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THE UNECE WATER CONVENTION AND THE GLOBAL ENVIRONMENT FACILITY

Submitted by the Secretariat of the Global Environment Facility

Introduction

The Global Environment Facility (GEF) welcomes the opportunity to introduce its mandate, objectives, strategies and results of more than two decades of investment in transboundary water cooperation to the 6th Meeting of the Parties of the UN ECE Convention on the Protection and Use of Transboundary Watercourses and Lakes (UN ECE Water Convention). The GEF International Waters Focal Area objectives and projects correspond to a large extend to the objectives and activities of the UN ECE Water Convention, therefore both GEF and the Convention have a great potential to further collaborate and expand the dialogue cooperation on shared freshwater systems.

Complementarity with UNECE. The results of numerous activities and projects implemented with assistance of GEF funds in ECE region contribute to fulfilling the UN ECE Water Convention Parties to meet their obligation under this Convention. On the other hand many activities conducted under the auspices of the Convention support GEF overall goals and specific IW strategies and outcomes of GEF projects and global initiatives. The assessments of transboundary waters, capacity-building for monitoring and assessment, activities on water and adaptation to climate change, on flood prevention and management, on water and ecosystems and on national policy dialogues should be commended in this regard.

GEF Objectives. The overall goal of the International Waters focal area is the promotion of collective management for transboundary water systems and subsequent implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services. The countries therefore could seek GEF assistance to utilize the full range of technical, economic, financial, regulatory, and institutional measures needed to operationalize sustainable development strategies for international waters. Specifically, the GEF-funded international waters activities strategically aim at (a) assisting groups of countries to better understand the environmental concerns of their international waters and work collaboratively to address them; (b) building the capacity of existing institutions (or, if appropriate, developing the capacity through new institutional arrangements) to utilize a more comprehensive approach for addressing transboundary water-related environmental concerns; and (c) implementing measures that address the priority transboundary environmental concerns.

Background – 'on the GEF'

The GEF unites 182 member governments in partnership with international institutions, nongovernmental organizations, and the private sector to address global environmental issues. As an independent financial organization, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. These projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods. (www.thegef.org). Established in 1991, the GEF is today the largest funder of projects to improve the global environment. The GEF has allocated $9.2 billion, supplemented by more than $40 billion in co-financing, for more than 2,700 projects in more than 165 developing countries and countries with economies in transition.

The **GEF serves as financial mechanism for the following conventions**; Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), UN Convention to Combat Desertification (UNCCD) and Stockholm Convention on Persistent Organic Pollutants (POPs). Further, although not formally linked to the Montreal Protocol on Substances that Deplete the Ozone Layer (MP), the GEF supports implementation of the Protocol in countries with economies in transition.

Structure

The **GEF Assembly** is the governing body of the GEF in which representatives of all member countries participate. It meets every three to four years, and is responsible for reviewing and evaluating the GEF's general policies, the operation of the GEF, and its membership. The Assembly is also responsible for considering and approving proposed amendments to the GEF Instrument, the document that established the GEF and set the rules by which the GEF operates. Ministers and high-level government delegations of all GEF member countries take part in the meetings.

The **GEF Council** is the main governing body of the GEF. It functions as an independent board of directors, with primary responsibility for developing, adopting, and evaluating GEF programs. Council members representing 32 constituencies (16 from developing countries, 14 from developed countries, and two from countries with transitional economies) meet twice each year for three days and also conduct business by mail. All decisions are by consensus. Council meetings are attended regularly by civil society organizations.

The **GEF Secretariat** is based in Washington D.C., USA and reports directly to the GEF Council and Assembly, ensuring that their decisions are translated into effective actions. The secretariat coordinates the formulation of projects included in the work programs, oversees its implementation, and makes certain that operational strategy and policies are followed. The GEF Secretariat is addressing environmental focus areas through interventions in five focal areas, namely, Climate Change, Biodiversity, International Waters, Land Degradation and Chemicals. The GEF CEO and Chairperson is Dr. Naoko Ishii.

The **Scientific and Technical Advisory Panel** (STAP) is established as an advisory body to the GEF. The STAP provides objective, strategic scientific and technical advice on GEF policies, operational strategies, programs and on projects and programmatic approaches; and, maintain a database of institutions, networks and individual scientists to provide the necessary expertise and advice for the GEF.

An independent **GEF Evaluation Office** is also located in Washington D.C., and reports directly to the GEF Council. Its goal is to improve accountability of GEF projects and programs and to promote learning, feedback, and knowledge sharing.

The GEF partnership includes **10 GEF agencies**, namely: the UN Development Programme; the UN Environment Programme; the World Bank; the UN Food and Agriculture Organization; the UN Industrial Development Organization; the African Development Bank; the Asian Development Bank; the European Bank for Reconstruction and Development; the Inter-American Development Bank; and the International Fund for Agricultural Development. GEF Agencies assist eligible governments and NGOs in the development, implementation, and management of GEF projects. GEF Agencies are requested to focus their involvement in GEF project activities within their respective comparative advantages.

GEF Projects are differing in size and scope, but most are implemented within a timeframe of 4-6 years. Generally, there are three types of GEF grants, namely Medium Size Projects (up to $1 mill in grant size), Full Size Projects and Programmatic Frameworks. All three types can be both multi-focal area and multi-national. GEF projects generally go through following main steps:

- Identification of issues to be addressed by potential project
- Formulation of Project Identification Form (PIF)
- Country endorsement of PIF
- GEFSEC technical review of PIF and GEF CEO PIF Approval
- PIF inclusion into Work Programme (which goes to the GEF Council bi-annually) or to possible intercessional Work Programmes
- Following GEF Council approval of PIF, development of the full project document is initiated (Project Preparation Grant (PPG) can be applied for at PIF stage)
- Full Project Document is submitted for GEF CEO Endorsement; upon receipt of the endorsement the project initiates implementation.

GEF Investing in Transboundary Waters

Cooperation and collective actions of multiple governments is a key prerequisite to sustain the economic, social and environmental benefits provided by transboundary waters, which make up the majority of waters on the earth. There is continuing risk of depletion and degradation of waters in rivers, lakes, aquifers and oceans if countries don't recognize the interdependency and need for multilateral cooperative framework allowing them effective joint management of these shared resources.

Support to the principles of the UN ECE Water Convention. The principles of the UN ECE Water Convention, in particular those on ecologically sound and rational water management; conservation of water resources and environmental protection; conservation and restoration of ecosystems; and taking an ecosystem approach to sustainable management of water resources coincide with key strategic objectives and areas of intervention of the GEF International Waters Focal Area. For example, the GEF International Waters Focal Area regularly supports Water Convention provisions on best available technologies to reduce nutrient pollution from industrial and municipal sources; to prevent the pollution of groundwater; on establishment of water quality objectives to reduce transboundary impact; and on measures for maintaining or, if necessary, improvement of water quality. Furthermore, both the Water Convention and the GEF foster the establishment of joint bodies to cooperate and manage share water resources in specified transboundary basins; promote cooperation and exchange of information and their availability to public; and support the formulation of joint management and concerted action programs.

The GEF's objective in the international waters focal area is to contribute primarily as a catalyst to the implementation of a more comprehensive, ecosystem-based approach in managing international waters and their drainage basins as a means to achieve global environmental benefits. The GEF acts as a catalyst to ensure that countries better understand the functioning of their international waters systems, gain an appreciation of how their sectoral activities influence the water environment, and find means for collaborating with neighboring countries to collectively pursue effective solutions.

The GEF serves a unique role in building trust and confidence among States for catalyzing collective management of these large water systems while providing benefits for environment, food production, economic development, community health, and regional stability. Human well-being, livelihoods, and socio-economic considerations are at the center of on-the-ground pilot measures. The GEF IW focal area has shown that cooperation among States on water, fisheries, catchments, and environmental services as a new path to secure these benefits for multiple water users and that the demonstration of appropriate technologies can catalyze investments for on-the-ground results.

GEF international Waters Strategy

The GEF Council-approved 1995 Operational Strategy on International Waters laid down key strategic principles and objectives for GEF IW FA, recognizing the sensitive international political dimensions of assisting states in collective management of transboundary water systems. The Council noted that global environmental benefits would accrue if countries worked together on priority concerns of these transboundary systems, which includes most water bodies globally, and that global environmental benefits relate to the interconnectedness of the global hydrologic cycle that dynamically links watersheds, aquifers, and coastal and marine ecosystems and their transboundary movement of water, pollutants, ships, and living resources. The Strategy elaborates global environmental concerns relating to international waters such as degradation of the quality of transboundary water resources, caused mainly by pollution from land-based activities (toxic chemicals, nutrients, pathogens, oxygen-demanding wastes, sediment, and debris) or excessive exploitation of living and nonliving resources due to inadequate management and control measures (for example excessive water withdrawal).

The long-term goal for the GEF International Waters Focal Area, as outlined in its 1995 Operational Strategy, remains relevant until today, including for the present GEF's 5th Replenishment cycle (2010-2014). The **GEF 5 IW Objectives, relevant to UN ECE Water Convention** are: (i) to catalyze multi-state cooperation to balance conflicting water uses in transboundary surface and groundwater basins while considering climatic variability and change; and (ii) to support foundational capacity building, portfolio learning, and targeted research needs for ecosystem-based, joint management of transboundary water systems. GEF has previously supported such foundational capacity building in almost 16 transboundary freshwater systems. The GEF IW focal area also contributes to human wellbeing and poverty eradication by sustaining water-related and dependent livelihoods, securing food sources, balancing water uses, and reducing water-related health risks in addition to resolving and preventing water-related use conflicts in these large bodies of water.

GEF provides assistance to States for formulating and implementing agreed Strategic Action Programmes (SAP) for interventions in cross-border surface and groundwater basins. SAPs are based on a basin-wide agreed Transboundary Diagnostic Analysis to define the status and IWRM related issues faced on transboundary and national levels. The TDA/SAP process is a multi-country, long-term integrated planning approach that helps governments to prioritize issues, identify barriers, and to agree upon and implement both regional and national governance reforms (policy, legal, institutional) and investments aimed at addressing the roots causes of aquatic ecosystem degradation. The principal biogeographic planning unit the GEF has adopted for application of the TDA/SAP process and the ecosystem-based approach in freshwater environment is the transboundary river basin. TDA/SAP can and has been applied in both highly degraded and relatively pristine river basins.

GEF interventions in many cases also helped countries to establish and maintain harmonized transboundary monitoring programmes. Promotion of public access to information on transboundary waters status, policies and programmes designed and implemented at basin-wide, national and local

levels became a standard feature of GEF IW projects. The GEF IW Small Grants Programme has been successful in catalyzing community based approaches to International Waters Management, through implementing at global scale nearly 600 international waters project in shared water bodies across 65 countries.

GEF is focusing on supporting long-term programs that work across relevant sectors and increasingly does this hand in hand with other GEF focal areas. If development partners continue to fund individual projects with the agricultural sector or the environmental sector alone, water related conflicts will continue to persist. The GEF International Waters portfolio of support to international river and lake basins, aquifers, and large marine ecosystems has already demonstrated effective ways of dealing with water and natural resource use conflicts in a transparent manner; this is encouraging and shows that countries can take more effective action and scale-up GEF project results.

GEF IW:LEARN

IW:LEARN is the International Waters Learning Exchange and Resource Network for the GEF, implemented by UNDP and UNEP. It provides a critical role in helping to share project experiences, foster learning, and replicate results and enhance project impacts across the entire GEF International Waters portfolio of projects. IW:LEARN promotes knowledge sharing and information management across GEF agencies, countries, and partners around the world. IW:Learn supports face-to-face activities (workshops, conferences, regional dialogue processes, project-project twinning) as well as online exchanges, including help-desk functions, the IW:LEARN website, its most visible activity, and its associated developments, the Project Website Toolkit, Visualization Tool, IW Community Workspace and Portfolio Results Archive. Finally, IW:Learn undertakes trainings in support of those systems. Its work to promote networking and peer-to-peer learning helps to share best practices and improve the quality of all GEF international waters projects(www.iwlearn.net).

GEF International Waters Portfolio overview

The GEF International Waters (IW) Focal area has been supporting and catalyzing a number of institutional and legal frameworks as well as methods and tools leading to strong regional organizations, as one of its key efforts. Such organizations include the Orange-Senqu River Commission (ORASECOM), International Commission for Protection of Danube River (ICPDR), Mekong River Commission (MRC), lake Victoria Basin Commission (LVBC) and Lake Victoria Fisheries Organization (LVFO) within the Freshwater sphere. Further, other strong regional organizations within the marine sphere include the Benguela Current Commission (BCC) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). All these organizations have been benefitting from support from GEF IW interventions to become the strong regional organizations that they are today. A full analysis of some of these institution's Legal frameworks have been undertaken by University of British Columbia as execution partner under a GEF funded project through one of its implementing agencies. For more information about this project's results please visit www.governance-iwlearn.org

Since its inception in 1991, the GEF has allocated US$1.34 billion towards the International Waters Focal area leveraging more than US$7.68 billion in co-financing, reaching a total of more than US$9.02 billion invested in transboundary international waters.

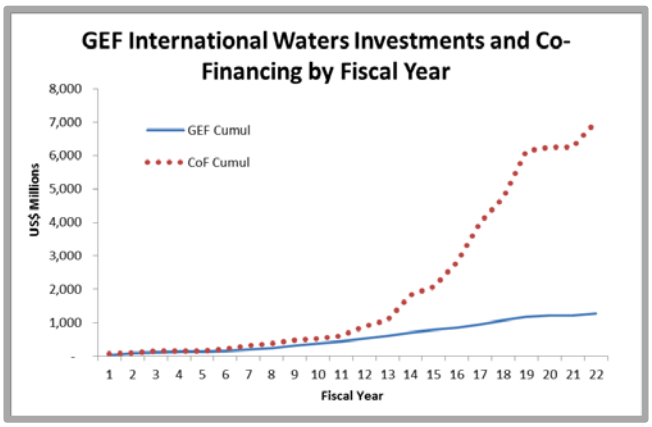

Figure 1: GEF International Waters Investments and co-financing over the 22 year history from GEF's inception to date

It is notable that over the course of the five GEF Replenishments to date, the total spending in GEF International waters has kept a relative stabile progression, while the co-financing to such activities have been significantly increasing (Figure 1), indicating that nations are progressively focusing on addressing transboundary water issues prior to them becoming a threat to regional and national water, food and energy security. However, Figure 1, also signals that, with the increasing national focus on addressing transboundary issues, follows a progressive need for the international donor community to increase funding to address such transboundary water issues.

The GEF International Waters freshwater portfolio, including lakes, rivers and aquifers and their transboundary management (Figure2), plus projects in the IW portfolio that have investments in the near shore area, where freshwater and marine ecosystems interact, namely the projects focusing on land based sources of marine pollution. The Freshwater portfolio to-date consists of the following number of projects in the below four categories: 19 lakes projects, 40 rivers projects, 14 aquifer projects and 65 investments in activities that support the Global Program of Action for the Protection of the Marine Environment from Land-Based Activities (GPA).

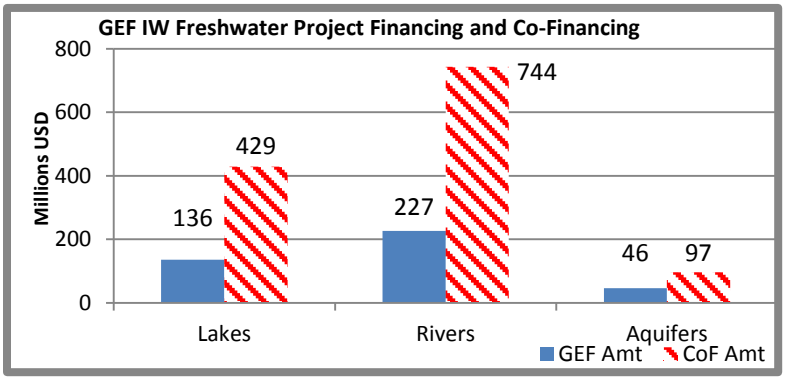

Figure 2: GEF International Waters Transboundary lake, river, and aquifer management portfolio 1991-2012

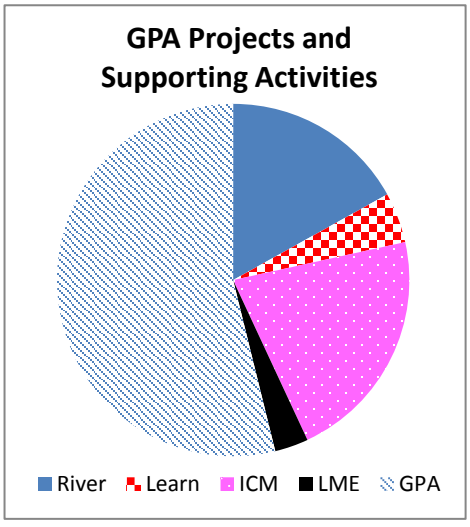

Figure 3 illustrates the distribution of the 65 projects that are part of the GPA portfolio i.e. dealing with coastal pollution from land-based sources. The category "GPA" is accounting for more than 50 % of the 65 projects on GPA and supporting activities. including projects that address food security, SAP implementation, fisheries, and persistent toxic substances. This broad category is reflecting upon the fact that targeting land-based sources of marine pollution requires a multi-sectoral approach in more than one water body type in order to reach sustainable solutions.

Figure 3: distribution of the 65 projects of the freshwater portfolio dealing with land based sources of marine pollution in support of the GPA.

Future investments in the UN ECE region

Drin River Basin. The GEF CEO will be putting forward to the GEF Council a project titled "Enabling Transboundary Cooperation and Integrated Water Resources Management in the Extended Drin River Basin", which will be instrumental in accelerating the process of EU approximation, in particular, to the Water Framework Directive, for Albania, Macedonia and Montenegro. The project countries have pursued the management of the shared water bodies from a predominantly national perspective. The proposed project will build on the previous baseline achievements and support countries in their efforts to put in place cooperative frameworks for the sustainable and integrated management of the shared water resources of the extended Drin River Basin.

Chu and Talas River Basin. Recently, Kazakhstan and Kyrgyzstan have requested funds from GEF through UNDP and UNECE to facilitate enabling transboundary cooperation and integrated water resources management in the Chu and Talas River Basin.

The following pages outline a selected list of the range of different types of GEF IW investments within river basins, lakes, aquifers and a few examples on land-based sources of marine pollution, which is meant to outline the diversity of the IW portfolio. A more thorough portfolio overview can be found in the general publication *From Ridge to Reef* as well as in the *Community to Cabinet* that specifically outlines the freshwater portfolio. Finally, the publication *Global Security,* describing parts of the International Waters investments through the lens of the nexus derived from the Bonn November 2011 Nexus Conference, hence placing water as a key aspect of green growth and the common denominator across economic sectors including energy, industry, agriculture, and the better use and valuing of ecosystems.

Examples of GEF River Basin investments

Danube/Black Sea

Starting in 1991, the GEF has helped Danube countries to increase regional cooperation and the sustainable management of shared water resources and has assisted them to make full use of policy, legal and institutional reforms and to increase their capacities for the protection and sustainable use of shared water resources. The Danube River Protection Convention (based on principles of UN ECE Water Convention) was jointly signed by Danube countries and the EU in 1994 and the ICPDR was established as its main implementing body in 1998.The GEF helped the ICPDR and Danube countries to develop institutional capacity to harmonize EU laws, implement the EU's Water Framework Directive (WFD) and to develop a truly integrated approach to the management of the river basin and its resources. The Danube river basin is now widely viewed as a successful model of IWRM that can be applied to other transboundary water systems around the world. In 2005, the European Union highlighted the Danube program as a model for transboundary water governance in its report to the United Nations Commission on Sustainable Development. And in 2007, the ICPDR was awarded the International Theiss River Prize for excellence in the management, preservation, and restoration of the Danube river basin.

Further, the GEF has also been engaging for more than a decade in actions to reduce nitrogen and phosphorus pollution in the Danube Delta and downstream Black Sea. Sixteen countries have worked together with GEF, UNDP, and the World Bank and the European Union to sustain collaboration, undertake national pilot demonstrations for nutrient reduction in agriculture, municipal sewage, and industrial sectors and to trap nutrients in restored floodplains. Outcomes are favorable in terms of on-site nutrient loading reduction, multi-country cooperation even in times of armed conflict. The Black Sea environment is responding with improved water quality, less oxygen depletion, and improved biodiversity and fisheries to support local communities. The GEF/UNDP *Danube Basin Environmental Management Program* helped Danube countries generate $3.5 billion worth of investments to improve agricultural practices, municipal wastewater treatment and the management of important wetland areas. Thanks to

this program the Black Sea dead zone has been virtually eliminated, nitrogen emissions have fallen by 20%, phosphorus by 50%, and the number of species has almost doubled from 1980 levels. Please see following link for an overview of the national investments with the World Bank.
http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/EXTECAREGTOPENVIRONMENT/EXTBLACKSEA/0,,menuPK:634978~pagePK:64168427~piPK:64168435~theSitePK:634972,00.html

The above link outlines in detail a range of different national demonstration investments, however, it does not cover one innovative investment in the Danube River Basin, as it was not funded directly under the GEF/WB investment fund, namely the GEF WB/EBRD Environmental Credit Facility for Slovenia. Even though this investment had a national focus, it is considered a sustainable model for lowering the transboundary stress on the Danube river, due to its considerable investments in small and middle size businesses along sub-river basins to the Danube River. Further, the credit facility was setup in such a way that the EBRD were leveraging considerable commercial loans enabling the initial GEF grant to reach a more than 40 beneficiaries, which all have been reporting substantial stress reductions through the investments.

Senegal River Basin

With support from the GEF, countries around the Senegal River Basin decided to integrate environmental and other use considerations into basin-wide water management. This project helped to integrate the management of land and water resources and provided a coherent legal framework for the environmentally sustainable management of the river basin. The countries signed the Senegal River Water Charter, which establishes principles for guiding water resources management and allocation among the states in an integrated manner. Water is not allocated to riparian states in terms of volume but is withdrawn according to possible functions. The various uses can be for: agriculture; inland fishing; livestock; fish farming; tree farming; fauna and flora; hydroelectric energy production; urban and rural drinking water supply; health; industry; navigation; and the environment. Each country's national legal framework has been harmonized with the basin framework.

Orange Senqu River Basin

The Project assists the Orange-Senqu riparian states of Botswana, Lesotho, Namibia and South Africa to identify the principal threats and root causes of transboundary water resources issues, and to develop and implement a sustainable programme of policy, legal and institutional reforms, and investments to address these threats. Competing water uses in the context of dwindling and uncertain future supplies is seen as the critical issue in the basin and will be a principal focus of project attention from the very outset. The Project will create synergies with and build upon a range of initiatives being undertaken by the countries themselves and international cooperating partners that have given priority to the Basin. The project uses the Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) process. The preliminary TDA is currently updated. Based on this, a SAP and associated National Action Plans (NAPs) will be formulated. The SAP and the NAPs are part of a wider regional IWRM Plan, developed by ORASECOM, the Orange-Senqu River Commission.

Niger River Basin

The Niger River is the principal river of western Africa, extending about 4,180 km. Its drainage basin is 2,117,700 km^2 in area and its source is in the Guinea Highlands in southeastern Guinea. The lack of harmonised regulatory frameworks and policies at the regional level, and the poor capacity of institutions at the regional and national levels, make it difficult to ensure sustainable and equitable management of the Niger Basin's water and land resources. The project contributed to creating an enabling environment, supporting ongoing dialogue and intensification of collaboration between the nine Basin countries, such as Contribution to the Shared Vision Process in the Niger Basin resulting in the approval by the Heads of State of the Niger Basin of a 20-year Investment Program (IP), for a total of US$8 billion, Contribution to the Improved knowledge base and data sharing supported appropriate development decisions at the

Basin level: In the context of the Shared Vision Process, hydrological and economic models of the Niger Basin for key development scenarios and key sectors (irrigation, energy, livestock, etc.) were developed and finally Validation at the regional and national level of Transboundary Diagnosis Analysis and SAP that was endorsed by the COM as a regional policy framework.

La Plata River Basin

The Plata is the fifth largest river basin in the world. It comprises almost all of the southern part of Brazil, the south-eastern part of Bolivia, a large part of Uruguay, the whole of Paraguay, and an extensive part of northern Argentina. In total, it accounts for 17% of the surface area of the South American continent, 50% of the five countries' combined population. The GEF/UNEP *Plata Basin Project* is a model for future large basin projects and is designed to help the countries take a more integrated approach to management of its water resources in the face of increasing climatic change and variability. It is the first GEF IW project that has been explicitly designed to address flooding and climate adaptation issues while also dealing with the other transboundary concerns such as the linkage with the management of subsurface waters of the Guarani aquifer system. So far following outputs have been achieved through the project: 1. Enhancement and development of new framework and capacities for bilateral and inter-jurisdictional cooperation in the harmonization of reduction of land based sources of pollution, its prevention and mitigation. 2. Innovative platforms to enhance collaboration between public and private sectors (Public-Private Partnership) will be established through Cleaner Production (CP) approaches with strong replication potential for up scaling throughout industrial sectors. Highly replicable pilot projects for testing these new approaches of land-based pollution mitigation will be implemented. 3. Bi-national Water Quality Monitoring Program and an Integrated Bi-national Environmental Information System will provide critical management tools to support decision-making, planning processes and technical interventions.

Bermejo River basin

The Bermejo River Basin, in southern South America, extends over some 123,000 km2, originating in the Andes Mountains of northwestern Argentina and southern Bolivia. The river, which flows some 1,300 km, links two major geographic features: the Andean Cordillera and the Paraguay-Paraná Rivers. Sediment loadings in the Bermejo waters are some of the highest in the world (8 kg/m3). Total discharge of sediment is around 100 million tons/year. The greater part of the sediment is produced in the Upper Basin and flushed down during peak floods. The amount of sediment deposited along the course of the Lower Basin during floods regularly changes the course of the river, impeding a rational use of water and land resources. Through an $11 mill GEF investment, following is some of the major results achieved. 1. Development and strengthening of COBINABE as a bi-national entity for management and sustainable development in the Bermejo River Basin. 2 Structural measures for the control of erosion and sediment transportation were implemented in the Upper Bermejo Basin and 3. A comprehensive environmental information system was launched (SIG Bermejo), integrating actions for the generation, acquisition, processing and storing of information on natural resources in the basin.

Examples of GEF Lake Basin Investments

Lake Victoria

Lake Victoria plays a vital economic role in East Africa. The fishing industry supports the livelihoods of three million people and contributes 2-3% to the GDP of the three largest riparian countries Kenya, Tanzania and Uganda. Over 30 million people depend on the lake for their freshwater supply and livelihoods. In addition, transport routes on the lake are critical for trade and the Lake Victoria Basin generates hydropower crucial for the region's economic development. The GEF's work to foster collective action at community, national and regional levels has helped these countries take important steps towards the effective transboundary management of the lake whilst building more stable relations, improving food security for local communities, and lessening the likelihood of conflict. Through two Lake

Victoria Environmental Management Projects (LVEMP I & II), the GEF worked with the riparian countries to build the institutional foundations needed to support the transboundary management of the lake and its resources through catalyzing organizations like lake Victoria Basin Commission (LVBC) and Lake Victoria Fisheries Organization (LVFO).

Lake Tanganyika

Lake Tanganyika, the second largest lake in the world by volume, has started to feel the environmental impacts of an increasing population. Pollution from untreated wastewater and agricultural run-off, combined with over fishing and destructive fishing methods, The decline in water quality and fish stocks is jeopardizing the health and livelihoods of the ten million people who live in the Tanganyika catchment. The four riparian countries (Burundi, DR Congo, Tanzania and Zambia) had started to co-operate leading to the development of a Transboundary Diagnostic Analysis that prioritized the shared issues affecting the lake and a Strategic Action Plan that identified the national actions and key institutions needed to resolve them. Following this, and with the GEF's assistance, the four partner states negotiated and then signed the Convention for the Sustainable Management of Lake Tanganyika, a legal agreement to harmonize policies, laws, regulation monitoring, and information exchange. It also established The Lake Tanganyika Authority, a regional institution charged with coordinating the management of the lake. The Authority's management committee includes senior members of the relevant ministries in each of the four countries. Thanks to the in-depth consultation process facilitated by GEF, ownership of the Convention is highly accepted both nationally and regionally and the Authority is active in helping the partners address their complex pollution and fisheries issues with significant increases in average incomes.

Lake Manzala

Lake Manzala is a shallow brackish lake of approximately 1,000 km^2 located on the north eastern edge of the Nile Delta, and only separated from the Mediterranean Sea by a sandy beach ridge. Polluted water has long entered the lake and eventually the sea from nearby urban centers such as Cairo and other sources such as agriculture and industry. The GEF International Waters funded part of a constructed wetland system, imitating the functions of natural wetlands, which are well known for their ability to improve water quality. At Lake Manzala, the wastewater is pumped into ponds where sediments are allowed to settle. The water then flows through 60 acres of constructed wetlands where more than 75%of toxins and nutrients are removed, which facilitates fish production in the outlet water.

Examples of GEF Aquifer Investments

Guarani Aquifers

As a result of a GEF/World Bank project, all four countries that share the Guarani aquifer (Argentina, Brazil, Paraguay, and Uruguay) have undertaken national reforms to improve the management of this precious groundwater resource. The Guarani is the largest aquifer in South America. In Brazil alone it extends over 1.2 million km^2 — equal to the areas of England, France, and Spain combined. In order to sustain the benefits the four countries share from the aquifer, the four countries approached the GEF for support to better understand and manage this important water system. The aquifer presently supplies drinking water to some 15 million people in the region, including around 500 cities and towns in Brazil. Parts of the Guarani have been over-pumped, and pumping on the border between Argentina and Uruguay led to increased tension between the two countries. Sensitive recharge areas are also becoming threatened by agricultural chemicals. In May 2003 all four aquifer states agreed to initiate a project called the Environmental Protection and Sustainable Development of the Guarani Aquifer System. The project supported the four countries in the joint elaboration and implementation of a common institutional, legal, and technical framework for the management and preservation of the aquifer. The conservation and protection of the groundwater supply have now been mainstreamed into both national and regional

institutions to ensure that surface and groundwater are both addressed and the groundwater resource can be sustained during periods of drought.

Nubian Aquifer

The Nubian Sandstone Aquifer System (NSAS) occupies a surface area of about two million km^2 and underlies the countries of Chad, Egypt, Libya and Sudan. With an estimated volume of water of about 500,000 km^3, the Nubian aquifer is one of the largest shared aquifers in the world. There is an increasing demand for this groundwater resource as it is the only significant water available for the growing population, and the region's industrial and agricultural sectors. A GEF funded a project designed to address the pumping pressure on the aquifer and the transboundary impacts that could result from further water quantity or quality degradation. This project was carried out using the GEF's TDA approach and has led to a Shared Aquifer Diagnostic Analysis (SADA). With the full cooperation of all countries, the SADA has formed the basis for developing a SAP addressing the key shared problems. This will be implemented under the auspices of a joint authority established by the four countries as a means of regional coordination.

North West Sahara Aquifer

The North West Sahara Aquifer System (NWSAS) is shared by Algeria, Tunisia and Libya and covers an area of over one million km^2. There is increasing demand on the aquifer's water resources from a rapidly growing population and the associated need to irrigate crops. This has led to increased water costs, the loss of artesian wells and salinization. In order to address these threats the three countries approached the GEF for support to develop the "Protection of the North West Sahara Aquifer System and Related Humid Zones and Ecosystems" project. The project enabled the countries to develop hydrogeological models of the aquifer, establish monitoring systems and identify the priority issues that they needed to address. Crucially, the project also developed an international agreement among the respective Ministers of Water for a Tripartite Mechanism of Joint Action, providing a firm foundation for cooperation among the three countries to address the transboundary risks affecting the NWSAS. All these practical measures are helping to combat the deterioration of water quality, the salinization of groundwater and the destruction of oases. The GEF's work on the transboundary North West Sahara aquifer system demonstrates its success in fostering multi-state cooperation and building regional capacity to develop and implement an agreed plan for sustainably managing water resources.

Examples of GEF projects on pollution of the Marine Environment From Land-based Activities (GPA)

East Asia Seas

Rapid urban and agricultural growth in East Asia has resulted in highly polluted coastal conditions. The GEF/UNDP PEMSEA International Waters project has worked to spur cooperation among 12 coastal countries and to build the confidence of local government in the use of Integrated Coastal Management (ICM) as an effective management tool. worked with these countries since 1994. This collaboration has among others led to the adoption a Sustainable Development Strategy for the Seas of East Asia through the 2003 Putrajaya Declaration as a common platform for regional cooperation, among others outlining a commitment to place 20% of each country's coastline under ICM by 2015. Complementing these policy reforms has been an investment program that countries utilize to reduce coastal pollution. This partnership between GEF and the World Bank has provided at the request of East Asia countries close to $US100 million dollars in GEF grants along with US$ 1.8 billion co-financing since 2005 for innovative pollution reduction. The partnership has piloted national projects with innovative and appropriate treatment for human sewage and agriculture pollution consistent with the Global Programme of Action for Protection of the Marine Environment From Land-based Activities to help restore the Yellow Sea, East China Sea, and South China Sea Large Marine Ecosystems. With approvals in November 2011, the

partnership between GEF and the World Bank scaled up its investments to include improved management of coastal habitats that can help reduce global warming by trapping carbon emissions.

Caribbean Small Island Developing States

In the Caribbean the Integrating Watershed and Coastal Areas Management (IWCAM) project is helping the participating countries to implement an integrated approach to the management of watersheds and coastal areas. A major component of the project was the development and delivery of nine demonstration projects in the areas of water resource management, wastewater treatment, and sustainable land use. In a region where island populations range from fewer than 100 to more than 5 million, the project is working carefully to ensure that any new management approaches are designed to meet the specific needs and resources of different communities. The demonstration projects have developed numerous tangible outcomes, as well as have provided input to national legislation and regional commitment from the participating countries towards the national ratification that led to the Protocol Concerning Pollution of the Marine Environment of the Wider Caribbean from Land-Based Sources and Activities (LBS Protocol) in 2010 entering into force.