaijan organizations such as State agency for renewable energy agency and Joint Stock Companies (JSC) such as</p>	<p>1.6.1 Based on recommendations of PSC and NWPD recruit core members of the PPP to receive priority support towards green business development within 6 months of project start up, and meetings held 2 times per year with the National Water Policy Dialog/Interministerial committee meetings</p> <p>1.6.2 Within 12 months complete Report on Economic benefits of green technology for water use in national languages</p>	<p>Reports on Economic benefits of green technology for water use in national languages.</p> <p>Sector specific catalog of green technologies for sustainable water use and income generation, with source database on line and local</p>	<p>Assumption: Willingness of companies/firms and JSC to participate in PPP (links with output 3.1 and output 4.3)</p> <p>Assumption: Expansion of efforts are transferable and green technologies can be adopted by participating organizations (links with output 3.1)</p>

<p>PI 1.6.2 Amount of economic benefit possible for use of green technology for water use in the short medium and long-term</p> <p>SRI 1.6.1 Number of businesses applying green technologies for improved water management</p> <p>PI 1.6.2 Number of agreed metrics for green businesses for improvements in water management (Pre ESI)</p>	<p>AzEnergy, as well as AzerSu and Azerbaijan Amelioration JSC are moving towards conservation of resources. Additionally agricultural firms are working in this direction, though not through project initiatives</p>	<p>1.6.3 Within 12 months develop metrics for green-businesses to determine baseline and improvements for improved water management</p> <p>1.6.4 Within 18 months develop Sector specific catalog of green technologies for sustainable water use and income generation, with source database on line updated bi-monthly</p> <p>1.6.5 Working with PPP develop "Green Business Award Program" to be awarded annually starting in year 2, based on sectors and improvements</p>	<p>trainings.</p> <p>Featured case studies in country to showcase benefits, and positive externalities</p> <p>Metrics developed for green-businesses to determine baseline and improvements for improved water management.</p> <p>Green business awards program initiated.</p>	<p>Risk: Sustainability of initiative after project completion</p>
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Component 2: Strengthening national capacities to implement multi-sectoral IWRM in the Kura basin

OUTCOME 2: Enhanced capacity for sectoral ministries and agencies to successfully harmonize and implement national IWRM Plans

<p>2.1 Capacity building training programs for IWRM professionals for different target groups</p> <p>Indicators:</p> <p>PI 2.1.1 Number of identified gaps in capacity filled by trainings across sectors</p> <p>PI 2.1.2 Pre- and post-training aggregated test scores</p> <p>PI 2.1.3 Number of</p>	<p>The Ministry of Environment Protection in Georgia has initiated a Center for Environmental Information and Education with facilities under development – providing training on a wide range of environmental issues. The Ministry of Agriculture has also initiated a Scientific Research Center. In Azerbaijan UNESCO IHP has linked with Baku State University, for some hydrological trainings. Additionally, AzerSu, the Azerbaijan Amelioration JSC, and Ministry of Emergency Situations have conducted trainings for staff. Inter-sectoral trainings will strengthen</p>	<p>2.1.1 Gap analysis of sectoral capacity needs for water managers within 9 months of start-up</p> <p>2.1.2 Establish interministerial water training center within 9 months</p> <p>2.1.3 Development of interlinked on-the-job trainings for IWRM Professionals within 12 months of project start-up</p> <p>2.1.4 Conduct at least 6 topic specific on-the-job training curriculum for 24 months, from months 12-36, with quarterly face to face meetings and updates</p> <p>2.1.5 Develop online trainings based on curriculum of developed trainings. Database created in first 6 months of</p>	<p>Sectoral capacity needs reports for each country</p> <p>Training center logs, equipment uses, media reports on uses.</p> <p>Trainings materials, with baseline, midpoint and final assessment of impacts</p> <p>Training logs, curriculum materials, student reports, certificates of successful completion reports on impacts of training on organization</p> <p>Database accessible on line</p>	<p>Assumption: Topics will include environmental economics, river basin ecology, cross sector integrated flow management with environmental flows stakeholder and gender mainstreaming, pollution abatement strategies with compliance action plans, and climate change and adaptation for professional water managers</p> <p>Assumption: Trainings will be transferable across sectors and scheduling can conform to work schedules of participants</p> <p>Risk: Uneven capacity between</p>
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training components applied professionally by the water managers at end of project	approaches, facilitate data exchanges, and improve integrated planning and use of water resources for sustainable	trainings and updated quarterly 2.1.6 Document trainings and training materials available on line for certification of subsequent generations of water managers beginning after 30 month	All training materials available in national languages and online training courses on webpage, with secure certifications for successful completion	sectors and departments Risk: There may be a strong need to train additional staff from ministries if existing staff is not sufficient or available. In this case, young professionals and graduate students may be trained by the project
2.2 Enhanced capacity for institutions to implement river basin management plans PI 2.2.1 Number of competent authorities and interested parties represented in RBMOs training PI 2.2.2 Percent of basin covered at baseline and at project completion by RBMOs/RBMPs PI 2.2.3 Number of implementable measures linked to SAP with in the POMs for RBMPs	In Georgia the EU Association Agreement has been signed and the draft roadmap for implementation draft highlights the need to build capacity of national and local stakeholders to meet the requirements. In Azerbaijan, there is an awareness that to improve sustainable water management in line with the EU WFD and there is a high need to build capacity in line with international best practices, including among local authorities	2.2.1 Needs assessment for selected localized river management organizations within 9 months 2.2.2 Capacity building plans for trial in targeted areas based on best practices initiated within 12 months, with updates every 4 months, to include identification on reference conditions and biomonitoring in line with the EU WFD 2.2.3 Application of trial capacity building for targeted area based with regular trainings on site 3 times per year with RBMP/POMs 2.2.4 Strategy for expansion of capacity building efforts to additional targeted areas by 24 months 2.2.5 All training materials on line with trainings initiated by in final year 2.2.4 Draft and share lessons learned reports in final year	Needs assessment report Capacity building plans and regular reports of all trainings conducted Capacity building impact reports, and materials for training in national languages Lesson learned reports, strategy reports, on line access reports, subsequent training report formats delivered from first sets of trainings	Assumption: This will be supported by improved governance for stress reduction in critical areas in Component 3, output 3.2 Assumption: this will be linked with Output 4.1 Training of Trainers for Interested Parties in RBMOs, with Documentation of approach used adapted for other stakeholders Assumption: continuity of trainings following project completion
2.3 Strengthen capacity for enforcement of water resources laws	In both Georgia and Azerbaijan environmental monitoring and enforcement will require	2.3.1 Assessment of needs and gaps in enforcement capacity, including roles for water pollution and water allocation, laws	Needs assessments	Assumption: Monitoring and enforcement bodies are able to share information openly with

<p>and regulations</p> <p>PI 2.3.1 Number of laws and regulations not in compliance at baseline compared to numbers of laws and regulations brought into compliance at end of project</p> <p>SRI 2.3.1 Percent change in water quality compliance by parameter</p> <p>PI 2.3.2 Number of incentives developed for improved compliance</p> <p>ESI 2.3.2 Based on output 5.3, notable empirical changes in ecosystems status during extended trainings period</p>	<p>strengthening as both countries come more into line with international best practices. The monitoring and enforcement bodies currently need updated capacity and strengthened coordination to ensure improved conditions</p>	<p>and equipment, for existing and anticipated regulations. Identify enforcement priorities within 9 months</p> <p>2.3.2 Develop capacity building strategy working with enforcement bodies, to address enforcement priorities by 12 months</p> <p>2.3.3 Develop budget for enforcement needs and staged budget allocation strategy with enforcement responsibilities matrix within 18 months</p> <p>2.3.4 Conduct targeted 24 month trainings for prioritized enforcement areas with on-the-job trainings</p> <p>2.3.5 Develop report with recommendations for sustaining effective enforcement mechanisms</p>	<p>Capacity building strategy with priority enforcement</p> <p>Responsibilities matrix for enforcement, and enforcement capacity budget allocated</p> <p>Training logs, curriculum materials, student reports, certificates of successful completion reports on impacts of training on organization</p> <p>Final report for sustainable enforcement</p>	<p>each other (Linked with Outputs 1.5, 2.4, 5.1, 5.3, and 5.4)</p> <p>Assumption: Enforcement agencies are suitably staffed to fulfill missions (Linked to Output 5.2)</p> <p>Risk: relationship between monitoring and enforcement are clearly articulated in organizational mission</p> <p>Risk: Insufficient political will or institutional capacity for effective enforcement</p>
<p>2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support</p> <p>PI 2.4.1 Number of gaps at baseline assessment and filled at end of project</p> <p>PI 2.4.2 Percent change increase in digitized data and accessibility for use by decision-makers</p> <p>PI 2.4.3 Number of</p>	<p>In Georgia the Ministry of Environmental Protection Center for Environmental Information and Education is establishing a data management and unified database and linked with NEA and will need support for populating and analysis, as well as decision support. In Azerbaijan, the IWRM Plan developed under the previous GEF project highlighted the need to construct and maintain a harmonized database for integrated intersectoral water management</p>	<p>2.4.1 Assessment of needs and gaps in information management, data analysis for IWRM and identify decision support priorities within 9 months</p> <p>2.4.2 Develop capacity building strategy working with information producing and management bodies, including indicators development, modeling, intersectoral GIS use, and analysis to address priorities by 12 months</p> <p>2.4.3 Develop staged budget allocation strategy for information data management needs and equipment with agreed intersectoral responsibilities matrix within</p>	<p>Needs assessments</p> <p>Capacity building strategy with priority information needs, modeling approaches</p> <p>Responsibilities matrix for information data management needs and equipment and budget allocated</p>	<p>Assumption: Successful operation of systems developed in component 5</p> <p>Assumption: Willingness of sectors to share data across platform and to contribute to national water resources data base (Linked to Output 1.5, and 5.1)</p> <p>Assumption: Data available and reliable through QA/QC measures (Linked to Output 2.1, and Component 5)</p>

intersectoral information exchange linkages formalized at national and transboundary levels at baseline and end of project		18 months, including quality control for data, and models applications 2.4.4 Conduct targeted 24 month trainings for prioritized information management and decision support areas with on-the-job trainings	Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organization	Risk: Gaps and errors in historic data may provide partial or faulty analysis parameters
Component 3: Stress reduction in critical areas and pre-feasibility studies to identify investment opportunities for improving river system health OUTCOME 3: Stress reduction in critical areas, and pre-feasibility studies in support of investment opportunities to improve river system health				
3.1 Showcase technologies to reduce factual water losses in different sectors SRI 3.1. Amounts of water and amount of money saved by application of green technologies at the local and national levels compared to costs and 5, 10 and 20 years spans.	Currently there are not specific programs in place for water conservation in Georgia using green technologies. Irrigation approaches currently used will benefit from improved efficiency. In Azerbaijan some farmers are using newer technologies such as drip irrigation, but to date there are not programs specifically targeting this approach with clear focus on use reductions	3.1.1 National assessment reports of physical water supply system for agricultural and municipal sectors with prioritized recommendations within 12 months 3.1.2 Preparation of plans for enhanced efficiency for agricultural and municipal consumption within 18 months 3.1.3 Apply 4 sector-specific water use efficiency interventions and lessons learned for up scaling from each country within 39 months,	National assessment report of physical water supply systems for each sector Preparation plans with baseline measures, budget, evaluation criteria scaling, replication strategy, and clear stress reduction indicators Report with empirical measures of stress reduction impacts, evaluation criteria assessment and up-scaling, replication strategy	Assumption: Data available on water use to successfully gauge factual water losses (linked to Output 1.2, 2.1, 2.4 and 5.1) Assumption: Effectiveness of efforts to successfully change water use patterns and improve efficiency (linked to Output 4.1, and 4.4) Assumption: Willingness of sectors to participate at local levels and sufficient incentives for cooperation (linked to Output 1.6) Risk: damage to or loss of equipment for improved water efficiency, including from severe weather event
3.2 Conduct pre-feasibility studies for select projects identified in pollution abatement plans. SRI 3.2.1 Improvement expected from	International and bilateral initiatives in the water sector have focused primarily on water quality monitoring and support to updated legal measures. Both countries are ready to move forward towards application of technologies that will improve	3.2.1 Identify 2 top priority water quality hotspots Working with NWP, PPP, an key stakeholders from Component 1, within 12 months 3.2.2 Identify pollution abatement projects to maximize impacts for stress reduction in line with the pollution abatement plan	Prioritized list of hotspots for pollution abatement pre-feasibility study Selection criteria for pollution abatement projects and selection report	Assumption: The focus will be on projects with highest transboundary water quality improvement impacts, linked to Output 1.3, 2.1 and 2.3 Assumption: Availability of cost effective options for pollution

<p>implementation of pollution abatement.</p> <p>PI 3.2.1 Baseline indicators and metrics developed to determine scale and scope of improvements</p> <p>PI 3.2.2 Amount of support and interest measured by pre-commitments from donors and other sources</p>	<p>conditions. Application of internationally accepted environmentally beneficial and low cost approaches to priority water quality improvement for priority areas.</p>	<p>development in Component 1, and in collaboration with capacity building efforts in Component 2, within 15 months</p> <p>3.2.3 Conduct study tour for key stakeholders to learn about technologies and approaches used in similar cases in 24 months</p> <p>3.2.4 Conduct costed and detailed prefeasibility studies with detailed evaluation criteria, stakeholder analysis, expected benefits, and alternate approaches with final recommendations for presentation to governmental and private sector at the 36 months of project with international and national experts</p>	<p>Study tour participants list, itinerary, report, and impact assessment from participants</p> <p>Detailed Pre-feasibility plan for presentation to government and private sector</p>	<p>abatement linked to output 1.6, and output 2.1</p> <p>Assumption: sufficient data available for monitoring impacts of project implementation within prefeasibility study (linked to output 5.1)</p> <p>Assumption: availability of appropriate incentives for private sector to adopt pollution abatement (linked to Output 1.6 and 5.2)</p> <p>Risk: shift in political will or lack of financial support for project once prefeasibility study is completed</p>
<p>3.3 River restoration projects for improved ecosystem health using integrated flow management</p> <p>ESSI 3.3.1 Change in baseline to completion assessment of river ecosystem status</p> <p>SRI 3.3.1 Kilometers of river impacted by river restoration activities</p> <p>PI 3.3 Number of stakeholders involved in river restoration activities, including diverse city of</p>	<p>Both Georgia and Azerbaijan have expressed a strong interest in application of river restoration approaches for selected areas with critical needs and impacts linked to integrated flow management approached</p>	<p>3.3.1 Identify prioritized sites suitable for river restoration projects to maximize impacts for stress reduction In collaboration with capacity building efforts in Component 2, within 12 months</p> <p>3.3.2 Develop detailed river restoration plans for specific sites within 18 months, and collect baseline data and anticipated social, economic and environmental benefits in line with Components 4 and 5</p> <p>3.3.3 Initiate river restoration activities with integrated flow management documenting progress and key lessons learned with close monitoring of costs and impacts. Within 24 months of project start up</p> <p>3.3.4 Conclude initial river restoration</p>	<p>Site selection report and scoping study</p> <p>Detailed plan with baseline information</p> <p>River restoration activities monitoring reports</p> <p>Project report, impact</p>	<p>Assumption: Available sites for river restoration, with strong local stakeholder support (Linked to Outputs 1.1, 1.2, 1.5, and 4.1)</p> <p>Assumption: sufficient baseline data available for impact assessment (Linked to Outputs 1.1, 2.4, and 5.1)</p> <p>Assumption: scale of restoration sufficient to impact ecosystem based data, and up-scaling of efforts (Linked to output 1.2 and 5.3)</p> <p>Risk: severe weather events (flooding/drought) may impact project timing and completion</p>

stakeholder groups represented		project at least 6 months prior to project completion with detailed replication strategy and lessons learned	assessment, and replication strategy	
Component 4: Targeted education and involvement projects to empower stakeholders in implementing local / national / regional actions in support of SAP implementation OUTCOME 4: Stakeholder Education with academic, civil society, private sector, and local communities to gain experiences to increase their involvement in national and regional IWRM applications and innovations.				
4.1 A team of diverse professional IWRM trainers to work with stakeholders PI 4.1.1 Number of stakeholder groups trained PI 4.1.2 Number of stakeholders reached through additional training activities PI 4.1.3 Number of training modules developed PI 4.1.4 Number of IWRM Trainer certificates (in person and online) awarded by end of project	In Georgia the Ministry of Environmental Protection Center for Environmental Information and Education is being established and will focus on a wide range of environmental issues including stakeholder engagement in line with the EU Directives. Both Azerbaijan and Georgia have Aarhus Centers for public information. Many previous projects have done training for stakeholders, though the long term impacts are not evaluated. To date there is not an established team of IWRM Trainers who draw from local and national bodies to support stakeholders for improved water management in the face of climate change	4.1.1 Conduct stakeholder analysis survey to determine training needs, willingness to participate, and incentives to change water use behaviors by stakeholder groups within 9 months of project start up 4.1.2 Establish a targeted recruitment of IWRM trainers for stakeholders to draw from academic institutions, NGOs, WUAs, RBMO/local authorities, journalism/media, women's organizations, youth organizations and others, within 9 months of project start for internship program 4.1.3 Establish training curriculum, specific to stakeholder types, for training of trainers, and recruit national and international experts to provide trainings within 12 months of project start-up WUA, Women's Groups, Journalists, RBMO, Youth 4.1.4 Conduct at least 6 topic specific training curriculums for trainers, and support training outreach programs, with quarterly face to face meetings and updates 4.1.5 Development of online trainings based on curriculum of developed trainings. Database created in first 12	Stakeholder analysis survey results and assessment with recommendations for curriculum development Roster of stakeholder trainers, and internship program selection criteria for rotating interns throughout project implementation Trainings materials, with baseline, midpoint and final assessment of impacts Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organization Database accessible on line	Assumption: Strong stakeholder desire for additional water conservation, climate change adaptation information (linked to Outputs 1.6, 2.1, 2.2, 3.1 and 4.4) Assumption: Sufficient number of stakeholders interested and available in becoming trainers (Linked to Output 4.2) Assumptions: materials developed for training relevant to stakeholder groups and transferability of stakeholder involvement approaches (Linked to Output 5.2) Assumption: Available number of interns interested in working as Trainers, and supporting the development of the ToT approach (Linked to Outcome 4.2) Assumption: Sufficient project staff time allotted to supervise interns (Linked to Outcome 4.2)

		<p>months and updated quarterly</p> <p>4.1.6 Training materials on line for certification of subsequent generations beginning by 24 months with evaluation of impacts</p>	<p>All training materials available in national languages and online training courses on webpage, with secure certifications for successful completion</p>	
<p>4.2 Annual academic IWRM conferences</p> <p>PI 4.2.1 Number of academic articles presented at conference</p> <p>PI 4.2.2 Number of academic articles published in peer-reviewed journals after presentation conferences</p> <p>PI 4.2.3 Number of recommendations developed as a result academic inputs adopted at local and national levels.</p> <p>PI 4.2.4 Number of masters students training topic specific activities approaches to water resource management from key universities</p>	<p>Following the efforts to support the design of linked regional IWRM graduate programs under the previous UNDP-GEF Kura Aras Project, both Baku State University and Tbilisi State University have now developed a linked IWRM MSc Curriculum that are currently undergoing approval processes. In order to further facilitate coordination between programs, and contribute to harmonization of approaches to water management the linkages and experience sharing should be maintained.</p>	<p>4.2.1 Determine themed annual academic conferences to be held each year working with national universities, and other water management organizations</p> <p>4.2.2 Sponsor academic IWRM conference including lecturers and IWRM MSc and other graduate students from national and regional institutions to present research related to improving water management in the Kura Basin in 2 day regional academic conference</p> <p>4.2.3 Sponsor joint IWRM MSC trainings for 1 week annually on selected topics in line with themed topics to be presented at annual academic conference to be presented by regional and international academic experts</p> <p>4.2.4 Training materials available on line for certification of subsequent generations beginning in 24 months</p>	<p>Themed annual conference plans for 3 conferences, with dates, locations, and number of participants</p> <p>Annual conference proceedings, including all materials presented to be published as academic conference report online, in national languages and English for distribution to international organizations and academic resource centers.</p> <p>Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organization</p> <p>All training materials available in national languages and online training courses on webpage, with secure certifications for successful completion</p>	<p>Assumption: Strong interest in academic conference and agreement on priority themes (Linked to outputs 1.3, 2.1 2.2 and others)</p> <p>Assumption: Scheduling of conferences with academic schedule allows for sufficient preparation time for logistics</p>
<p>4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management</p>	<p>Many stakeholders outside of water management are not aware of their potential to positively impact water resource use and availability. Social marketing campaigns help raise awareness and induce small behavioral changes that can have cumulative impacts. To</p>	<p>4.3.1 Develop strategy for staged targeted social marketing campaigns for stakeholders to include use of social media, public information materials, and metrics to gauge impacts within 15 months Based on Stakeholder Analysis survey in 4.3</p> <p>4.3.2 Design at least 4 social marketing</p>	<p>Strategy report and baseline metrics</p> <p>Social marketing campaign plans</p>	<p>Assumption: Representativeness of stakeholder analysis survey</p> <p>Assumption: Suitability of social marketing materials and approaches</p> <p>Assumption: ability to successfully reach targeted</p>

<p>PI 4.3.1 Number of stakeholders targeted to number stakeholders reached</p> <p>PI 4.3.2 Number of webpage hits and social media statistics</p> <p>PI 4.3.3 Impacts based on stakeholder analysis, and outreach activities</p> <p>PI 4.3.4 Percent change in perceptions from baseline Survey in 5.2 to end of project survey</p>	<p>date, a substantial social marketing campaign for improved water management in the face of climate change has not yet been conducted in either Azerbaijan or Georgia</p>	<p>campaigns to be implementing in at least 3 stages for gender mainstreaming, farmers and water user association members, RBMO/local authorities, and municipal water users within 18 months working with international, regional and national experts and interns,</p> <p>4.3.3 Conduct mid-term review of impacts to determine effectiveness of campaigns and adjust accordingly, within 30 months</p> <p>4.3.4 Conduct social media educational and outreach activities to increase exposure of efforts within 30 months</p> <p>4.3.5 Conduct end stage stakeholder analysis to gauge impacts and draft report on replication, and recommended next steps at least 4 months prior to project completion</p>	<p>for targeted groups</p> <p>Social marketing materials and distribution logs</p> <p>Mid-term review assessment with recommendations</p> <p>Educational and outreach activity logs and materials online as appropriate</p> <p>End stage stakeholder analysis report and final report</p>	<p>audience</p> <p>Assumption: ability of social marketing campaign to influence stakeholder behaviors</p> <p>(All assumptions linked to Outputs 4.1 and 5.2)</p>
<p>4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water</p> <p>PI 4.4.1 Number of innovation submitted</p> <p>PI 4.4.2 Number of categories for awards</p> <p>PI 4.4.3 Number of awards given</p> <p>PI 4.4.4 Number of social media hits for innovations</p> <p>PI 4.4.5 Number of stakeholder innovations</p>	<p>Currently most stakeholders are adapting to climate change independently, without a venue to showcase adaptation innovations. Many turn to national and international governments to address challenges of adaptation without realizing they can be empowered to address matters themselves. Local efforts and innovations should be recognized and where possible replicated in order to improve climate change adaptation and to empower all stakeholders.</p>	<p>4.4.1 identify and nominate select stakeholder innovations for first year awards for innovations working with NWRP members, IWRM Trainers, Interns and PPP</p> <p>4.4.2 Conduct local and national competitions to encourage innovations from stakeholders on adaptation measures related to water management, to be held annually, as part of social marketing and public outreach campaign</p> <p>4.4.3 Promote replication of innovative adaptation measures at national and regional technology conferences, through social media, and through international</p>	<p>Innovations catalog and panel decisions</p> <p>Awarded prizes for innovations</p> <p>Promotional materials for innovations and regional conference awards</p>	<p>Assumption: Sufficient stakeholder interest in climate change adaptation (Linked to Output 5.2)</p> <p>Assumption: this will be linked to social marketing campaign and PPP green business awards (Linked to Outputs 1.6, 4.3 and 4.5)</p> <p>Risk: innovations may not be original design</p>

shared at regional and international forums		forums, within 18 months and updated quarterly		
4.5 Project information and experiences shared through IW:LEARN activities supported PI 4.5 Number of experiences formally shared with other projects	As per all GEF International Waters Projects, experience sharing through the IW:LEARN Project will enable the Project team and key stakeholders to contribute to and learn from shared experiences globally	4.5.1 Contribution of at least 6 Experience Notes to IW:LEARN covering project activities and lessons learned with at least 2 drafted by year 2 of project 4.5.2 Participation in regional and international IW:LEARN conferences and trainings, pending availability 4.5.3 Project Key Stakeholders Participate in GEF International Waters Conference(s) during project implementation	Experience Notes Participation reports GEF IWC Conference Reports and Participation Report	Assumption: Transferability of experiences to other GEF IW Projects, and beyond (Cross-cutting) Assumption: regional and international conference topics relevant to Project implementation (Cross-cutting)
Component 5: Enhancing science for governance by strengthening monitoring, information management and data analysis systems for IWRM OUTCOME: Azerbaijan and Georgia using integrated monitoring, and information management systems for sustainable IWRM at national and transboundary levels				
5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations PI 5.1.1 Number of sectors using hydrological modeling software and GIS with remote-sensing at beginning midpoint and end of project PI 5.1.2 Percent of basin covered in Azerbaijan and Georgia by digital data suitable for effective modeling	Within the IWRM Plans drafted during the prior GEF Kura Aras Project, both countries stressed the need to improve data assessment and modeling of water resources. To date, this need still exists and is key to overall IWRM, RBMO and improved water resources management for conjunctive use	5.1.1 Assessment of available ground and surface water availability in river basin within 12 months 5.1.2 Analyze the historical hydromet station data along the river basin to estimate the seasonal variability along the river within 18 months 5.1.3 Conduct intersectoral trainings on hydrogeological modeling software and use of GIS and remote sensing techniques for delineation of ground water aquifer within 24 months 5.1.4 Apply the hydrogeological modeling in one sub basin for each country within 36 months, to include water quality waste water discharges from point source pollution based on available information	Baseline assessment report on available data Report on surface and ground water distribution and temporal availability Analysis of historical flow trends Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organizations Model outcomes, scenarios and recommendations report	Assumption: Information to gauge flow rate impacts on water quality and ecosystem health (linked to Outputs 1.1, 1.2, 1.4, 2.1, 2.3, 2.4, 3.1, 3.3, 5.2, and 5.4) Assumption: Sufficient data for modeling purposes (Linked to Outputs 1.2, 2.1 and 2.4) Assumption: data quality sufficient for accurate modeling and assessment (Linked to Outputs 1.2, 2.1 and 2.4) Assumption: access to all relevant data, including groundwater and hydromet historical data (Linked to Outputs 1.5, 2.4 and 4.4)

		5.1.5 Develop the final report on the basis of the historical materials and the results obtained by means of detailed hydro-geological observation works and hydro-monitoring studies regarding the respective sections on the territories of each country within 42 months.		
<p>5.2 An assessment of the economic and social benefits per unit of water used in different sectors</p> <p>PI 5.2.1 Level of baseline economic, social and hydrological information available compared to end of project</p> <p>PI 5.2.2 Stakeholder survey results on perceptions of water users on water quality, water use and unanticipated water needs across sectors with compared to 2005 survey and end of project abbreviated study</p> <p>PI 5.2.3 Application of market transaction prices and deductive methodology models in the decision support systems y sector</p>	<p>Within the IWRM Plans drafted during the prior GEF Kura Aras Project, both countries stressed the need to for conducting an economic assessment, including social benefits of water use across sectors. While initial efforts have been made in this direction, larger scale assessments in line with the EU WFD approaches and water nexus are needed here.</p>	<p>5.2.1 Conduct a baseline assessment of available data sources based on all key sectors within 12 months</p> <p>5.2.2 Conduct stakeholder surveys on water use, water quality and anticipated water needs across sector based users Within 15 months</p> <p>5.2.3 Train sector representatives on integrated nexus approaches for: Water pricing, cost recovery, and pollute pays principals starting within 24 months</p> <p>5.2.4 Develop O&M costs for water sector management including environmental, agriculture, municipal water and hydropower sectors to deliver to Ministries within 24 months</p> <p>5.2.5 Determine market transaction prices, using inductive methods with econometric estimation of production and cost functions for agriculture and energy, and municipal water demand functions within 36 months</p> <p>5.2.6 Construct models for deductive methodologies for mathematical programming, value-added and alternative costs modeling within 36 months</p>	<p>Baseline assessment report</p> <p>Stakeholder analysis survey results for economic and social assessment baseline for future studies</p> <p>Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organizations</p> <p>Report and presentations for decision makers</p> <p>Reports based on sector of the estimated costs and benefit for each sector per unit of water, based on available information and qualified assumptions as necessary, including economic analysis report</p> <p>Mathematical modeling to be applied to econometric water management approaches to support informed decision making</p>	<p>Assumption: Availability of relevant information from all sectors (Linked to Output 1.5)</p> <p>Assumption: Pricing rates are accurate (Linked to Output 1.5)</p> <p>Assumption: Data from 5.1 is sufficient to support economic analysis and modeling data</p> <p>Assumption: sufficient staff for trainings (Linked to output 2.1)</p> <p>Assumption: Accountability of data and econometric data fluctuations (Linked to Output 5.1)</p>
5.3 Staged river system	Only project based ecological	5.3.1 Assessment of available data, and	Assessment reports	Assumption: Availability of

<p>ecological assessment</p> <p>PI/Pre ESI 5.3.1 Number of indicator species identified for river system health</p> <p>PI/Pre ESI 5.3.2 Number of endemic species identified and cataloged</p> <p>PI/Pre ESI 5.3.3 Number of reference conditions criteria identified</p> <p>PI 5.3.1 Number of categories for classification of river ecosystems</p> <p>PI 5.3.2 Percent increase in database completion for ecosystem status</p>	<p>assessments related to EIAs etc. There is a planned Permit database as part of the Center Information & Education in Georgia. This will include a data base for all environmental information planned with staged access.</p> <p>In Azerbaijan there is not yet an established governmental program to conduct river ecosystem assessments</p>	<p>report on information gaps and needs within 12 months</p> <p>5.3.2 Develop 2 year plan for assessment to be extended at the national level following the project within 18 months working with national and international universities</p> <p>5.3.3 Create database for ecological assessment to include macro-invertebrates within 18 months</p> <p>5.3.4 Create ecosystem classification structure within 18 months</p> <p>5.3.5 Begin to fill data base to include species counts and seasonal flow variation within 21 months working with local authorities, universities and ministries (contracted firm)</p> <p>5.3.6 Develop final report on Kura River Ecosystem with recommendations for sustainable research to support continued data collection by 42 months</p>	<p>Plans for assessments with indicators for measurement criteria</p> <p>Database online for public use of regional data</p> <p>Classification structure and methodology</p> <p>Populated database for regional use as needed</p> <p>Final report</p>	<p>expertise nationally, regionally and internationally (Linked to Output 2.1)</p> <p>Assumption: selected monitoring sites are representative of river system ecology (Linked to output 3.3)</p> <p>Assumption: classification and database population are accurate (Linked to Outputs 2.1 and 2.4)</p> <p>Assumption: consistency of sampling approaches and methodologies (Linked to Output 2.1 and 2.4)</p> <p>Risk: lack of long term support for sustainability</p>
<p>5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.</p> <p>PI/Pre ESI 5.4.1 Number of commonly agreed indicators and parameters</p>	<p>GE NEA increased number of monitoring/sampling points and measurement parameters and biomonitoring (limited) done regularly up to 116 sampling points for chemical</p> <p>In Azerbaijan parameters are expected to be updated by early 2016</p> <p>Parameters must be harmonized</p>	<p>5.4.1 Develop sets of agreed indicators for information exchange for water quantity, quality and all project outputs to be shared in an annual "State of the Kura River" Report</p> <p>5.4.2 Review and update current regulations on water quality in line with EU/WFD within 12 months</p> <p>5.4.3 Harmonize the laboratory analysis methodologies and standard operating</p>	<p>Set of agreed indicators, baselines and annually updated for "State of the Kura River Report"</p> <p>Update report</p> <p>Report on strategy to harmonize methodologies and SOPs with</p>	<p>Assumption: Compatibility of water quality data (Linked to output 2.4)</p> <p>Assumption: willingness of sectors to share data (Linked to Output 1.5)</p> <p>Risk: Do sufficient equipment, staffing, and consumables for laboratory assessments</p>

<p>PI/Pre ESI 5.4.2 Number of standard operating procedures harmonize between laboratories</p> <p>PI/Pre ESI 5.4.3 Percent of database categories for common indicators actively used and agreed by end of project</p>	<p>in line with international best practices, and both countries are willing to move in this direction.</p>	<p>procedures for sampling and analysis of water quality including quality control and quality assurance within 36 months</p> <p>5.4.4 Develop a harmonized regional database from an agreed set of indicators to show status of water quality status in TB status within 36 months</p> <p>5.4.5 Outline steps for ISO 17025 accreditation for both national laboratories within 24 months</p> <p>5.4.6 Train staff on use of harmonization measurements and indicators within 36 months</p> <p>5.4.7 Detailed final report on harmonization with assessment of work to date and recommendations for next steps by 42 months</p>	<p>QC/QA guidelines</p> <p>Database with mechanism for entry by approved authorities</p> <p>ISO 17025 Recommendations reports for laboratories</p> <p>Training logs, curriculum materials, student reports, certificates of successful completion, reports on impacts of training on organizations</p> <p>Final Report</p>	<p>Risk: insufficient political will to support data exchange and harmonization</p>
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4. Total Budget and Workplan

Award ID:	00094969	Project ID(s):	00099024
Award Title:	Kura II: Advancing IWRM across the Kura River Basin		
Business Unit:	SVK10		
Project Title:	Kura II: Advancing IWRM across the Kura river basin through implementation of the transboundary agreed actions and national plans		
PIMS no. 5325			
Implementing Partner (Executing Agency)	UNDP IRH		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Account Code	ATLAS Budget Description	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Total (USD)	Notes
COMPONENT1: <i>Establishment of effective cross sectoral IWRM governance protocols at the local, national and transboundary levels in the Kura Basin</i>	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71200	International Consultants	19,005	19,005	19,005	19,005	76,020	2
				71300	Local Consultants	27,419	27,419	27,419	27,419	109,676	3
				71400	Contractual Services - Individual	24,720	24,720	24,720	24,720	98,880	4
				72100	Contractual Services-Companies	-	55,000	-	-	55,000	5
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				71600	Travel	18,975	18,975	23,775	18,975	80,700	7
				74500	Miscellaneous	4,629	4,629	4,629	4,629	18,516	8
				75700	Training Workshops	27,250	29,100	54,467	-	110,817	9
	Total GEF Component 1					138,873	195,723	170,890	111,623	617,109	
Total Component 1					138,873	195,723	170,890	111,623	617,109		
COMPONENT 2: <i>Strengthening national capacities to implement multi-sectoral IWRM in the Kura basin</i>	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71200	International Consultants	116,890	116,890	116,890	116,890	467,560	2
				71300	Local Consultants	65,063	65,063	65,063	65,063	260,252	3
				71400	Contractual Services - Individual	24,720	24,720	24,720	24,720	98,880	4
				72200	Equipment and Furniture	-	100,000	-	-	100,000	10

	Responsible Party/	Fund ID	Donor Name	Atlas Account Code	ATLAS Budget Description	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Total (USD)	Notes
				71600	Travel	28,697	28,697	28,696	28,697	114,787	7
				72800	IT Equipment	4,000	4,000	4,000	4,000	16,000	11
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				74500	Miscellaneous	4,800	4,800	4,800	4,800	19,200	8
				75700	Training Workshops	23,750	23,750	48,151	-	95,651	12
				Total GEF Component 2		284,795	384,795	309,195	261,045	1,239,830	
				Total Component 2		284,795	384,795	309,195	261,045	1,239,830	
COMPONENT 3: <i>Stress reduction in critical areas and pre-feasibility studies to identify investment opportunities for improving river system health</i>	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71200	International Consultants	81,125	81,125	81,125	81,125	324,500	2
				71300	Local Consultants	32,748	32,748	32,748	32,748	130,992	3
				71400	Contractual Services - Individual	24,720	24,720	24,720	24,720	98,880	4
				71600	Travel	46,945	46,946	49,946	46,946	190,783	7
				72100	Contractual Services- Companies	200,000	606,895	-	-	806,895	13
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				74500	Miscellaneous	8,000	8,000	8,617	8,000	32,617	8
				Total GEF Component 3		410,413	817,309	214,031	210,414	1,652,167	
				Total Component 3		410,413	817,309	214,031	210,414	1,652,167	
COMPONENT 4: <i>Targeted education and involvement projects to empower stakeholders in implementing local / national / regional actions in support of SAP implementation</i>	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71200	International Consultants	36,715	36,715	36,715	36,715	146,860	2
				71300	Local Consultants	8,420	8,420	8,420	8,420	33,680	3
				71400	Contractual Services - Individual	24,720	24,720	24,720	24,720	98,880	4
				72100	Contractual Services- Companies	-	30,000	30,000	-	60,000	14
				71600	Travel	40,950	40,950	40,950	40,950	163,800	7
				72400	Communications and audio-visual equipment	4,000	4,000	4,000	4,000	16,000	15
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				74200	AudioVisual&Print Prod Costs	2,000	4,000	4,000	4,000	14,000	18
				74500	Miscellaneous	3,650	1,650	1,650	1,650	8,600	8

	Responsible Party/	Fund ID	Donor Name	Atlas Account Code	ATLAS Budget Description	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Total (USD)	Notes
				75700	Training Workshops	-	120,000	-	21,970	141,970	16
					Total GEF Component 4	137,330	287,330	167,330	159,300	751,290	
					Total Component 4	137,330	287,330	167,330	159,300	751,290	
COMPONENT 5: <i>Enhancing science for governance by strengthening monitoring, information management and data analysis systems for IWRM</i>	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71200	International Consultants	99,169	99,169	99,169	99,169	396,676	2
				71300	Local Consultants	39,388	39,388	39,388	39,388	157,552	3
				71400	Contractual Services - Individual	24,720	24,720	24,720	24,720	98,880	4
				72100	Contractual Services- Companies	-	20,000	20,000	-	40,000	17
				71600	Travel	3,750	2,000	2,000	2,000	9,750	7
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				74200	AudioVisual&Print Prod Costs	2,000	4,000	4,000	4,000	14,000	18
				74500	Miscellaneous	1,000	750	750	750	3,250	8
				75700	Training Workshops	5,000	5,000	12,665	5,000	27,665	19
					Total GEF Component 5	191,902	211,902	219,567	191,902	815,273	
					Total Component 5	191,902	211,902	219,567	191,902	815,273	
Project Management	UNDP	62000	GEF	60000	International Staff	12,475	12,475	12,475	12,475	49,900	1
				71300	Local Consultants	18,271	18,271	18,271	18,271	73,083	20
				74100	Professional Services	2,000	2,000	2,000	2,000	8,000	21
				71600	Travel	3,000	5,000	3,000	5,000	16,000	22
				73100	Rental & Maintenance-Premises	4,400	4,400	4,400	4,400	17,600	6
				74500	Miscellaneous	1,000	1,000	1,000	1,000	4,000	8
				74598	Direct Project Services Costs	21,300	21,300	21,300	21,300	85,200	23
					Total GEF Component 6	62,446	64,446	62,446	64,446	253,783	
					Total GEF Project Management	62,446	64,446	62,446	64,446	253,783	
					Total Project Components 1-5	1,163,313	1,897,059	1,081,013	934,284	5,075,669	
					Total Project Grand Total	1,225,759	1,961,505	1,143,459	998,729	5,329,452	

#	Budget Notes:
1	17% of Project Coordinator / CTA (P4, UNDP Istanbul Regional Hub). Total cost: \$299,400 over 4 years.
2	Includes salary of IC Senior Capacity Building Coordinator and international expert's salaries for 820 working days during project duration in total, as well as the costs of international evaluators to perform mid-term and final evaluation.
3	Includes portion of salaries of nationally recruited full-time PCU Staff (Admin and Finance Associate, and Communications Project Officer); and national expert's salaries for 780 working days during project duration in total, as well as the costs of national experts to perform mid-term and final evaluation.
4	Includes salaries of four full-time staff members under individual service contracts: two National Coordinators and two National Project Officers (one in each country).
5	Includes contracts with local companies in Azerbaijan and Georgia for support updated regulations for environmental flow calculation methodology to include climate change and competing water demands with price 50,000.00 USD
6	Office costs for rental of two offices in Baku and in Tbilisi. 26,400.00 USD per year (1,500.00 USD for Baku Office and 700.00 for Tbilisi per month); Total: 105,600.00 USD
7	Includes international and national travels for staff and experts for regional and national training, workshops and meetings. International consultants will travel to Azerbaijan and Georgia approximately once per year for major assignments. The home location of the consultant will have a very significant influence on travel costs. The budget also includes travel by the Project Coordinator and National officers for all components in all project years, to monitor the extensive demonstration project activity throughout the country
8	Insurance, bank charges, and other sundries
9	50 % of cost of inception workshop (15,000.00 USD), 4 workshops, 2 Training programs for 20 persons from the region, 7 national meetings per country, and other national, regional workshops, meetings, study Tour and etc.
10	includes cost of equipment for monitoring systems in Azerbaijan and Georgia
11	Four (4) laptop computers, four (4) monitors, and four (4) docking stations and software. Total cost: \$16,000 depreciated over 4 years of project duration.
12	50 % of cost of inception workshop, national workshops
13	includes cost of services for implementation of 3 Demo projects
14	includes 3 Media Campaigns, 20,000.00 USD per campaigns
15	This line includes expected charges for phone, mobile phone and Internet for the Project Coordinator and Project Specialists, as well as a partial share of such costs for project support staff based in the country office, based on known monthly charges issued by countries' carriers.
16	includes 4 annual exhibitions for new innovative ideas with awards (120,000.00 USD) and national meetings
17	includes costs for Conducts of assessment plans for 2 years Local contracts
18	Includes activities on communications and outreach via print and electronic media, and translation costs.
19	includes of 10 training workshops
20	Includes salaries of nationally recruited PCU Staff (Admin and Finance Associate, and Communications Project Officer)
21	Audit costs as per the UNDP rules. 2,000 USD per year / 8,000 USD total
22	Travel cost related to project coordination
23	Direct Project Costs (DPC) are the costs of administrative services (such as those related to human resources, procurement, finance, and other functions) provided by UNDP (UNDP CO Georgia and Azerbaijan, Istanbul Regional Hub) in relation to the project. Direct project costs will be charged at the end of each year based on the UNDP Universal Pricelist (UPL) or the actual corresponding service cost. The amounts indicated here are estimations, however as part of annual project operational planning the Direct Project Costs to be requested during that calendar year would be defined and the amount included in the yearly budgets. Total cost: \$85,200 (@ \$7,100/UNDP office for 4 years).

Summary of
Funds: ⁵

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total
GEF	1,225,759	1,961,505	1,143,459	998,729	5,329,452
UNDP Georgia	815,417	815,417	815,418	815,418	3,261,670
Ministry of Ecology and Natural Resources Azerbaijan Republic	192,500	192,500	192,500	192,500	770,000
Ministry of Environment and Natural Resource Protection, Georgia	192,500	192,500	192,500	192,500	770,000
World Bank - Georgia Irrigation and Land Development Project	11,412,500	11,412,500	11,412,500	11,412,500	45,650,000
Azerbaijan Amelioration and Water Management Open Joint Stock Company	25,000,000	25,000,000	25,000,000	25,000,000	100,000,000
AzerSu Joint Stock Company	11,107,500	11,107,500	11,107,500	11,107,500	44,430,000
TOTAL	49,946,176	50,681,922	49,863,877	49,719,147	200,211,122

4.1. Project Gantt Chart

Outputs:	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Project Inception		M														
1.1 Update environmental flows calculation method		BL	BL	Trl	Trl	Trl	Trl	Trl	Trl	Trl	Trl	Trl	M,R	FR	HO	HO
1.2 Improved water management, water nexus			BL	BL	P	Trl	Trl	R	Trl	Trl	Trl	R	HO	HO	FR	HO
1.3 Institutional support for RBMOs			BL	P	CB	CB	CB	M	CB	CB	CB	R	HO	FR	HO	HO
1.4 Pollution abatement plans			BL	BL	Trl	Trl	P	Trl	CA	Trl	Trl	Trl	FR	HO	HO	HO
1.5 Support intersectoral water policy coordination			BL	ST		M		ST		M		ST		M	HO	HO
1.6 Public Private Partnership to foster green water use			BL	M		M	Aw	M		M	Aw	M		M	Aw	HO
2.1 Capacity building for IWRM Professionals			BL	CD	CB	CB	CB	CB	CB	CB	CB	CB	FR	OL	HO	HO
2.2 Enhanced capacity for RBMO support institutions		BL	BL	CD	CB	CB	CB	CB	CB	CB	CB	CB	FR	OL	HO	HO

⁵ Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc...

2.3 Capacity for enforcement of laws & regulations			BL	CD	CB	CB	CB	CB	CB	CB	CB	CB	FR	OL	HO	HO
2.4 Capacity for information management, data analysis			BL	CD	CB	CB	CB	CB	CB	CB	CB	CB	FR	OL	HO	HO
3.1 Showcase technologies for improved efficiency			BL	P	Trl	Trl	Trl	M,R	Trl	Trl	Trl	M,R	HO	FR	HO	HO
3.2 Pre-feasibility studies for select pollution abatement			BL	P	P	Trl	Trl	M,R	Trl	Trl	Trl	M,R	HO	FR	HO	HO
3.3 River restoration projects			BL	P	P	Trl	Trl	M,R	Trl	Trl	Trl	M,R	HO	FR	HO	HO
4.1 Train IWRM trainers for specific stakeholder groups		BL	Srv	CD	CB	CB	CB	CB	CB	CB	CB	CB	FR	OL	HO	HO
4.2 Annual academic conferences			CD	CB	M			CB	M			CB	M	HO	HO	HO
4.3 Social marketing campaigns for targeted groups			Srv	P	SM	SM	SM	MT	SM	SM	SM	M,R		FR	HO	HO
4.4 Competitions for stakeholder innovations			Aw	SM	SM	SM	Aw	SM	SM	SM	Aw	SM	SM	SM	Aw	HO
4.5 Share experience with IW:LEARN	M			EN			EN		M		EN	EN	EN	EN		
5.1 Improved assessment of ground & surface waters		BL	BL	BL	CB	CB	CB	Ap	Ap	Ap	Ap	Ap	FR	HO	HO	HO
5.2 Assessment of sectoral costs/benefits		BL	Srv	BL	CB	CB	Ap	Ap	Ap	Ap	Ap	Ap	FR	HO	HO	HO
5.3 River system ecological assessment		BL	BL	P	CB	CB	Ap	Ap	Ap	Ap	Ap	Ap	FR	HO	HO	HO
5.4 Data & information exchange protocols		BL	BL	P	CB	CB	Ap	Ap	Ap	Ap	Ap	Ap	FR	HO	HO	HO
Project Steering Committee Meetings				M				M				M			M	
Project Evaluations								MT						TE		
Project Closure																FR

KEY:

Aw - Award

Ap – Application

BL – Baseline

CB – Capacity Building

CD – Curriculum Development

EN – Experience Note

FR – Final Report

HO – Hand Over

M - Meetings (estimated timings)

MT – Mid Term Evaluation

OL – On line materials finalized

P – Plans

R – Report

SM – Social Marketing Campaign

Srv – Survey

ST – Study Tour

Trl – Trial

TE – Terminal Evaluation

5. Project and Kura II SAP coordination and management arrangements

5.1. Kura II Project Coordination and Management Arrangements

5.1.1. GEF Agency

490. The Project will be implemented by the United Nations Development Programme (UNDP/GEF), with substantive technical oversight provided by the **Regional Technical Advisor (RTA) on Water and Oceans from the Istanbul** Regional Hub. The UNDP Istanbul Regional Hub will serve as the Principal Project Resident Representative (PPRR).

5.1.2. Implementing Agency (IA)

491. UNDP will execute the project through the Direct Implementation Modality (DIM) through the Istanbul Regional Hub (IRH), with advisory and execution support from the UNDP Country Offices and the PCU. The IRH will serve as de facto Executing Agency, and will be responsible for the following activities, required to achieve the project objectives, outputs and outcomes:

- project planning, coordination, management, monitoring and reporting
- procurement of goods and services, including human resources
- financial management, including overseeing financial expenditures against project budgets, as indicated in the Project Document and/or revised by the Project Coordination Unit and approved by the Project Steering Committee

While the UNDP Country Offices will:

- Assist and advise the PCU, when needed with the Procurement of goods and services at the national level (such as with identification of possible vendors for procurement of goods/services and candidates for consultancies)
- Assist and advise the PCU in recruiting staffing of national specialists for the National Project Offices as well as national staff for the Regional PCU located in Baku.

492. The UNDP COs will act as Responsible Parties in line with UNDP Financial Regulations and Rules to implement contracts for selected local services to be provided in Components 1,3 and 5. The ToRs and specific deliverables for each of these contracts will be under the authority of IRH and the PCU to ensure technical cohesiveness and maintain the regional coordination of this work. Specific detailed contracts will be developed to ensure clear lines of authority, accountability, and responsibilities for all parties involved, including the UNDP Country Offices, PCU, and IRH.

493. As stated in the Financial Regulation 17.01 of the UNDP Financial Regulations and Rules, an implementing partner may enter into agreements with other organizations or entities, known as responsible parties, who may provide goods and services to the project, carry out project activities and produce project outputs. Responsible parties are accountable directly to the implementing partner.

494. A Responsible Party is defined as an entity that has been selected to act on behalf of the implementing partner on the basis of a written agreement or contract to purchase goods or provide services using the project budget. In addition, the responsible party may manage the use of these goods and services to carry out project activities and produce outputs. All responsible parties are directly accountable to the implementing partner (IRH) in accordance with the terms of their agreement or contract with the implementing partner. Implementing

partners use responsible parties in order to take advantage of their specialized skills, to mitigate risk and to relieve administrative burdens. The following types of organizations may act as responsible parties: UNDP, other UN agencies, Government agencies, inter-governmental organizations (IGOs), civil society organizations (CSOs) and private firms. Firms and CSOs (except micro-capital grant recipients and those engaged based on a justifiable comparative advantage) shall be selected as responsible parties only on the basis of a competitive procurement process undertaken by the implementing partner. UNDP, UN agencies, IGOs, Government agencies, or CSOs as micro-capital grant recipients or those engaged based on a justifiable comparative advantage are exempted from competitive procurement process and shall be selected under programming modalities (PAC or Project Board decisions).

495. This implementation structure has been selected based on the following justifications:

- ✓ There is no relevant mandated regional institution, such as a River Basin Commission in place at this time.
- ✓ The staff of the Istanbul Regional Hub has significant experience, capacity and demonstrated performance for implementation of UNDP Regional Projects.
- ✓ There are notable cost savings to the project from use of DIM through the IST/IRH compared to other execution agencies.
- ✓ Country offices in Azerbaijan and Georgia have strong capacity in implementation of the projects at national level
- ✓ UNDP was indicated as Executing Agency in the PIF that was technically cleared by GEFSEC, included in work program, and approved by the GEF Council.

496. The IRH will ensure that all activities including procurement services are carried out in strict compliance with UNDP rules and procedures as recognized by UNDP GEF. The IRH, in conjunction with UNDP Country Offices, will be responsible for the establishment, adequate staffing and uninterrupted functioning, throughout the project's life span, of the regional Project Coordination Unit (PCU) located in Baku, Azerbaijan.

5.1.3. Project Steering Committee (PSC)

497. A Project Steering Committee (PSC) will be established to oversee project execution and to ensure continued regional ownership. The PSC will provide overall strategic policy and management direction for the project and play a critical role in reviewing and approving the project planning & execution conducted by the PCU and the Executing Agency. In line with the adoption of an adaptive management approach, the PSC will review project progress, make recommendations and adopt the annual project work plans and budget.

498. It is expected that five major (physical) meetings of the Steering Committee will take place during the project implementation period: (a) the Project Inception Meeting, (b) three annual Meetings, and (c) the Final Project Meeting. For this purpose, optimal alignment with both (a) the key elements of the GEF/UNDP framework for Project Monitoring & Evaluation (described under Section 6), and (b) the most relevant native regional governance processes will be sought. At the Project inception workshop the SC will agree on the location of the SC meetings during the project time-life.

499. Whenever feasible, approval by the Steering Committee members of interim revisions (as applicable) of the project work plans and budgets will be sought by electronic means, in order to optimize cost-efficiency of the project management arrangements.

500. Draft Terms of Reference (ToRs) for the Kura II Steering Committee Meeting are included in Annexes. The draft ToRs will be reviewed (and revised, where needed or desired) at the Kura II Inception Steering Committee Meeting. The Kura II Project Steering Committee is expected to be composed of:

- National Representatives from participating States Focal Ministries
- Representative of the GEF Agency (UNDP)

- Deputy Resident Representatives of the UNDP Country Offices

501. A Steering Committee Advisory and Guidance Panel (AGP) of key stakeholders groups, selected by the Focal Point Ministry, in both Azerbaijan and Georgia will provide advice and guidance to the Project. Members of the Advisory Panel will attend all Project Steering Committee Meetings and provide non-binding guidance to the Steering Committee in the decision making process to ensure multi-sectoral representation in the Project Management. All materials shared with the PSC will also be shared with the AGP for information and to facilitate coordination with national initiatives.
502. Other parties and stakeholder representatives from private sector, academia, and other national and donor led initiatives can be invited to observe the PSC, as deemed relevant and benefit for the implementation of the Kura II Project and SAP.
503. At all times, the PSC role will be functional within and conform to the policies, conditions, and regulations of UNDP and the GEF.

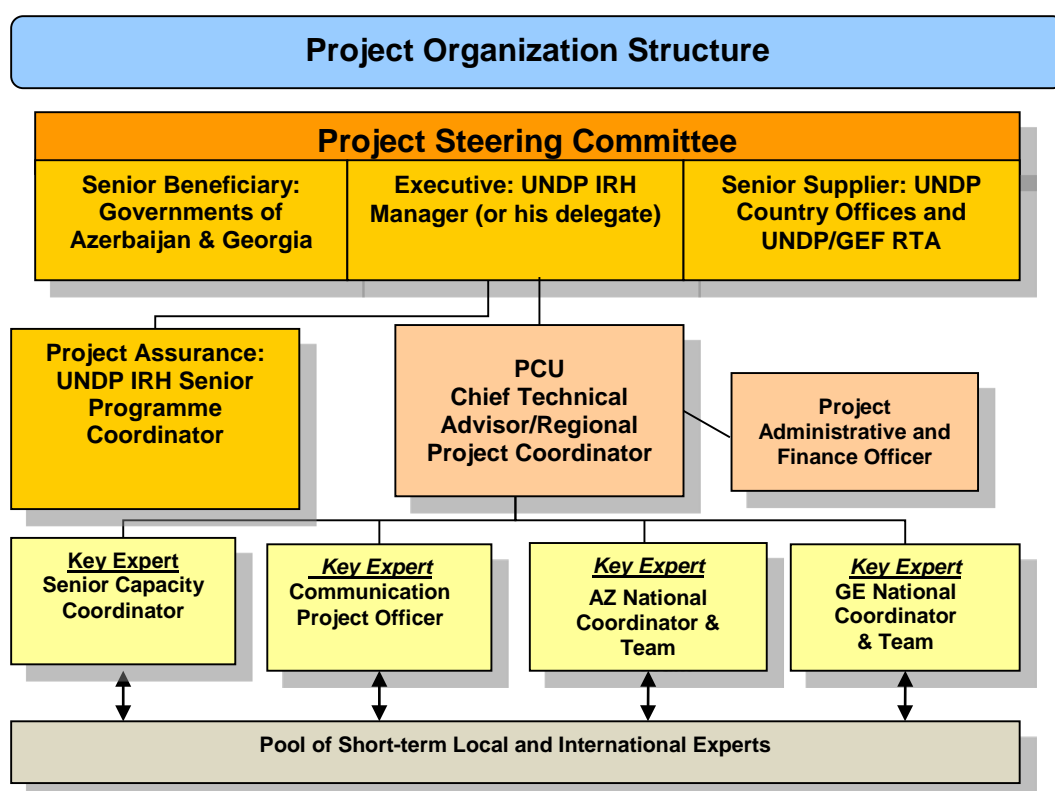


Figure 4 Recommended Project Organization Structure

5.1.4. Project Coordination Unit (PCU)

504. A Project Coordination Unit (PCU) will be established by UNDP IRH in Baku, Azerbaijan. The PCU will be responsible for the day-to-day coordination and oversight of the Kura II Project. The PCU will further be responsible for the project's financial and administrative management with support of IRH, for periodic reporting to the PSC and National Focal Points, and for the (co)-execution of selected project activities.
505. The PCU will also work on the establishment, strengthening and expansion of the Kura II linkages and on a mechanism to monitor and evaluate progress towards the objectives of the Kura SAP. It is anticipated that the PCU will be staffed with the following core positions:

- **Chief Technical Advisor/Regional Project Coordinator (CTA/RPC)**
- Senior Capacity Building Coordinator (SCBO)
- Communications and Project Officer
- Administrator and Finance Officer

506. The CTA/Regional Project Coordinator will have direct reporting line with the RTA UNDP-GEF International Waters. Deputy Resident Representatives in Georgia and Azerbaijan will provide inputs regarding performance evaluation (PMD).

507. The technical experts will report to the CTA/Regional Project Coordinator via National Coordinators for National experts. The International Experts providing capacity building will report to the Senior Capacity Building Coordinator and Communications and Project Officer, who in turn reports to the Regional Project Coordinator, or directly to the Regional Project Coordinator, based on component and to be specified in individual ToRs.

Staff positions and key responsibilities* for Kura II PCU Team

Position	Responsibilities
Chief Technical Advisor/Regional Project Coordinator <i>(International Recruitment, P- contract, full time)</i>	<ul style="list-style-type: none"> • Oversight of all activities and deliverables • Management of Project including coordination of all project activities in both countries, in line with Project Document and GEF requirements, including work plan development, all reporting etc. • Staff management including: ToRs for all components, all consultant recruitment, technical guidance and evaluation of all project staff and local and international consultants and outputs • Budget and administrative authority, coordination with IRH with access to ATLAS, • Representative of Project for UN, and other international fora, • Full responsibilities for all Components, focus on Comp 1,3,5 • Technical inputs into trainings for Components 2 and 4 as need based on areas of expertise
Senior Capacity Building Coordinator <i>(International Recruitment, IC Contract, part time)</i>	<ul style="list-style-type: none"> • Component 2 oversight on capacity building efforts • Capacity need assessment and interlinked curriculum development with stakeholders • ToRs development, recruitment and oversight of international experts conducting capacity building efforts in Comp. 2 & Comp. 4 • Back Stopping international experts for all capacity building programs, including interval meetings with trainees in professional development with technical inputs/conducting into trainings for Components 2 and 4 as need based on areas of expertise • Coordinating capacity building efforts in Component 2 into other components, and support to all component activities
Communication and Project Officer <i>National Recruitment full time)</i>	<ul style="list-style-type: none"> • Component 4 oversight on stakeholder involvement and education with support from CTA and Sr. Capacity Coordinator as needed • Stakeholder Communications including meetings in component 1, and social media and web page oversight • Support to all trainings/capacity building efforts including development of online trainings materials • Support to all component activities based on area of expertise • Recruiting, supervising and evaluating project interns • Support to Regional Project Coordinator to increase during project <ul style="list-style-type: none"> ○ Support to regionalization of project efforts ○ Budget review and annual work plan development ○ Report drafting for UNDP and GEF

	<ul style="list-style-type: none"> ○ ATLAS access ○ Staff management with increasing authority after mid-point ○ Building/strengthening linkages between project components ○ Representing project regionally and internationally • Coordination with Financial and Administrative Officer, and National Coordinators, and National Project Officers • Acting as OIC during absence of CTA/RPC
Financial & Administrative Officer <i>National Recruitment –full time)</i>	<ul style="list-style-type: none"> • Financial and Administrative support to the project through ATLAS • Liaise with UNDP IRH for budget compliance • Oversight and arrangements of all contracts • Oversight of all payments through project budget • Travel and venue oversight • Procurement direction in line with UNDP requirements • Production of quarterly budget reports for UNDP IRH and CTA/RPC and Deputy with 6 month work plan to be developed and revised quarterly • Supervision of National Project Officers

*precise terminology for responsibilities to be determined in ToRs in line with UNDP HR guidance to ensure appropriate levels

508. Draft Terms of Reference (ToRs) for the key positions are included in the Annexes to the document.

5.1.5. National-level arrangements

509. At the national level, arrangements to oversee, support, contribute to, and harvest the results from the implementation of the Kura II Project will be expected to consist of:

- a formally appointed Kura II Project National Focal Point
- operational National Inter-sectoral Consultation & Coordination Mechanism(s)

The Kura II Project “National Focal Point” (NFP):

510. Given the role of the Project Steering Committee to provide strategic policy and management direction, and considering the project’s strategic role as a catalytic tool for the implementation of the politically endorsed SAP, it is recommended that - wherever feasible - the NFP appointed to the Kura II Project should hold a senior position within the Focal Point Ministry.

The “National Inter-sectoral Consultation & Coordination” (NICC) mechanism(s):

511. Under the adoption of the IWRM approach, it is strongly recommended that inter-sectoral consultation and coordination becomes a well-established practice at both national and regional levels. NICCs are intended to promote effective inter-sectoral and inter-ministerial dialogue, and to provide input and undertake actions on matters pertaining to the implementation of the Kura II Project and by extension the Kura SAP.

512. Ideally, NICCs and their members will also provide an interface with the supra-national governance processes relevant to the Kura II Project (e.g. EU Regional Projects, UNECE Conventions, and national and bilateral efforts as well). Depending on the baseline situation in each country, the use of existing and/or creation of new permanent mechanisms may be recommended. Advantages of the use of permanent mechanisms includes: (a) avoidance of replication/overlap/dis-coordination; (b) increased chances for continuation of NICC operations beyond the Kura II Project lifespan (continuation of NICC processes will be needed during the continuation of the long term SAP implementation period).

513. Whilst the specific composition of the NICC(s) is to be determined by each country, it is anticipated that the NICC mechanism may include representatives from Ministries and/or Departments that address from the following: Environment, Foreign Affairs, Agriculture, Energy, Regional Development, Emergency Situations, Sustainable Development, Infrastructure, Statistics, Finances, Municipal Water Supply, Health, and Tourism, amongst others. Participation of academia, private sector and civil society representatives in the NICC mechanisms will allow these sectors to more actively participate, and contribute to the achievement of the goal and objectives of the project and the SAP.

514. In order to support the enhanced operations of NICCs, further guidelines (recommendations, best practices) are expected to be produced as a result of the activities under Project Output 1.5.

515. National Project Offices will be staffed by:

- National Coordinator responsible for project oversight and implementation at the national level
- National Project Officer to be responsible for administrative and translation support
- Project Interns

National Project Offices Staff in Baku & Tbilisi

National Coordinators – one per country <i>(Local Recruitments, full time, service contract)</i>	<ul style="list-style-type: none"> • Coordinate activities within the country with the guidance of the CTA/RPC, Senior Capacity Building Coordinator, and Communication and Project Officer • Primary Liaison with National Focal Points, and national level stakeholders • Guide project efforts at the national level • Provide Technical Oversight and Guidance of National Consultants, and interns • Review National Level outputs
National Project Officers, one per country <i>(Local Recruitments, full time, service contract)</i>	<ul style="list-style-type: none"> • Support the National Coordinator and PCU Financial and Administrative officer • Provide translation of materials into National Languages, including training and social media • Provide translation support as needed for capacity building efforts and national meetings • Provide support to Communication and Project Officer in activities related to Stakeholder education and awareness
Interns (2-4 per year per country) <i>(Local Recruitments, part time)</i>	<ul style="list-style-type: none"> • Recruited from IWRM MSc and other related programs • Support to Project team and national coordinators • Support to Project Deputy in stakeholder education and awareness • Additional support to project efforts as needed based on area of interests etc. • <i>(Unpaid International interns may provide project support if they have external funding and are approved through UNDP IRH and CTA for specific limited periods)</i>

516. International Project Staff will spend significant time in both offices, in order to provide support to project efforts, with significant input into project implementation. Additionally electronic linkages will be used to facilitate project coordination without incurring travel costs on regular basis.

6. UNDP/GEF Project Monitoring Framework and Evaluation

Project execution performance will be monitored through the following standard UNDP/GEF M&E activities. The associated M&E budget is provided in Table 19.

Project start:

517.A Project Inception Workshop will be held within the first 3 months of project start, with participation of those with assigned roles in the project organization structure listed under Section 5.1. The Inception Workshop is crucial to building ownership for the project results and to plan the annual work plans for the first 2 project years. It is anticipated that the Inception Workshop will also be the de facto first meeting of the Project Steering Committee. The Inception Workshop will address a number of key issues including:

- a) Assisting all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP IHR and PCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. Terms of Reference including those for project staff may be discussed again, if needed.
- b) Based on the Project Results Framework and the International Waters GEF Tracking Tool, the Annual Work Plans for the first year will be finalized. Indicators, targets and their means of verification will be reviewed, revised (as needed) and agreed, and assumptions and risks will be re-checked.
- c) A detailed overview of reporting, monitoring and evaluation (M&E) requirements will be provided. The Monitoring and Evaluation work plan budget will be agreed and scheduled.
- d) Financial reporting procedures and obligations will be discussed
- e) Project governance meetings will be planned and scheduled, and the overall project governance mechanisms will be reviewed and further fine-tuned, giving particular attention to cost-efficiency, enhanced stakeholder ownership, and the continuity of efforts towards SAP implementation beyond the project life span. Roles and responsibilities of all project organization structures will be clarified and a meeting/reporting calendar will be elaborated. A PSC and AGP meeting will be scheduled within the first 12 months following the inception workshop.

Together with the UNDP/GEF approved Project Document, the Inception Workshop Report will constitute a key reference document for the Project and will be prepared and shared with participants to clarify and formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Based on the information recorded in ATLAS, a Project Progress Report (PPR) can be generated in the Executive Snapshot.
- Where appropriate and pertinent, other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

Annual Project Review/Project Implementation Report (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (1 July to 30 June). The APR/PIR combines both UNDP and GEF reporting requirements. The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual)
- Lesson learned/good practice
- Annual Work Programme (AWP) and other expenditure reports
- Risk and adaptive management
- ATLAS Quarterly Performance Review (QPR)
- GEF IW Tracking Tool indicators

Periodic Monitoring through site visits:

518. The UNDP/GEF RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. A Field Visit Report/BTOR will be prepared by the UNDP/GEF RCU and will be circulated no less than one month after the visit to the project team and PSC and AGP members.

Mid-term of project cycle:

519. The project will undergo an independent Mid-Term Evaluation (MTE) at the mid-point of project implementation. The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; it will highlight issues requiring decisions and actions, and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the Mid-Term Evaluation will be decided after consultation between the parties. The Terms of Reference for this Mid -Term Evaluation will be prepared by UNDP IHR based on guidance from the UNDP/GEF RCU and UNDP-GEF M&E. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC). Information in the GEF International Waters Tracking Tool will also be updated during the mid-term evaluation cycle.

End of Project:

520. An independent Terminal Evaluation (TE) will take place three months prior to the final Project Steering Committee meeting and will be undertaken in accordance with UNDP and GEF guidance. This final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The Terminal Evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by UNDP IHR based on guidance from the UNDP RCU and UNDP-GEF M&E.

521. The Terminal Evaluation (TE) will also provide recommendations for follow -up activities and requires a management response that is to be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

522. The GEF International Waters Tracking Tool will also be completed during the Terminal Evaluation.

523. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and are as where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:

524. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums, including but not limited to IW:LEARN. At least 1% of GEF project budget will be dedicated to GEF IW portfolio learning through IW:LEARN and other relevant mechanisms.

525. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks (e.g. UNECE IWRM Working Group), which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

526. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

527. The Project will fully comply with UNDP and GEF Branding Guidelines, Communication and Visibility Guidelines, as required and/or appropriate:

- UNDP branding guidelines can be accessed at: <http://intra.undp.org/coa/branding.shtml>
- Specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>

528. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be obtained from: http://www.thegef.org/gef/GEF_logo

- The UNDP logo can be obtained from: <http://intra.undp.org/coa/branding.shtml>
- Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding the GEF fi nal_0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF_fi nal_0.pdf)

529. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and partners provide co-financing support, their guidelines will also be taken into account in the design of appropriate communications products.

<i>Type of M&E activity</i>	<i>Responsible Parties</i>	<i>Budget US\$ Excluding project team staff time</i>	<i>Time frame</i>
<i>Inception Workshop and Report</i>	<ul style="list-style-type: none"> ▪ Chief Technical Advisor/Regional Project Coordinator (CTA/RPC) and Team (PCU), ▪ UNDP RTA, UNDP IRH staff 	<i>Indicative cost: 30,000</i>	<i>Within first 3 months of project start up</i>

<i>Measurement of Means of Verification of project results</i>	<ul style="list-style-type: none"> UNDP IRH staff will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	<i>To be finalized in Inception Phase and Workshop</i>	<i>Start, mid and end of project (during evaluation cycle) and annually when required</i>
<i>Measurement of Means of Verification for project progress on output and implementation</i>	<ul style="list-style-type: none"> Oversight by CTA/RPC Project Team 	<i>None</i>	<i>Annually prior to ARR/PIR and to the definition of Annual Work Plans</i>
<i>ARR/PIR</i>	<ul style="list-style-type: none"> CTA/RPC and Team UNDP RTA UNDP IRH staff 	<i>None</i>	<i>Annually</i>
<i>Periodic status/ progress reports</i>	<ul style="list-style-type: none"> CTA/RPC and Team 	<i>None</i>	<i>Quarterly</i>
<i>Mid-Term Evaluation</i>	<ul style="list-style-type: none"> CTA/RPC and Team UNDP IRH staff UNDP RTA External Consultants (i.e. evaluation team) 	<i>Indicative cost: 30,000</i>	<i>At the mid-point of project implementation</i>
<i>Terminal Evaluation</i>	<ul style="list-style-type: none"> CTA/RPC and Team UNDP IRH staff UNDP RTA External Consultants (i.e. evaluation team) 	<i>Indicative cost : 30,000</i>	<i>At least three months before the end of project implementation</i>
<i>Project Terminal Report</i>	<ul style="list-style-type: none"> CTA/RPC and Team UNDP IRH UNDP RTA Co-executing partners 	<i>None</i>	<i>At least three months before the end of the project</i>
<i>Audit</i>	<ul style="list-style-type: none"> UNDP IRH CTA/RPC and Team 	<i>Indicative cost: 2.000 annually (total:8.000)</i>	<i>Yearly</i>
<i>Visits to field sites</i>	<ul style="list-style-type: none"> UNDP RTA and UNDP IRH (as appropriate) Government representatives 	<i>For GEF supported projects, paid from IA fees and operational budget</i>	<i>Yearly</i>
TOTAL indicative COST <i>Excluding project team staff time and UNDP staff and travel expenses</i>		US\$ 98,000 (+/- 2% of total budget)	

7. Legal Context

530. This project forms part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this Project to the associated country level activities, this document shall be the "Project Document" instrument referred to in: (i) the respective signed SBAs for the specific countries; or (ii) in the Supplemental Provisions attached to the Project Document in cases where the recipient country has not signed an SBA with UNDP, attached hereto and forming an integral part hereof. All references in the SBA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

531. This project will be implemented by UNDP via its UNDP Istanbul Regional Hub ("Implementing Partner") in accordance with the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

1. The responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. The Implementing Partner 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 Implementing Partner'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.

2. The Implementing Partner 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/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

3. Consistent with UNDP's Programme and Operations Policies and Procedures, social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-srm>).

4. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

5. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

532. Audit Clause: The Audit will be conducted in accordance with UNDP Financial Regulations and Rules and applicable audit policies on UNDP projects

8. Annexes

ANNEX 1 Strategic Action Program Kura River



Strategic Action Program

for

*“Reducing Transboundary Degradation
in the Kura River Basin”*



May 2014

UNDP-GEF International Waters



Empowered Lives.
Resilient Nations.



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Acknowledgments

The Strategic Action Programme (SAP) for the Kura Basin is a guidance document developed to support the countries in the region to sustainably manage water resources and to improve integration of water resource management (IWRM) through measures that have emerged from the region, and that reflect national and transboundary priorities. These measures meet the agreed vision and the ecosystem quality objectives that support that vision.

The UNDP-GEF Project “Reducing Transboundary Degradation in the Kura Aras River Basin” has worked with governments of Azerbaijan and Georgia, and national experts from both countries, and collaborated with other donor organizations to create the SAP.

This document will support the two countries to move towards improved management of the shared water resources in the basin.

On behalf of the project team, we would like to express our deep gratitude and thanks to all the contributors to this document, including the Azerbaijan Republic Ministry of Ecology and Natural Resources, Georgia Ministry of Environmental and Natural Resources Protection, and the invaluable inputs from the Project National Focal Points of Georgia and Azerbaijan.

The Project Steering Committee members, project national experts, IWRM Academy participants, national IWRM plan teams, members of the regional technical task team, and members of the National Water Policy Dialog Steering Committees, as well as additional advisory experts in the both countries have provided key contributions to this document, and review of earlier drafts.

Moreover, we also want to thank the many volunteers who have committed themselves to discuss and comment on the proposed SAP activities during the NGO fora, in order to ensure that the SAP is reflecting the actual needs of the countries in order to improve the shared water resources management in the basin.

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SAP Acronym List

BAT	Best Available Technologies
BEP	Best Environmental Practices
CCA	Causal Chain Analysis
EIA	Environmental Impact Assessment
EQO	Ecosystem Quality Objective
EU	European Union
ENV SEC	Environmental Security Initiative
GEF	Global Environment Facility
IRBM	Integrated River Basin Management
OECD	Organization for Economic Cooperation and Development
OSCE	Organization for Security and Cooperation in Europe
IW	International Waters
IWRM	Integrated Water Resources Management
SAP	Strategic Action Program
SEA	Strategic Environmental Assessment
SNC	Second National Communications
TDA	Transboundary Diagnostic Analysis
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WFD	Water Framework Directive
WHO	World Health Organization

1 Introduction

Balancing overuse of the available water resources, whether surface or groundwater, to meet the growing demands for water in different sectors, while mitigating the negative impacts humans have on the river environment and protecting the Basin's rich and diverse ecosystems are critical issues in the Kura River Basin.

At the request of the countries the UNDP-GEF Project “*Reducing Transboundary Degradation in the Kura-Aras River Basin*” (UNDP-GEF Kura-Aras Project) was formally established with the goals of supporting the riparian states to 1) identify the principal threats to the shared transboundary water resources of the Kura River Basin and to determine the root causes, and 2) to develop and help implement sustainable plans for water policy, legal and institutional reforms, and investments to address these threats at the national and transboundary level.

The President of Azerbaijan issued a national decree to prioritize water resource management in January 2013. While water resources management had been important, this decree has accelerated the development of the National IWRM Plan, supported by the UNDP-GEF foundational project. In addition, because of the income generated by the export of petroleum resources, Azerbaijan is able to invest revenues into the water sector, including the development of municipal water resources management, melioration and irrigation for increased food security. The Ministry of Emergency Situations was established in part to address and reduce flooding impacts. The Focal Point Ministry of Ecology and Natural Resources continues to serve a key role, and new legal structures are rapidly being drafted to support implementation of IWRM.

Georgia is blessed with abundant water resources, and has been pursuing a development plan that will enable the country to become a net exporter of hydro-power generated energy. Protection and preservation of river ecosystems is being actively pursued by the government in order to sustain the natural resources of the country. The UNDP-GEF foundational project has supported the development of a National IWRM Plan for Georgia that includes addressing the need to create robust institutional structures, harmonize the national water code with national and international commitments, and support harmonization with the EU WFD. There is awareness that developing this plan based on existing and needed capacities will require additional support and coordination with neighboring states and donor support.

This Strategic Action Program (SAP) presents the collaborative effort of the basin countries through their input into the UNDP-GEF Kura-Aras Project, and is meant to serve as a guidance document with direct linkages between national priorities and shared transboundary concerns. The national priorities and detailed plans to address them are in the supporting documents of the National Integrated Water Resources Management (IWRM) Plan for Azerbaijan, and the National IWRM Plan for Georgia. These National Plans provide the detailed steps each country may take, based on its national capacity, availability of resources and priorities. This SAP provides the overview of the agreed shared concerns and the general means to address them.

The foundation of the SAP is the Basin Vision, and the four Ecosystem Quality Objectives (EQOs) that were agreed by the Steering Committee of the UNDP-GEF project led by the National Focal Points in 2007 and reaffirmed in 2013. The agreed Long-term Basin Vision is:

“To achieve sustainable development and maintain ecosystem functions in the Kura River Basin through reducing transboundary degradation and improving environmental management in order to ensure ecosystem services, economic well-being, and health and security in all riparian countries.”

The four agreed Ecosystem Quality Objectives are:

- To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services;
- To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin;
- To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin; and,
- To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities.

The SAP provides the guidance toward accomplishing these objectives and was developed through extensive cooperation with Azerbaijan and Georgia through strong support of the National Focal Points who have facilitated this process on behalf of their respective ministries and governments. In addition to the direct guidance from the National Focal Points, a wide array of national experts from these countries have provided their inputs into the development of the National Plans as well as the SAP.

The SAP is developed and approved by the Azerbaijan and Georgia to be implemented at the highest level of executive power. It defines the priority areas for action to resolve the most urgent issues identified in the Updated Transboundary Diagnostic Analysis (TDA), and within each country through the coordinated implementation of the National Plans. SAP implementation will also provide support to the facilitation of national level efforts by helping the governments to coordinate donor initiatives to optimize benefits and reduce redundant efforts at the national and transboundary level. This coordinated implementation will enable the countries to harmonize experiences, lessons learned and resources where appropriate. The implementation of the SAP will support the execution of the National Plans which in turn will have cumulative positive impacts on the overall Basin.



Section 2 of the SAP outlines the highly participatory methodology for the TDA and SAP development, and summarizes the main findings of the TDA based on national data. The full text of

the Steering Committee Approved TDA is available online for review at www.kura-aras.org.

Section 3 of the SAP provides a description of the outcomes developed to meet the agreed Ecosystem Quality Objectives. For each outcome there is a set of activities with summary descriptions, the ranked priority for each activity, the estimated timeframe, and the type of benefit. Though these are general, they are drawn from detailed work of over two hundred stakeholders who have contributed to this effort. This work will be expanded within each of the National Plans as they pertain to national priorities and stages of water resources management development.

Section 4 of the SAP outlines the legal precedents for the outcomes, and suggests the institutional mechanisms for SAP implementation. The legal precedents are based on common international commitments made by the countries that are related to improved water resource management. The more detailed country specific precedents are based on national legal and regulatory frameworks within the national plans.

Following the endorsement of the SAP, the UNDP-GEF Kura Aras project will continue to work with national teams on the National Plans. As these plans are more detailed this will involve continued interagency and inter-ministerial coordination to fully complete this step within 4 months of SAP endorsement. The adoption mechanism for these plans will be determined at the national level. At the same time the project will also work to seek and secure funding for SAP implementation at the national and international levels, including intensive donor coordination efforts. Implementation of the SAP will be conducted jointly among multiple donors within and across the countries, with linkages fostered through the Steering Committee, as explained in Section 4.

It is envisioned that the SAP implementation will be phased to accommodate donor cycles and needs of the countries. The first phase of implementation will focus on intensive capacity building and institutional support, as well as specifically identifying where additional efforts for larger scale investment will be most effective. The second phase will include larger scale and infrastructure investments to benefit the countries through changes for overall stress reduction... In some cases there will be overlap between these phases, dependent on the country level commitments contained within the National Plans. These two phases will be approximately 10 years combined. Upon the request of the countries a follow-on TDA may be conducted towards the end of the second phase to gauge impacts and substantial improvements in the national and basin wide conditions towards accomplishing the agreed Ecosystem Quality Objectives and reaching the agreed Basin Vision.

2 Steps Taken in Preparing the Strategic Action Program

This SAP has been prepared through a collaborative and iterated effort between the UNDP-GEF Kura-Aras Project and Azerbaijan, and Georgia, with the support and guidance of the National Focal Points. The document outlines the agreed-to vision for basin-wide IWRM in the South Caucasus, based on national and transboundary priorities and the findings of the Updated TDA, and the strategic actions needed to achieve it. This process has been based on the GEF International Waters (IW) TDA/SAP Best Practices Methodology, adapted to fit the needs of the Kura Basin.

2.1 The Updated TDA and SAP Methodology

The GEF IW TDA/SAP “best practice” approach underpins the methodology used in the development of any TDA and subsequent SAP, including those for the Kura River Basin. The TDA methodology consists of the following steps:

1. Identification and prioritization of transboundary problems with technical experts from the participating countries;
2. Conducting a causal chain analysis (CCA) of the identified problems, including their root causes which are those causes that are at the heart of the problem;
3. Gathering and interpreting information on environmental impacts and socio-economic consequences of each problem;
4. Completion of an analysis of institutions, laws, regulations and projected investment; and
5. Development of recommendations to address the root causes and improve conditions.

The Preliminary TDA, prepared in 2007 during the PDF-B phase of the UNDP-GEF Kura-Aras Project, assembled information to describe the perceived transboundary problems, but remained incomplete. The 2013 Updated TDA relies on information that is empirically validated and addresses widely-held perceptions throughout the basin pertaining to the prioritized transboundary issues.

In the 6 years between the PDF-B phase and the current implementation phase, significant developments in the basin have shaped the water management priorities of the Kura riparian countries, including the application of the EU Water Framework Directive. As part of the Updated TDA, six Desk Studies were conducted in the areas of: Water Quality Hotspots, Hydrological Flow, Climate Change Impacts, Socio-Economic Trend Analysis, Gender Mainstreaming in Water Management, and Floodplain Forests for Azerbaijan. The 2013 Updated TDA examines the root causes of perceptions on transboundary issues associated with the issues discussed, using available empirical evidence and identifying gaps in factual information, to update the Causal Chain Analyses and offer guidance on how to most effectively support reduction of overall transboundary degradation in the Kura basin. The 2013 Updated TDA serves the important function of detailing the baseline conditions, to the extent possible, for identifying national and transboundary development plans.

In line with GEF International Waters Best Practices the SAP is based on the framework of four Ecosystem Quality Objectives (EQOs) to accomplish the Basin Vision. The EQOs and Basin Vision were agreed by all members of the Project Steering Committee in 2007, and reconfirmed in May 2013. There are a total of 10 outcomes to move towards realizing these objectives. Each outcome

includes a set of activities that will enable the countries to take steps to accomplish these outcomes. These activities are summarized in the next chapter and presented in the attached table. These outcomes and activities have been widely discussed and ranked by the countries' National Focal Points, and are presented here to serve as guidance for the countries of the basin to move towards improved management of the shared water resources of the Kura.

While it will take up to 20 years to fully realize the objectives, the presented recommendations are those of highest priority, required to make that transition from current practices towards reaching the goals of improved IWRM for the Kura. Upon the recommendation of the National Focal Points, the SAP is more general to encompass the needed flexibility while the National Plans will be more detailed and specific, in terms of timing and committed funding. Activities outlined in the SAP are approximately 3-5 years in the short term, 6-10 years in the medium term and more than 10 for long term. The general flexibility of the SAP is supported by the more specific details in each of the national plans that are developed in tandem with the SAP and encourage harmonized between Azerbaijan and Georgia.

The outcomes and activities recommended in the SAP are combined from multiple sources, and were discussed with many stakeholder across numerous disciplines and sectors in a highly participatory process via series of multiple meetings in each country and collectively. The main sources are:

- The 2013 Updated Transboundary Diagnostic Analysis (TDA), which defined four major transboundary issues – variation and reduction in hydrological flow; deterioration of water quality; ecosystem degradation; and, flooding. Climate change is a cross cutting issue for each of these.
- The National IWRM Plans for Azerbaijan and Georgia are developed with the SAP. These national level plans are much more detailed and are completed in line with the countries agreement to the SAP. The SAP draws from national activities with high levels of transboundary relevance, and which the countries share.
- The members of the Project Steering Committee, with additional guidance from National Focal Points who provided the averaged rankings for each outcome and activity.⁶ The rankings provided here only reflect the average of the Azerbaijan and Georgian participants.
- Twelve high-level National Experts from the project countries, nominated as members of the Regional Technical Task Team, reviewed the ranked SAP to provide feedback for detailed implementation.

Other sources that served to guide the recommendations include the 2012 NGO Forum on Water and Biodiversity and the 2013 NGO Forum on Gender, Public Health and Education; the Azerbaijan and Georgia participants of the UNDP-GEF EU IWRM Academy; the IWRM Capacity Needs Assessment; TDA Update Meetings with 36 National Experts; and the 2007 Preliminary SAP, for the agreed Vision and agreed EQOs. Overall there have been approximately 260 experts contributing to the development of the SAP – with less than 20 international experts involved in the process to increase basin ownership of the document.

2.2 TDA Findings

The following sections summarize the information from the Updated TDA. The full text, Annexes and Desk Studies for the Updated TDA are available online at www.kura-aras.org in both English and Russian languages.

2.2.1 Variation and reduction in hydrological flow

⁶ The rankings are averages and based on a scale of 0-5 with 5 being the highest priority.

The TDA presents evidence of a notable overall decline in hydrological flows, especially in the downstream basin. The decline in flow metering stations and observed inconsistencies in the data create challenges in current and future development, and will need to be addressed by the countries. Further, the TDA shows that the impacts of declining water availability, ecosystem degradation and the super impact of potential competition over water resources use emerged in the causal chain analyses focusing on climate change, irrational water use, competing demands on water resources from multiple sectors, need for reliable information on available resources, and need for integrated planning for water resources management.

The TDA's analysis of river flows, especially the temporal changes that have been observed over the last decades, is based on available records of river flows of over more than half a century. The current hydrological regime of the Kura river basin is the result of a range of both natural and anthropogenic factors. Seasonal and annual flow volumes typically reflect variable climate conditions, specifically temperature and precipitation, determining surface-groundwater flow components as well as evapotranspiration. Water abstraction for human needs has been a feature of the Kura river basin since ancient times. While it is difficult to separate the impacts of climate change on the river from those of increasing abstractions, analytical evidence of recent changes in climate indicates the scale of impact on river flows.

The second National Communications (SNCs) to the UNFCCC, produced by the riparian countries, reported significant changes in average annual precipitation since 1960. These changes are expected to continue, and the Trend Analysis of the TDA showed that there are likely to be serious implications for water availability as economic and social development plans are realized by the countries.

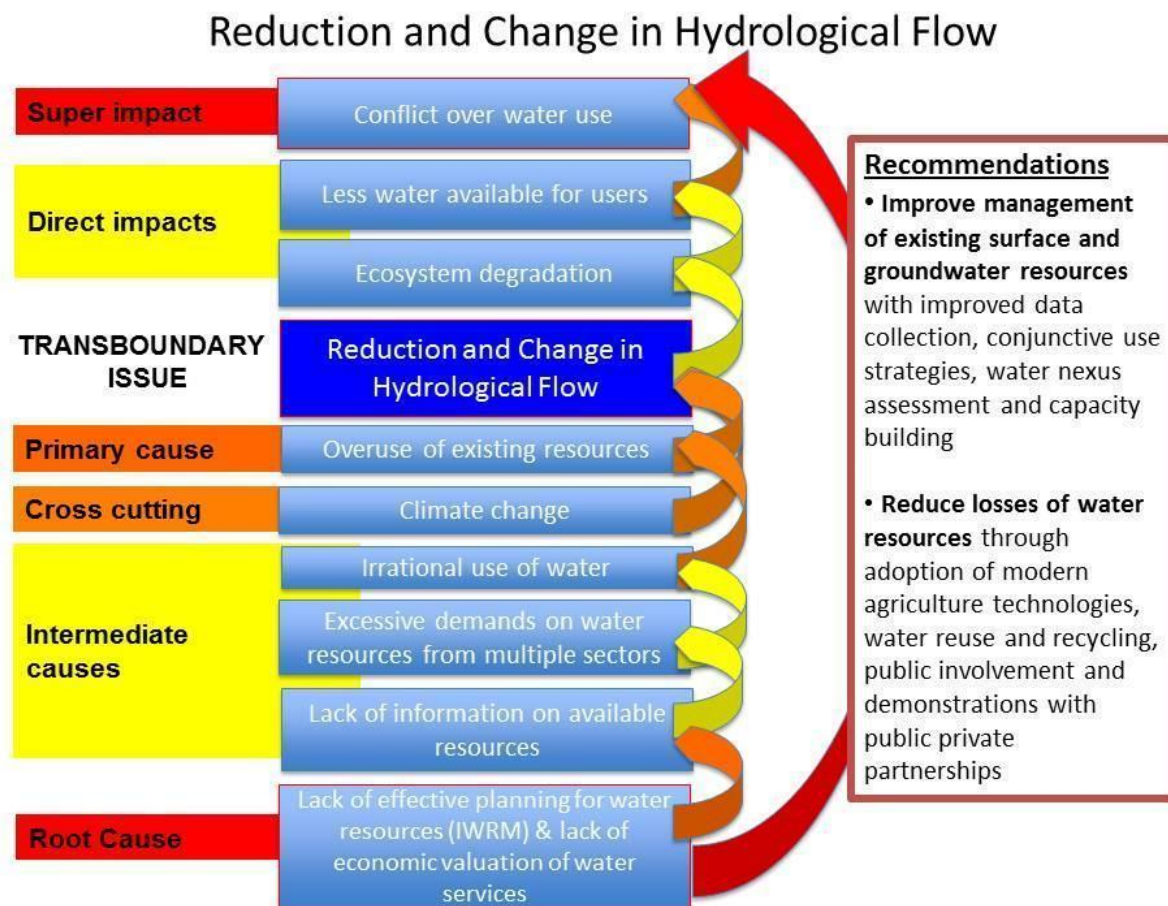
Root Causes

The root causes of variation and reduction in hydrological flow include the need to increase funding for water management and need to improve water use efficiency at all levels. However, the most important root cause is the limited capacity for water resources management throughout the basin. This limited capacity encompasses a number of different general needs in water management: more effective governance (regulation, law, enforcement, and institutional capacity), improved intersectoral coordination, national-level and transboundary cooperation on information exchange, increased staffing, proper education in modern approaches to IWRM, improved supply of equipment and monitoring.

All related sectors are striving to achieve effective, coordinated management. Monitoring systems throughout the basin need improvement, and information management systems need to be modernized. A clear picture of existing surface- and groundwater volumes is necessary, to integrate the needs of ecosystems and other uses such as hydropower, agriculture, municipal water use, fisheries, etc. While information on current and projected water needs in the basin is available, it is often insufficient for effective resource management and requires improvement. Throughout the basin, there is also a need to improve overall awareness about the importance of water, managing it properly, and the need to conserve it.

Chapter 6 of the TDA contains a trend analysis showing that sectoral development plans do not yet fully consider other sectoral water needs at the national or transboundary level. The costs of services provided by a specific volume of water in the system are not well understood, and assessments to calculate this value are currently underdeveloped throughout the basin. This limits the potential for more sustainable development across the basin. As the effects of climate change become more apparent, the likelihood of irrational water use, water scarcity, and stresses between sectors and countries also increases. This threatens the water security, food security, energy security and

environmental security of both littoral states. The figure below shows the chain of causes and potential negative impacts of variation and it.



Impacts

The main impacts on the environment due to the variation and reduction in hydrological flow include:

- Degradation of riverine ecosystems and natural landscapes;
- Worsening of biological processes such as fish spawning;
- Reduction of the natural self-cleaning ability of rivers for organic pollutants, and increasing of the concentration of all pollutants, including their extended transportation downstream; and
- Changes to groundwater recharge and outflow regimes and the direct interrelationships between aquifers and rivers, impacting the water quality and quantity of both systems.

The main socio-economic impacts of the variation and reduction in hydrological flow are reduced access to water in sufficient quantity and quality for drinking and other domestic purposes, and to meet the needs of other sectors of the economy, including:

- Reduced productivity of agricultural land in some areas due to lack of irrigation water, and related reduction of income in the agricultural sector;
- Negative impact on the quality of agricultural products, and related health effects among the population due to irrigation with contaminated water;
- Poor state of sanitation systems, with increased cases of infectious waterborne diseases, and related increase in water treatment and health costs;
- Reduced efficiency and rate-of-return on investments in the hydropower sector;
- Irrational use of groundwater resources in attempt to replace the lost river flows; and

- Loss of some commercial fish populations in reservoirs by blocking spawning routes.

2.2.2 Deterioration of water quality

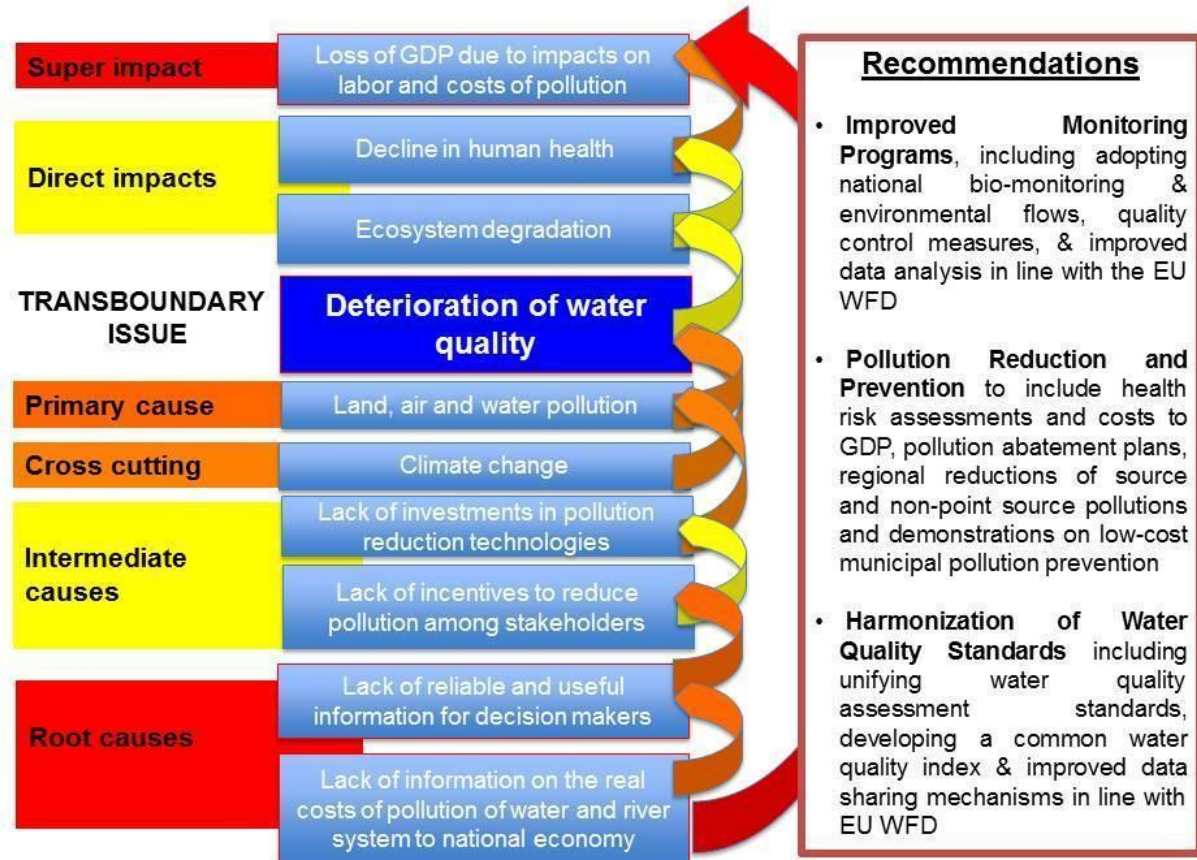
Deterioration of water quality is a national and transboundary issue that is addressed on the national level and will benefit from standardization at the transboundary level. Currently, as Georgia and Azerbaijan assess water quality through different standards, the EU WFD methodology provides a strong basis towards obtaining improved, comparable empirical evidence throughout the basin. The countries are moving in this direction at this time. The impacts of deteriorated water quality include, among other things, ecosystem degradation, decline in human health, and loss of GDP due to impacts on the labor force and costs of pollution. The causes of water quality deterioration are land, air and water discharge of pollution, while a reduction in available water increases the concentration of pollutants. These causes are due to a low level of regulation enforcement, a need for improved information for decision-making, and a need for clear incentives to reduce pollution. The root cause is the current lack of information on the real costs of water pollution in the Basin's river systems.

The observed deterioration of water quality in the river basin is a progressively serious problem for the countries of the basin, especially in relation to the increasing demand on water resources in each country as it strives to meet the needs of future development plans. These threats are intensified by anticipated impacts of climate change on water quantity and quality in the basin. The quality of surface waters is also influenced by factors such as the hydro-morphological, hydro-geological and hydro-chemical features of the river basin.

Harmful pollutants enter the waters of the Kura river from numerous land-based sources such as industrial and mining enterprises, agricultural runoff, subsistence farming practices in rural areas, and, in particular, from aging municipal sewer systems in large urban areas. Many cities and large industrial enterprises in the Kura basin today do not have water treatment plants. The existing wastewater treatment plants are not sufficient to process waste acceptably. These causes issues of downstream pollution in both countries, first nationally and then across borders.

The updated TDA examines water quality trends in Azerbaijan and Georgia, based on the Desk Study on Water Quality Hot-spots in the Kura river basin, produced in 2013 by the UNDP-GEF Kura-Aras Project with detailed information and data provided by the national governments. The Causal Chain Analysis from the TDA relating to deterioration of water quality can be seen in the figure below.

Deterioration of Water Quality



Root causes

The root causes of water quality deterioration are the need for reliable information for decision makers, as well as of information on the real costs of pollution in water and river systems to the national economies and public health. The information collected by monitoring agencies is valuable, but the analysis and presentation do not fully reach its potential to help decision makers develop and enforce stronger pollution-reduction regulations. The analysis must be reliable, have strong quality control and quality assurance, and undergo regular calibration of equipment based on reference laboratories and international best practices. Further, the data presented to decision makers must be meaningful and based on best practices for information sharing and decision support for improved water resources management. In addition, experience has shown that technically trained decision makers must also be able to justify costs of increased monitoring, increased enforcement and improved water management to other decision makers. This information should also include the costs of the water pollution to the state. Without this better-informed decision making, water quality improvements may be viewed as simply a drain on state budgets. The links between water quality degradation and socio-economic costs, environmental cost and losses to overall GDP, including lost labor costs, lost land productivity costs, and the eventual costs of cleanup of damaged areas, must be calculated and shared with decision makers.

Impacts

The main environmental impacts caused by deterioration of water quality include:

- Ecosystems degradation, characterized by altered productivity of ecosystems due to changes in nutrient balances and eutrophication;
- Changes in ecosystem species composition, including the loss of endemic and rare species of aquatic flora and fauna, increase of invasive species, and increased susceptibility to pests;
- Increased soil contamination in flooding zones, and downstream spreading of contaminants;
- Damage and contamination to groundwater resources.

The socio-economic impacts of water quality deterioration include:

- A significant loss of labor productivity due to more frequent occurrences of waterborne diseases, which not only negatively affect overall economic productivity, but also strain healthcare budgets and facilities, and impact family members needed to care for the afflicted;
- Losses to economic development as water requires costly pre-treatment before basic industrial and domestic uses;
- Loss of agricultural productivity as contaminated soils are less fertile and may increase the need for more agro-chemicals to meet needed production levels;
- The deterioration of water quality also results in loss of potential income in aquaculture and ecotourism, as well as general tourism; and
- Overall costs of contaminated water resources of the river to socio-economic development of the basin increasing significantly over time.

Deterioration of water quality restricts the water availability for certain uses and increases the cost of its treatment. Despite availability of water in adequate *quantities* in certain rivers, they may not be suitable for use because of their poor quality, leading to water scarcity.

2.2.3 Ecosystem Degradation

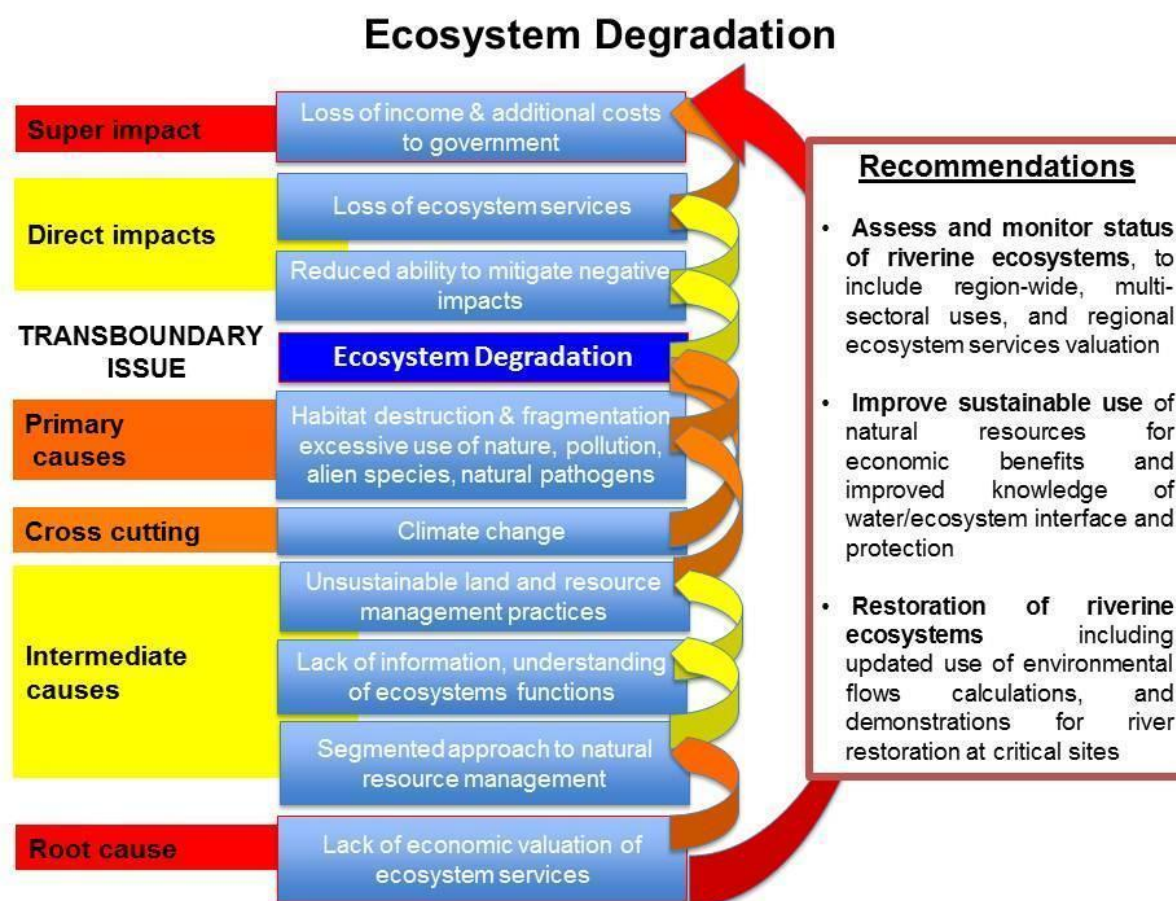
The issue of ecosystem degradation is pervasive throughout the basin and is related to a decline in hydrological flows and deterioration of water quality, conditioned by direct and indirect impacts of human activities. The information currently available on ecosystem health has many gaps, making it difficult to adequately gauge the decline clearly. Loss of species richness and decline in biodiversity are marked throughout the basin, although more information to systematically account for these losses is needed. The decline of ecosystem functions negatively affects the ability of ecosystems to buffer the impacts of human activities. This leads to a decline in ecosystem services and subsequently causes loss in income, as well as increased costs for the national governments and local communities. In addition to the general causes of ecosystem degradation listed above, others include: unsustainable natural resource use, unsustainable land management practices, fragmentation and loss of natural spaces, a lack of information on ecosystems and an uneven approach to natural resources management.

Today, large patches of natural ecosystems in the Kura basin have been transformed by human activities. About a quarter of the basin remains in reasonable natural condition, while less than 12 percent of the basin, mainly forest, is considered pristine vegetation. Only about 5% of natural riparian forests in the South Caucasus remain intact today. Natural steppes, traditionally used as winter pastures have become overgrazed and have taken on the character of semi-deserts as their soil quality and species composition have been extensively modified. Further, the natural steppes and semi-deserts of the Kura lowland have mostly been destroyed by the development of irrigated agriculture.

Loss of biodiversity in the Kura basin is an indicator of degradation of ecosystems. Several mammal species are now critically endangered, including the Striped Hyena in lowland ecosystems and floodplains. Overall, the numbers of large carnivores as well as large herbivores have fallen dramatically in the past century. There is a decline of valuable plant and tree species in recent years such as the Chestnut and Oriental Beech. A remarkable decline has been recorded for several bird species such as the Lesser Kestrel and Imperial Eagle.

Over the last 50 years, a significant decline in the number of sturgeons entering the Kura river from the Caspian has been observed. A significant part of the sturgeon spawning grounds in the upstream

river sections have become inaccessible after the construction of in-stream reservoirs and dams. The construction of reservoirs has also caused a change in the freshwater fish species composition in the middle and upstream stretches of the Kura since the late 1950s. It caused the disappearance of some fish species, including the Caspian Salmon and the Caspian Lamprey from the Kura, Alazani, and Iori rivers upstream of the Mingchevir reservoir. The figure below shows the TDA's Causal Chain Analysis dealing with ecosystem degradation.



Root causes

The main cause of ecosystem degradation - the disruption of ecological processes, the destruction, fragmentation and degradation of habitats (aquatic and terrestrial) and their natural flora & fauna diversity - in the Kura Basin is the ongoing development of economic activities throughout the basin, mainly since the 1950s (Yessekin 2006). This trend shows the root cause for ecosystem degradation as being the general lack of appreciation of ecosystem values, functions, and services provided to mankind.

Population growth, urbanization, and the struggle to increase wealth appear to be overarching drivers of these issues. At the rural subsistence level, present-day rural poverty in some areas and the related lack of access to alternative sources of food, fiber and energy remain additional underlying causes driving the processes of unsustainable land, water and natural resources management. A lack of effective economic valuation of ecosystem services in the Kura river basin allows these outdated practices to continue, further degrading ecosystems through the basin.

Impacts

Environmental impacts include:

- Loss of the protection and natural filtering in key catchment areas needed to purify ground water and cleanse surface waters;
- Change of the hydrological flow of the rivers;
- The loss of floodplain wetlands, due to diking and land conversion for agriculture also causes a reduction in the intrinsic purification capacity of the river's aquatic ecosystems;
- Lost buffering of natural processes like flooding, erosion, sedimentation, pest infestations;
- Decrease of the natural regulatory service of the aquatic environment to handle pollution, as changes in aquatic micro- and macro-flora and fauna affect the decomposition of organic waste and other pollutants; and
- Degradation of the vegetation cover causes erosion processes that result in irreversible losses of soil fertility, which will hamper any future vegetation restoration initiatives.

Social impacts include:

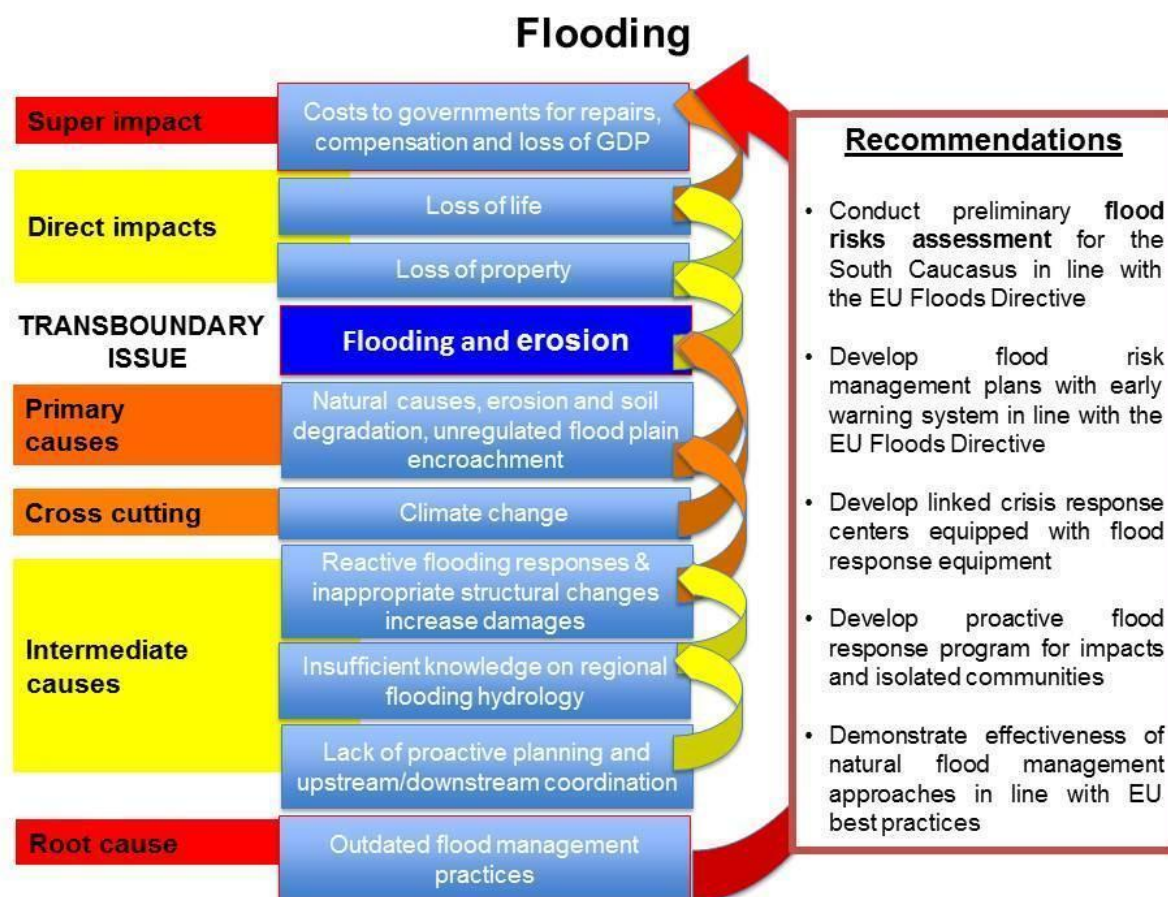
- Loss of ecosystem services that provide important constituents of human well-being, including the basic necessities of life: food, shelter, clear air and water, personal safety, protection from natural disasters;
- Loss of natural biological, chemical and physical ecosystem processes that provide valuable services to humans including meat, fish, fuel wood, medicines and water;
- Increased risk of damage to human life due to flooding is increased as a result of the decreasing of natural floodplains;
- Loss of opportunities to benefit from a clean and healthy environment, including eco-tourism opportunities throughout the basin; and
- Loss of the river ecosystem as a social good and as social infrastructure used for recreation and educational purposes.

2.2.4 Flooding

The issues of flooding are sporadic but pervasive throughout the Kura river basin. Flooding is first of all a natural process, and contributes to the natural and healthy functioning of ecosystems. However, with climate change and increased human populations there has also been an increase in the frequency and severity of these events. The impacts of flooding events include the loss of property, loss of life, with the super impact being the added costs to governments for repairs to infrastructure, compensation for damaged or destroyed property, and loss of GDP. The causes beyond climate change are partially due to ecosystem degradation from overgrazing and deforestation in some areas within the basin, as well as building in flood prone areas. Additional causes include: flooding response structures that lead to increased damages, outdated understanding of natural flood cycles within the ecological processes, and lack of coordination between upstream and downstream communities in impacted areas. The key root cause in this area is outdated flood management practices.

Flooding is a natural, climate induced event, though it is often exacerbated by human interference with the hydraulic characteristics of river channels, flow regimes, or the runoff characteristics in the terrestrial watershed. Though there are significant, long term benefits from flooding, including the enrichment of the soils on the floodplain, enhancement of conditions for fish spawning, and the renewal of wetlands, flooding is usually considered a hazard resulting in loss of human life and property, as well as damage to natural surroundings. High river flows become floods when the flow of water exceeds the capacity that can be contained within a river's natural banks. Flooding becomes a hazard to humans when people move into the floodplain and begin to carry out economic activities, such as agriculture, and build their homes and other buildings in areas of high flood risk. Additional changing climate conditions also can alter flood risks.

In a transboundary situation like the Kura river basin, floods are an inherently transboundary issue. Changes to watershed and hydraulic conditions of the channels upstream affect the actual flood characteristics as well as the flood risk and flood hazard downstream. Given that many significant alterations have been made in all parts of the basin, part of the solution is addressing flood risk management as a transboundary concern.



Root Causes

The root cause of high flood risk and extensive flood damages in Azerbaijan and Georgia is the continued reliance on outdated flood protection measures, based on localized structural solutions rather than developing and implementing integrated national flood management plans, in which due attention is paid to interlinking measures at the transboundary river basin level. An effective flood management plan uses a combination of structural and nonstructural measures to reduce the flood magnitude and frequency, where possible, and to mitigate flood damages. Flooding is a complex process and a flood management plan needs to be multi-sectoral. Institutions need to be coordinated to bring together information on hydrology and hydraulics, watershed land use and floodplain activities, property values, socio-economic factors, ecological conditions, and many more, both at the national as well as at the transboundary level. While the information on climate change as a cross-cutting issue impacting on flooding frequency, magnitude, and damage is limited, a variety of country analyses hint at ongoing intensification of climate-related extremes – temperature and precipitation, including flooding and heavy rain. Increases in frequencies and in magnitudes of flooding have been recorded across Europe and in many other countries. The widespread nature of this phenomenon is a serious indication that global climate change is at the root of it.

Impacts

The environmental impacts of flooding are both positive and negative when they occur within moderation.

The positive environmental impacts include:

- Refreshing water flows in wetlands and peripheral water bodies, including nutrients, genetic diversity, and fresh sediments;
- Spreading nutrients onto lands, including floodplain forests and recharging soils; and
- Clearing blockages to river flow as part of the natural cycle.

The negative environmental impacts include:

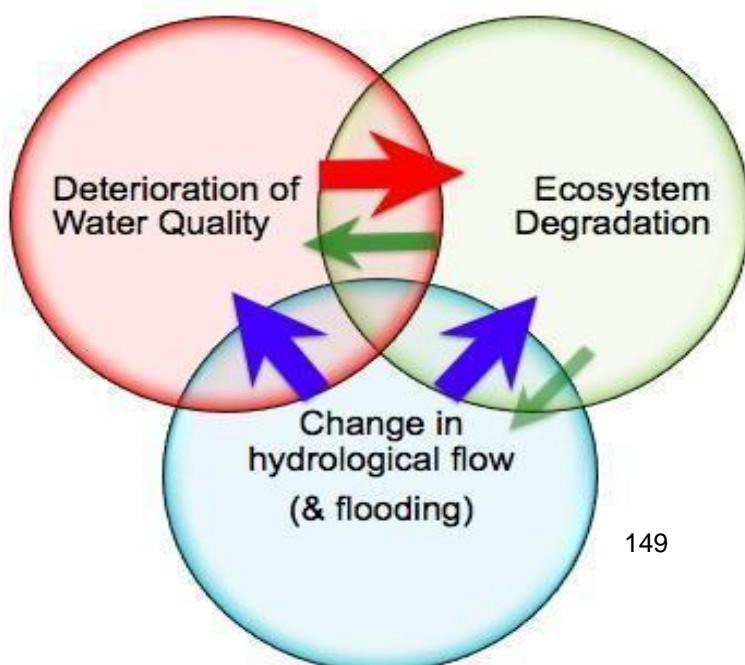
- Increased inundation and waterlogging in areas where water is stagnant due to poor drainage;
- Severe loss of species including plants in extreme flooding; and
- Increased mudflows, erosion, and loss of soil fertility in extreme flooding.

The socio-economic impacts of flooding include:

- Loss of human life and property, destruction of crops, permanent damage to agricultural and other land, loss of livestock, destruction of important civic infrastructure, disruption to water and electricity supply, transport & communication networks, education and health care;
- Deterioration of health due to the spreading of waterborne diseases caused by the floods directly and through loss of water supply systems, and the disruption of access to medical care, which may cause short term and long term impacts on the health of the affected people;
- Loss of livelihoods as economic activities come to a standstill due to disruption of communication links and other infrastructure, which may take a long time to restore, leading to production losses in agriculture, industry, etc.;
- High costs of relief and recovery, including initial emergency relief, the cost of relocation of people, rehabilitation of property, etc.; and
- Loss of resources can lead to high costs of goods and services, also delaying development.

2.3 Linkages between issues

The cross cutting issue of climate change is addressed through a review of climate change predictions for the basin and the impacts this will have on the four transboundary issues. Climate change is expected to cause an increase in temperatures, decrease in precipitation, increased glacial melting, and increase in evapotranspiration.



As noted throughout the causal chain analyses for each of the transboundary issues discussed previously, there are often overlaps between issues and mutual impacts of each issue on the others. The complexity of these issues is common in ecological systems where dynamic interactions lead to shifts in natural conditions. In the causal chain analyses the relationships within the issue are analyzed, however there are the relationships between the issues that must be considered as well.

The diagram above provides a graphic representation of the impacts that the

transboundary issues have on one another. The arrows between the circles indicate the impact relationship. The color of the arrow corresponds to the impacting issue, it points to the issue receiving the impact. The size and the transparency of the arrows reflect the strength of the impact.

The relationship between change in hydrological flow (and flooding) and deterioration of water quality is a strong, unidirectional relationship. The decline in water resources — less water in the river — results in a concentration of pollutants in the water. In the event of flooding, water quality is negatively impacted because of the overflow of systems such as tailing ponds for mines, sewage systems, and agricultural fields, from where land based source and non-point source pollutants are washed into the river system. In contrast, the deterioration of water quality has neither an impact on changes in hydrological flow, nor on flooding. Large debris in the river may impact flooding, however that is beyond the project scope for “deterioration of water quality.”

The relationship between deterioration of water quality and ecosystem degradation is more complex and interdependent. This was defined in the causal chain analyses but deserves additional attention here, as these linkages are quite important when considering remediation efforts. As indicated in the figure above, the stronger of the two impacts is the negative impact of water quality deterioration on the ecosystems, which results in ecosystem degradation. This includes poor quality water reducing the capacity of the river system to function optimally. Various flora and fauna within the river system that are beneficial and widely diverse are not able to thrive in poor water quality. Additionally, the poor water quality leads to an increase in species that are more tolerant, which creates balance shifts within the ecosystem. Poor water quality also negatively impacts the ecosystem conditions on land, especially when irrigation of fields uses this water. The ecosystem balance as a whole is seriously jeopardized by the deterioration of water quality and decline in hydrological flows.

2.4 Common needs to address transboundary issues

As noted previously, there are correlations between transboundary issues as well as some degree of causality. Within the causal chain analyses there are several common causes that arise which, if properly addressed, will resolve some aspects of these issues, and similarly improve conditions of linked issues. The common causes reflecting common needs are those which could widely benefit the Kura basin and reduce the degradation of the Kura river basin. These common needs are:

- **Improve information quality for decision makers;**
- **Define the economic value of water resources and improved water quality;**
- **Estimate realistic valuation of ecosystem services;**
- **Improve coordination in planning for water resource use among sectors;**
- **Improve monitoring programs for water quality and water quantity including modernizing, equipment, capacity and use of best practices; and**
- **Support capacity development and transboundary coordination as appropriate.**

Most of these issues are both national and transboundary in nature, because the increase in water abstraction in the upper reaches of the river negatively impacts access to water for economic and social needs in the downstream reaches of the river both within and between countries. As water scarcity becomes worse, overall human security is threatened in terms of cumulative threats to food security, water security, energy security and environmental security. Steps are urgently needed to address this in order to optimize the rational use of existing resources and to take steps to improve the security of water resources for future generations and their economies across the basin.

These common needs fill gaps in institutional structure and capacity, also reflected in the Capacity Needs Assessment conducted for the IWRM/SAP component of the UNDP-GEF Kura-Aras project. The UNDP-GEF project is currently supporting the development of National IWRM Plans, as well as

the capacity development for their implementation. However, in order to do this in a way that will be sustainable in the future, commitment from the governments to address these common needs must be made by both countries. The benefit is that when both of the countries fills these gaps, successful river basin management will be much easier, and with the economic costs recognized and benefits realized.

3 Basin Vision Objectives, Outcomes & Activities for SAP Implementation

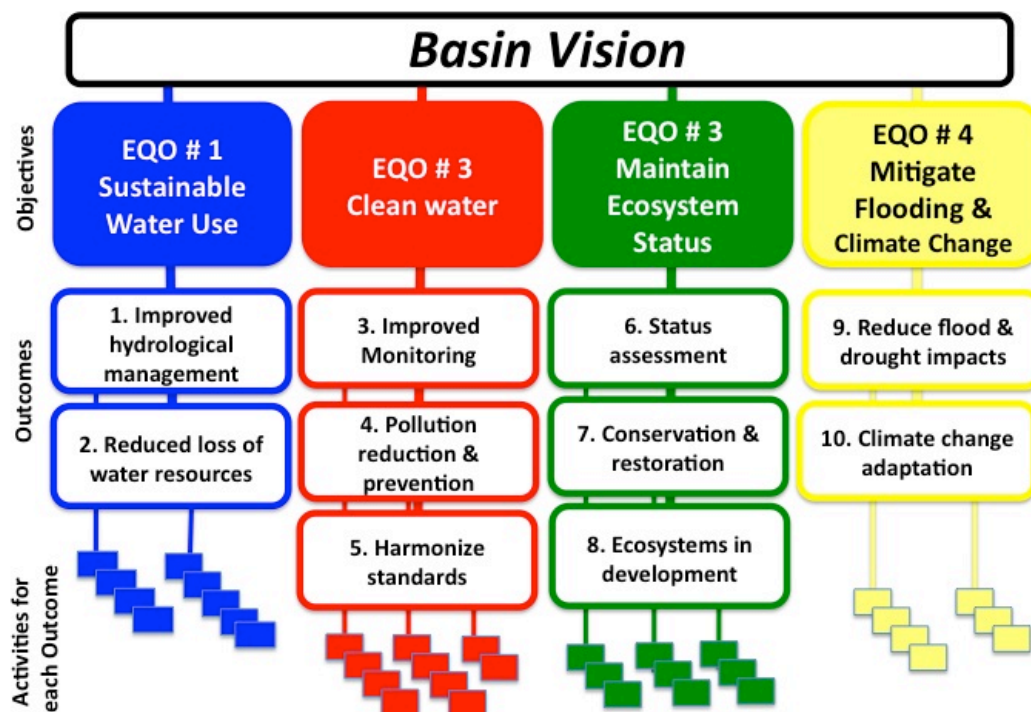
In 2007, during an earlier phase of the project the UNDP-GEF Project Steering Committee agreed to the Long-term Basin Vision and to four Ecosystem Quality Objectives (EQOs) to reach the long-term Basin Vision. These were the foundation for the SAP developed between 2011-2013, and reaffirmed by the Steering Committee members in May 2013.

The Basin Vision is:

“To achieve sustainable development and maintain ecosystem functions in the Kura River Basin through reducing transboundary degradation and improving environmental management in order to ensure ecosystem services, economic well-being, and health and security in all riparian countries.”

The Vision is supported by the four agreed Ecosystem Quality Objectives, which in turn are met by reaching a set of ten outcomes. The outcomes are detailed in the following table with more detailed activities presented in the table at the end of this section. The structure of the SAP with summarized Objectives and Outcomes is shown below:

SAP STRUCTURE:



The 2007 EQOs and the 2013 Outcomes needed to achieve the EQOs are explained below based on the work of the stakeholders and guidance of the countries through the National Focal Points.

EQO # 1: To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services

1. **Improved Hydrological Management:** Water resources in any river basin are subjected to short- and long-term variation, and predicted climate change adds an uncertain potential impact on the human population and ecosystems. Meanwhile poor understanding exists on actual spatial-temporal availability of water, and its seasonal, annual and long-term variability, as monitoring systems have deteriorated. There is a low understanding of the economic contribution of water resources to development, and the interaction between surface water and groundwater, leading to an over-exploitation on groundwater aquifers in times of water stress. Overall there is a need to enhance technical and knowledge capacity, and strengthen institutions to support sustainable IWRM and EU Water Framework Directive (WFD) implementation. Proposed activities in this outcome include improvement of monitoring networks; assessment of net economic return per unit of water use per sector to help balance demands for the Water Nexus; development of a conjunctive use strategy for surface- and groundwater; and targeted capacity building in IWRM. These steps will enable the countries to lay the foundation to ensure sustainable access to water for future generations facing the threats of climate change.
2. **Reduced loss of water resources:** Improved water resource management also includes taking steps to avoid losses of water where possible and delivering water where it is needed most, at the right moment. It also means that the water is used as efficiently as possible, especially as water resources are threatened by climate change. It is critical to identify how to conserve water in all sectors, demonstrate how wastewater can be safely reused, and to educate the public about what each person can do to conserve water. This will gradually shift water management from a culture of abundance to a culture of scarcity. Proposed activities for this outcome focus on assessment of water losses, and the elaboration of supply- and demand-side strategies to improve water use efficiency; design a wastewater recycling strategy and regulatory framework; targeted awareness campaigns towards conserving water; and pilot projects to demonstrate water use efficiency in different sectors. As climate change impacts become more felt, it is critical that all steps are taken to empower those most impacted and most able to make a difference for sustainable development.

EQO # 2: To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin

3. **Improved water quality monitoring programs:** The countries have made initial steps towards approximating the EU WFD and there is strong appreciation of the value of this approach. Still several significant gaps prevent the countries from being able to successfully implement the EU WFD. Among these are: the need for adjustments in national water quality monitoring agencies to institutionalize updated practices and analytical approaches; the need to adopt national biomonitoring programs to improve monitoring and reduce costs; the need to establish an information management strategy between agencies within the countries; and the need to properly train and support staff within the monitoring agencies. Addressing these priority concerns will be the focus of this outcome, to enable the countries to move more quickly towards harmonization of water quality management with EU practices and properly address threats to water quality.
4. **Pollution reduction and prevention:** Water quality monitoring is only useful if subsequent steps are taken to improve conditions. To understand the need to reduce and prevent pollution it is necessary to assess the complete costs and risks associated with water pollution, towards supporting decision makers in dedicating budgets to these efforts. Accordingly, targeted integrated pollution abatement plans need to be designed and implemented, demonstrating best available technologies and best environmental practices to be tested and replicated in the basin. Also important is the elaboration of early warning systems that can improve response to pollution accidents more effectively. And it is critical that legal mechanisms are in force that empowers appropriate agencies with enforcement capabilities. These agencies will also need to have the capacity and authority to ensure compliance in order to effectively contribute to protection of the water resources.

- 5. Harmonization of water quality standards:** Currently there are different parameters and standards applied by the countries in water quality monitoring and assessment, which makes data comparability and compatibility difficult. As Azerbaijan and Georgia move towards approximating the EU WFD, water quality monitoring practices will become further harmonized. Establishing institutions through a bilateral commission and associated tasks force this will enable the countries to formalize unified analytical standards, norms and indices for chemical and hydromorphological water quality as well as river ecological status. These institutions can then support defining agreed mechanisms for storing and exchanging data in line with the international best practices for transboundary rivers.

EQO # 3: To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin

- 6. Assessment of the status of river ecosystems:** Significant gaps exist in information on river ecosystems, gaps that need to be filled in order to most effectively plan for sustainable water resources use in the region. There is a lack of descriptive information on ecosystems and interactions between their biotic components and environmental factors, as well as about their actual condition and status in relation to human activities. Accordingly, there is lack of knowledge of the valuable economic contribution that the river ecosystems and the services they provide to the overall economy. And while there is strong discipline-specific knowledge on water management within the basin, the integrated understanding of ecological processes in river systems and cause-effect relationships to human activities needs further strengthening. The activities in this outcome will assess the status of river ecosystems by establishing ecological assessment programs; develop a methodology for economic valuation of river ecosystems to support decision makers to balance competing demands, and apply the Water Nexus approach to support true sustainable development; and strengthen stakeholder educational and capacity building efforts on river ecosystem values, so that current and future generations can continue to benefit from the ecological riches of the South Caucasus.
- 7. Conservation & restoration of river ecosystems:** The human impact on river systems has been especially serious over the past century of development in the basin. Developments in irrigation, hydropower, industry and human populations have significantly altered the natural flow of rivers and related ecosystems throughout the Kura basin. Much of this development has occurred without regard to maintain the health of the ecosystems, or without awareness of the long-term impacts development would have on the sustainability of ecosystems. In order to mitigate those negative impacts it is necessary to incorporate natural river processes in development planning, to conserve, protect and restore river ecosystems. Related activities under this outcome focus on strengthening the protected areas networks in paying specific attention to protecting river corridors and river basin conservation approaches in line with EU approaches; developing and institutionalizing the principles of environmental flows in line with international best practices, to minimize negative impacts of reduced flows; and implementing river restoration plans with demonstration projects to showcase the ecological and socio-economic benefits of improving the river system health.
- 8. Mainstreaming river ecosystem protection in development planning:** Existing sectoral development planning and the current legal and permitting systems for environmental protection are not sufficiently robust to shield the river ecosystems from negative impacts. The international donor practices encourage the mainstreaming of ecosystems' considerations in sectoral development planning, both through EU Directives, and application of international best practices. The activities for this outcome will focus on supporting stronger legal, economic and policy mechanisms to protect the environment in planning for development, for use in river basin management plans; strengthening the environmental impact assessment (EIA) and strategic environmental assessment (SEA) processes and capacity, to emphasize protection of river ecosystems; and demonstrating the benefits of strategic environmental assessments on selected sectors dependent on water use for future development.

EQO # 4: To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities

- 9. Reduction of hazards due to floods and drought:** Natural disasters do not observe country boundaries, and the increasing occurrence and severity of extreme weather events due to climate change will further stress this. Transboundary flooding and droughts are predicted to occur with increasing frequency, and steps to reduce the negative impacts of these must be taken before the crisis. This involves developing flood hazard and flood risk maps and management plans in line with the EU Floods Directive as an international best practice. To be able to mitigate drought impact in advance, it is necessary to develop harmonized drought indices. There is a need to develop methodologies for estimating the losses and damages due to these severe events, to support economic valuation approaches that subsequently will support mitigation as well as restoration efforts. And as these severe events may be transboundary, support from neighboring countries through enhanced national crisis management and response networks, as well as capacity building for at-risk communities, will enable to save lives and reduce losses.
- 10. Harmonized Climate Change Adaptation:** Climate change is a cross cutting issue that will impact on all aspects of water resource management. It is critical that these impacts are well understood, and can be predicted based on strengthened modeling capabilities to determine the expected impacts on water resources in the basin. It will be important to share lessons learned from demonstration projects that test adaptation measures on their appropriateness for use in the basin. It is also vital that local stakeholders and communities understand the impacts of climate change on water resources and are empowered through networked trainings to take responsibility for adaptation measures at the household and community level, in which also innovative ideas should be shared across the network and internationally.

The following table provides the activities to reach the outcomes. This includes the description of the activities and the ranked priorities among the National Focal Points. These rankings are for high and medium priority for both countries. The medium priorities were listed as important, but less urgent than the high priority activities. In all cases these are the culmination of shared priorities that will support both national and transboundary water management and improve the conditions of the river basin. The estimated timeframe ranges from approximately five to fifteen years. The National IWRM Plans will more accurately present the timeframes based on national priorities. In some cases these will be addressed in shorter timeframes and in others slightly longer. This is specified within the National Plans. The types of activities are also included, to clarify the needs and types of involvement needed to reach the outcomes, objective and vision. At the national level additional activities, including infrastructure development may be included. In every case the SAP is intended to support the implementation of the National Plans, based on country priorities and existing legal and institutional structures.

Summary Table including activities

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	EQO 1	To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services			
1. Improved Hydrological Management	1.1 Improve hydrological and meteorological monitoring by modernizing the monitoring network	The hydrological and meteorological monitoring network are currently outdated. This activity will assess the status of the network – distribution of stations, monitoring parameters and methods, equipment, etc. – based on identified priority needs on information provision in support of decision making. Steps will be taken to modernize the observation network through refurbishing existing stations, and establishing new stations as needed. This will contribute to improving the understanding on actual spatial-temporal availability of water resources, and their seasonal, annual and long-term variability.	High	Medium term	Monitoring support
	1.2 Assess the economic return on unit of water used in different sectors, including agriculture, hydropower, municipal and industrial water use, to balance demands for the Water Nexus	There are increasing demands on water resources across the basin from different sectors. The Water Nexus provides an integrated approach to examine the social and economic benefits of each sector in the context of water being a finite resource in multiple demand, towards maximizing the benefits from water resources. The application of the Water Nexus methodology allows countries to balance these competing demands for water to achieve food security, energy security, water security and environmental security.	High	Short term	Capacity building
	1.3 Develop a conjunctive groundwater and surface water use strategy to ensure sufficient water availability for development and the environment.	There is a threat of non-sustainable overuse of both groundwater and surface water resources. Ongoing development and climate change put increasing stress on available surface water resources, leading to groundwater increasingly being used as replacement. A conjunctive use strategy will examine the available water resources in unison, to determine safe use levels based on sustainable yields.	Medium	Long term	Institutional ; capacity building
	1.4 Institutional and capacity building to support IWRM implementation with legal mechanisms, and training program for IWRM professionals	There are currently not sufficient institutional and professional capacities in the Kura Basin Countries to fill the needs for IWRM implementation. This activity will provide support through strengthening legal-institutional mechanisms and national capacities needed for successful IWRM implementation. Professional capacities will be enhanced through targeted training programs and collaboration with academic organizations.	High	Short term	Institutional ; capacity building
2. Reduced	2.1 Develop methodologies to assess sectoral water	Water losses within sectoral distribution networks are difficult to account for and they are costly. Especially where water resources are limited, avoiding and	High	Short term	Capacity building;

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	losses in distribution systems.	minimizing losses is crucial, as is there accurate assessment. There are modern internationally used methodologies that can provide more accurate assessments. This activity will demonstrate how to apply these methodologies in each country, in order for targeted efforts to be defined to actually minimize losses.			monitoring
	2.2 Develop strategies to encourage efficient use of water resources.	The countries are not currently able to fully benefit from the available water resources in the region. Significant volumes are lost in the supply infrastructure and water is not used efficiently once it reaches its final location of use. This activity will support the development of economic and financial incentives for more efficient use based on best available technologies and best environmental practices gathered from around the world.	High	Short term	Capacity building
	2.3 Implement demonstration projects to reduce losses and improve water use efficiency in different sectors.	The outdated approaches to water use in many sectors is largely based on the assumption of unlimited supply. New understanding on the limits of water resources, combined with the threat of their reduction due to climate change, means that water supply and demand is now more scrutinized and efficiency must be stressed. Activities under this outcome will assess water supply systems for selected sectors, and prepare proposals for improved efficiency. Demonstration of innovative technologies and/or approaches will enable distributors and water users to benefit from improved efficiency in difference sectors.	High to medium	Medium to long term	Monitoring; Capacity building; Demonstration; stress reduction
	2.4 Develop a strategy for safe wastewater recycling, for agricultural use based on innovative technologies.	Agricultural uses the largest volumes of water of any sector. Wastewater from agriculture and municipal sources, can be treated and reused safely, if proper technologies are applied with strict regulations. This activity will assess the current practices and legal frame works, will recommend innovative technical and legislative improvements towards in the health and safety of the basin population.	Medium	Short term	Capacity building; stress reduction
	2.5 Apply public awareness and education campaigns to improve understanding on the importance of conserving water.	While water losses are cumulative, each person can contribute to water conservation. Currently managers, decision makers and the public do not place a high value on water or the need for its conservation. Through a public awareness and education campaign, the benefits of conservation and protection of water resources can become more widely understood, leading to improved water conservation practices.	High	Short term	Capacity building; stress reduction

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	EQO 2	To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river Basin			
3. Improved Water Quality Monitoring Programs	3.1 Improve water quality monitoring practices to be in line with the EU WFD approach and international best practices	Initial efforts in the countries have demonstrated the water quality monitoring approach of the EU WFD, however there are additional needs in improving and expanding water quality monitoring efforts. This outcome will pay special attention to improving the institutional-regulatory framework, update the water quality monitoring network, modify parameters and improve analytical approaches, all to ensure that the monitoring practices meet internationally accepted standards.	High	Short to medium term	Monitoring; Capacity Building
	3.2 Adopt national biomonitoring programs using macro-invertebrates to gauge water quality and river system status in line with the EU WFD and international best practices	The most effective water quality monitoring requires constant observation over time. While chemical levels in the water can change in an instant, aquatic living organisms (macro-invertebrates) can indicate water quality status over time because some species will thrive in clean water, while others thrive in more polluted conditions. Biomonitoring has proven to be a low-cost and effective tool to obtain an integrated assessment of water quality, and is used effectively throughout the EU. It has been demonstrated in the Kura basin countries and equipment is available to expand this to national biomonitoring programs. To bring these programs into line with the EU WFD and international best practices, this outcome will target a review of the existing lessons learned, an increase the coverage of the programs, building capacity for trained analysts, ensuring quality control and quality assurance, defining suitable biological indicator species and indices, and subsequently expand biomonitoring in both countries.	High	Short to medium term	Monitoring; Capacity building
	3.3 Strengthen mechanisms for sharing water quality information collected by different agencies within each country.	In both Kura basin countries water quality is monitored by different agencies for different reasons, including public health, environmental monitoring, and agricultural use. It is important to develop water quality information exchange strategies that will enable each country to reduce costs and to harmonize water quality monitoring. For IWRM to be successfully implemented, national water quality information should be shared openly between agencies in a common database, with shared analyses, specific for the intended purposes to ensure consistency and coordination.	Medium	Short term	Capacity building; institutional
	3.4 Improve the technical capacity of water quality monitoring agencies and	Approximating the EU practices, in line with the desire to reach international best practices of the countries, will require professional capacity development for expanded water quality monitoring, including biomonitoring. The current	High	Short term	Capacity building

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	support professional capacity development for staff on best practices to more closely align with the EU WFD, and the international standards.	staffing levels and their capacities are not sufficient to meet the expected needs of the countries, and there is a high level of turnover in monitoring agencies. It is necessary to strengthen the professional development of staff, and design retention plans for trained staff, in order to successfully implement the EU Water Framework Directives and international best practices.			
4. Pollution Reduction and Prevention	4.1 Assess the social and economic costs, sources and risks associated with water pollution.	Water quality has been impacted by human activity in the basin, which in turn negatively impacts on economic development. In order to justify spending money to improve water quality, it is necessary to better understand the sources and the actual costs of pollution. Activities under this outcome will focus on developing a methodology to assess risks and actual costs related to water quality degradation, based on improved health impact studies and update knowledge on locations and types of point and non-point pollution sources. Overall costs of pollution should include costs to human health, economic productivity, soil fertility and the additional risks of increased concentrations of pollution from development and climate change.	High	Short term	Capacity building; institutional
	4.2 Implement integrated pollution abatement plans to improve water quality.	Addressing water quality deterioration requires that countries develop pollution abatement plans. These plans will target the most significant polluters, and promote the use of best available technology (BAT) and best environmental practices (BEP) in reducing pollution. Targeted financing mechanisms to support implementation of the plans will be elaborated. Demonstration projects will be designed and implemented to showcase BAT and BEP for testing and replication.	High	medium	Capacity building; institutional; demonstration; stress reduction
	4.3 Develop or improve early warning systems for accidents that would impact on water quality.	There is always potential for accidents that would lead to significant pollution of rivers and waterways, despite pollution preparedness or abatement plans. To reduce the negative impacts of these potential accidents, it is critical to assess the potential risks as well as the status of the early warning systems. Based on these assessments the early warning systems will be improved, to more effectively respond to accident, to minimize the negative and hazardous impacts based on best practices.	Medium	Short term	Capacity building; institutional; stress reduction
	4.4 Strengthen the laws and regulations to protect water quality, including stronger enforcement capacity, towards better compliance.	Legal mechanisms to protect water quality are only as effective as their enforcement. To ensure compliance, the legal-regulatory mechanisms must be strengthened, enforcement bodies properly mandated and authorized, and their staff well-trained and adequately equipped. This will enable the monitoring and enforcement agencies to effectively carry out their mandate, contributing to	High	Short to medium term	Capacity building; institutional

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
		the protection of water quality.			
5. Harmonization of Water Quality Standards	5.1 Harmonize national water quality monitoring standards bilaterally, including indices and limits for agreed substances in line with the EU WFD and international best practices.	Currently water quality monitoring information cannot be compared between countries because each country is using different water quality approaches, parameters, and standards, while measuring for different limits for various substances. With the support of international organizations, the countries can bilaterally develop institutions (commissions or task forces) for shared water quality monitoring, to oversee agreed standards and indices of water quality and river system health. This will enable the countries to harmonize water quality monitoring and to define comparable approaches to assess the ecological status of rivers in line with the EU WFD and international best practices for transboundary rivers.	High	Short term	Institutional
	5.2 Develop data exchange programs that enable countries to share water quality information through bilateral commissions or task forces.	Once the countries have bilaterally agreed on water quality standards and indices, information exchange will enable them to improve their own water resources management. The bilateral commissions or task forces can establish a web portal and develop mechanisms to exchange data and analytical approaches on water quality assessment, including for emergency events and accidental spills.	High	Short to medium term	Institutional
	EQO 3	To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura- River Basin			
6. Assessment of the status of river ecosystems	6.1 Establish river system ecological monitoring programs to assess ecosystem health as well as impacts from development and climate change.	Currently there is no established program to monitor the ecological health of the river systems. There are significant data gaps - lack of descriptive information on ecosystems, the interactions between their biotic components and environmental factors, as well as about their actual condition and status in relation to human activities - that result in decisions on development planning being based on incomplete information. An integrated monitoring program for aquatic and riverine zones can detect impacts and disturbances to these systems from development and climate change. Long-term monitoring of integrated riparian ecosystems will complement aquatic macro-invertebrate monitoring in EQO2, thus providing a more complete evaluation of overall river system health. This monitoring will focus on hydromorphology, flora, fauna, and microbiological aspects. Aspects of hydrological flow monitoring are addressed in EQO1. Together these will serve to provide a sound baseline to gauge impact from sectoral development planning.	High	Short to medium term	Monitoring

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	6.2 Conduct studies to assign economic values of the services provided by river ecosystems, for use in planning towards balancing competing demands of agriculture, municipal, energy, industrial and ecological sectors in the Water Nexus.	River ecosystems provide many important services that make it possible for humans to thrive in this region. These services include filtering and cleansing of water, reducing flooding severity, fertilizing land for agricultural development, while also providing waste disposal, sources of food, fiber, construction and energy, and habitats for flora and fauna including commercially valuable species. To date there is little knowledge regarding the economic value of the river ecosystem services and they are often taken for granted. True sustainable development requires that the values of these environmental services are included in sectoral planning and in balancing competing demands for water resources. Therefore it is vital to develop a methodology to gauge the values of ecosystem services, and to include this into development planning processes. This will support the use of the Water Nexus that seeks to balance securities for food, energy, water while maintaining also environmental security into sustainable development planning.	High	Short term	Capacity building
	6.3 Improve understanding of the need to integrate river ecology in development planning, through building stakeholder capacity and implementing educational programs..	While there is a high level of very discipline-specific knowledge within the basin on issues related to water management, the understanding of interdisciplinary integrated ecological processes and cause-effect relationships linked to human activities needs further strengthening at many levels. Increased understanding of river system ecology will improve the adoption and use of the EU WFD principles and support the use of ecological processes in development planning. A concerted multi-stakeholder ecological capacity building and education campaign will enable the countries to improve and prioritize ecosystems in managing development planning, to the benefit of current and future generations.	Medium	Short to medium term	Capacity building
7.C.onservation & restoration of river ecosystems	7.1 Improve protected areas networks along river corridors and in catchment areas/	Rivers are the critical lifelines for many species, and the protection of rivers and key river catchment areas will protect the flow which is critical in maintaining the health of rivers. The current protected area networks need to be strengthened to include the protection of river dynamics, catchments and corridors. Activities under this outcome include developing a strategic vision on landscape-scale conservation integrating riverine protected areas into existing networks. For this, ecosystem studies to justify priorities will be completed, while alternative protection regimes based on sharing the economic benefits from environmental services between man and nature will be elaborated. Attention will be paid to improving the technical and knowledge capacity of PAs towards strengthening their management,	Medium	Short to medium term	Institutional ; Capacity building; stress reduction

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	7.2 Implement environmental flows principles and calculation methodologies in line with international best practices.	It is agreed that the Soviet-era approach of installing environmental flows for rivers is outdated and needs to be re-evaluated. Flow alterations and abstractions must be linked to maintaining the specific dynamic hydrological conditions within the river on which natural ecosystems depend. New methodologies to assess appropriate environmental flows need to be developed and suitable approaches need to be institutionalized, in line with international best practices. Decision making on hydrological alterations should be based on minimizing negative impacts of reduced or altered river flows on ecosystems, while maximizing benefits for economic development. Special attention will be paid to training and awareness raising on approaches and benefits, as well as to implementing practical demonstration projects on installing environmental flows in select sub-basins.	High	Short to medium term	Capacity building; institutional; demonstration; stress reduction
	7.3 Develop and implement river restoration plans with demonstration projects to improve river system health.	Human development in the past century has significantly impacted the river system. Developments in irrigation, hydropower, industry and human populations have significantly altered the natural flow of rivers and have negatively impacted on related riverine ecosystems throughout the Kura basin and sub-basins. Efforts towards restoring natural riverine conditions will significantly contribute to improving river ecosystem health, to the provision of ecosystem services, as well as to reducing the costs of maintenance for technical infrastructure that is not effective. This output will support steps towards river system restoration through examining international best practices, providing training on principles and practices for river restoration, supporting the countries to develop harmonized strategies on river restoration in line with river basin management plans, and conducting targeted demonstration projects on approaches to river restoration, to showcase the ecological and socio-economic benefits of improving the river system health, for expansion based on lessons learned.	High	Short to medium term	Capacity building; demonstration; stress reduction
8. Improved attention to river ecosystems in	8.1 Strengthen legal, economic and policy mechanisms to protect the environment in planning for socio-economic development,	Currently socio-economic development plans do not emphasize environmental protection to ensure that water resources and ecosystems are properly protected. As part of approximating international best practices there is a need to encourage the use of legal, economic and policy mechanisms towards mainstreaming considerations on ecosystem conservation into sectoral development planning. This activity will analyze international experiences in environmental mainstreaming to guide recommendations on suitable legislative changes, institutional arrangements, enforcement control functions, and	Medium	Short to medium term	Institutional ; Capacity building

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
		economic incentives for conservation of ecosystems for each country. This will enhance the implementation of river basin management plans at all levels by empowering river basin management organizations and their supporting structures.			
	8.2 Strengthen the EIA and SEA capacities and the approval processes to include emphasis on water resources.	Existing legal mechanisms for permitting, designed to protect the environment, are not sufficiently robust to shield the river ecosystems in the Kura basin countries from negative impacts. The information on the status of, and impacts of development on, water and ecosystems is often out of date, if available at all. As a result, consultants providing information in environmental impact assessments (EIAs) and strategic environmental assessments (SEAs) do not adequately account for the impacts in their assessments. Besides providing for updated information on ecosystem health, addressed in outcome 6, there is a strong need to improve the EIA and SEA regulations to include international best practices related to water resource impacts. There is also a strong need to create a roster of independent consultants who are capable and approved to assess environmental impacts on water and ecosystems in each country. To further strengthen the permitting process, capacity building measures need to be implemented for agency staff responsible for approving and auditing EIAs and SEAs, in which special attention will be paid to international standards and cause-effect impacts on water resources and river ecosystems.	Medium	Short term	Capacity building; Institutional
	8.3 Conduct demonstration projects on the benefits of including environmental concerns into development planning,	In order to successfully include concerns for the environment into development planning on water resources use, the benefits need to be demonstrated, how addressing aquatic ecosystem concerns can also be advantageous for development. For this, improved EIA and SEAs approaches, including the application of economic valuation developed under outcome 6, will be applied on key sectoral plans, such as hydropower or agriculture. Subsequently recommendations will be developed for including the lessons learned from these approaches into the regulatory frameworks for these sectors.	High	Short term	Demonstration; capacity building
	EQO 4	To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities			

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
9. Reduction of hazards due to floods and drought	9.1 Develop flood risk management plans in line with the EU Floods Directive, to reduce negative impacts of severe flood events.	The increased occurrence of extreme climatic events, including flooding, is linked, among others, to climate change. Adaptation to climate change will therefore include preparations to minimize flooding damages in each country and across the Kura basin, as environmental crises do not observe country boundaries. The EU Floods Directive, in line with the EU WFD, provides guidance on appropriate measures that include assessing the hazards, risks and hotspots for flooding, identifying risk-prevention measures, and developing risk management plans. These plans can then be harmonized to reduce impacts across the basin.	High	Short to medium term	Capacity; Institutional ; stress reduction
	9.2 Develop a drought risk index using international best practices to reduce the negative impacts of severe droughts.	As with flooding, the threat of severe droughts occurring across the basin increases with climate change. Droughts however do not occur quickly and it is often difficult to move to action until it is too late. Establishing guidance for indicators of pending droughts can enable those impacted to take steps to reduce the harm done by droughts. This output provides support to creating a drought index based on international practices, establishing region-specific values for indicators, updating the monitoring systems and establishing a network of centers to share information and to coordinate responses.	Medium	Short to medium term	Monitoring; Capacity building
	9.3 Develop and test methodologies for evaluating the economic costs of floods and droughts, including loss of ecosystem services.	Increasingly severe floods and droughts are expected with increased frequency due to climate change. In order to understand the scope and scale of these impacts it is necessary to accurately assign economic costs to damages. This will require the adoption of an appropriate methodology for evaluating damages and assigning costs to the damages, including for the loss of ecosystem services. Better costs assessment of envisioned damages will guide mitigation as well as restoration efforts.	High	Short term	Capacity building
	9.4 Enhance national crisis response for severe events, including transboundary response networks and capacity building for at-risk communities.	It is necessary to develop national crisis management responses for floods and droughts, including enhancement of crisis response protocols during extreme events. As environmental crises do not observe national borders, as possible protocols should be harmonized in line with prevention, mitigation, and early warning approaches, to allow optimal responses in the event of an emergency. Additionally, capacity building in crisis management for at-risk communities will enable local communities to be first responders when extreme events do occur, to save lives and reduce losses.	Medium	Short to medium term	Capacity; Institutional
10. Harmon	10.1 Improve modeling capacity to help predict climate change and its	The threats of climate change are especially dire for water resources. It is critical to understand not only the type of threats but also their severity and extent, in order to plan adaptation effectively. This output will strengthen the	Medium	Short term	Monitoring; Capacity building

Out come	Activity	Summary Description	Priority	Time frame	Type of Benefit
	impacts on water resources within and across the Kura basin.	understanding and predictive capacity of climate change and related impacts on water quantity, quality and related ecosystems, based on improved modeling capacities. Knowledge and information will then be shared among the technical agencies in the countries and the basin			
	10.2 Develop water specific climate change adaptation plans with demonstrations of adaptation measures to be shared across the Kura basin.	Climate change adaptation will require creativity and problem solving that can be shared. As understanding of the expected impacts and risks of climate change increases, improved national Climate Change adaptation plans will be prepared, specific to how water resources will be managed. These climate change adaptation plans will then be shared and harmonized within a larger basin plan. Demonstration project will be designed to test adaptation measures on their appropriateness for use in the basin, for potential up-scaling and sharing of lessons learned.	Medium	Short to medium term	Demonstration; Capacity building; stress reduction
	10.3 Empower local stakeholders to take climate change adaptation measures through public awareness campaigns, trainings and sharing of innovative ideas.	No one is immune to the impacts of climate change, and adaptation measures will be required at all levels. This activity will support empowering local stakeholders through public awareness campaigns to educate the public about the impacts of climate change on water resources, and suitable measures that can be taken at the household and community level. Modules will be developed to train community members in the practical application of suitable low cost local adaptation measures, to disseminate the knowledge through the communities. Support will be provided to implement local innovative local adaptation measures, and to showcase them to the basin and internationally.	High	Short term	Capacity building; stress reduction

4 SAP IMPLEMENTATION ARRANGEMENTS

This SAP has been developed with existing legal and institutional frameworks of each country in mind, as well as those that can support implementation of the transboundary strategy. The SAP's development and gradual implementation will support the various international agreements to which the countries are parties, and their efforts to fulfill the obligations under these agreements at the national level. This includes enhancing the existing national laws and regulations relating to water use and management within both of the riparian countries, supporting the existing transboundary arrangements within the basin relating to water management, environmental stewardship and development of mutual commitments throughout the Kura River Basin.

The objectives and outcomes contained in this SAP are based on the riparian states' shared will, to strengthen their commitments to improve water management at the national and international level. The objectives and outcomes emerge from domestic legal precedents and actions needed to more fully reach the international commitments already agreed-to by each of the countries. It is these legal and institutional arrangements that may be improved and strengthened towards more effective, beneficial water management practices throughout the basin. The following sections discuss the legal and institutional frameworks pertinent to the implementation of the SAP in more detail.

It is acknowledged that these priorities of the countries are ambitious and in some cases the countries will benefit from external support and donor funded initiatives at both the national and transboundary levels to accomplish this.

4.1 Legal Frameworks

There are a number of national and international mechanisms already in place for the use and management of water and the environment throughout the Kura Basin. This SAP is intended to assist the riparian states in improving their national legal frameworks in order to fulfill their existing international obligations, while concurrently strengthening their national commitments. Such conventions and protocols already signed by both riparian states include:

- The UNECE Helsinki Convention Protocol on Water and Health;
- The Ramsar Convention on Wetlands of International Importance;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;
- The Rio Convention on Biological Diversity;
- The Paris Convention on Combating Desertification;
- The United Nations Framework Convention on Climate Change and its Kyoto Protocol;
- The Aarhus Convention on Access to Public Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters; and
- The Stockholm Convention on Persistent Organic Pollutants.

The countries are also committed to working to meet the UN Millennium Development Goals. These commitments are directly tied to improved water resource management, and achievement of these

targets will help to ensure a sustainable and secure future for the basin, including the commitments to:

- Eradicate extreme poverty and hunger
- Reduce child mortality
- Ensure environmental sustainability

These commitments directly link to improved water resource management and are dependent upon application of best practices in environmental and water management which the SAP strives to support.

Additionally, there are many bilateral and development commitments made by the countries that will strongly benefit from improved water resource management. These have been taken into consideration in the development of the SAP, and the SAP serves to support these efforts wherever possible. The National Plans describe these international commitments in more specific details as they vary by country and are at varying levels of implementation at the national levels. In no case would the SAP override or negate any agreement made by the countries, or national law. The intention is to be strongly supportive of realizing these commitments and improving the sustainable development of the countries.

In all cases, the countries are currently demonstrating their commitments to sustainable development through improved ecosystem and water resources management. This process is inherently complicated and requires a significant amount of effort in terms of capacity building, institutional realignment, regulatory revisions and political will. The commitment to do this is clearly evidenced by the countries at the national level and through their strong efforts to meet international commitments. The comprehensive and integrated framework for the management and use of water resources contained in this SAP will be realized through the individual National IWRM Plans for Azerbaijan and Georgia.

The overall benefit gained from implementing the proposed legal, institutional, and development actions contained in this SAP will significantly improve the national as well as transboundary situation relating to water resources management. This will ensure the continued progress of the riparian states towards meeting international standards relating to water and environmental management. In the Kura Basin, there has already been substantial progress within these areas which can be shared as models between neighbors as well as serve as a strong example of coordination within a shared basin as appropriate. This SAP will build on these efforts and strengthen harmonization for water and environmental management in the basin.

4.2 Institutional Arrangements

This SAP takes into account the various national and transboundary institutional arrangements that exist when making recommendations and proposing actions for harmonizing transboundary water use and management strategies. The foundational Kura-Aras Project succeeded to establish a close, collaborative working relationship with the various riparian states' governments throughout its work on the TDA and SAP, and is thus well aware of the existing institutional settings through which this plan will be implemented. A brief survey of the governmental entities the Project has worked with in each country that will, in turn, take on the recommendations made include:

- **The Republic of Azerbaijan's** Ministry of Ecology and Natural Resources, Ministry of Emergency Situations, Ministry of Health, Tariff Board, Ministry of Economic Development, Ministry of Agriculture, and the AzerSu and Amelioration & Water Management joint stock companies.
- **The Republic of Georgia's** Ministry of Environment and Natural Resources Protection, Ministry of Energy, Ministry of Labor, Health, and Social Protection, Ministry of Agriculture, Ministry of Regional Development and Infrastructure, Ministry of Economy and Sustainable Development, Ministry of Finance, Ministry of the Interior, National Energy and Water Supply Regulatory Commission, and Local Self-Governance Organizations.

As mentioned previously, there are also various transboundary institutional arrangements between the Basin countries aimed at improving inter-governmental coordination and collaboration. Some of these arrangements include:

- The Memorandum of Understanding between the Ministry of Environment of Georgia and the State Committee of Ecology and Control of Nature Use of the Republic of Azerbaijan (currently the Ministry of Ecology and Natural Resources) on cooperation in the development and implementation of pilot projects for monitoring and assessment of the status of the Kura River basin (1997).
- The agreement between the Governments of Georgia and Azerbaijan on cooperation in Environmental Protection (1997).

If additional bilateral agreements are finalized between the countries in the basin, the SAP will serve to support those upon the request of the participating countries. In such cases the SAP implementation should also serve to strengthen those through applied measures outlined in the SAP and in accordance with the National level priorities.

By and large, the challenges to more effective, equitable, and mutually-beneficial water management practices throughout the basin have to do with coordination, gathering and sharing of data, and the capacity to take on necessary reforms or initiatives. Many of the recommendations contained in the TDA, this SAP, and the National IWRM Plans center around these core issues, and are intended to act as cross-cutting solutions to such cross-cutting challenges.

Proposed Actions for Implementation of the Institutional Framework.

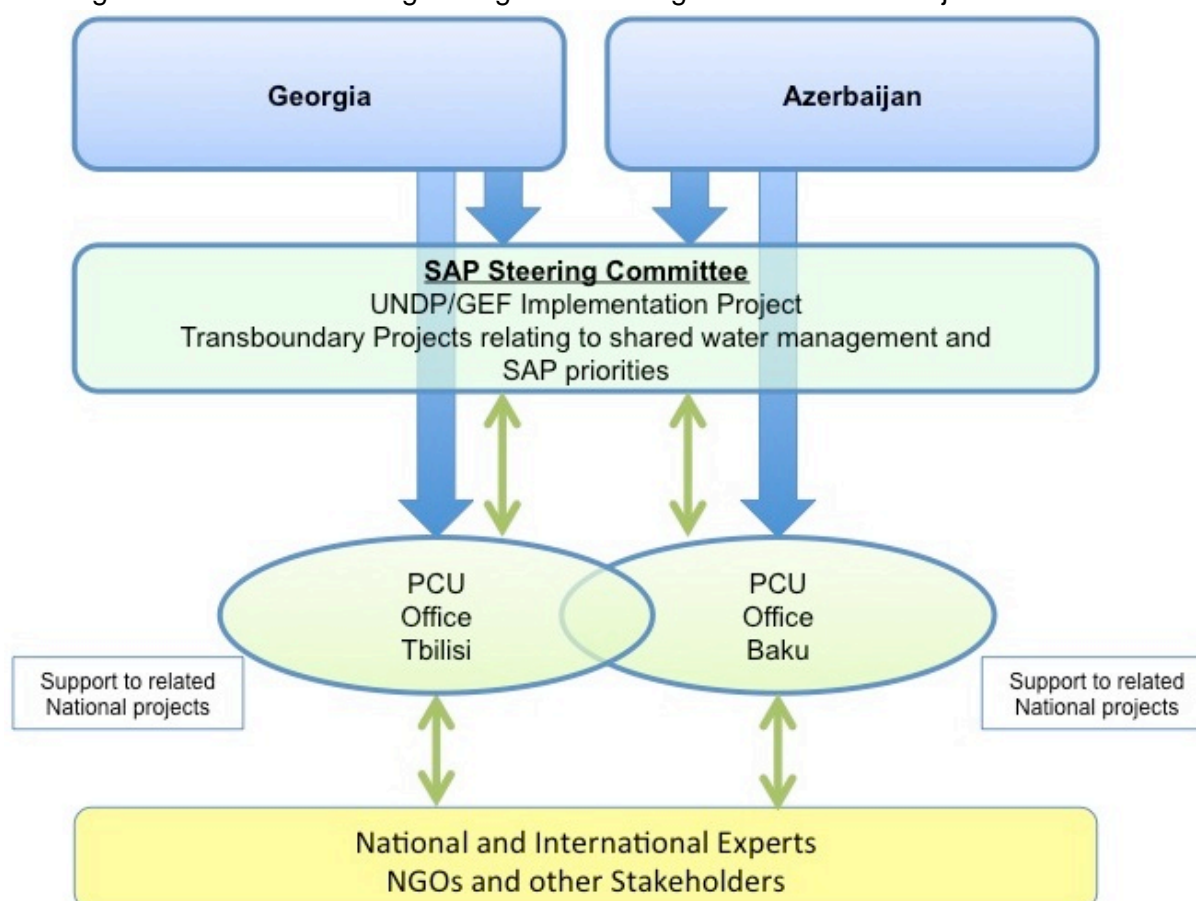
The riparian states' continued commitment to harmonizing transboundary water use and management practices through the UNDP-GEF Kura-Aras Project and the other donor funded projects throughout the basin is encouraging. The SAP supports maintaining the strong, effective working relationship that has been built within each of the riparian governments towards the government-agreed Basin Vision and recommendations in the TDA, the Objectives and Outcomes of the SAP, and national level implementation plan details expanded in each of the National Plans.

The SAP is envisioned to be implemented through a multi-project coordinating body. To date, the related projects implemented by the UN, EU, OSCE, ENV SEC, OECD, WHO, UNECE and World Bank, as well as many bilateral donors coordinate sporadically with each other. In most cases the National Focal Points are the same for these projects, and while they work together informally, the

SAP framework can serve to support and facilitate this coordination and develop a regulatory framework for cooperation at the national and transboundary level. The benefit would be higher levels of coordination among international donors, reduced demands on the time of National Focal Points, and improved effectiveness of efforts within each of the countries, as well as greater opportunities for coordination and information sharing within and between countries. It will also avoid any potential overlap between projects and ensure that they are complementary to each other and work in harmonized way towards achieving the national and shared transboundary objectives.

At the same time the national-level projects implemented by the donor community and the governments will continue with linkages to the implementation of the National Plans as appropriate within the specific National Plan. This will enable national-level priorities to also be realized as the countries move ahead towards strong water resources management. Autonomy of the donors as well as the independence of each of the countries and projects is clearly maintained, but where beneficial to the countries and the transboundary aspects of the basin those can be supported and facilitated upon agreement of the countries. While this arrangement exists to some degree informally now, the SAP implementation will support both coordination of the basin wide efforts as well as the national level efforts and will improve effectiveness at all levels.

The figure below demonstrates this working relationship and the central organizing role the SAP Steering Committee takes in organizing and directing the work of the Project.



4.3 Stakeholder Involvement and Public Participation

The development of this SAP has one of the highest rates of stakeholder involvement of any GEF International Waters Project. This has been done through extensive consultations with stakeholders

at all levels over an extended period of time and via extended meetings between November 2011 and October 2013. These stakeholders include representatives of many government ministries, government agencies, universities, the private sector, international bodies, NGOs, and other stakeholders and national experts. In total approximately 260 stakeholders have been involved, with fewer than 20 of those from international experts, and more than 240 from within the region. It is intended that this trend in extensive stakeholder consultation and involvement will continue to be fostered and encouraged in the future implementation of the SAP.

Continued consultation between the national governments, the SAP Implementation organizations and civil society, and the wide dissemination of information to the wider public are expected as well. It encourages active public involvement in decision-making processes related to water use and management through, *inter alia*, increased participation of citizen representatives and civil society members in forums such as the National Water Policy Dialogues or the annual NGO Forums.

Public and non-governmental organizations will be an important part of the process of addressing both the national and the transboundary needs, harmonizing water management practices in the Kura Basin, and meeting existing international obligations related to water and the environment. The public's participation is needed at the international, national, and local levels:

- **International level** involvement focuses on coordination of actions across the entire Kura Basin, addressing Basin-wide issues such as gender mainstreaming in water management or more effective ecological data gathering and management.
- **National level** involvement deals with the process of enhancing each riparian states' legislative framework and institutional capacity in order to address national priorities and needs in water management. It also works to achieve wider public stakeholder involvement in the monitoring and public input into the SAP/National Plan implementation, as well as concentrated efforts to build national awareness of water conservation and climate change adaptation among stakeholders.
- **Local level** involvement promotes active involvement of the public in positive environmental actions and empowers those most directly affected by water use and management issues on a local level to initiate efforts for improved water management, including building on the ingenuity of communities to address challenges of climate change adaptation and improve the assessment process to include public consultations for the major water related projects.

The active participation of stakeholders at all levels will continue to be encouraged through various SAP-recommended activities including:

- Enhancement of national legal systems in order to support public initiatives and ensure the active and effective participation of non-governmental organizations in the implementation of this SAP and the associated National Plans;
- Continued governmental and non-governmental participation in National Water Policy Dialogues throughout the Kura Basin;
- Continued NGO Forums to be hosted by the Kura Project to discuss various national and transboundary priorities in water use and management;

- Dissemination of information and public awareness campaigns on proposed water use and management strategies;
- Continued support for the development, implementation, and enhancement of coordinated Master's programs in Integrated Water Resources Management in both riparian states; and
- Mainstreaming environmental considerations into educational programmes throughout both riparian countries.

All of these approaches and recommendations will ensure that the implementation of this SAP and its accompanying National Plans will be inclusive, mutually beneficial, and cooperative at every level of water use and management. This is in line with international best practices, the riparian states' existing international obligations, and the agreed goals of harmonizing water management practices throughout the Kura Basin.

4.4 Monitoring and Evaluation for Implementation of the SAP

At the time the SAP has been drafted, there are no overarching international bodies appropriate to be charged with the monitoring and evaluation responsibilities for SAP Implementation. Also, the countries are each responsible for the implementation of national measures through the National IWRM Plans for Azerbaijan and Georgia within each of their focal point Ministries. Therefore the development of the Monitoring and Evaluation of the Implementation of the SAP will be outlined in detail within these national level plans. Future donor projects which will provide support to the countries at the national and transboundary level to the SAP implementation will hold the responsibility for monitoring and evaluation of those and will also hold the responsibility to maintain clear and open lines of communication and coordination with other donors working in the basin. This will enable the countries to benefit from coordination of donors and shared lessons learned.

In the event that bilateral organizations are formed which have close linkages to the SAP, including the possible bilateral commission between Georgia and Azerbaijan, these bodies would also be able to provide oversight for components of the SAP which are closely linked to their shared priorities. However, at this time, the national level monitoring and evaluation will be the primary mechanisms for oversight of SAP implementation.

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ANNEX 2 - National Projects and Progress on SAP Strategies

1. Projects functioning at the national levels can provide important support to regional projects, and if lessons learned and experiences are shared these significantly increase the foundation for the SAP implementation. At the national level, national priorities are often emphasized over transboundary concerns, but these projects can have important influences on the ability of the countries to meet their regional commitments as well.
2. The section below outlines these national level projects as they pertain to the EQOs and Strategic Outcomes of the SAP. This will be more abbreviated, and highlights those projects which are most relevant to supporting SAP implementation.

National projects in Azerbaijan

3. Water related projects in Azerbaijan reflect the priority of the countries as the most downstream nation in the Kura Basin. Projects addressing water quantity and flow rate and impacts of climate change clearly take priority. Prioritization of water quality improvements stems from investments in wastewater treatment plants. Other areas of concern include improved hydrological management. The lowest priority issue at the national level is addressing ecosystem conservation and preservation specific to the water environment. Due to the economic dependence on freshwater for agriculture and human development this trend is to be expected. These are summarized in the table 1.3.5.2 below.

Table 1.3.5.2 National Projects in Azerbaijan

Table 1.3.3.2 National Projects in Azerbaijan											
	EQO 1 Sustainable water use		EQO 2 Improved Water Quality			EQO 3 Maintain Ecosystems			EQO 4 Flooding & Climate Change		Cross cutting
SAP Outcomes:	1	2	3	4	5	6	7	8	9	10	
AZERBAIJAN NATIONAL PROJECTS											
1. Technical Assistance to the Republic of Azerbaijan For Preparing the Urban Water Supply and Sanitation Project ADB 2001-2003		X		X							
2. Urban Water Supply and Sanitation (Azerbaijan) ADB; AZ Govt. 2005-up		X		X							
3. Flood Mitigation Project n the Republic of Azerbaijan, ADB 2004-??									X	X	
4. Greater Baku water supply rehabilitation project, WB, GoAZ, 2002-2006		X		X							
5. Azerbaijan Government and the Asian Development Bank, 2009 – 2019		X		X							
6. Water Users Association Development Support Project, World Bank, 2011		X								X	
7. “Global framework for climate services”, WMO 2011										X	
8. Conservation Agriculture for Irrigated Areas in Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, FAO, 2011-2013		X								X	
9. Capacity Building for Sustainable Management of Mountain Watersheds in Central Asia and the Caucasus, FAO, \$0.3M		X								X	
10. Integrating Climate Change Risks into Water and Flood Management by Vulnerable Mountainous Communities in the Greater Caucasus Region, GEF, 2012-2017		X						X	X	X	
11. By support of EU and UNECE Water Strategy for Azerbaijan project implemented within NPD											X
12. “The study of hydrometeorological and glaciological conditions of Tufandag-Shahdagh-Bazarduzu ecosystem” The Azerbaijan Government	X					X	X				
13. “Development of adaptation, methods and technologies of water resources according to the climate changes” The Azerbaijan Government		X								X	
14. Elaboration of modern methodology to Environmental Flow Assessment for pilot river basins in Azerbaijan, Government of AZ, 04/2015-10/2016	X					X	X	X			
15. Urban Water Restoration Project Planning Phase,World		X									

	EQO 1 Sustainable water use		EQO 2 Improved Water Quality			EQO 3 Maintain Ecosystems			EQO 4 Flooding & Climate Change		Cross cutting health issues
SAP Outcomes:	1	2	3	4	5	6	7	8	9	10	
Bank, 2014											
16. State budget with Dutch Company and Dutch Ministry of Environment to conduct a full assessment of ground and surface waters in Azerbaijan for Ministry of Emergency Situations	X	X									
17. CHF Suez project with AzerSu on training and capacity building for water management, French Government,	X	X	X	X							
18. <i>Water Strategy Development ADB with MES, 2014-2015</i>	X	X	X	X	X					X	
19. The Government of Azerbaijan and International Cooperation Agency of Japan.	X	X		X							
20. KfW Bank of Germany, SECO organisation of Switzerland, Azerbaijan Government	X	X		X							
21. The Government of Azerbaijan and the Islamic Development Bank	X	X		X							
22. State Budget	X	X		X							
23. EU Twinning Project on environmental monitoring, EU, 2016-2018	X		X	X	X						

EQO # 1: To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services

4. In Azerbaijan there is a high level of awareness of the importance of preserving water resources. Sustainable use of water resources is critical to be social and economic development of the country. There have been many projects at the national level that has focused on this issue and many more are under development.

Strategic Outcome 1. Improved Hydrological Management

5. National projects in Azerbaijan on improved hydrological management are focused in the areas of municipal water and agricultural water uses. As a petroleum rich country there has been significant resources available to upgrade systems since the end of the Soviet era. A great deal of money is invested in upgrading irrigation infrastructure and municipal water treatment facilities. Additional resources both from donors and as loans to the government are being spent on this in Azerbaijan. A future plans project for improved hydrological management is in the area of resource assessment. This project is being done in combination with ministry of emergency situations and the Dutch ministry of environment and in court nation with Ministry of ecology and natural resources. This project seeks to provide a full accounting of ground and surface waters and Azerbaijan.

Strategic Outcome 2. Reduced loss of water resources

6. In Azerbaijan there is a high level of awareness of the costs of Lost water resources. Azerbaijan is the most water or stressed country in the basin. Currently a great deal of money is being invested in upgrading municipal and irrigation systems in order to cut losses and to increase efficiency at the national level. Losses in municipal water systems are especially high due to outdated Technologies that have remained since the Soviet era. Improving water efficiency using state-of-the-art approaches for municipal water systems is a high priority for the government of Azerbaijan. In order to ensure efficiency with in the Systems Ministry of finance in combination with the French government and CHF Suez is providing intensive training and capacity building for the staff of AzerSu in improved water management efficiency. Additionally water conservation measures in agriculture and irrigation arm being emphasized through many projects including those focusing on water user associations throughout the Kura basin of Azerbaijan

EQO # 2: To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin.

7. Azerbaijan is acutely sensitive to water quality issues as the most downstream country in the basin. Issues of water quality are recognized to be both transboundary and domestic in source. As a result Azerbaijan is interested in investing in improving water quality for the

population. The entire country will have modernized water infrastructure by 2035, including drinking water and wastewater treatment.

Strategic Outcome 3. Improved water quality monitoring programs

8. Monitoring programs have not been strongly supported at the national level though regional projects have provided ongoing support. Water quality monitoring with AzerSu and with a national water strategy are stressed as important for Azerbaijan. In addition to current and upcoming regional projects Azerbaijan has requested support for an environmental monitoring compliance and enforcement for the Ministry of ecology. This planned EU twinning project will support updating of water quality monitoring practices including sampling, analysis, enforcement and decision support. This upcoming project is due to begin in 2016

Strategic Outcome 4. Pollution reduction and prevention

9. Across Azerbaijan attention is being paid to upgrading of municipal water and wastewater treatment facilities. The joint stock company AzerSu over sees this work and is charged with modernizing all municipal and water supply to world areas across Azerbaijan. Significant investments are being made two and able all of Azerbaijan to have high-quality Potter bull water and waste water treatment within the next 20 years. The annual operating budget of Houser Sue is \$1.4 billion per year. This money comes from the state budget as well as loans from governments of Japan, and Germany, the Islamic Development Bank, World Bank and Asian Development Bank. The company AzerSu is especially sensitive to the challenges of working with low-quality water sources, and understands the importance of protecting ground and surface water resources.

Strategic Outcome 5. Harmonization of water quality standards

10. At the national level harmonization of water quality standards tends to be a lower priority. However as Azerbaijan seeks to more closely approximate the EUWDF and water management practices there is a stronger interest in harmonizing water quality standards in the country with those of the European Union. The Ministry of Ecology and Natural Resources is working in this direction and specifically the EU Twinning project on environmental monitoring will support this beginning in 2016.

EQO # 3: To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin

11. Azerbaijan has a rich and diverse endemic ecosystem. The ministry of ecology and natural resources is well developed. There has been less national focus on the river ecosystems in particular, in Azerbaijan, than in regional projects. Upcoming regional projects can provide support at the national level as well.

Strategic Outcome 6. Assessment of the status of river ecosystems

12. There are some academics to have devoted significant attention to assessment of ecosystems along the cure river those these are not currently included in an accessible ministry database. There is an increasing appreciation of the need to develop such a database in support of updating environmental flows calculations and methodologies. In order to more closely align with the EU water framework directive development River ecosystem status databases will be increasingly important.

Strategic Outcome 7. Conservation & restoration of river ecosystems

13. There is an increasing appreciation with in the ministry of the ecology and natural resources on the importance of conservation and restoration of River ecosystems. This is in line with national commitments to the Tehran convention on protection and conservation of the Caspian Sea ecology. Further Ministry of emergency situations House voiced a strong interest in River restoration to mitigate flood damages as a result of experience with the EU floods directive. The rich and diverse Beauty of Azerbaijan's ecosystem River ecosystems have a strong potential for ecotourism is developed sustainably and promoted internationally.

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning

14. Currently is not a strong emphasis in national level projects on main streaming River ecosystem protection into development planning. There are two national level projects with this focus. These projects focus on reducing negative impacts of flooding using updated approaches to ecosystem management, and includes river system protection costs and benefits. The other project focuses on including updated environmental flows into development of integrated ecosystem management in the Ganja-chay river sub basin. Though the national level projects have not focused on this strategic outcome much there is appreciation within the ministry of the value of this approach.

EQO # 4: To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities

15. Azerbaijan has had the misfortune of experiencing the negative impacts of flooding and climate change. Efforts to address this have been given priority within the government. There is high level of awareness of the dangers and cost of flooding and extreme weather events resulting from climate change. Unfortunately there is recent experience with the damages on infrastructure two riparian ecosystems and local communities.

Strategic Outcome 9. Reduction of hazards due to floods and drought

16. Azerbaijan appears to have a limited projects on flooding in addition to those listed above. This is deceptive though as since the catastrophic flooding of 2010 resulted in the formation of the Ministry of Emergency situations. This ministry is charged with flood mitigation and protection measures and has benefited from generous the Government budget allocations since it started in 2012. These efforts are not listed as national projects primarily because they are under the purview of the ministry and funded directly by the government. Concerns regarding flooding include possible damage to outdated reservoirs upstream in areas outside the control of Azerbaijan's Ministry of emergency situations. Experts from this ministry have been the key to support and development of the national IWRM plan and the regional SAP. On a related note 2015 is the driest year on record since record-keeping began. Attention to drought management will likely fall primarily to the amelioration and water management company of Azerbaijan joint stock company. Mitigation of droughts must be managed by all sectors.

Strategic Outcome 10. Harmonized Climate Change Adaptation

17. More recently projects on climate change adaptation have emerged at the national and regional levels and included Azerbaijan. The government of Azerbaijan it Takes climate change adaptation seriously and has funded a project on "development of adaptation methods and technologies of water resources according to climate change." Further national level projects working with water user associations Will also include climate change adaptation for both cropping patterns and water conservation as part of FAO and World Bank funding initiatives. Climate change adaptation is relatively new and will require local, national and international solutions and strategies.

National projects in Georgia

18. In Georgia the National level projects aligned with the SAP objectives appear to be more balanced across EQOs. Georgia has richer water resources and somewhat different national priorities from Azerbaijan. The economic structure of Georgia also focuses on different national level priorities for water use water management. Hydro power accounts for 93% all electricity generated in Georgia. The government is eager to expand hydropower in order to exported both to Azerbaijan and Turkey and beyond to Europe. At the same time there is a strong awareness out of the need to protect and preserve the natural ecosystem. Tourism and ecotourism are both increasing in Georgia and have potential to draw much needed foreign currency and international support. As a result there interesting dynamics at play between the sectors over development and preservation of water resources within Georgia. Additionally the Kura basin which accounts for just below 50% of the entire country is far more arid than the Black Sea basin in West Georgia. As a result there is an increase in irrigation and sustainable water use efforts in Georgia in the Kura basin. Because Georgia is not a petroleum exporting countries National level donors supported projects have a somewhat different focus than those in Azerbaijan.

	EQO 1 Sustainable water use		EQO 2 Improved Water Quality			EQO 3 Maintain Ecosystems			EQO 4 Flooding & Climate Change		Cross cutting Institutions
SAP Outcomes:	1	2	3	4	5	6	7	8	9	10	
GEORGIA NATIONAL PROJECTS											
1. Social Investment Fund of Georgia (SIF), Gov. Georgia, IDA, EBRD (DATE NEEDED)	X			X							
2. Irrigation and Drainage Community Development Project , IDA, Gov. Georgia, 2002-2008		X		X							
3. Irrigation and Drainage Community Development Project Additional Financing (Georgia) IDA, Gov. Georgia. 2006-2008		X							X		
4. Regional Infrastructure Development Project, US MCG. 2006-2009		X	X	X							
5. Kobuleti and Borjomi Water Project, EBRD, MCG, WB, Gov. Georgia, Local Municipalities, 2007-2010		X	X								
6. Ecoregional Conservation Program in the South Caucasus: Establishment of Javakheti National Park in Georgia, BMZ/KfW, Govt. Georgia, 2008-2010						X	X	X			
7. Development of Environmental Monitoring and Management Systems in Georgia (DEMMS) Finnish Gov., 2007-2008			X			X					
8. Promoting the Use of Small Hydro Resources at Community Level, Government of Norway and implemented by UNDP and MENRP, 2005-2011								X			
9. Institutional Building for Natural Disaster Risk Reduction (DRR) in Georgia, CENN project funded by MATRA, 2009-2012								X	X		
10. Integrated Natural Resources Management in Watersheds of Georgia Program (INRMW) USAID, 2010-2014	X		X			X	X	X	X	X	
11. EU project Ensuring of the improvement of the Mtkvari (Kura) River Management in Tbilisi area, EU, 2012,								X			
12. Irrigation and Land Market Development Project, World Bank, 2014-2019		X									
13. Regional and Municipal Infrastructure Development Project, World Bank, 2010-2014		X		X							
14. UNECE project National Water Policy Dialogue on Integrated Water Resources Management (IWRM) in Georgia, EUWI 2009-2016				X	X		X				X
15. Enhanced Preparedness of Georgia Against Extreme Weather Events, CZDA project implemented by NEA - 2011-2015									X		
16. Support of the implementation process of the EU Directive on assessment of the flood risks into the legislation in Georgia, Slovak Agency for International Development Cooperation (Slovak Aid) and implemented by NEA, 2012-2013	X								X		
17. UNDP project Developing Climate Resilient Flood and Flash Flood Management Practices to Protect Vulnerable Communities of Georgia, GEF, 2012-2016									X	X	
18. Anti-flood early warning and prevention systems in Georgia: special focus on Kabali and Duruji rivers, Project funded by Polish Center for International Aid (PCPM) and implemented by NEA, 2014-2015	X								X		
19. UNDP project Reducing Disaster Risks in Georgia, 2014-2016									X		
20. Introduction of an Information System for Data Transferring and Groundwater Monitoring Network in Kvareli and Lagodekhi Municipalities, CZDA Pilot Project, 2014-2015	X										
21. Governing for Growth in Georgia (G4G) activity, USAID project implemented by Deloitte. 2015-2019	X	X						X			

EQO # 1: To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services

19. Many in Georgia view the country's overall richness and water resources as a blessing. This can create challenges for sustainable management and rational water views when many view resources as unlimited. However in recent years awareness of more arid conditions in the country has increased. As a result there is an increasing appreciation of the need for rational water views and ecosystem conservation for critical catchment areas. Most irrigation within Georgia occurs within the Kura basin and many internationally donor projects emphasize water efficiency and conservation. Further assessment of resources has generally been conducted with a focus on development and impact of hydropower or flooding impacts. The degree of water scarcity experienced in Azerbaijan has not been as severe in Georgia, though parts of eastern Georgia are extremely dry especially during hot summer months.

Strategic Outcome 1. Improved Hydrological Management

20. Projects test on improved hydrological management in Georgia include those seeking to reestablish an updated water balance and the information on available resources. These projects often focus on water resources management pertaining to flooding for balancing the water needs and uses including ecosystems and hydropower. A current USAID funded project governing for growth in Georgia is working to establish improved hydrological management in the Kura Aragvi River sub basin and will focus on balancing water use between sectors. Other projects include updating data and improving groundwater monitoring. At the national level there is awareness of the need to develop a comprehensive water balance to support intersectoral integrated water management.

Strategic Outcome 2. Reduced loss of water resources

21. In Georgia there have been National projects that have included a focus on water conservation and increased efficiency. Current projects include those by the amelioration company of Georgia which is expanding irrigation in the Kura basin. Between 2013 and on 2015 irrigated lands have increased from 24,000 ha to 88,000 ha with this support of this project. Projects include updating of infrastructure regionally and at the municipal level for water infrastructure. These national level projects emphasize water conservation as part of the infrastructure rehabilitation. The private company Georgia Water and Power is eager to further update water conservation measures in line with international best practices in order to save resources and energy costs for pumping. The USAID governing for growth in Georgia project will also focus on reduced loss of water resources through increased efficiency in different sectors

EQO # 2: To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin

22. In Georgia the water quality tends to be better than it is in Azerbaijan as many of headwaters originate in the mountains of Georgia. However there is a need to improve water quality monitoring and water quality management as part of the EU Association Agreement. This will be a driving force for improvement of water quality in the Kura basin. Further pollution reduction and prevention will continue to be important as part of the EU WFD adoption.

Strategic Outcome 3. Improved water quality monitoring programs

23. Similar to Azerbaijan, national level projects in Georgia focused on water quality monitoring improvements are less prevalent than regional projects with this focus. Nonetheless there remains an important focusing on improving water quality monitoring programs at the national level. In Georgia several of these project have includes USAID integrated natural resources management in watersheds of Georgia program. The government is also undertaking updates of national laws including water quality management in line with the EU WFD as part of the association agreement.

Strategic Outcome 4. Pollution reduction and prevention

24. There are relatively few recent pollution reduction and prevention project at the national level in Georgia. However there have been recent projects focusing on waste management that

will impact water resources. There are also pending updates to municipal water sanitation services in major cities within the basin including Telavi in the Alazani Basin. Additional pollution reduction will come from the required improvements to the Gardabani collector which currently provides primary treatment to waste water from the Tbilisi and Rustavi. Georgia Water and Power, Ltd. Is eager to address this in line with permit requirements that provide a December 2018 deadline for updates to the system.

Strategic Outcome 5. Harmonization of water quality standards

25. The UNECE National Water Policy Dialog works with national stakeholders to help build support for IWRM including the harmonization of standards. Further, though currently not listed as national projects, the Water Department of the Ministry of Environment and Natural Resource Protection is eagerly taking steps to update and harmonize water quality standards in line with the EU WFD and EU Association Agreement Road Map.

EQO # 3: To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin

26. In Georgia there is a prioritization of protection of natural resources and ecosystems for sustainable use including the Carroll River basin. National level projects focused on these issues at request of the Ministry of Environment. Within the past decade there was the prioritization of economic development at the expense of sustainable environmental management though this has become less prevalent due to a change in government. Donor funded national projects provided important support to the ministry during that time. Civil society also played an important role during that time. As a result, there is a stronger public awareness of this issue than in other countries.

Strategic Outcome 6. Assessment of the status of river ecosystems

27. In Georgia there have been several projects focusing specifically on river ecosystem status assessment. The USAID Project for Integrated Natural Resource Management in Watersheds in Georgia (2010-2014) was very active in this, during a particularly trying time for sustainable environmental management. Earlier projects supported by the Finnish Government and KfW also supported these efforts. More recently, national projects have not had the same focus, though with the EU Association Agreement this is becoming increasingly important for developing River Basin Management Plans in line with the EU WFD.

Strategic Outcome 7. Conservation & restoration of river ecosystems

28. Many of the national projects listed under the previous strategic outcome also played an important role in advocating for conservation of river ecosystems. While there is a need for additional information in this regard, there is an interest in doing this, and an awareness of the importance of this in line with the EU WFD in Georgia.

Strategic Outcome 8. Mainstreaming river ecosystem protection in development planning

29. Several earlier national projects have linked the critical need to balance sectoral interests, development and ecosystem management. In light of the development of hydropower across Georgia, and it's potential impacts on river ecosystems these projects played an important role in advocating for balance in development planning. Also the importance of river ecosystems to mitigate flood impacts has played an important role in several national projects, though not always within the Kura River basin itself. More recently the USAID Governing for Growth in Georgia Project will also seek to advocate and demonstrate the benefit of this balanced approach.
30. The EU Association Agreement in Georgia including adoption of the environmental directives will further support this, especially with the EU EIA Directive and EU SEA Directive, both of which require rigorous ecosystem protection in development planning. These will further benefit and support the national level implementation of the SAP and this strategic outcome in particular.

EQO # 4: To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities

31. In spring of 2015 Georgia made international headlines due to a localized but severe flooding event. Unfortunately flooding and the climate change impacts are felt across Georgia. There is an increasing awareness of the importance of addressing this in a proactive manner rather than a reactive manner. National level projects provide support to the government in doing this.

Strategic Outcome 9. Reduction of hazards due to floods and drought

32. In recent years there have been many the Projects focused on flood mitigation and disaster risk reduction focus on flooding within Georgia. These projects have focused on sub basins of the Kura, as well as outside the Kura Basin, and been implemented by the NEA as well as other governmental and nongovernmental partners. These projects also include attention to extreme weather events and inclusion of flood management and preparedness in Georgia. The EU flood directive will be an important tool for further development of national and regional flood mitigation efforts. The recent flooding into please see will likely gain international attention and may result in increased support for flood mitigation measures.
33. Comparatively route reduction and mitigation projects are not well represented at the national level in Georgia.

Strategic Outcome 10. Harmonized Climate Change Adaptation

34. While climate change is expected to have significant impacts on water resources in Georgia including longer-term impacts on water availability due to glacial and snowpack melting there are relatively few climate change adaptation projects in Georgia. Similar to Azerbaijan adaptation to climate change is relatively new but increasingly important at the national and regional levels. The flooding in mountain communities' project and USAID projects emphasize adaptation as an important tool for dealing with climate change in Georgia.

ANNEX 3. UNDP Risk Matrix

#	Description	Date Identified	Type	Impact and Probability	Countermeasures / Mngt Response	Owner	Submitted, updated by	Last Update	Status
1	Operating the governance framework for regional coordination and ongoing capacity building application is not financially sustainable	Oct 15	Financial	Many of the outputs of the Kura II Project are working to ensure sustainable capacity and governance for the Kura River in the region. However if the countries are unable to agree on a mechanism to ensure the long term stability of the governance framework, many achievements attained as part of this project will be lost and the region will return to BAU. P=2 I=5	SAP actions gradually reduce donor dependency of governance arrangements. Application of subsidiarity principle and enhanced transboundary capacity and cooperation enhance efficiency in use of available financial resources. Strong involvement in all activities from regional and international stakeholders.	Kura II PCU			
2	Failure to agree on common approach to regional river system governance	Oct 15	Strategic	The objectives of the Kura II Project involve facilitating the implementation of the common and shared approaches to water management in the Kura II Region. Failure to agree on common approaches will result in the project not being able to achieve objectives and continued ad hoc approach to governance and management of the regions shared water resources. P= 2 I = 4	The development and region- wide political endorsement of the SAP has demonstrated countries' willingness to cooperate and activities under Components 1, 2 and 5 in particular will further support this cooperation.	Kura II PCU			

#	Description	Date Identified	Type	Impact and Probability	Countermeasures / Mngt Response	Owner	Submitted, updated by	Last Update	Status
3	Fragmentation of efforts and lack of coordination among project initiatives resulting in low return on investment and failure to achieve outcomes	Oct 15	Operational	<p>Fragmentation of the efforts and lack of coordination among project initiatives, including linkages with other national and regional projects will impact on the projects ability to catalyze implementation of the Kura River SAP. Continued fragmentation and lack of a coordination could result in duplication of efforts instead of building on outputs and results from tested and applied approaches that have had successful results in this and other regions.</p> <p>P = 3 I = 3</p>	<p>SAP as regionally endorsed guidance/reference framework for coordinated action. Incorporation of the SAP implementation into project. The Kura II Project will take a leading role in execution of SAP Strategies for transboundary basin organizations with formal mandate. Use of results from comprehensive technical study on institutional mandates/policy cycle gaps conducted during foundational capacity building phase, for the SAP development</p>	Kura II PCU Project Partners			
4	Environmental and societal changes (including climate change, political changes)	Oct 15	Environmental Political	<p>The impact of this risk should not have a major impact on the project, due to the fact that during project design climate change and variability were taken into consideration and as such the robustness of many of the proposed activities were assessed.</p> <p>Further efforts were also taken during the PPG to ensure that a strong sense of ownership of the project activities existed among the regional and sub- regional partner organizations.</p> <p>P =4 I =3</p>	<p>Mainstreaming of climate adaptation criteria in the design and implementation of Kura II SAP activities:(i) evaluation of the robustness of proposed solutions in the context of climatic and political uncertainty; (ii) contribution of the proposed solutions/actions to enhancing the resilience of the socio-ecological system. Strong involvement of and ownership by national bodies will reduce susceptibility of project outcomes to political change.</p>	Kura II PCU			

#	Description	Date Identified	Type	Impact and Probability	Countermeasures / Mngt Response	Owner	Submitted, updated by	Last Update	Status
5	Lack of parallel commitment by governments and stakeholders to ensure long terms sustainability of efforts beyond the life of the project.	Oct 15	Financial	The failure of the project to sufficiently emphasise the critical aspects of country ownership and benefits of cross sectoral coordination mechanisms, could result in the beneficial coordination aspects of the project ceasing to function and revert to BAU P = 2 I = 4	Strong coordination with, and involvement of multiple sectors of the governments and other donors in the implementation of the Kura II SAP will be promoted through Component 1.	Kura II PCU Partners and Kura II			
6	Limited public interest and awareness of ecosystem approaches	Oct 15	Environmental	If this risk was to occur, it would impact on the effectiveness and sustainability of mechanisms and arrangements to be established and strengthened under the Kura II Project. The region would then revert to BaU P=2 I=3	Through both Component 4 the project will engage with the wider stakeholders to increase awareness and emphasize local benefits of ecosystem management approaches to enhance the benefits of IWRM	Kura II PCU			
7	Limited scientific data and information and inability of national organizations to share data	Oct 15	Organizational	This will have an impact on many of the activities proposed under the project components. However it will have the greatest impact under output 5.4 particularly the development of the "State of the Kura" report P = 4 I = 5	Strong attention under SAP Strategies to enhanced data & information management, and coordinated research, including through the development of bilateral basin-level data policy and coordinated information management strategies	Kura II PCU Project Partners			

#	Description	Date Identified	Type	Impact and Probability	Countermeasures / Mngt Response	Owner	Submitted, updated by	Last Update	Status
8	Differences in participating countries economic development resulting in uneven project outcomes sustainability	Oct 15	Environmental	<p>Although the Kura II Region has several disparities regarding the population size, and economic development trends the fact that the project has an emphasis on cooperation particularly between the regional and national organizations, it is expected that this risk will have minimal impact on implementation of project activities</p> <p>P = 2</p> <p>I = 3</p>	<p>The project has an emphasis on horizontal cooperation with national bodies, and on networking among bodies and organizations at the national and regional levels in order to set the bases for transboundary IWRM approaches. In the regional and international context, the strengthening of the national bodies will empower their individual member states. Harmonization will support linkages for development. This will help to balance relative strengths and priorities, and actually provides an incentive for both countries to support the project outcomes.</p> <p>Additionally, the project will encourage significant cooperation between sectors and countries by exchanging experiences in management of water resources, and sharing lessons learned</p>	PCU			

#	Description	Date Identified	Type	Impact and Probability	Countermeasures / Mngt Response	Owner	Submitted, updated by	Last Update	Status
9	The project is unable to successfully engage the full range of stakeholders	Oct 15	Strategic	<p>There are a number of stakeholders within the Kura II Region that are dependent on the Kura river resources. If the project fails to fully engage the stakeholders, full buy-in regarding the proposed governance and management mechanisms and arrangements will not be achieved and project outcomes will not be sustainable.</p> <p>P=2 I=4</p>	During the Project Preparation Grant and Project Document Development a comprehensive effort was undertaken to engage with a wide array of stakeholders with an interest in project outputs. Over 68 Stakeholders were consulted in individual interviews and meeting to provide inputs into the Project Document. Further during the project inception phase it is anticipated that the project's Communications Strategy will be developed in line with the Stakeholder Involvement Strategy in the Project Document Annexes. Amongst other things, the strategy would outline ways for engaging stakeholders during project implementation.	Kura II PCU and Project Partners			
10	Project Coordination Unit incapable of efficiently managing the implementation of the project at the regional level	Oct 15	Operational	<p>This would impact overall project implementation and would result in a delay or in some cases inability to successfully complete or even begin to implement a number of the proposed activities. In the extreme case it could mean that the project is unable to achieve its objective.</p> <p>P =3 I =4</p>	Emphasis will be placed on developing and finalizing strong ToRs to support the recruitment of highly qualified staff for the Kura II PCU. Further, it is anticipated that the candidates will be through a robust screening process during the selection phase.	UNDP IRH			

ANNEX 4. Draft Terms of Reference for Kura II Project Coordinating Unit

TOR FOR CTA/Regional Project Coordinator to be Drafted by Vladimir Mamaev

TEMPLATE FOR TORs

Terms of Reference

Administrative and Financial Expert

Location:

Application Deadline:

Type of Contract: Individual Contract

Post Level: National Consultant

Languages Required: English, Russian and Azerbaijani or Georgian

Starting Date:

(date when the selected candidate is expected to start)

Duration of Initial Contract:

Background

The Global Environment Facility (GEF)

The Global Environment Facility (GEF) (www.thegef.org) unites 183 member governments—in partnership with international institutions, non-governmental organizations and the private sector—to address global environment issues. An independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants. Since 1991, the GEF has provided US\$12.5 billion in grants and leveraged US\$58 billion in co-financing for 3,690 projects in 165 developing countries. Through its Small Grants Programme (SGP) the GEF has made more than 20,000 grants totaling about US\$1 billion to civil society and community-based organizations.

The GEF International Waters (IW) focal area targets transboundary water systems, such as shared river basins, lakes, groundwater and large marine ecosystems. The IW portfolio comprises 242 projects to date and some US\$1.4 billion of GEF grants invested in 149 different countries. This investment has leveraged about US\$8.4 billion in co-financing.

UNDP GEF Kura Project “Advancing Integrated Water Resource Management (IWRM) across the Kura river basin through implementation of the transboundary agreed actions and national plans” will be implementing the Strategic Action Program for the Kura River Basin in partnership with the Governments of Georgia and Azerbaijan. The SAP is framed around four agreed Ecosystem Quality Objectives (EQO) which are:

- To achieve sustainable utilization of water resources to ensure access to water and preserve ecosystem services;
- To achieve water quality such that it would ensure access to clean water for present and future generations and sustain ecosystem functions in the Kura river basin;
- To achieve and maintain ecosystem status whereby they provide essential environmental and socio-economic services in a sustainable manner in the Kura River Basin; and,
- To achieve mitigation of adverse impacts of flooding and climate change on infrastructures, riparian ecosystems and communities.

The GEF will support priority activities towards these objectives. The GEF funded SAP implementation Project has the objective “to integrate water resources management in the Kura river basin to address water-energy-food-ecosystem security nexus through the implementation of agreed actions in the SAP”.

There will be five components to support the countries to achieve this objective. These are:

- Project Component 1: Establishment of effective cross sectoral IWRM governance protocols at the local, national and transboundary levels in the Kura Basin
- Project Component 2: Strengthening national capacities to implement multi-sectoral IWRM in the Kura basin
- Project Component 3: Stress reduction in critical areas and pre-feasibility studies to identify investment opportunities for improving river system health
- Project Component 4: Targeted education and involvement projects to empower stakeholders in implementing local / national / regional actions in support of SAP implementation
- Project Component 5: Enhancing science for governance by strengthening monitoring, information management and data analysis systems for IWRM

2. Description of Responsibilities: *By Positions In TABLE A4 1*

3. Competencies:

Functional competencies:

- Excellent communication and management skills and demonstrable capacity to work with a multi-national team and to work with government institutions;
- Demonstrated ability to develop strategies and communication plans;
- Openness to change and ability to receive/integrate feedback;
- Ability to work under pressure and stressful situations;
- Strong analytical, reporting and writing abilities.

Corporate Competencies:

- Demonstrates integrity by modeling the UN's values and ethical standards;
- Promotes the vision, mission, and strategic goals of UNDP;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Treats all people fairly without favoritism;
- Fulfills all obligations to gender sensitivity and zero tolerance for sexual harassment.

4. Qualifications: *By Positions In TABLE A4 1*

5. Evaluation of Applicants – *to be based on final approval of IRH Human Resources*

Individual consultants will be evaluated based on a cumulative analysis taking into consideration the combination of the applicants' qualifications and financial proposal. The award of the contract should be made to the individual consultant whose offer has been evaluated and determined as:

- Responsive/compliant/acceptable; and
- Having received the highest score out of a pre-determined set of weighted technical (P11 desk reviews and interviews) and financial criteria specific to the solicitation.

Only those candidates, who will receive at least 70 % of technical points based on the P11 desk review will be invited for the interviews. Candidates who obtained at least 70% of points in each of the steps of the process will be considered for financial proposal evaluation.

Technical Criteria - 70% of total evaluation – max. 70 points:

Criteria A – academic qualification / education – max points;;

Criteria B – experience – max points: ;

Criteria C – experience– max points: ;

Criteria D – Experience– max points:

Criteria E – interview (communication skills) – max points: .

Financial Criteria - 30% of total evaluation – max. 30 points.

6. Application Procedure

Qualified candidates are requested to apply online via this website.

The application should contain:

- Cover letter explaining why you are the most suitable candidate for the advertised position. Please paste the letter into the "Resume and Motivation" section of the electronic application;
- Filled P11 form including past experience in similar projects and contact details of referees (blank form can be downloaded from http://europeandcis.undp.org/files/hrforms/P11_modified_for_SCs_and_ICs.doc); please upload the P11 instead of your CV;
- *Financial Proposal - specifying a total lump sum amount in USD for the tasks specified in this announcement. The financial proposal shall include a breakdown of this lump sum amount (number of anticipated working days and any other possible costs); travel costs for missions must not be included in the financial proposal as they will be paid separately according to the UN rules and regulations;*

Incomplete applications will not be considered. Please make sure you have provided all requested materials.

Please note that the financial proposal is all-inclusive and shall take into account various expenses incurred by the consultant/contractor during the contract period (e.g. fee, health insurance, vaccination and any other relevant expenses related to the performance of services...). Travel costs for missions will be covered separately according to UNDP rules and regulations.

Payments will be made only upon confirmation of UNDP on delivering on the contract obligations in a satisfactory manner.

Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director. Consultants are also required to comply with the UN security directives set forth under dss.un.org. General Terms and conditions as well as other related documents can be found under: <http://on.undp.org/t7fJs>.

Qualified women and members of minorities are encouraged to apply. Due to large number of applications we receive, we are able to inform only the successful candidates about the outcome or status of the selection process.

Table A 4 1

Senior Capacity Building Coordinator

<i>(International Recruitment, IC Contract, part time)</i>	
2.	<p>Outcome 1: Provide guidance on the development of environmental flow methodologies, efficient water use, EU RBMO planning, pollution abatement plan implementation, including needed capacity to maintain and improve approaches- linked to 2.1. Provide inputs into intersectoral policy ordination, public private partnership including green technology guides.</p> <p>Outcome 2: Primary responsibility to develop capacity building efforts based on practical applied experience. Conduct baseline assessment of needs for relevant agencies for all outputs. Identify specific capacity building goals working with relevant agencies and identify trainees to participate in capacity building efforts. Based on agreed baselines and common needs develop outline for all training programs, and ToRs for International Experts. (Capacity building coordinator will be expected to be able to teach at least 2-3 modules her/himself based on professional experience) Coordinate recruitment process in line with IRH requirements. Provide support to international experts in the training process, with back stopping for trainings. Ensure training participants are involved in relevant aspects of project implementation so that capacity building links with sustainable implementation post-project. Work with Communications Officer, CTA, and international experts to design curriculum for online certification program. Conduct evaluations of trainings, and adjust as needed. Ensure proper training materials are provided. Oversee quality of online training materials and suitability for Ministerial uses.</p> <p>(Insert text from product on activities for comp. 2 as annex to ToR?)</p> <p>Outcome 3: Provide support to PCU to ensure complimentarity of capacity building efforts and trainings with stress reduction measures to enhance on the job training experiences and applications.</p> <p>Outcome 4: work with Communication Project Officer, in line with Component 2 develop appropriate Baseline and needs assessment for stakeholder education efforts and where possible link with component 2 activities. Provide support for knowledge management tool development and sharing with stakeholders at all levels.</p> <p>Outcome 5: Provide support to all aspects of component 5 through coordination with capacity building to ensure long term sustainability of project efforts and harmonization of approaches.</p>
4.	<p>Qualifications:</p> <p>Job Knowledge/Technical Expertise:</p> <ul style="list-style-type: none"> • Demonstrated familiarity with or, ideally, work experience in GEF International Waters and specifically in the CIS region; • Demonstrated familiarity with transboundary waters issues and national IWRM plan priorities in the CIS region; • Demonstrated familiarity with priority issues in the Kura River basin, including water sector, environmental sector, national and regional institutional structures and future development plans; • Demonstrated familiarity with modern integrated approaches to capacity building and technical enforcement for enhanced water management, including: use of water nexus; information management and decision support systems; GIS systems and mathematical modeling approaches for water management, including water use efficiency and enforcement; applied pollution abatement technologies and compliance mechanisms; and, gender mainstreaming, based on proven experience in all of these

areas;

- Demonstrated familiarity and sensitivity to wider regional economic development trends shaping water resource management in the Kura Basin.

Required Skills and Experience

Education

Advanced degree in water resource engineering, or related fields required. Advanced degree focusing on hydrological modeling a strong advantage. (Criteria A - max 10 pts.)

Experience

Experience in development of integrated national and transboundary water resource management strategies in the CIS. Experience in Azerbaijan and Georgia within the past 7 years with an emphasis on transboundary water quality monitoring challenges and proposed solutions an asset; (Criteria B - max 10 pts.)

Demonstrated experience in working with UN, World Bank or GEF through multiple sectors/ministries; experience with the UN, World Bank or GEF at the highest governmental levels in both national and transboundary contexts an asset; (Criteria C - max 10 pts.);

At least 10 years of demonstrated experience in development and oversight of technical capacity building programs for water managers in multi-sector governmental settings including application of technical enforcement and compliance approaches. Desired experience in capacity building programs includes: integrated water management for agriculture, energy, municipal water supplies; information management and decision support systems for integrated sustainable water management; GIS and remote sensing techniques in water resources management focusing on the use of mathematical models in integrated water resources management and water use efficiency for supply and demand models; (Criteria D - max 20 pts.)

Experience in application of economic approaches to integrated natural resources management. Additional preference for experience in environmental flows calculation, application of pollution abatement using environmental engineering or experience with constructed wetlands projects; (Criteria E - max 10 pts.)

Proven success in working with gender mainstreaming for water management projects in interdisciplinary teams, managerial experience of gender mainstreaming efforts at national and regional levels an additional asset; (Criteria F - max 10 pts.)

Language:

English is the working language for this assignment; therefore excellent English is required.

Communication and Project Officer

National Recruitment full time)

- Component 4 oversight on stakeholder involvement and education with support from CTA and Sr. Capacity Coordinator as needed
- Stakeholder Communications including meetings in component 1, and social

	<p>media and web page oversight</p> <ul style="list-style-type: none"> • Support to all trainings/capacity building efforts including development of online trainings materials • Support to all component activities based on area of expertise • Recruiting, supervising and evaluating project interns • Support to Regional Project Coordinator to increase during project <ul style="list-style-type: none"> ○ Support to regionalization of project efforts ○ Budget review and annual work plan development ○ Report drafting for UNDP and GEF ○ ATLAS access ○ Staff management with increasing authority after mid-point ○ Building/strengthening linkages between project components ○ Representing project regionally and internationally • Coordination with Financial and Administrative Officer, and National Coordinators, and National Project Officers <p>Acting as OIC during absence of CTA/RPC</p>
2.	<p>2. Description of Responsibilities</p> <p>Outcome 1: provide information and research support to CTA, including development of of press releases, informational materials, social media updates, etc. regarding all outputs and activities. Support the development of educational material as for RBMOs, and provide key support to the intersectoral water policy coordination bodies. This includes the development of meeting minutes, support to coordination of meetings and development of meeting minutes etc, support to the project team in development of the green technologies for output 1.6.</p> <p>Outcome 2: provide support to the project team and Sr. Capacity Building Coordinator in conducting baseline studies and needs assessment for capacity building efforts. Develop press releases, social media campaign and information management system using online tools to support capacity building coordination. Provide insight and guidance to curriculum development and oversight of all on line curriculum materials development, including translations and graphics.</p> <p>Outcome 3: support to project team in identification of stress reduction measures and development of all public information materials regarding efforts.</p> <p>Outcome 4: working closely with Sr. Capacity Building Coordinator and CTA develop IWRM Training of Trainers Program for non governmental stakeholders, and oversee the implementation of trainings, including support to trainers and recruitment and identification of training participants. Support and coordinate the IWRM Academic conferences, work with national and international experts to head up with social media campaign for improved stakeholder awareness for improved water management.take responsibility for the implementation of local competitions for Climate change adaptation solutions, including creating an active social media campaign to promote the benefits and innovations nationally, regionally and internationally. Develop all media materials for presentation and distribution through IW:LEARN.</p> <p>Outcome 5: Provide support in promoting improved science for governance, as needed</p> <p>Additional responsibilities: provide back stopping support to CTA/Regional Project Coordinator in all areas of project implementation, including reporting requirements, work plan development, internal M&E efforts, and support to</p>

	Finance and Administration Officer, National Coordinators and teams. Responsible for the work assignments and supervision of all project interns, with support of CTA.
4.	<p>Job Knowledge/Technical Expertise:</p> <ul style="list-style-type: none"> • <i>Demonstrated familiarity with or, ideally, work experience in GEF International Waters in Azerbaijan and/or Georgia an asset;</i> • <i>Experience in UN regional project administration an asset;</i> • Demonstrated familiarity with logistical support for stakeholder priorities, water management issues, national stakeholder concerns, and water initiatives activities in the Kura basin; • Demonstrated familiarity and sensitivity to wider regional economic development trends shaping water resource management in the Kura Basin; • Demonstrated familiarity with communications among a wide range of stakeholders, from ministerial levels through local stakeholder groups; • Experience in environment education and awareness raising for a wide range of stakeholders • Experience in motivating and mobilizing stakeholders to act together and work towards a shared benefit • Experience with development of educational materials for all levels, from decision makers information to professionals to communities to school children • Experience in development of communication materials targeting specific stakeholder groups • Experience with web design and webpage management, setting up and maintaining social media platforms • Proven experience in communications, information development, and educational programs, for on-line use preferred. • Management experience with junior level staff to increase capacity and provide project support • Financial management experience • Experience with gender mainstreaming in natural resources management an asset <p>Required Skills and Experience</p> <p>Education</p> <ul style="list-style-type: none"> • Advanced degree in social sciences, environmental management, development studies or related fields, required. (Criteria A: max 10 pts.) <p>Experience</p> <ul style="list-style-type: none"> • Demonstrated familiarity with logistical support for stakeholder priorities, water management issues, national stakeholder concerns, and water initiatives activities in the Kura basin; • Demonstrated familiarity and sensitivity to wider regional economic development trends shaping water resource management in the Kura Basin; • Demonstrated familiarity with communications among a wide range of stakeholders, from ministerial levels through local stakeholder groups; • Experience in environment education and awareness raising for a wide range of stakeholders

	<ul style="list-style-type: none"> • Experience in motivating and mobilizing stakeholders to act together and work towards a shared benefit • Experience with development of educational materials for all levels, from decision makers information to professionals to communities to school children • Experience in development of communication materials targeting specific stakeholder groups • Experience with web design and webpage mangement, setting up and maintaining social media platforms • Proven experience in communications, information development, and educational programs, for on-line use preferred. • Management experience, ideally with junior level staff to increase capacity and provide project support • Regional project experience an asset <p>Language:</p> <ul style="list-style-type: none"> • English is the working language for this assignment; therefore oral and written communications skills in English are required. Ability to communicate effectively in Russian, Azeri or Georgian is required. (Criteria E: max 10 pts.)
Financial & Administrative Officer <i>National Recruitment – IC contract, full time)</i>	
2.	<ul style="list-style-type: none"> • Financial and Administrative support to the project through ATLAS • Liaise with UNDP IRH for budget compliance • Oversight and arrangements of all contracts • Oversight of all payments through project budget • Travel and venue oversight • Procurement direction in line with UNDP requirements • Production of quarterly budget reports for UNDP IRH and CTA/RPC and Deputy with 6 month work plan to be developed and revised quarterly <p>Supervision of National Project Officers</p>
4.	<p>Job Knowledge/Technical Expertise:</p> <ul style="list-style-type: none"> • Demonstrated familiarity with or, ideally, work experience in GEF International Waters in Azerbaijan and/or Georgia; • Demonstrated familiarity with UNDP and GEF International Waters budget processes, financial work plan development, and costing estimates for transboundary projects; • Experience in UN regional project administration, and UNDP administrative and budgetary protocols; • Demonstrated familiarity with logistical support for stakeholder priorities, water management issues, national stakeholder concerns, and water initiatives activities in the Kura basin; • Demonstrated familiarity and sensitivity to wider regional economic development trends shaping water resource management in the Kura Basin. <p>Required Skills and Experience</p>

	<p>Education</p> <ul style="list-style-type: none"> Advanced degree in civil, financial or environmental management, development studies or related fields, required. (Criteria A: max 10 pts.) <p>Experience</p> <ul style="list-style-type: none"> Demonstrated experience in administrative and financial support to local, national and international organizations to assure smooth functioning based on reliable cost estimates, financial management and logistics coordination; (Criteria B: max 20 pts.) Demonstrated capacity in supporting transboundary environmental projects with multinational and interdisciplinary teams, experience with a wide array of stakeholders Azerbaijan and Georgia desirable; (Criteria C: max 20 pts.) Demonstrated competency in administrative and financial support for UNDP, and World Bank or GEF; (Criteria D: max 10pts.) <p>Language:</p> <ul style="list-style-type: none"> English is the working language for this assignment; therefore oral and written communications skills in English are required. Ability to communicate effectively in Russian, Azeri or Georgian is required. (Criteria E: max 10 pts.)
<p>National Coordinators – one per country (Local Recruitments, full time, service contract)</p>	
2.	<ul style="list-style-type: none"> Coordinate activities within the country with the guidance of the CTA/RPC, Senior Capacity Building Coordinator, and Communication and Project Officer Primary Liaison with National Focal Points, and national level stakeholders Provide national level expertise and guidance to the PCU in all components Guide project efforts at the national level Provide Technical Oversight and Guidance of National Consultants, and interns Review and verify national level outputs
4.	<p>Job Knowledge/Technical Expertise:</p> <ul style="list-style-type: none"> Demonstrated familiarity with or, ideally, work experience in GEF International Waters in Georgia; Demonstrated familiarity with transboundary waters issues and national IWRM plan priorities in Georgia; Demonstrated familiarity with priority national issues in the Kura River basin, including water sector, environmental sector, national and regional institutional structures and future development plans; Demonstrated familiarity with stakeholder priorities, water management issues, national stakeholder concerns, and water initiatives activities in the Kura basin; Demonstrated familiarity and sensitivity to wider regional economic development trends shaping water resource management in the Kura Basin.

	<p>Required Skills and Experience</p> <p>Education</p> <ul style="list-style-type: none"> Advanced degree in environmental management, hydrology, development studies or related fields required. (Criteria A: max 10 pts.) <p>Experience</p> <ul style="list-style-type: none"> Demonstrated experience in support to local, national and international organizations, in development of integrated water management plans and strategic plans; preferably within the past 7 years (Criteria B: max 20 pts.) Demonstrated capacity in supporting projects with multinational and interdisciplinary teams; (Criteria C: max 10 pts.) Demonstrated experience in contributing to strategic development products based on national level priorities for international donors, preferably for UN, World Bank or GEF; (Criteria D: max 10 pts.) Demonstrated experience and familiarity in working successfully with a wide array of stakeholders in Georgia (Criteria E: max 10 pts.) <p>Language:</p> <ul style="list-style-type: none"> English is the working language for this assignment, therefore oral and written communication skills in English are required. Ability to communicate effectively in Russian and Georgian required. (Criteria F: max 10 pts.)
<p>National Project Officers, one per country (Local Recruitments, full time)</p>	
2.	<ul style="list-style-type: none"> Support the National Coordinator and PCU Financial and Administrative officer Provide translation of materials into National Languages, including training and social media Provide translation support as needed for capacity building efforts and national meetings <p>Provide support to Communication and Project Officer in activities related to Stakeholder education and awareness</p>
4.	<p>Job Knowledge/Technical Expertise:</p> <p>Required Skills and Experience:</p> <ul style="list-style-type: none"> Good communication skills Ability to absorb and understand information quickly Financial management experience Translation from English to national language in written and verbal <p>Education:</p> <ul style="list-style-type: none"> University level degree in: environmental management, development studies or related fields required. Advanced degree in environmental management, development studies or related fields required. (Criteria A: max 10 pts.)

	<ul style="list-style-type: none"> • Proficient in English <p>Experience:</p> <ul style="list-style-type: none"> • Experience in project offices providing support to team members • Experience in supporting financial management • Experience in translation of written materials and verbally • Experience with social media <p>Language: Local languages (Georgian and/or Azerbaijani), Russian, and English required</p>
Interns (2-4 per year per country) <i>(Local Recruitments, part time)</i>	
2,4	<ul style="list-style-type: none"> • Recruited from IWRM MSc and other related programs • Support to Project team and national coordinators • Support to Project Deputy in stakeholder education and awareness • Additional support to project efforts as needed based on area of interests etc. <p><i>(Unpaid International interns may provide project support if they have external funding and are approved through UNDP IRH and CTA for specific limited periods)</i></p>

ANNEX 5. Draft Terms of Reference Kura II Project Steering Committee

Responsibilities:

The Project Steering Committee (PSC) will provide overall strategic policy and management direction for the project and play a critical role in reviewing and approving the project planning and execution conducted by the PCU and the Executing Agency. In line with the adoption of an adaptive management approach the PSC will review project progress, make recommendations and adopt the annual project work plan and budget.

Specific Duties:

The specific functions of the PSC will include:

- Provide overall strategic policy and management direction to the Project;
- Review Project activities to assess the progress of the Project implementation;
- Review and approve the Project work plan and budget and any changes to these in accordance with GEF and UNDP Guidelines;
- Review and approve the project annual work plan and budget;
- Assist in identifying and allocating Project activities consistent with Project objectives;
- Facilitate and promote regional and national inter-project coordination;
- Share and disseminate Project-funded and Project-generated results and experiences, and;
- Any other business brought before the Steering Committee by one of its members.
- Review and comment on all the project output reports

As the PSC will provide overall guidance to the Project it will not be expected to deal with the day-to-day management and administration of the Project. This will be handled by the Regional Project Coordinator, in coordination with the Executing Agency and under guidance from the Offices of the Implementing Agency to ensure conformity with the UNs Requirements.

The PSC is especially responsible for evaluation and monitoring of the Project outputs and achievements. In its formal meeting, the PSC will be expected to review the Project work plan and budget expenditure, based on the Regional Project Coordinator's report. The PSC should be consulted for supporting any changes to the work plan or budget and is responsible for ensuring that the Project remains on target with respect to its outputs. Where necessary, the PSC will support definition of new targets in coordination with and approval from the Implementing/Executing Agencies.

Membership:

The Kura II Project Steering Committee is expected to be composed of:

- National Representatives from each participating State
- Representatives of the GEF Agency (UNDP)
- Representative of the Executing Agency

Other parties will be invited as observers to the PSC, including the Project Advisory Group representatives, as deemed relevant and beneficial for implementation of the Kura II Project and Kura River SAP.

Frequency and Conduct of Meetings

It is anticipated that there will be at least five full meetings of the PSC to take place at the following times during the duration of the Kura II Project:

- Project Inception
- End of Year 1

- Project Mid Term (end of Year 2)
- End of Year 3
- Project End (end of year 4)

Other options such as meetings of representative groupings of the PSC, teleconferencing and emails will be explored to allow for discussion and review of project matters during the time when no formal PSC Meetings are planned.

The Regional Project Coordinator will be responsible for ensuring close liaison within the PSC. Formal meetings will be scheduled and arranged by the PCU in consultation with, and at the request of other SC members.

Costs of Participation in the PSC

The cost of participation in meetings of the PSC will be met by the Project. The location of the PSC meetings will be guided first and foremost by budgetary considerations.

ANNEX 6. Draft Terms of Reference Kura II Project Advisory Group

Responsibilities:

A Project Advisory Group (PAG) consisting of the main implementation partner organizations will be established during the project inception phase, to analyze, discuss and support issues pertaining to project implementation at the local, national and regional levels, throughout the project's duration. PAG members will communicate and discuss specific aspects of the project. The PCU will serve as the Secretariat to the PEG.

Specific Duties:

Specific functions of the Project Advisory Group will include:

- Provide overall strategic policy and management guidance to the Project;
- Review Project activities to support the progress of the Project implementation;
- Assist in identifying and allocating Project support for activities consistent with Project objectives;
- Facilitate and promote national and regional inter-project coordination;
- Provide advisory guidance to the Project, in coordination with the National Focal Point;
- Any other business brought before the PAG by one of its members.

Membership:

The Project Advisory Group will be comprised of representatives from the following Organizations:

- The project National Focal Point from the Focal Point Ministry will head National PAG Committee in each country. The PAG will be made up of representatives of the water sector and key stakeholders from other government Ministries, Agencies and Sectors as determined relevant by Focal Point Ministry
- The PAG, in consultation with the PCU, may decide upon additional memberships during the project's lifespan with costs covered within budget availability.
- The advice provided by the PAG is not binding to the PSC, but intended to support the optimal functioning of the Project to improve conditions in the Kura River Basin.

Frequency and Conduct of Meetings:

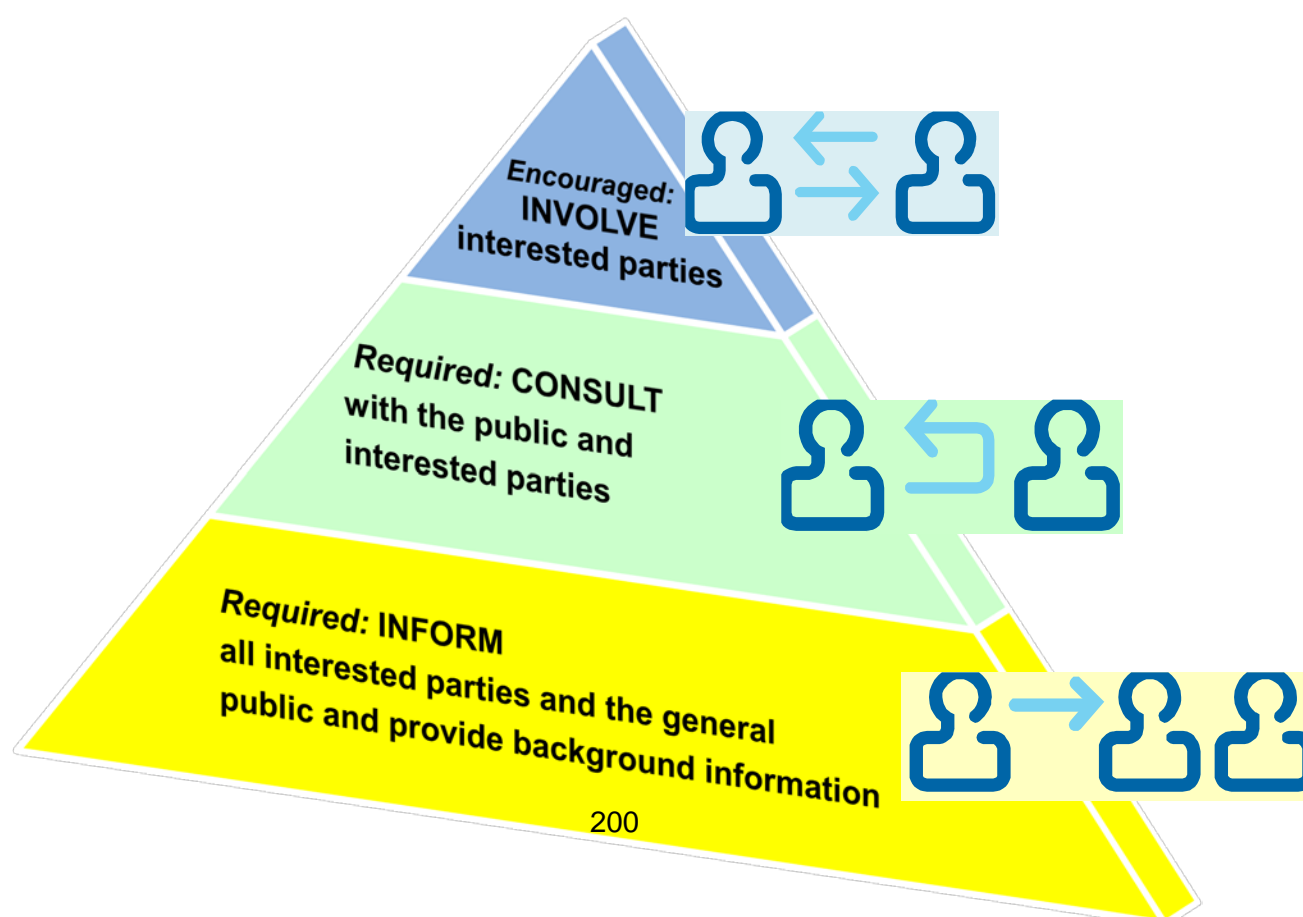
The PAG will be expected to meet at least once every year generally in association with the Project Steering Committee meetings. Additional interim meetings of the PAG (where needed) will ideally be conducted via teleconference.

Cost of Participation in PAG:

The cost of participation in meetings of the PAG will be met by the Project in line with agreed budget established and agreed annually by the PSC. If additional participation is agreed by the PAG and PSC beyond Project budget limits, participation may be funded by other sources.

ANNEX 7 Stakeholder involvement plan

1. Successful implementation of the Kura II Project can only occur through the involvement and participation of its many stakeholders and project partners. These include, national government agencies across multiple sectors, national and regional private sector companies and associations, civil society groups and non-governmental organizations, and academia. These specific stakeholders groups and their proposed roles and responsibilities are outlined in Table 2.11. Additional stakeholder involvement is detailed in Section 2.3, throughout the various outputs and activities.
1. Both Azerbaijan and Georgia are taking steps to align approaches with the EU WFD, including application of Article 14 on Public Participation and Stakeholder Involvement. This approach is used in RBMPs, and all decision making processes of the RBMO. The UNDP-GEF Kura II Project will also adopt this approach to showcase the application of this method, including the benefits of the approach in the planning and project implementation process. This will be documented throughout the project and shared with all stakeholders through the project web page, social media outreach and otherwise.
2. The EU WFD refers to stakeholders in the following categories, that are not mutually exclusive:
 - **Competent Authorities** are stakeholders who have professional status that enables them to make decisions, and those who implement decisions on behalf of the government at the national and local levels.
 - **Interested Parties** are stakeholders who have an active interest in water management but are not part of the government. This can include the private sector, civil society, academic institutions, other donor projects
 - **Public** is the wider public made up of all those who are using water within a basin
3. In addition to the distinction between stakeholder groups, the EU WFD also has different level of inputs from stakeholder groups. These are:
4. **Inform:** providing notification and information, including background information to the public and interested parties. The EU WFD requires this. The Kura II Project will do this through publication of all materials on the project webpage, and regularly updating these, as well as through a concerted social media campaign, and the social marketing campaign.
5. **Consult:** collecting ideas, opinions, and perceptions of stakeholders, including interested parties and competent authorities to ensure that their interests and understanding of project



issues are considered throughout implementation. The EU WFD requires this. This will include surveys, meetings, and consultations with stakeholders. This will be critical in shaping the specifics of the trainings and specific details of project implementation in both countries and supporting linkages between the countries. Output 1.5 emphasizing intersectoral coordination, and output 1.6 on public private partnerships are specifically designed to support consultation and foster involvement of key stakeholders for increased project ownership.

Figure A2.1 Stakeholder Involvement for Kura II Project

- Levels of Stakeholder Involvement in line with the EU Water Framework Directive, Article 14**
6. **Involve:** includes stakeholders from competent authorities, including focal ministries, and interested parties in the guidance and direction of project implementation. This is recommended by the EU WFD for development of RBMPs, but for GEF Project is required. The Project Steering Committee (PSC), led by the UNDP Regional Technical Advisor, with the support of UNDP Country Offices, National Focal Points are the required to serve on the PSC. Additionally, in coordination with the National Focal ministries, additional representatives will be invited to serve on the PSC, including representatives from sectors in agriculture, energy, emergency situations, municipal water management, and regional development and infrastructure. This will increase the opportunities for the partner sectors to participate and advise in project governance, while ultimate authority at the national level remains with the Focal Ministries. The involvement of partner sectors and a wider range of competent authorities is also included throughout the components and outputs as the project works towards meeting the needs for improved water management.
 7. The UNDP-GEF Kura Project will work with stakeholders from the donor community, including bilateral and multilateral development and finance organizations to assist the countries to achieve their goals set out in this project, and to facilitate long term sustainable ownership of the project after project completion.
 8. The recommended roles and responsibilities for Kura II project implementation are summarized in Table A2.1 below for sample stakeholder groups. This table is summarized and for specific stakeholder groups, such as the PSC and others.

Table A 2.1 Sample Stakeholders, Roles and Responsibilities

Type*	Example	General roles, responsibilities in the Kura II Project
CA	Decision makers/takers within Ministries	<u>Role:</u> Guide project implementation through PSC, and <u>Responsibilities:</u> Provide information and coordination to facilitate project efforts Provide feedback to enhance project to meet needs
CA/IP	Rising decision makers/ support staff (national and local)	<u>Role:</u> support project implementation, participate in capacity building <u>Responsibilities:</u> Provide information and coordination to facilitate project efforts, as per guidance of decision makers/takers Provide feedback to project team and decision makers/takers
CA	RBMOs CAs	<u>Role:</u> participate in trainings for those with oversight of RBMPs and participate & provide guidance to RBMOs trainings <u>Responsibilities:</u> guide RBMOs, develop and implement RBMPs, and POMs
CA/IP	Technical experts (national and local)	<u>Role:</u> support project implementation, participate in capacity building efforts, and advise on needs for professional development <u>Responsibilities:</u> Provide information and coordination to facilitate project efforts, as per guidance of decision makers/takers Provide feedback to project team and decision makers/takers, provide information in support of project implementation
IP/CA	Emerging technical experts	<u>Role:</u> participate in capacity building efforts

Type*	Example	General roles, responsibilities in the Kura II Project
	(national and local)	<u>Responsibility:</u> Provide feedback to project team and decision makers/takers, provide information in support of project implementation
IP/CA	Applied technical teams (municipal water managers, irrigation experts, extension services, etc.)	<u>Role:</u> participate in capacity building efforts <u>Responsibility:</u> Provide feedback to project team and decision makers/takers, provide information in support of project implementation
IP/CA	Private sector representatives in water management	<u>Role:</u> Participate in project activities, and provide guidance as agreed with decision makers <u>Responsibility:</u> Coordinate with project training efforts and other project efforts to improve water management
IP	Private sector representatives water users	<u>Role:</u> Participate in PPP
IP	RBMOs IPs	<u>Role:</u> Participate in RBMO trainings <u>Responsibility:</u> Provide feedback and support to RBMO CAs
IP	Academics/ Universities	<u>Role:</u> Participate in project activities, and trainings specifically for new professionals, recommend students to serve as interns to project, coordinate with project on relevant trainings <u>Responsibility:</u> Provide support to academic conferences
IPs	local community organizations, CBOs (Oxhakol in AZ, equiv in GE)	<u>Role:</u> Provide guidance for local project implementation <u>Responsibility:</u> support coordination within communities as needed, participate in RBMOs, help facilitate work with local stakeholders.
IPs	WUAs/ farmers	<u>Role:</u> Participate in project efforts to reduce water losses and trainings such as climate change adaptation and RBMOs. <u>Responsibility:</u> Provide guidance and feedback to project
IPs	Women empowerment organizations	<u>Role:</u> Participate in project activities and trainings, encourage women to participate in climate change innovation competitions <u>Responsibility:</u> Advise project on gender specific concerns, support efforts for gender mainstreaming for water management
IPs	Youth/teachers	<u>Role:</u> participate in trainings and project activities, including ecosystem information collection, social marketing and RBMO trainings <u>Responsibility:</u> provide feedback on project efforts
IPs	University students	<u>Role:</u> participate in trainings and project activities, including ecosystem information collection, social marketing and RBMO trainings <u>Responsibility:</u> provide feedback on project efforts, potential opportunities for internship with project
IPs	National and regional media	<u>Role:</u> participate in trainings specifically for journalist, participate in project activities, and share information and project outputs with public <u>Responsibility:</u> Advise on training for journalists, advise on social marketing campaign
CAs/IPs	Bilateral and international donor and finance organizations	<u>Role:</u> Coordinate with project activities to create strong synergies and strengthen project outcomes <u>Responsibility:</u> Share information and collaborate with project and stakeholders to maximize benefits.

* CA – Competent Authority, IP – Interested Party

- During the inception phase of the project a communication and detailed stakeholder engagement plan will be drafted in order to support project implementation. This plan will be developed based on information collected during the inception phase specific to individual stakeholder groups and broad ranging communication strategies. The plan will also provide metrics for outreach of the project across stakeholder groups, and will be evaluated annually and revised as needed in order to optimize communications and stakeholder engagement. This plan will detail by component and output the stakeholder involvement strategy with specific stakeholder groups to be involved and the timing of involvement. The annual monitoring and evaluation of this will enable adjustments to be made as necessary in an adaptive management approach. The communications aspect of this plan will also be

reviewed annually. Summary findings and recommendations will be shared the PSC at annual meetings

Annex 8. Gender Mainstreaming Policy for the UNDP-GEF Kura II Project

The objective of the Gender Mainstreaming Policy is to promote gender mainstreaming on all levels of IWRM and SAP implementation and to provide equal opportunity for men and women to have equal access to accurate information about the water management system, and to actively participate in decision-making to improve water management (quantity, quality, fair distribution).

The preceding UNDP-GEF Kura-Aras Project included a Gender Mainstreaming study, conducted through interviews, surveys, and group discussions with gender focused NGOs, water managers, and other project stakeholders. The full study is available on the Kura-Aras Web page at http://www.kura-aras.org/Digital_Library_files/Gender_Desk_Study_eng.pdf. The summary recommendations are:

International organization projects can improve the practice of gender mainstreaming within the project itself and by reaching out to the project stakeholders and community at large. Five recommendations for international projects, based on the findings of this study, are:

Within the project implementation

1. Engage with formal and informal water managers

International organization projects should recognize the difference between formal and informal water management structures and engage with both. This is important because men nominally occupy most official capacities related to water management at all levels while women tend to occupy informal water management structures. By ignoring informal water management structures projects may unintentionally exclude women's participation in the process. International projects should make an active effort to find and engage informal water managers alongside formal water managers on multiple levels, whether it involves the inclusion of females responsible for water use within families or women who are influential in community-wide and household public health initiatives.

2. Incorporate gender mainstreaming into a project's stakeholder involvement activities

The concept of gender mainstreaming should be featured into the projects' stakeholder involvement components. Projects could hold their own NGO forum conferences on gender mainstreaming, conduct a gender desk study, or simply produce a brochure for project staff and stakeholders on how gender mainstreaming can be incorporated into a specific project's area of work. International projects can facilitate this engagement with gender mainstreaming in their work by including this expectation in the formal requirements of their project documents.

3. Provide professional development opportunities for project staff to educate them about gender mainstreaming

International projects can provide professional development for project staff and stakeholders on the subject of gender mainstreaming. Staff should be required to become familiar with the importance of gender mainstreaming so that they will be as knowledgeable on the subject as the stakeholders that they work with. If all staff has been educated about gender mainstreaming in the same way, the implementation of the strategy will have more success.

Reaching out to the community

4. Initiate Gender Mainstreaming Public Relations Campaigns

This research has shown that a strong education or public relations campaign related to gender mainstreaming would be beneficial to the success of water management projects. International projects should invest in these types of educational initiatives to increase project success and promote the importance of including women's voices in the water management sector

5. Coordinate formal or informal female-led mentorship programs

To address the issue of a lack of women occupying higher-level water management positions, international projects can coordinate formal and informal female-led mentorship program. This mentorship initiative can be coordinated and encouraged by international projects working in a community by pairing women in higher level water management or environmental governmental positions with young women who are interested in pursuing a career in the same subject area. For example, female NGO members could be paired with women working with the Ministry of Environment. The mentorship could be initiated formally through a conference or dinner and contacts could be introduced informally to allow the mentoring relationship to develop naturally.

The proper implementation of the SAP and the National IWRM plans depend on the full participation of all stakeholders in the water management process. Man and woman should have equal opportunity to voice their thoughts and needs, and be active in the management process. This will reduce constraints impeding women's participation in water management process and will lead to the following benefits:

- Better preparation of awareness meetings to seek out those men and women who are able and willing to become active members on WUOs and RBMOs.
- Addressing all water management issues with both men and women in the villages along the canals and tributaries, i.e. quantity, fair distribution and quality
- Both male and female in the concerned ministries are actively participate in the decision making process and have equal chances to attend training programs
- Support opportunities for both male and female students to fully participate in IWRM activities and instruction opportunities with sensitivity to cultural norms pertaining to field work.

In 15 years and 60 projects that were implemented in the region, only 2 have had specific regional gender mainstreaming activities. The gender strategy will address three main pillars to strengthen gender activities at all levels of IWRM and SAP implementation:

1. Improving the method of selecting female representatives in WUOs, RBMOs, and NGOs working in water management
2. Improving the messages and materials at various stages for gender issues in water management, including awareness raising and social marketing efforts specific to issues related to traditional gender roles
3. Providing better support to female in training and capacity building programs including mentoring programs for young professionals

Targeted efforts to support implementation of this policy within the project include:

Outputs related to FWS	Notes
1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels	Special focus on women mentoring within the coordination mechanisms, both nationally and transboundary – Indicator: Number of side meetings and mentoring partnerships established

1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies	Indicators: Number of female members in the core PPP who will receive support Award categories for women owned businesses – number of awards given
2.1 Capacity building training programs for IWRM professionals for different target groups	Indicators: Training courses on Gender Mainstreaming in IWRM Equity in gender balance for training participants for all capacity building efforts
3.1 Showcase technologies to reduce factual water losses in different sectors	Indicators: Number of trainings for rural women on water use efficiency in agriculture. Awareness materials for housewives on municipal water use efficiency – number of communities reached
4.1 A team of diverse professional IWRM trainers to work with stakeholders	Indicators: Include both men and women in the survey and seek gender balance in all trainings Include gender Mainstreaming in the training curriculum
4.2 Annual academic IWRM conferences	Indicators: Ensure gender equity in trainings and conference participation. In the event that there are significant gender discrepancies in conference and field work trainings participation due to cultural norms, efforts to made to overcome these discrepancies, working with relevant academic bodies.
4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management	Indicators: Training in Gender Mainstreaming in IWRM
4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water	Special award for adaptation measures that take into consideration the gender dimension Indicators: Age category awards for males and females
5.2 An assessment of the economic and social benefits per unit of water used in different sectors	Include cost of lost labor from low water quality with gender dimension, including informal/non-monetized economic contributions of females to household and community economies Indicators: gender specific economic and social contributions related to improved water management

As the implementation of the Gender Policy is undertaken, the additional following criteria will be used to gauge implementation success:

Criteria description	Metric source
Increase the capacity of national authorities in Gender issues	Number of participants attending the Gender mainstreaming training courses Gender balance in all on-the-job trainings Increased capacity and mechanisms to ensure that water management trainings and academic specializations are fully available to both male and female students
Empower the NGOs, RBMOs and ministries in addressing Gender issues	Number of showcases that awarded the competitions because of addressing gender issues Percentages of gender balance in trainings Percent of all training materials for all stakeholder groups with gender mainstreaming linked to improved water management
Awareness raising for gender mainstreaming in water management	Number of workshops made to include the promotion of gender mainstreaming Number of organizations using gender mainstreaming in water management approaches Number of materials produced specific to acknowledging and honoring gender

	roles in water management and opportunities to improve these
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Annex 9. Kura II. Long-term Sustainability Strategy

The Kura II Project has been developed with an overarching objective that the results in improved transboundary IWRM approaches will be sustainable following project implementation without reliance on external support. For nearly two decades the countries have been working towards this end with the guidance and support of the donor community. The capacity building efforts and related efforts to be undertaken during the Kura II project will emphasize self-reliance and sustainability by the participant countries. As noted in the Project Document:

- The 4-year Kura II Project is embedded within and catalytic to the implementation of the politically endorsed SAP. The SAP itself is embedded within the context of the countries aim to work towards shared national and regional priorities for improved sustainable IWRM implementation.
- SAP actions and project outcomes, outputs and activities are reflective of the needs and priorities, and existing plans and commitments of the Kura II countries and associated regional and national governance bodies and development partners (see Section 1.3).
- The project will embed its activities within the context of ongoing national governance processes, and target the delivery of project outputs and outcomes in alignment with, and link with national priorities, and regional commitments that may place during the project implementation period. This effort is reflected in the design of the project results framework and project work plan, under which clear references are made to the ongoing governance processes.
- Coordination with Kura II project partners to further fully involve their constituencies, regional and national-level ownership over the project will be maximized.
- All efforts, including capacity building will be documented and shared with stakeholders in the basin for current and future generations of water resources managers. All materials will be uploaded to the Kura II project webpages and hosted in perpetuity by IW:LEARN UNEP servers, and Ministry servers as appropriate.

Combined, the previous points will contribute to ensuring the continuity of efforts initiated, and the sustainability of outcomes achieved under the project, well beyond the project's own lifespan.

Some further examples of how sustainability of project processes and outcomes has been considered in the project's design are given below:

Sustainability of processes

Through the project's activities, the alignment of the multi -level, nested regional governance framework set forward under the EU WFD and supported by the SAP are support to fill gaps and establish missing linkages, and will strengthen capacity and help building shared experiences. The EU WFD transboundary water management approach will be supported by national commitments for both Azerbaijan and Georgia. The development of a sustainable financing strategy at the national levels to support for the regional governance framework during the project will further ensure continued operations of the enhanced bilateral linkages.

It is further expected that, through the region-wide collaboration on the development of a "State of the Kura River" report and web portal under Project Component 5, the

GEF – promoted TDA/SAP approach—a process which is designed to undergo periodic updates- can become mainstreamed within the work program an emerging regional organizations with a key mandate or well-recognized long-term role in management in the Kura River.

National and regional inter-sectoral coordination and consultation for an improved water management will be promoted under the Kura II Project. This will link with efforts to increase the application of IWRM benefits across sectors, enhance information exchange and create a commonly accepted set of hydrological metrics, including economic valuations, needed to support decision making within and between sectors.

Sustainability of environmental and socio-economic outcomes

By promoting an approach to water management that includes identification of priorities, institutional support for implementation, concerted on-the-job training for capacity building to enable the countries to achieve the priorities, and the establishment of clear monitoring and evaluation indicators including baselines will be used throughout the project. This will be supported by linkages between outputs and activities, strengthening stakeholder involvement across sectors, including both competent authorities and interested parties in the process, empowering the local stakeholders to act in light of climate change impacts, and providing the necessary tools to support decision-making and information exchange. This approach will support the multifaceted approach to dealing with environmental flows calculations, pollution abatement planning, increased water efficiency, improved information management, and approximation of the EU WFD and daughter directives.

The implementation of projects for stress reduction in critical areas, Including improved water efficiency, pre-feasibility studies, and river restoration projects, will be closely monitored to enhanced benefits, And show potential positive outcomes from replication.

Achieving sustainability of project outcomes will also be given full consideration focusing on the need to mainstream climate change adaptation with robust solutions and resilient outcomes in the development and execution of specific activities and initiatives under the SAP.

Stakeholder buy-in

Active involvement of stakeholders from many sectors and levels of society in project implementation is considered critical to achieving buy-in for project processes and outputs and thus an overall essential factor to the success and sustainability of projects like this. The project will therefore promote and engage in the use of inclusive and participatory approaches whenever possible. Special attention will be given to fostering the involvement of women local groups and communities that are highly dependent on food, water, and income directly from the Kura river

In addition to the processes, outcomes, and stakeholder support above, there are specific sustainability mechanisms for a number of the cross cutting IWRM critical issues. The IWRM Framework Strategy for Sustainability table below addresses each of the critical issue areas, the long term sustainability approach, and the Linked Outputs to support issue area and sustainability.

IWRM Framework Strategy for Sustainability

IWRM Issue Area	Sustainability Approach	Linked Outputs to support issue area and sustainability
Institutional development	In order for the FSP to have meaningful sustainable results the institutions, including regulations and relationships between organizations need to be clarified and strengthened to increase efficiency and reduce redundancy. Institutions which are able to function effectively and cooperatively with clear roles and responsibilities increase benefits and decrease negative externalities.	<ul style="list-style-type: none"> 1.1 Updated regulations for environmental flow calculation methodology 1.2 Improved protocols water flow management regulatory strategies 1.3 Institutional support for River Basin Management Organization and local authorities 1.4 Pollution abatement plans developed with key stakeholders. 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.1 Capacity building training programs for IWRM professionals for different target groups 2.2 Enhanced capacity for institutions to implement river basin management plans 2.3 Strengthen capacity for enforcement of water resources laws and regulations 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 4.1 A team of diverse professional IWRM trainers to work with stakeholders 5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations 5.2 An assessment of the economic and social benefits per unit of water used in different sectors 5.3 Staged river system ecological assessment 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.

IWRM Issue Area	Sustainability Approach	Linked Outputs to support issue area and sustainability
Capacity building for enhanced water management, including use of water nexus	In order to successfully and sustainably support the implementation of the SAP and national IWRM plans in the Kura basin, there is a critical need to ensure that there is sufficient capacities within the two countries to operate and maintain monitoring programs, to use state of the art techniques in data collection and analysis, and to support the decision making process for water management. The sustainability of the project activities requires the existence of national institutions that are capable enough to support the implementation of the project interventions after the project has been completed. This will require development and execution of a capacity building strategy that will address the existing institutions and prepare them for carrying on these responsibilities after the project ends.	<ul style="list-style-type: none"> 1.3 Institutional support for River Basin Management Organization and local authorities 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 2.1 Capacity building training programs for IWRM professionals for different target groups 2.2 Enhanced capacity for institutions to implement river basin management plans 2.3 Strengthen capacity for enforcement of water resources laws and regulations 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 4.1 A team of diverse professional IWRM trainers to work with stakeholders 5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations 5.2 An assessment of the economic and social benefits per unit of water used in different sectors 5.3 Staged river system ecological assessment
Water use efficiency and enforcement	The sustainability of the Kura II project will depend on the ability to demonstrate clear benefits of increased water use efficiency and the dedication of resources to enforce the rational use of water across sectors. It will support the countries on managing water demands for different uses and better allocation of the available resources to increase the net benefit	<ul style="list-style-type: none"> 1.2 Improved protocols water flow management regulatory strategies 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.1 Capacity building training programs for IWRM professionals for different target groups 2.3 Strengthen capacity for enforcement of water resources laws and regulations 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 3.1 Showcase technologies to reduce factual water losses in different sectors 4.1 A team of diverse professional IWRM trainers to work with stakeholders 4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water

IWRM Issue Area	Sustainability Approach	Linked Outputs to support issue area and sustainability
	from the unit of water.	management 4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water 5.2 An assessment of the economic and social benefits per unit of water used in different sectors 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.
Pollution abatement	Empowering countries to move forward and to take steps to actively improve water quality management. It will also support the implementation of national action plans for pollution abatement from different sources.	1.3 Institutional support for River Basin Management Organization and local authorities 1.4 Pollution abatement plans developed with key stakeholders. 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.1 Capacity building training programs for IWRM professionals for different target groups 2.3 Strengthen capacity for enforcement of water resources laws and regulations 3.2 Conduct pre-feasibility studies for select projects identified in pollution abatement plans. 4.1 A team of diverse professional IWRM trainers to work with stakeholders 4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management 5.2 An assessment of the economic and social benefits per unit of water used in different sectors
Stakeholder involvement and education	Only by including a wide range stakeholders in water management through specific roles and responsibilities, including gender dimensions, will it be possible to sustainably implement IWRM. The involvement of concerned stakeholders will allow better governance and ensure all opinions and needs are taken into consideration in the decision making process.	1.3 Institutional support for River Basin Management Organization and local authorities 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.2 Enhanced capacity for institutions to implement river basin management plans 4.1 A team of diverse professional IWRM trainers to work with stakeholders 4.2 Annual academic IWRM conferences 4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management 4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water
Gender mainstreaming	The proper implementation of the SAP and the National IWRM plans depend on the full participation of all stakeholders in the water management process. Man and woman should have equal	1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.1 Capacity building training programs for IWRM professionals for different target groups 3.1 Showcase technologies to reduce factual water losses in different sectors

IWRM Issue Area	Sustainability Approach	Linked Outputs to support issue area and sustainability
	<p>opportunity to voice their thoughts and needs and be active in the management process. This will reduce constraints impeding women's participation in water management process and will lead to the benefits, outlined in the Kura II Gender Mainstreaming Policy.</p>	<p>4.1 A team of diverse professional IWRM trainers to work with stakeholders 4.3 Empowering social marketing campaigns to improve impacted stakeholders understanding of their role in water management 4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water 5.2 An assessment of the economic and social benefits per unit of water used in different sectors</p>
Water Ecology Management	<p>In order to effectively implement IWRM, the ecosystems including land and water based ecosystems must be protected and integrated into the water management strategies. This will be sustained by increasing the awareness of the economic importance of ecosystem based management practices for water management, and through development of trainings, databases and practices that encourage ecosystem based approaches.</p>	<p>1.1 Updated regulations for environmental flow calculation methodology 2.1 Capacity building training programs for IWRM professionals for different target groups – specifically river basin ecology and environmental flows 3.3 River restoration projects for improved ecosystem health using integrated flow management 4.2 Annual academic IWRM conferences 5.2 An assessment of the economic and social benefits per unit of water used in different sectors 5.3 Staged river system ecological assessment 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.</p>
Climate change adaptation	<p>As water resources become increasingly stressed by climate change, having the right tools to address the challenges collectively will enable the countries to be more resilient to climate change impacts. Awareness raising among different stakeholders will enable the two countries to better address climate change adaptation measures.</p>	<p>1.1 Updated regulations for environmental flow calculation methodology 1.2 Improved protocols water flow management regulatory strategies 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 1.6 Public Private Partnership to foster sustainable national and regional integrated water resources management through use of green technologies 2.1 Capacity building training programs for IWRM professionals for different target groups 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 3.1 Showcase technologies to reduce factual water losses in different sectors 3.3 River restoration projects for improved ecosystem health using integrated flow management 4.1 A team of diverse professional IWRM trainers to work with stakeholders 4.4. Local competitions and regional showcasing of local stakeholder innovations for climate change adaptation related to water 4.5 Project information and experiences shared through IW:LEARN activities supported 5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations 5.2 An assessment of the economic and social benefits per unit of water used in different sectors</p>

IWRM Issue Area	Sustainability Approach	Linked Outputs to support issue area and sustainability
		5.3 Staged river system ecological assessment 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels
Information management and decision support system development	<p>The current data collection and information management system does not sufficiently support decision making in line with the EU WFD or IWRM. There is a strong need to systematize information, develop QC/QA protocols and to empower technical staff to analyze information in a manner that is meaningful and support decision makers to include water resources as an important factor in decision making.</p>	1.1 Updated regulations for environmental flow calculation methodology 1.2 Improved protocols water flow management regulatory strategies 1.3 Institutional support for River Basin Management Organization and local authorities 1.4 Pollution abatement plans developed with key stakeholders. 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 2.1 Capacity building training programs for IWRM professionals for different target groups 2.2 Enhanced capacity for institutions to implement river basin management plans 2.3 Strengthen capacity for enforcement of water resources laws and regulations 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 3.1 Showcase technologies to reduce factual water losses in different sectors 3.2 Conduct pre-feasibility studies for select projects identified in pollution abatement plans. 3.3 River restoration projects for improved ecosystem health using integrated flow management 4.1 A team of diverse professional IWRM trainers to work with stakeholders 5.1 Improved assessment of geographic distribution of ground and surface water availability and seasonal fluctuations 5.2 An assessment of the economic and social benefits per unit of water used in different sectors 5.3 Staged river system ecological assessment 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.
Harmonization and experience sharing	<p>Demonstration of the benefits of information exchange and the reduction of technocracies in which organizations are now willing to share information with counterparts and stakeholders. It will provide tools to ensure harmonization of water management data collection and analysis in line with EU WFDs and other international best practices.</p>	1.2 Improved protocols water flow management regulatory strategies 1.3 Institutional support for River Basin Management Organization and local authorities 1.5 Support to intersectoral water policy coordination and harmonization at the national and transboundary levels 2.1 Capacity building training programs for IWRM professionals for different target groups 2.2 Enhanced capacity for institutions to implement river basin management plans 2.3 Strengthen capacity for enforcement of water resources laws and regulations 2.4 Strengthened capacity information management, data analysis for enhanced IWRM decision-making support 3.1 Showcase technologies to reduce factual water losses in different sectors 3.2 Conduct pre-feasibility studies for select projects identified in pollution abatement plans. 3.3 River restoration projects for improved ecosystem health using integrated flow management 4.5 Project information and experiences shared through IW:LEARN activities supported 5.4 Protocols in place to support data and information exchange, for sound IWRM decision-making at national and transboundary levels.

Annex 10. Co-financing Commitment Letters and Letters of Intent

Submitted in a separate folder

Annex 11. GEF International Waters Tracking Tool

Submitted in a separate folder