LESSONS FOR THE FUTURE

Protecting International Waters Sustaining Livelihoods

Experiences from
GEF-UNDP INTERNATIONAL WATERS PROJECTS
August 2002

Protecting International Waters Sustaining Livelihoods

Benefits of Healthy International Waters:

Food supplies
- Fisheries
- Aquaculture

Protection of biodiversity and aquatic habitat
- Large Marine Ecosystems
- Coral Reefs
- Mangroves
- Wetlands

Fresh water supplies
- Irrigated agriculture
- Sanitation
- Drinking Water
- Industry

Livelihoods
- Fishing
- Tourism
- Aquaculture
- Agriculture

Recreation

Climatic Regulation
- Local and Global

Threats to International Waters:

- Nutrient loading causes eutrophication and the collapse of fisheries
- Over-harvesting causes depletion, loss of fisheries and ecosystem damage
- Shoreline development causes habitat loss, pollution, and erosion
- Toxics seriously impact the health of ecosystems and species —including humans
- Invasive Species cause ecosystem disruption, loss of livelihoods, and exact very high costs for remediation

Experiences from GEF-UNDP INTERNATIONAL WATERS PROJECTS

The Global Environment Facility Unit at UNDP

The poor typically suffer the most from declining water quality and ecosystem productivity since they are the most directly dependent upon these environmental assets for both their food supplies and livelihoods. Therefore, efforts to protect international waters and their biodiversity must be integrated with measures to alleviate poverty in ways that respect the regenerative thresholds of species, habitats, and waters. This is one goal of International Waters projects implemented by the Global Environment Facility programme within UNDP's Environmentally Sustainable Development Group: to help local communities realize sustainable long-term benefits by protecting waters, species, and ecosystems. This report provides a glimpse at a few of the more than 25 projects now underway within GEF-UNDP's $250 million International Waters portfolio. The projects pioneer efforts to preserve and sustainably manage vital international water resources including Large Marine Ecosystems and Lakes and River Basins, and to address several critical global water issues.

These projects are partially, or in some cases fully funded by the Global Environment Facility (GEF). The GEF is a special fund implemented by UNDP, the United Nations Environment Programme, and the World Bank that focuses on vital shared aspects of the Earth's environment including conservation of biodiversity, preventing climate change, protection of international waters, restoring the stratospheric ozone layer, phasing out Persistent Organic Pollutants, and preventing land degradation as it relates to these focal areas.

The United Nations Development Programme (UNDP)

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners. Energy and environment are essential for sustainable development. The poor are disproportionately affected by environmental degradation and lack of access to clean affordable energy services. These issues are also global as climate change, loss of biodiversity, protection of international waters and ozone layer depletion cannot be addressed by countries acting alone. UNDP helps countries strengthen their capacity to address these challenges at global, national and community levels, seeking out and sharing best practices, providing innovative policy advice and linking partners through pilot projects that help poor people build sustainable livelihoods.

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LARGE MARINE ECOSYSTEMS

Coastal ecosystems provide fish, shellfish, and marine plants vital to human food security. Protection of estuaries, coastal wetlands, shorelands, mangroves, barrier islands, headlands, and coral reefs are all essential to guaranteeing the supply of marine food sources. Shoreline development can destroy important breeding and nursery areas for many different types of species, some of which are captured by local populations, and others that move far offshore into international waters. Development that eliminates wetlands or alters coastal habitats can also increase freshwater runoff, carry sediment from land-clearing, nutrients from agriculture and septic systems, and toxins such as petroleum products and pesticides into critical habitats. Three-quarters of the world's large cities are located on the coasts. Every year, sewage treatment facilities globally discharge 5.9 trillion gallons of sewage into coastal waters, and factories dump thousands of tonnes of toxic organic chemicals and toxic metals into coastal waters. The coastal zone can also be impacted by activities that occur far inland, such as dams, which can reduce the flow of water to estuaries, and deforestation that can degrade an estuary thousands of kilometers away. The only effective way to address these problems is through Integrated Coastal Management (ICM) programmes that engage the range of stakeholders in comprehensive strategies to protect the littoral zone.

Large Marine Ecosystems (LMEs) are vast ocean areas with linked food chains, distinct submarine topography, hydrography, and productivity. The 64 LMEs characterized to date by the scientific community provide 95 percent of the annual global marine fishery yields. The harvest of resources from the sea has increased enormously due to growing populations and increasing consumer preference for seafood. LMEs are under stress from overexploitation of fish, (total ocean fishing has now peaked at 90 million tonnes annually), habitat loss due to coastal zone damage, river basin runoff, introduction of exotic marine species, dumping of urban wastes, and fallout from aerosol contaminants including persistent organic pollutants. The ecological balance of LMEs worldwide is being threatened by industrial fisheries, bottom trawling, driftnetting, and by the enormous amount of blind catches of nontarget organisms that are killed and discarded. Although these nontarget species may be of no economic value to the fishery, they may be of incalculable value to the health of the Large Marine Ecosystem.

Organic and inorganic contaminants such as pesticides, PCBs, and mercury destroy plankton, cause liver damage and tumors in fish, and have been linked to reproductive failure, birth defects, neurological disorders, and cancerous tumors in marine mammals. GEF-UNDP helps groups of countries address these threats through preparation and implementation of Strategic Action Programmes (SAP) that apply comprehensive protection and remediation measures to shared water bodies. SAPs engage a host of countries to address the root causes of degradation of their shared marine resources—from preventing soil erosion to establishing mechanisms for the sustainable use of species within international waters. GEF-UNDP is supporting the development and implementation of SAPs in ten LMEs covering nearly 90 countries around the world.

BUILDING PARTNERSHIPS to PROTECT THE EAST ASIAN SEAS

The maritime countries of East Asia have a combined population of 1.8 billion—with more than half concentrated along the coastal zone. Tremendous pressures are being placed on coastal and marine environments for food, employment, housing, recreation and waste disposal. Many valuable ecosystems are already contaminated with untreated sewage, garbage, sediments, oils, pesticides and hazardous wastes from land and sea-based activities. Many fisheries are declining, and important biodiversity including 52 species of fish, 13 of coral and sea anemones, and 12 of crustaceans have been declared extinct, and 50 others are endangered. The open seas are still relatively clean, but they are vulnerable to oil and chemical spills and discharges from offshore oil development and shipping.

In a sweeping multi-ecosystems approach employed for the first time anywhere in the world, this GEF-UNDP-IMO Regional Programme brings a multi-country, multi-sector approach to solving environmental management problems simultaneously at the coasts, in the watersheds, and in the sea itself. Project funding began with GEF money, then moved to a "half-and-half" co-financing formula with civic groups, local industries and local governments. Now the Partnership has several projects that are 100% locally funded, including one with a private consortium to pursue environmentally friendly, profit-making ventures.

The Environmental Strategy for the Seas of East Asia provides a strategic approach and subsidiary action programs, integrates international environmental instruments, and expresses the countries' shared vision for the East Asian Seas:

- 10 Integrated Coastal Management projects are now active in nine countries along with two ICM parallel projects and three subregional sea management programmes.
- Institutional coordinating mechanisms have been established at the local and subregional levels for consultation between agencies, sectors and nations and collective decisions on sustainable use of the coastal and marine areas.
- Five self-sustaining regional networks have been created with legal advisors, risk assessment, local government, information management and marine affairs institutions.

COUNTRIES: CHINA, CAMBODIA, DPR KOREA, MALAYSIA, THAILAND, VIETNAM, PHILIPPINES, INDONESIA, RO KOREA, JAPAN, BRUNEI-DARUSSALAM, AND SINGAPORE.
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: IMO
CO-FINANCING PARTNERS: UNDP; INTERNATIONAL MARITIME ORGANIZATION; SWEDISH INTERNATIONAL DEVELOPMENT AGENCY; U.S. NATIONAL OCEANICAND ATMOSPHERIC ADMINISTRATION
GEF FUNDING: $16,224,000
TOTAL CO-FINANCING: $ 8,338,000
TOTAL FUNDING: $24,562,000

COLLABORATING to PROTECT the SOUTH PACIFIC LME

The 38 million square kilometer Western Warm Pool Large Marine Ecosystem spans the tropical South Pacific region. It supports a spectacular array of species in habitats ranging from the most biologically diverse coral reefs in the world, to the deepest ocean trenches, to vast stretches of open ocean that support the world's largest tuna fishery. Many of Oceania's 6 million people live subsistence lifestyles largely dependent upon these marine resources. However, increasing dependence on the cash economy, very high birth rates and labor migration have impacted the quality of subsistence living on many islands. At the same time, unsustainable fishing practices, degradation of coastal habitats and water quality are decreasing fish yields and threatening the food security of local communities. Another major challenge facing these relatively small countries is responsibility for managing large ocean areas granted to them under the 200 mile exclusive economic zone. Overfishing of the tuna resources and excessive by-catches in the Western Pacific warm pool LME are critical transboundary environmental concerns.

This GEF-UNDP project is supporting implementation of a comprehensive Strategic Action Programme, endorsed by the Heads of Government of the South Pacific Forum, that has two linked consultative processes:

1) Integrated Coastal and Watershed Management focuses on quality and quantity of freshwater supplies, Marine Protected Areas, sustainable coastal fisheries, integrated coastal management, and waste reduction. Fourteen demonstration projects are providing lessons for community-based management of threatened habitats, and promoting options for the sustainable use of natural resources.

2) Oceanic Fisheries Management is building the capacity of Pacific Island States to participate in a new regional fisheries mechanism for management, monitoring, control & surveillance of the region's highly migratory fish stocks. Highlights include:

- Establishment of a multilateral convention for the conservation and management of the highly migratory fish stocks of the region;
- Inclusion in the Convention of key principles from the UN Fish Stocks Agreement (precautionary approach, ecosystem management, minimization of by-catch, enforcement measures);
- Assistance to Pacific Island Countries to prepare, revise and implement Tuna Management Plans and revise fisheries laws.

COUNTRIES: COOK ISLANDS, FEDERATED STATES OF MICRONESIA, FIJI, KIRIBATI, MARSHALL ISLANDS, NAURU, NIUE, PALAU, PAPUA NEW GUINEA, SAMOA, SOLOMON ISLANDS, TONGA, TUVALU, VANUATU
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: SPREP
COFINANCING PARTNERS: UNDP, SECRETARIAT OFTHE PACIFIC COMMUNITY, FORUM FISHERIES AGENCY AND SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME
GEF: $12 MILLION
TOTAL: $20 MILLION

PRESERVING the FERTILITY of AFRICA'S BENGUELA CURRENT

The Benguela Current is a highly productive boundary upwelling system that supports a rich and unique biodiversity reservoir of fish, crustaceans, sea birds and marine mammals along the southwestern coast of Africa. The Benguela's fish resources, among the world's largest, are an important source of local livelihoods, while the natural beauty of the coastline has attracted a sizable tourism industry. Near-shore and offshore sediments hold rich deposits of diamonds, as well as oil and gas reserves.

During recent years, increasing exploitation of straddling fish stocks, habitat loss, pollution, and toxic algal blooms from ship ballast water have caused a marked decline in fish available for local consumption. The rapid expansion of coastal cities has created pollution "hot-spots" in all three countries along the Current. The threat of serious pollution and further habitat loss looms from oil and gas production and seabed mining. Until recently, there was a lack of coordination of management responsibilities in the Benguela Current Large Marine Ecosystem even within a single government.

Now, Angola, Namibia and South Africa have joined forces through this GEF-UNDP project to preserve the Benguela Current's unique productivity. A Strategic Action Programme and Work Plan have been endorsed by the three countries, and implementation is being supported by the GEF together with a number of bilateral donors including Denmark, Ireland, Iceland, the United Kingdom, and the European Union. SAP highlights include:

- Establishment of a Benguela Current Commission and Secretariat to strengthen regional cooperation, fully supported by subsidiary bodies.
- Sustainable management of shared fish stocks
- Regional mariculture policy
- Development of regional marine biodiversity management plan
- Development of early warning system for monitoring major environmental events
- Regional harmonization of oil pollution contingency plans.
- Harmonized environmental quality objectives for pollution control
- Establish harmonized policies on diamond mining.

COUNTRIES: ANGOLA, NAMIBIA, SOUTH AFRICA
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: UNOPS
CO-FINANCING PARTNERS: GOVERNMENTS, DANCED, BENEFIT, PRIVATE SECTOR, SADC
GEF: $15,458,000
CO-FINANCING: $23,450,650
TOTAL PROJECT COST: $38,908,650

THE BENGUELA CURRENTIS A HIGHLY PRODUCTIVEBOUNDARY UPWELLINGSYSTEMTHAT SUPPORTS A RICHANDUNIQUEBIODIVERSIT Y RESERVOIRALONGTHESOUTHWESTERN COASTOF AFRICA.

RESTORING CONTAMINATED BAYS in the CARIBBEAN

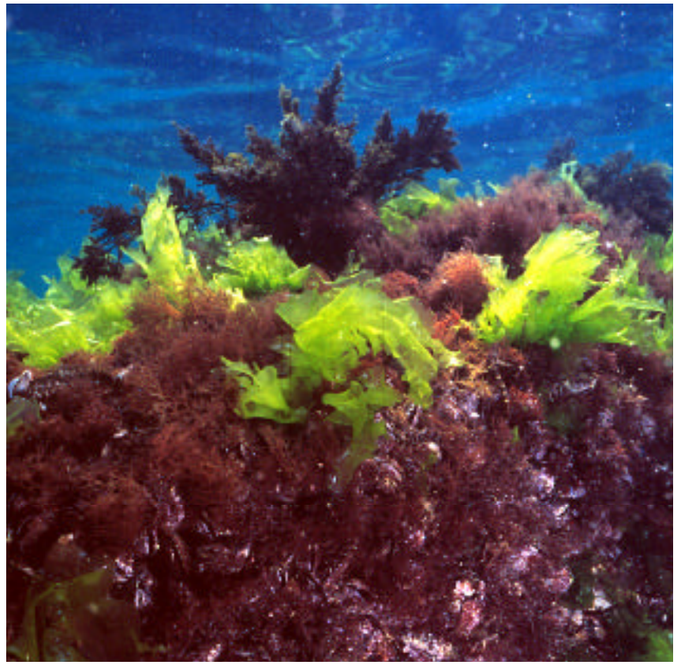
Havana Bay in Cuba is heavily polluted with sewage and nutrient enrichment. Much of Havana's wastewater is untreated and the system is overloaded—many sewers discharge directly into local rivers flowing through the city. High concentrations of hydrocarbons and heavy metals have settled into the sediments, and degradation of the ecosystem is increasing, both within Havana Bay and the adjacent Wider Caribbean area. Ocean currents adjacent to Havana Bay in the Caribbean Sea travel at a high velocity, with the potential to disperse long-lived contaminants over broader areas of the Caribbean Sea and Gulf of Mexico.

A GEF-UNDP pilot phase project identified the Luyano River as the main source of nutrients to Havana Bay, and it helped the government prepare an investment program to rehabilitate the Bay. Now, this follow-on GEF-UNDP project plans to reduce nutrient inputs to Havana Bay by designing and building a demonstration integrated sewage treatment plant in Havana, with nutrient removal and sludge conversion to energy or fertilizer.

GEF financing will cover the incremental costs related to nutrient removal, while the government is responsible for co-financing the primary and secondary treatment components. A parallel GEF-UNEP component will help the project disseminate successful approaches to rehabilitating contaminated bays to the other harbors in the Wider Caribbean facing similar environmental challenges.

COUNTRIES: CUBA
IMPLEMENTING AGENCY: UNDP, UNEP
EXECUTING AGENCY: IMO
GEF: $ 6,910,000
CO-FINANCING: CUBA: $14,208,000
TOTAL PROJECT COST: $21,118,000

RESTORING the BLACK SEA ECOSYSTEM



The Danube River/Black Sea basin encompasses 17 countries, covers about one third of continental Europe, and holds 162 million people. Once a rich fishing ground and vacation site for millions of people, the Black Sea ecosystem has been overwhelmed by excess levels of nutrients from agricultural runoff, industrial and municipal wastewater discharges. Major areas of the Black Sea have become eutrophied due to these nutrient inputs combined with the widespread loss of wetland habitat that had acted as a filter. Outbreaks of diseases such as cholera, frequent beach closures due to poor coastal water quality, and declines in fish species from 26 to 6 have cost the region billions of dollars in lost income every year. In addition, an invasive species of comb jelly brought in with ship ballast water has devastated the once thriving fishery. Resolving these issues requires the full cooperation between all 17 countries within the Basin.

The Black Sea Environmental Programme (BSEP) was launched in June 1993 to help create a strong international network of institutions, specialists and other stakeholders. As the first programmatic approach to a large ecosystem and its drainage basin, the GEF has funded follow-on projects with the goal of allowing the Black Sea to recover to conditions observed in the 1960s. Major initiatives include:

- BSEP coordination with other environmental protection activities have been underway in Black Sea Basin rivers, including the Danube, Dnieper, Dniester, Don, Prut, and the Sea of Azov.
- Assisting the 17 countries to carry out the regional Black Sea SAP that contains 59 specific commitments on legal and policy measures to reduce pollution, improve living resources management, encourage sustainable development, and improve financing for environmental projects. In adopting this plan, the governments have committed themselves to a process of profound reform in how environmental issues are addressed in the Black Sea basin.
- Over $5 billion in investments, primarily at the national level and targeting 'hot spots', have been identified and project files prepared for funding.
- The GEF Danube/Black Sea Basin Strategic Partnership, which includes 3 components: Black Sea Regional Project (UNDP and UNEP), Danube Regional Project (UNDP), and the Nutrient Reduction Investment Fund (WB). The UNDP and UNEP components focus on assisting the countries in making the necessary legal, policy and institutional reforms to address the priority transboundary issue of nutrient overenrichment.

COUNTRIES: BULGARIA, GEORGIA, ROMANIA, RUSSIA, TURKEY, UKRAINE, ANDTHEIR TEN UPSTREAMNEIGHBORS INTHE BASIN
IMPLEMENTING AGENCY: UNDP, WORLD BANK
EXECUTING AGENCY: UNOPS, GOVERNMENTS
CO-FINANCING PARTNERS: NATIONAL GOVERNMENTS; EU-TACIS; UNDP;
GEF FINANCING: $10,295,920;
TOTAL CO-FINANCING: $ 9,870,000
TOTAL PROJECT COST: $20,165,920

Lessons For The Future

GEF-UNDP's experience to date in fostering the sustainable management of coastal areas and LMEs has identified several key lessons, including:

- Strategic Action Programmes can provide political, institutional and economic frameworks for multi-country efforts to sustainably manage Large Marine Ecosystems.
- Integrated Coastal Management is crucial for remediating problems, preventing damage to coastal ecosystems and addressing stakeholder needs.
- Regional Strategic Action Programmes should be coordinated with local and national Integrated Coastal Management programmes to promote synergies and cooperation.

Future challenges facing the GEF-UNDP International Waters programme in Large Marine Ecosystems and Coastal Areas include:

- Implementing multilateral conventions in an integrated fashion and building national and local capacities to support implementation;
- Developing mechanisms for financial and institutional sustainability of LME management programs;
- Moving from development of SAPs to implementation, with incremental assistance to address priority transboundary issues;
- Identification, dissemination and application of lessons learned in SAP development and implementation;
- Effective Coordination with GEF Implementing and Executing Agencies and other donors and partners.

Ongoing GEF-UNDP LME and Coastal Area Projects (Partners):

Red Sea (UNEP, World Bank, PERSGA) http://www.unep.ch/seas/main/persga/red.html
Black Sea (UNEP, World Bank) www.blacksea-environment.org
East Asian Seas (IMO) www.pemsea.org
South Pacific Warm Pool (SPREP, FFA, SPC) http://www.sprep.org.ws/iw/default.htm
Benguela Current LME (UNOPS, BENEFIT) http://www.ioinst.org/bclme/
Guinea Current LME (UNEP, UNIDO, Abidjan Convention)
http://www.africaonline.co.ci/AfricaOnline/societes/goglme/goglme.html

Upcoming GEF-UNDP LME and Coastal Area Projects (Partners):

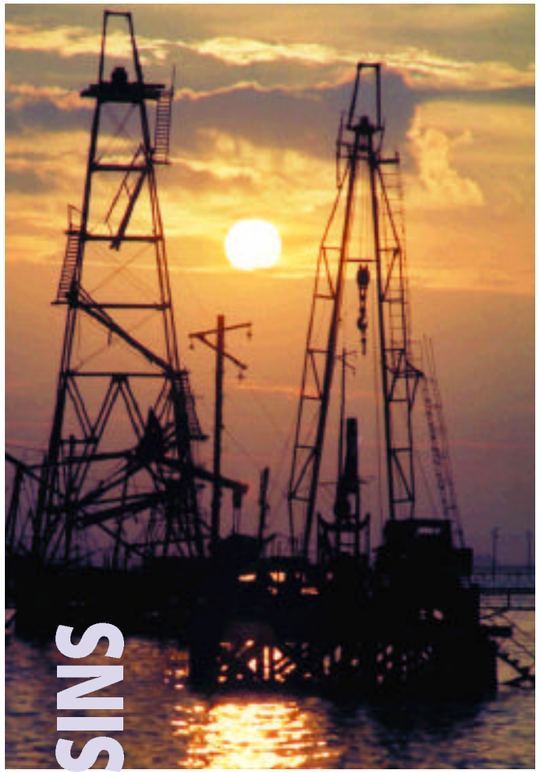
Yellow Sea (UNOPS)
Agulhas Current (World Bank, UNEP)
Gulf of Mexico (UNIDO)
Caribbean Sea (IOC/UNESCO)
Baltic Sea (World Bank)

Fresh water-based ecosystems include lakes, river basins, estuaries, wetlands, floodplains, and oases. These ecosystems regulate fresh water quality and quantity, and provide crucial habitat for countless fish, amphibian, invertebrate and plant species. Reedbeds and other wetland plants remove toxins and excessive nutrients from the water. Floodplain wetlands reduce flood risks by storing water when rivers overflow their banks. Forested headwater catchments also reduce floods and soil erosion by preventing rapid runoff. Cycling of water through forests regulates both local and global climate and maintains local water resources.

In many parts of the world, human pressures are straining nature's ability to filter and purify water. 1.2 billion people already lack access to clean drinking water. Water borne diseases cause illnesses in over half of the developing world's population, and kill at least 2 million children every year. Ninety percent of the urban sewage in these countries is discharged directly into rivers, lakes, and coastal waters without any treatment. Poorly controlled development and unsound decisions regarding water abstraction, water transfer, and land-use planning have resulted in the deterioration or indeed depletion of a number of aquifers. Severe destabilisation of the water cycle at the water basin level has led to crisis situations in some areas such as the Aral Sea and Yellow River.

Aquatic ecosystems interact in many ways with the other compartments of the environment, and their management requires attention to the broader context of land and environmental management– hence the concept of "integrated water resources management". Taking an ecosystem approach to freshwater management means assessing water availability (quantity and quality), identifying interrelationships at the ecosystem level, predicting the environmental and social impact of any proposed action, and evaluating the consequences before making any decision on use. A common challenge is deciding how much water should be used to maintain the natural goods and services provided by freshwater ecosystems, and how much water should be used for agriculture, industry and domestic services. An integrated watershed management approach can address these problems, but the challenges are compounded by the fact that many of the world's most important water resources cross international boundaries: the 261 transboundary river basins in the world represent 45% of the earth's land area. This underscores the need for multi-country cooperation and harnessing the resources and capacities of a diverse range of donors and institutions.

Photo Credit: Doranne Jacobson



RESCUING the CASPIAN SEA

The Caspian Sea is the largest land-locked body of water on earth. Surrounded by five countries, it receives water from numerous freshwater inputs but has no outlet to the world's oceans. The isolation of the Caspian basin has created a unique ecological system with 400 endemic species, many of major economic importance. In recent years, sturgeon landings have decreased dramatically due to over-fishing (including poaching for their valuable caviar), the construction of numerous dams that prevent them from reaching spawning areas, and pollution causing the bioaccumulation of metals and persistent organic pollutants in their flesh. Many people of the Caspian Basin are now burdened with unsafe drinking water, contaminated fish products, untreated sewage, industrial discharges to coastal waters, and unsanitary conditions at the beaches and in bathing waters. Also, the invasive Mnemiopsis comb jelly has arrived from the Black Sea where it has done enormous damage to the fishery. Intensive exploration and production of oil and gas presents a serious new risk to water quality throughout the Caspian basin.

The Caspian Environment Programme is a regional initiative that encompasses all Caspian States and engages the participation of numerous international agencies, including UNDP, UNEP, the World Bank, European Union/TACIS (EU/TACIS), the private sector (particularly the oil and gas industry), and other donors. A Transboundary Diagnostic Analysis has identified toxics, fisheries decline, invasive species, and biodiversity and habitat loss as the priority concerns, and the current programme focuses on:

- A regional coordination mechanism, including a regional framework convention, to achieve stake holder involvement; sustainable development; and management of the Caspian;
- Establishment of nine Caspian Regional Thematic Centres;
- Preparation of a Strategic Action Programme and National Caspian Action Plans for investments, legal, policy and institutional reforms to address priority transboundary issues;
- Biodiversity Strategic Action Plan;
- Invasive Species Action Plan (in cooperation with GloBallast);
- Strengthening stakeholder participation in the sustainable management of the Caspian environment;
- Strengthening regional fisheries management and protection of spawning habitat.

COUNTRIES: AZERBAIJAN, IRAN, KAZAKHSTAN, RUSSIA, TURKMENISTAN
IMPLEMENTING AGENCIES: UNDP, UNEP
EXECUTING AGENCY: UNOPS,UNEP AND THE WORLD BANK
CO-FINANCING PARTNERS: GOVERNMENT; EU/TACIS;UNEP; UNDP; WORLD BANK; PRIVATE
GEF: $ 8,394,862;
TOTAL PROJECT COST: $18,316,956

SAFEGUARDING AFRICA'S FRESH WATER JEWEL: LAKE TANGANYIKA

Lake Tanganyika is the largest body of water in Africa, holding almost one sixth of the world's available fresh water resources. Ten million people share the Lake's watershed, and they depend upon it for fresh water, food, and transportation. Current studies show that Lake Tanganyika has the greatest biodiversity of any lake, with more than 1,500 species of fish, invertebrates and plants—500 of which are endemic without close relatives outside the basin due to the very long history of isolated evolutionary processes at work.

The Lake faces a number of environmental threats that transcend national boundaries, especially excessive loads of sediment, nutrients, and chemicals caused by erosion in the watershed, industrial and urban pollution (including boat discharges), and over-fishing. Since Lake Tanganyika is a closed basin, it takes 7,000 years for water to get flushed through evaporation, making pollution permanent in relation to human life times. These problems are growing, and others such as oil and mineral exploitation have the potential for damaging the Lake's overall ecological integrity.

This GEF-UNDP project demonstrated a regional approach to helping the four riparian states control pollution, conserve and promote the sustainable use of Lake Tanganyika's exceptional biodiversity. Four key outputs were developed through an extensive process of stakeholder consultation and public involvement:

- A Transboundary Diagnostic Analysis defined the sequence of management interventions to counteract each specific problem, many of which could be undertaken by local institutions and implemented with available resources.
- A Strategic Action Programme for the Sustainable Management of Lake Tanganyika, including a framework for national and regional actions to achieve the objectives agreed upon by the participating countries.
- Preparation and preliminary endorsement of the Convention on the Sustainable Management of Lake Tanganyika, which provides a legal framework for the future management of the Lake, setting out both relevant principles of general application and where appropriate, specific obligations and procedures for cooperative management.
- Scientific and Technical Reports on the State of the Lake, including environmental education and training for the people of Lake Tanganyika and its basin.

The next phase of the project will help countries to start implementing the SAP.

COUNTRIES: BURUNDI, DEMOCRATIC REPUBLIC OFTHE CONGO, TANZANIAAND ZAMBIA
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: UNOPS
GEF FINANCING: $10,000,000

PHOTO CREDITS: JOHN ISSAC/UN

Lessons For The Future

Perhaps the greatest environmental challenge of the 21st century will be to ensure that adequate and clean fresh water resources will be available for growing populations. This need is reflected in the recent Millenium Development Goals, which aim to halve the number of people without access to clean water by the year 2015. By bringing governments, agencies, industries, NGOs and local users together to take action, GEF-UNDP International Waters projects are leading the way toward maintaining vital fresh water ecosystems and resources around the world.

A number of key lessons in sustaining lakes and river basins have been identified, including:

- Importance of taking integrated approaches to river basin management which address the needs of a diverse range of stakeholders;
- The need to effectively link and coordinate hot spot, sub-basin, biodiversity and other projects in a basin-wide context;
- The need to inform and involve a wide range of potential donors to facilitate matching of funding with investment and capacity building needs identified through SAP processes;
- Recognizing that establishment of new multi-country institutions to coordinate transboundary water management may take time due to political, economic and institutional barriers.

Important challenges ahead for the GEF-UNDP Lakes and River Basins Programme include:

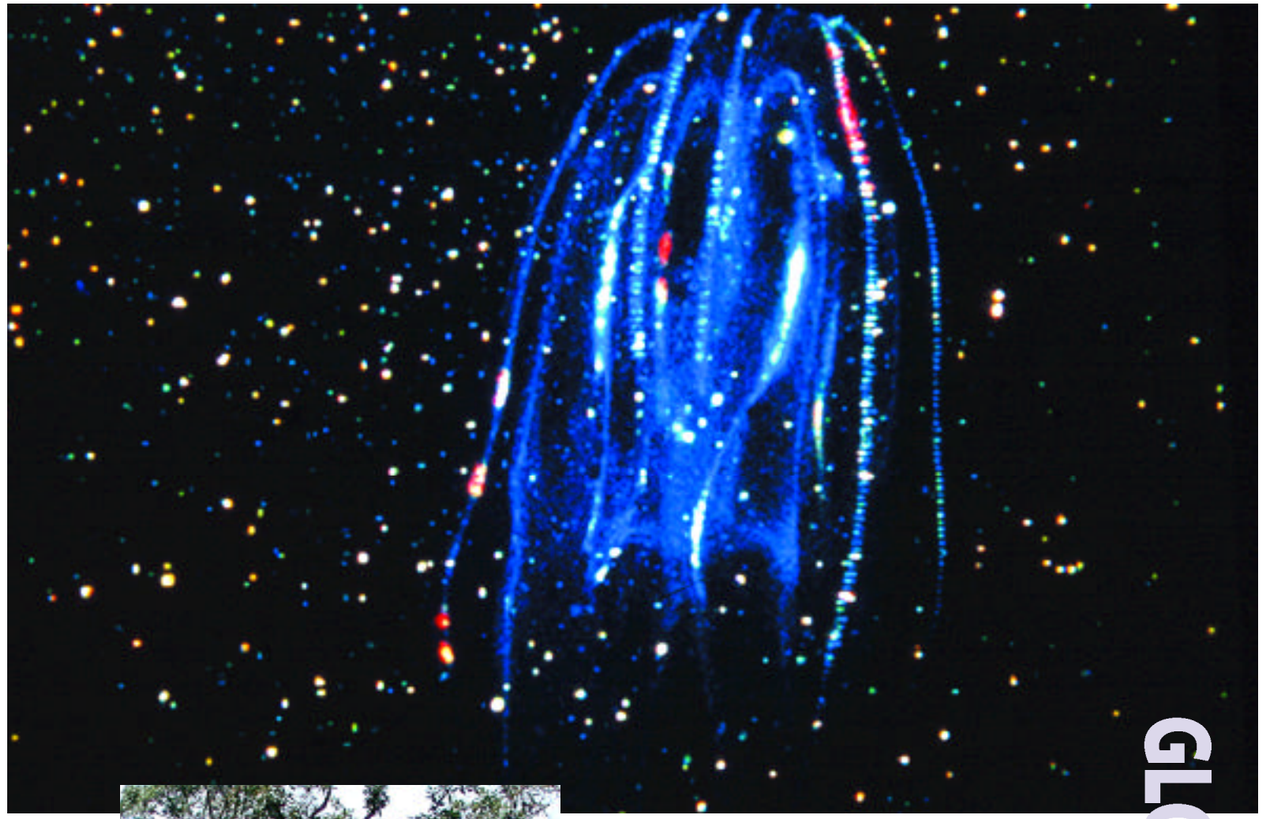
- Implementing and sustaining Strategic Action Programs and their coordinating institutions;
- Encouraging countries to sign and ratify relevant Conventions;
- Maintaining effective coordination between GEF Implementing and Executing Agencies and donor partners;
- Identifying, disseminating and applying lessons learned in lake and river basin SAP development and implementation
- Targeting priority transboundary aquifers;
- Extending basin-wide approaches to other fresh water systems such as the Plata basin in South America, and the Caspian Sea.

Ongoing GEF-UNDP Lake and River Basin projects (Partners):

Lake Tanganyika (ADB, UNOPS) www.ltbp.org
Tumen River (UNOPS, TRADP) www.tumennet.org
Danube River Basin (ICPDR, UNOPS) www.icpdr.org
Dnipro River Basin (UNOPS, IDRC, UNIDO) www.dnipro-gef.net/
Rio de la Plata (CARP, CTMFM) www.freplata.org/
Lake Peipsi (CTC) www.ctc.ee
Egypt Desert Groundwater (Government of Egypt)
Caspian Sea (UNEP, World Bank, EU) www.caspianenvironment.org

Upcoming GEF-UNDP Lake and River Basin projects (Partners):

Kura River Basin (USAID, EU)
Niger River Basin (World Bank, NBA)
Lake Chad (World Bank, LCBC)
Senegal River Basin (World Bank, OMVS)
Nile River Basin (World Bank, Nile Basin Initiative Secretariat) www.nilebasin.org/



Certain International Water problems affect all regions of the planet, or are so ubiquitous that they require a global approach. These include marine invasive species, persistent organic pollutants, endocrine disruptors and certain toxic metals.

Two projects focusing on these global issues are highlighted here:

- Mercury Pollution from Artisanal Gold Mining
- Invasive Species from Ship Ballast Water.

Photo Credits: Dr. Christian Beinhoff/UNIDO

REDUCING TOXIC MERCURY CONTAMINATION

The millions of artisanal and small-scale gold miners in developing countries produce about one third of the world's annual gold supply, but they use a mercury amalgamation process that sends two grams of mercury directly into water bodies for every gram of gold recovered. The resultant effects on human health and the environment are catastrophic.

For example, 50 percent of the gold mining communities in Ghana and Philippines exhibit all the neurological symptoms of mercury intoxication. International lakes and river basins of major ecological importance, including Lake Victoria, the Amazon, Nile, Zambezi, Mekong and Kahayan (Indonesia) Rivers, are all being contaminated by the mercury, which bioaccumulates through aquatic food chains. Downstream countries and regions—most of which do not even have gold mining activities—can feel the effects from upstream mining. Although there are simple and affordable alternatives to reduce or eliminate mercury use in mining, governments by themselves are unable or unwilling to finance the high initial start up costs of introducing alternative technologies and raising artisanal mining communities' awareness of health impacts and alternatives.

The amount of co-financing made available from the participating countries and agencies (US$12.3 million) for this GEF/UNDP/UNIDO project reflects their commitment to reducing mercury contamination. The project is demonstrating how integrated solutions and partnerships can transform the current uncontrolled artisanal mining activities into more financially sustainable and environmentally acceptable operations which also protect human health.

Primary Activities:

- Organize demonstration sites and train miners, Governments, NGOs and the general public on the impacts associated with artisanal mining and the benefits of employing affordable, high-efficiency clean technology.
- Assess the extent of mercury pollution in surrounding water bodies and devise intervention measures.
- Establish a databank of relevant technological requirements.
- Assist Governments develop practical and enforceable policies and legislation to curtail the application of mercury.
- Disseminate project results and identify self-financing opportunities that will allow the project to continue beyond the three-year time frame.

COUNTRIES: BRAZIL; INDONESIA; LAOS; SUDAN; TANZANIA; ZIMBABWE
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: UNIDO
CO-FINANCING PARTNERS: GOVERNMENTS AND UNIDO
GEF: $ 6,800,000
CO-FINANCING: $12,800,000
TOTAL PROJECT: $20,000,000

PHOTO CREDITS: DR. CHRISTIAN BEINHOFF/UNIDO

STOPPING INVASIVE PATHOGENS and SPECIES in SHIP BALLAST WATER

High concentrations of marine plant and animal species, including pathogens, can be taken up in the ballast water needed to stabilize ships and subsequently transported around the world. When a ship enters port and discharges its ballast water, it can contaminate local waters with foreign bacteria, viruses, plankton, crustacea, copepods, cysts and the larvae of numerous alien species. While only a small minority may survive the journey, these organisms often establish a foothold and wreak havoc on the local marine ecosystem. There are hundreds of examples of major ecological, economic and health impacts across the globe. A cholera epidemic attributed to ballast water swept across South America, killing thousands of people. The European Zebra Mussel has infested U.S. waterways and required over US$5 billion in control measures since 1989. A North American comb jelly has depleted native plankton stocks, contributed to the collapse of Black Sea fisheries, and most recently been discovered in the Caspian Sea. 'Red-tide' algae introduced in several countries have been absorbed by shellfish, causing paralysis and even death when eaten by humans.

In response, the International Maritime Organization (IMO), with funding provided by the GEF-UNDP, initiated the Global Ballast Water Management Programme to assist developing countries reduce the transfer of harmful organisms in ship's ballast water. With a Global Ballast Water Management Convention nearing finalization, this project is crucial to building the capacity in developing countries for Convention signature, ratification, and compliance.

Primary Activities:

- Organizing Pilot Demonstration Sites at ports within six developing countries representing five development regions: Brazil/port of Sepetiba, China/port of Dalian, India/port of Bombay, Iran/Kharg Island Terminal, South Africa/port of Saldanha, and Ukraine/port of Odessa.
- Investigate ballast water treatments including mechanical (filtration/separation), physical (sterilisation by ozone, ultra-violet light, etc) and chemical (adding biocides).
- Establish the Global Ballast Information and Communication Network.
- Establish the Global Project Task Force with industry and NGO representation.
- Establish in-country infrastructure and networks, including the capacity to produce port baseline surveys and risk assessments.
- Develop educational materials including a web-site (http://globallast.imo.org), Organize a Global R&D Symposium and the 1st International Ballast Water Treatment Standards Workshop.

COUNTRIES: BRAZIL, CHINA, INDIA, IRAN, SOUTH AFRICA, UKRAINE
IMPLEMENTING AGENCY: UNDP
EXECUTING AGENCY: INTERNATIONAL MARITIME ORGANIZATION
GEF: $ 7,392,000;
GOVERNMENTS: $ 2,800,000
TOTAL PROJECT FUNDING: $10,192,000

GLOBAL WATER ISSUES

Lessons For The Future

GEF-UNDP's experience to date in fostering actions to address global international waters issues has resulted in the identification of several early lessons, including:

- Globally dispersed groups of countries can work together and share experiences in addressing global waters issues such as ship ballast water, etc.;
- Importance of harnessing the comparative advantage and technical expertise of UN specialized agencies such as IMO, UNIDO and UN-DOALOS;
- Demonstration and awareness raising programmes such as GloBallast can play a key role in facilitating the broad acceptance, finalization and ratification of emerging international waters Conventions.

Future challenges which the GEF-UNDP Global International Waters programme face include:

- Sustaining global initiatives through their institutionalization at the UN agency and national levels;
- Maintaining progress and momentum in global initiatives when delays occur in reaching international agreement on associated legal frameworks;
- Ensuring the effective collection, dissemination and application of existing and emerging global knowledge in International Waters management.

The GEF-UNDP IW: LEARN International Waters Resource Centre (www.iwlearn.net/docs) has a wealth of information on all GEF International Waters projects, including those implemented by UNDP. Such information sharing efforts are crucial to spreading the best practices, lessons learned, and technological information generated by GEF International Waters projects.

Ongoing GEF-UNDP Global International Waters Projects (Partners):

GloBallast (IMO) globallast.imo.org
Global Mercury (UNIDO) www.unido.org/doc/371455.htmls
Train-Sea-Coast (UNDOALOS) www.un.org/Depts/los/TSC/TSCindex.htm
IW:LEARN (Tides Center) www.iwlearn.net

Upcoming GEF-UNDP Global International Waters Projects (Partners):

Globallast Phase II (IMO)
IW:LEARN Phase II
River Basin Initiative (Ramsar Convention Secretariat)

Small Grants Programme

The GEF Small Grants Programme (SGP) provides grants of up to $50,000 directly to non-governmental organizations and community-based organizations for initiatives that conserve and restore the natural world while enhancing local well-being and livelihoods. Ten years since its establishment in 1992, the SGP is now a GEF Corporate Programme funded on an annual rolling basis available in 60 countries. Altogether more than 2300 SGP projects have addressed adverse environmental challenges and enriched the lives of tens of thousands of people. In each participating country, a national coordinator and a national steering committee are responsible for managing the programme, adapting it to local circumstances, deciding on grant allocations and nurturing multi-stakeholder participation and partnerships at every level. Over 600 organizations worldwide have joined in supporting SGP projects, including significant contributions by the UN Foundation, the European Commission, and the Governments of the Netherlands and Denmark. UNDP implements the Small Grants Programme, which is executed by UNOPS on behalf of UNDP, UNEP, and the World Bank. Visit www.undp.org/sgp, call (212) 906-5842.

Environmentally Sustainable Development Group (ESDG)

UNDP's Environmentally Sustainable Development Group (ESDG) is located within the Bureau for Development Policy (BDP). Over the past decade, UNDP has delivered approximately $3.8 billion in development assistance in areas of environment and sustainable energy. UNDP's GEF programme, its Montreal Protocol unit, and the Nairobi-based Drylands Development Centre (DDC) are components of ESDG. ESDG also offers programmes on the sustainable management of water, land, biodiversity, climate change adaptation and vulnerability reduction, environmental governance and environmental integration. At the country level, UNDP's activities in environment focus on three services to countries: (1) Integrating environmental management concerns into national development frameworks, (2) Strengthening local environmental governance, and (3) Assisting countries meet their commitments under the global environmental conventions.

Country Dialogue Workshops

The GEF Country Dialogue Workshop (CDW) Program is a UNDP-implemented joint initiative of UNDP, UNEP, the World Bank and the GEF Secretariat on behalf of Member States. The Program promotes country ownership of the GEF, and builds awareness through targeted, multi-stakeholder workshops that engage the countries in a direct dialogue on national priorities and the GEF. Through May 2002, 59 countries and over 3,000 participants participated in 33 GEF CDWs. Workshop participants represent a wide range of stakeholders, including government representatives, non-governmental organizations, academic institutions, scientific communities, donor organizations, the private sector, the media, and the GEF Secretariat and its Implementing and Executing Agencies. Visit: www.undp.org/gef/workshop/index.htm

Sustainable Development: Water Challenges

Water and sanitation, Energy, Health, Agriculture, Biodiversity–WEHAB–are the five key areas where concrete results can and must be obtained at the World Summit on Sustainable Development, according to United Nations Secretary-General Kofi Annan. The challenge in the area of water is to provide access to at least one billion people who lack clean drinking water and two billion people who lack proper sanitation within the context of sustainable development and poverty reduction. In line with WEHAB and the UN Millennium Declaration, UNDP is emphasizing effective governance in its efforts to assist countries and communities to improve the management of water resources and the access to drinking water and sanitation. UNDP's support to water is focusing on six main service lines: integrating water resources management into national development frameworks; strengthening local/community management of water resources and service delivery; addressing regional transboundary waters; adaptation to climate variability and change; gender mainstreaming in water management; and, capacity building in water resources management and water service delivery. Visit UNDP's Water Programme website: www.undp.org/bdp/water

August 2002
ISSN: 1684-4580

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Other Publications:
Conserving Biodiversity,
Sustaining Livelihoods (April 2002),
Pioneering A Low Carbon Future...
Sustaining Livelihoods (August 2002),
Preventing Land Degradation
Sustaining Livelihoods (August 2002)