

Agenda 21 and Sustainable Development



Case studies from the
Living Lakes Network

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AGENDA 21 AND SUSTAINABLE DEVELOPMENT

Case studies from the Living Lakes Network

I. Introduction

Living Lakes is an international lake partnership created and co-ordinated by the Global Nature Fund (GNF), an international non-governmental and non-profit organisation, located in Radolfzell at Lake Constance in Germany. The Living Lakes project started in 1998. At present the international lake network consists of 30 organisations from five continents promoting the protection and sustainable development of lakes and wetlands.

Much experience has been gained in the past years on how to develop and implement coherent sustainable development strategies according to the principles of Agenda 21. The members of the *Living Lakes Network* have a rich experience in bringing Agenda 21 from paper to practice. Out of each member's unique experience, it is clear that the essential processes of raising awareness, stakeholder dialogue, participation, and networking are at the heart of the implementation of Agenda 21. The present case studies also show the obstacles the members had to face during this process and the difficulties with the evaluation and the assessment of the results of the projects according to their ecological, social and economic effects.

This publication contains contributions from 12 Living Lakes members presenting a selection of the manifold Agenda 21 projects. Each case study is structured according to a scheme, which was predetermined by the GNF. The idea is to give a brief and clear overview of the process and results of actions taken towards sustainable development in each case study area.

Each case study is divided in three major parts. Part A describes the general situation of Agenda 21 implementation in the lake region. In part B and C the focus is put on the implementation and results of the Best Practice Example from the lake region carried out by the Living Lakes partner organisation.

Additional information on Best Practice Examples of the Living Lakes Members is available in the documentation of the 7th Living Lakes Conference "Implementation of Agenda 21 in Lake Regions". At least once a year the representatives of the Living Lakes partner organisations, experts and decision makers meet at the Living Lakes conferences to exchange and share their experiences and expertise in putting Agenda 21 into practice in their lake regions. The documentation can be downloaded from the website www.globalnature.org.

II. Columbia River Wetlands, Canada



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Lake Facts

Origin	Last ice age
Size	201 km ²
Sea Level	777 - 813 m
Catchment area	260 km ²
In-Flows	1, Columbia River
Out-flows	1, Columbia River
Salt Content	0
Location	British Columbia, Canada

The Columbia River Wetlands are located in the Rocky Mountains rift valley. The Rocky Mountains form the boundary in the east and the Purcell Mountains in the west. The rift is 1.600 km long and 3 to 5 km wide. The Columbia River Wetlands are 180 km long and covers an area of 201 sq. km. Two lakes (Columbia Lake, the headwaters of the Columbia River, a critical water source for the Pacific North West region of North America, and Windermere Lake) as well as seasonally flooded marshes and back channels form the wetlands.

The region is part of the 44.000 sq. km East-Kootenay-Region, located in the southeast corner of British Columbia Canada, with a population of 60000 people. However, resident and visitor populations are growing rapidly with a one year 30% increase in visitor statistics. The region is home to 100,000 large mammals, 11 different species. Among them are Grizzly and Black bear, Wolf, Cougar, Wolverine, Elk, Moose, Mountain Caribou, Mountain Goat, Big Horn Sheep, White-tailed Deer and Black-tailed Deer (Mule Deer).

300 pairs of Great Blue Heron, 1.200 Canada Geese, 24 pairs of Osprey and the Common Loon are among the avian species that nest in the Columbia Wetlands. This landscape is one of the last natural pathways left for migratory birds. 15,000 waterfowl in the autumn and more than 1000 tundra swans in the spring have been counted in single day bird counts.

COLUMBIA RIVER WETLANDS

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No formal commitment to Agenda 21 or anything as comprehensive

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, the provincial government committed to protect wildlife and biodiversity of the Columbia Wetlands through a legislated land designation called Wildlife Management Area.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Obstacles

Lack of harmonization of biodiversity protection legislation between the different levels of government in Canada.

Lack of government interest, both at the provincial and national level, in legislated management prescriptions to enforce the Wildlife Management Area land designation.

Lack of interest from decision makers in implementing policies that will implement signed international agreements such as the Biodiversity Protection and the Migratory Bird Conventions.

Progress

Over a dozens NGO's have developed comprehensive public and school educational programs on the ecological values of the Columbia Wetlands.

Community festivals, (i.e. Wings over the Rockies and Birds and Bears) have been developed to celebrate the ecological values of the area.

Community land use planning initiatives have been put in place in specific areas of the region to discuss and address growth, and corresponding recreational issues. (i.e. Golden Backcountry Recreation Access Plan)

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

Legislative framework that obligate regional, provincial and national regulation to be implementing signed international agreements on biodiversity protection and sustainable development.

Precautionary principles application in management prescriptions when baseline data on wildlife and biodiversity is not sufficient.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

Wildlife Management Area land designation process

The British Columbia legislature created by status the Commission on Resources and Environment Act (CORE) in July 1992. This act called for the development of:

A province wide strategy for land use and related resources and environmental management.

- Regional planning processes to define the uses to which areas of the province could be put
- Community-based participation processes to consider land use and related resources and environmental management issues.

In January 1993 CORE convened the East Kootenay (region of the Columbia Wetlands) planning processes, one of the four regions that would be involved in a regional community planning process. The results of the negotiations would become recommendations to government in developing a legislated land use plan for the use of government lands.

The regional land base was divided in 137 sections to be negotiated. The Columbia Wetlands were one of those sections.

The Columbia Wetlands were recognized at the negotiations table as a high priority for special status as a conservation area. The area was judged the #2 priority area in the region for protection due to its international significance as a staging area for waterfowl on the Pacific flyway.

Both the final report of the regional process and the subsequent Regional Land use plan developed by government, recommended a special management status for this area. In 1996, The Columbia Wetlands was established as a Wildlife Management Area (WMA). This status secures the land base, but allows other activities to take place, subject to the needs of wildlife.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

A multi party negotiation table was set up. 21 distinct land and resource interests, representing a full range of economic, environmental and social values, were selected to participate in this intensive negotiations process that lasted 18 months.

B.3. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

Management Plan

Once the land designation was put in place through a legislated framework, a Management Plan was presented to the public for review. Once comments and recommendations were analysed a Management plan to become legislated was presented to the provincial government. The Management Plan is still not legislated but contains specific management prescriptions.

Goal:

Primary goal: To maintain self-sustaining populations of indigenous fish, wildlife, and plant species in the Columbia Wetlands Wildlife Management Area.

Principles:

All activity that occurs in the Wildlife Management Area must have a neutral or positive effect on wildlife, fish and plant communities.

Natural fluvial, climatic, and ecological processes will remain the primary determinant of the condition of the wetlands and other habitats.

Only wildlife habitat enhancement projects that do not compromise natural processes in the wetlands and have minimal visual impact will be considered.

Management effort will be directed at the entire range of species present, with special consideration given only in the case of endangered species.

Endangered or threatened species for which appropriate habitats exist in the WMA, will receive particular attention on the management of the area.

Public use that encourages the enjoyment of wildlife and natural landscapes will be given priority over other uses.

Traditional use by first nations will continue in the WMA.

A high quality recreational experience will be maintained for those using the wetlands.

Objectives:

To develop a better understanding of the ecological integrity of the wetlands to identify factors that may affect the present status of the wetlands.

To establish a long term monitoring program to measure changes in plant communities.

To establish baseline data on fish and wildlife populations

B.4. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

A legislated 10 hp restriction on any motorized vehicle using the area was put in place in 1997 as a management prescription for the WMA. This law was challenged in court where federal jurisdiction was gained for watercraft. The 10hp legislation was lifted on watercrafts.

The provincial government is left with the jurisdiction of protecting the biodiversity of the Columbia Wetlands and the federal government with the jurisdiction of legislating vessels without the need to consider protection of biodiversity.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Harmonization of legislation across all level of governments that protects biodiversity.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

While legislative measures have not been the most successful tools in protecting the Columbia Wetlands, the community has taken the issue seriously.

Environmental Education has played a key role in the region since 1996. Dozens of environmental education programs are in place to inform the residents and visitors of the values of the Colombia Wetlands.

The Wings over the Rockies festival was created to educate the local residents and visitors on the rich biodiversity of the area and the importance of its protection. Increasingly residents are engaging in wildlife related activities, in fact, the provincial government estimates that 77.6% of the Kootenay population participates in wildlife pursuits annually.

The Upper Columbia Water Council was established in 2001 in response to community concerns pertaining to water quality. A monitoring program, consisting of local and provincial government and representatives from various community groups is being established. This will provide a long-term view of water quality trends for the WMA and the surrounding tributaries.

C.2. Social

The Community continues to plan for it's sustainable future.

As the make up of the economic structure of the region is changing from natural resource extraction to recreation/tourism, conflicts in the use of land between motorized and non-motorized recreation are expanding. As a result, The Forest District of Golden embarked in a process to determine specific land use designations for recreational activities that were deemed appropriate in light of wildlife and social values. The planning committee, made up of 35 plus regional stakeholders spent 18 months in negotiations and three years in total zoning the land base for motorized and non-motorized recreational pursuits. They have proactively developed and committed to the resultant land use plan, the first of its kind in the province, which encompasses the area surrounding the northern end of the Columbia Wetlands.

C.3. Economic

While no real data is available, since 1996, the eco tourism initiatives have increased in the region, a strong tourism sector is emerging. The Upper Columbia Valley borders the Jasper, Yoho, Lake Louise, Banff, Glacier and Kootenay National Park complex. With the recent National Park “zero growth” policy, the Upper Columbia region has been determined as the area to expand tourism and recreational activities. This area is one of the highest population growth parts of the province, where a 20% increase between census years was observed.

Municipal governments have begun to quantify the economic importance of wildlife, recognizing biodiversity as a long-term economic asset. They estimate that the total economic benefit of wildlife related activities to the East Kootenay is over \$25 million annually.

III. Mono Lake, USA



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The Mono Lake is located in a 24 mile wide desert basin, about 2,000 m above sea level, on the eastern side of the Sierra Nevada.

As Mono Lake is a terminal lake, its water is twice as salty as seawater and contains large amounts of minerals. The chemical richness of the lake fosters algae growth, which feeds brine shrimp and alkali flies in the shallows and along the shoreline of the lake. These rich sources of protein attract migratory shorebirds including California Gulls and Wilson Phalaropes.

Lake Facts

Origin	Geological processes: block faulting
Size	182 km ²
Water Volume	3.22 cubic km
Maximum depth approx.	48.8 m
Sea Level	1,947 m
Catchment area	1,800 km ²
In-Flows	5
Out-flows	none
Salt Content	78 grams/litre
Mean Precipitation	152 - 330 mm p.a
Mean Air Temperature	9.4 °C
Completely frozen over	too saline to freeze over completely
Location	California/USA
Vegetation	sagebrush high desert
Biggest Problem	Water withdrawal from in-flowing rivers

Today's scenery is characterised by the unique Tufa Towers, bizarre sculptures of limestone that have grown over many years. The process of salinization was greatly accelerated by the great demand for water of Los Angeles that is situated 300 miles south of Mono Lake. In 1941 the city of Los Angeles began diverting four of the five major streams that feed Mono Lake. As a consequence, the lake level declined, and the salinity doubled.

Years of negotiations, court battles, research and formal hearings in Los Angeles supported by the Mono Lake Committee in Lee Vining led to a compromise. Since 1994 the lake level has risen three metres, and the California gulls breed again at Mono Lake. More than 100 species of migratory birds stop over at Mono Lake.

MONO LAKE

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No, the Mono Lake Committee is formally committed to sustainable development at Mono Lake, but we have not used Agenda 21 in any formal statements. We are members of the Sierra Business Council, which promotes sustainable development through a process called Planning for Prosperity. The process looks at economics, nature, and societal issues associated with activities. We produce an annual State of the Lake report that analyzes activities at the lake and uses the Planning for Prosperity parameters.

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, the Mono Lake Committee is committed to acting in a sustainable manner to the greatest extent practicable. Our Board of Directors last year unanimously passed a resolution stating: „The Mono Lake Committee will, to the greatest extent practicable, seek to use and promote environmentally friendly products, with a special emphasis on water and energy efficiency.“

The Mono Basin Regional Planning Advisory Committee has stated a goal of having a sustainable economy and environment. This group advises Mono County on local planning issues.

The Governor of the State of California in August 2000 issued Executive Order D-16-00 which requires state buildings to be designed, constructed, and maintained in a sustainable manner.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Conservation and management of resources on federal land is for the most part happening sustainably. The ultra-low flow toilet distribution program in L.A. is saving 9 billion gallons of water each year.

Otherwise, there is little public interest or government support for Agenda 21 initiatives.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

While certain goals of Agenda 21 may be shared, there is little knowledge of Agenda 21 in the United States. It would be valuable to compare existing laws and regulations with Agenda 21 goals, and identify gaps where goals aren't addressed.

A strategy for addressing these unaddressed goals could then be recommended and implemented.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

Ultra low flow toilet distribution program. The motivation was to decrease the amount of water wasted in the city of Los Angeles in order to decrease reliance on imported water supplies, while at the same time providing economic development in areas where it is needed in the city.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Los Angeles Department of Water and Power (LADWP) – provides funding and support for toilets and other water use efficiency programs.

Metropolitan Water District of Southern California (MWD) – provides matching funds

Honeywell DMC, a corporation, is the prime contractor for the toilet program and subcontracts with Community Based Organizations (CBOs), who do the actual toilet distribution

Mono Lake Committee (MLC) – promoted organization, education, and helped LA and MWD obtain state and federal funding for water use efficiency

Los Angeles Water Conservation Council (LAWCC)– promotes water conservation in L.A. and members include NGOs (CBOs) .

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

One goal is to use water as efficiently as possible in order to have sufficient water for the people and the economy of Los Angeles and for the environment, which includes Mono Lake. This means that water conservation is no longer simply a response to drought, but is central to the long term water supply of the City of Los Angeles and the region.

Another goal is to create a strong connection between communities and their understanding of their water supply and the effects of their use of water on the environment. This goal has led to job-creation, inner city education program both in Los Angeles and at Mono Lake.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

LADWP provides toilets to the CBOs, and the CBOs distribute the toilets. These toilets that use 1.6 gallons per flush replace older models that waste significant

amounts of water. The customer returns their old toilet, which is recycled into paving material. This increases the sustainability of L.A.'s water use, provides paving material from a recycled source (saving raw materials), and provides economic and social development for inner city residents through the CBOs. Less water sent to the sewage treatment plants also saves energy and improves water quality of water being discharged into Santa Monica Bay.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

N/A

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Over 1 million toilets have been distributed, saving 9 billion gallons of water each year. This is a savings of about 5% of L.A.'s water supply. Thanks partially to this effort, diversions from the Mono Basin have been reduced, allowing Mono Lake to rise and its tributary creeks to begin to recover.

Since 1994, thousands of youth and young adults from Los Angeles and other urban areas have come to Mono Lake to learn about water and the connections between using water efficiently and protecting the environment.

C.2. Social

The CBOs provide employment in inner city Los Angeles.

Community groups and students learn about water and nature and the importance of making water use efficiency choices at home.

A higher lake level for Mono Lake reduces toxic dust storms and increases the social health of the region.

C.3. Economic

The CBOs provide employment in inner city Los Angeles.

A healthier Mono Lake promotes a healthier Mono County economy. For example, the improvement in bird life in the Mono Basin led the Mono Lake Committee to sponsor with many other governmental and non-governmental groups the first annual Bird Chautauqua in June 2002, where almost 200 people gathered to spend time in the field, in lectures, and contributing to the local economy.

IV. Laguna Fúquene, Colombia



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Lake Facts

Size	3.260 hectares
Water Volume	50 million m ³
Maximum depth approx.	5,5 m
Mean depth	2,5 m
Sea Level	2.539 m
Catchment area	1.753 km ²
In-Flows	1, Ubaté River
Out-flows	1, Suárez River
Salt Content	0
Mean Precipitation	1022 mm per year
Mean Water Temperature	17,7° C
Completely frozen over	never
Location	Andes Mountains of Columbia
Vegetation	Tropical Forest
Inhabitants	181.000
Biggest Problem	sedimentation, water pollution, eutrophication

Located in the Colombian Eastern Cordillera at 2539 meters above sea level, and 100 km north of Bogota, Fúquene is an outstanding habitat and natural resource, to be valued and managed according to its global significance.

Situated amidst a biologically impoverished human landscape, currently Lake Fúquene represents a local hotspot of freshwater biodiversity. 248 species of flora and fauna have been identified. The Lake is considered

a “file” with more than 100,000 years of history. Some records of sediment deposits with a range of more than 50 m. Therefore, it is talked about this lake as a “regional library”. After the raising of the Andes was completed, the closed basins of Bogotá and Ubaté valleys harboured huge lakes and extensive marshlands, habitat to a rapidly evolving endemic freshwater biota. Currently, Fúquene Lake is the largest remnant of the extensive freshwater habitats than once covered the entire highland plateau.

Indigenous inhabitants held Lake Fúquene sacred. On some of the small islands wooden thatch-roofed temples were built, devoted to the adoration of the sun, but most of them are destroyed now.

This ecosystem supports regional economic activities, irrigated agricultural fields, and water supply facilities for at least 100,000 people. Today, 200,000 people live around Lake Fúquene, and at least half of them are urban dwellers. An estimated 171,000 head of livestock graze on the Lake's watershed. 200 Families live directly from the lagoon as fishermen and craftsmen. Gross Domestic Product per capita in the area is higher than in other Colombian rural areas.

Currently, alien aquatic weeds and fishes are infesting the lake, and irrigation of land reduces the inflow of water. High sediment loads of the Ubaté River and eutrophication are further problems. With the inclusion of Colombia as member of the Ramsar Convention and Fúquene as potential Ramsar Site, new avenues for more integrated environmental management policies are arising.

LAGUNA FÚQUENE

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No, or at least only indirectly. Although the Colombian Government has expressed its commitment to Agenda 21, specific implementation activities are yet to reach local areas, such as Fúquene Lagoon.

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, a comparable sustainable development process is at its very early stages of implementation, through the Management Plan that is being proposed for the lake, wetlands and its watershed by the Regional Environmental Authority, CAR; to which Fundación Humedales is giving substantial input and support.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

It has been a quite slow process, and we cannot so far talk about progress as such. The obstacles are: a) the inherent high complexity of the case, b) weakness of public environmental institutions, c) management institutions with limited experience and know how on ecosystem management, d) strong economic interests operating against the current to sustainability, e) very limited capacity of intervention of concerned and committed NGOs.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

As NGO members of Living Lakes network, we have chosen an intervention from the private sector and civil society that need to be strengthening in order to make a difference.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

Management Plan of Lake Fúquene

The sustainability initiative has been motivated by the appreciation of natural and cultural values still present in the lake, despite its acute environmental degradation. The initial situation was characterised by the lack of appreciation of the lake's full range of values, and limited capacity of stakeholders in adequately define the problem, that is to specifically identify which values were at stake in the management process. The lake was seeing by regional environmental authority solely as a reservoir belonging to an irrigation system, undergoing environmental problems that risk compromise its water supply capacity. Fundación Humedales has help build a discourse in which the lake is currently recognised as an ecosystem that provides a wider range of functions to society, and its management plan should then proceed accordingly to this renewed vision.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Ramsar secretariat. Already involved in the process of promotion of the site as a wetland of International importance.

The **Colombian environmental ministry**, responsible of policy directions and representative of the Ramsar convention in the country.

Region Environmental Authority (CAR) responsible for the management of the lake and secure its values and functions.

Humboldt Institute (the Colombian research Centre for Biodiversity analysis), currently funding the assessment of biodiversity in the lake.

Local municipalities, responsible for land use zoning.

Local NGOs working in environmental awareness and education. (ARCOS, Humedales etc.).

The productive sector: **dairy industries associations**. Only marginally contacted so far.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The formulation of a Management plan for the lake, surrounding wetlands and supportive watershed (the lake's ecosystem), that is comprehensive of the maintenance and restoration of the lake's full range of values.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

Only planning measures. At local level Fundación Humedales is being implementing activities related to protection, education, and biodiversity monitoring.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Please see above.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

We can foresee only progresses in terms of public awareness, although they have not been measured.

C.2. Social

So far, we cannot expect to have such changes with the limited amount of resources that have been canalised from the private and public sectors to these goals.

C.3. Economic

Idem.

V. Mar Chiquita, Argentina



Mar Chiquita is Argentina's biggest lake, and the world's fifth largest steppe lake. The latter is only true, when the water level is high. In that case, Mar Chiquita covers an area of 5.770 sq. km, in periods of extended drought, the lake surface can drop to 1.960 sq. km. The salt content fluctuates from 25 to 290 g/l depending on the water level. These extreme conditions protected the lake from overpopulation and overuse. Two areas around the lake are under protection, the Reserva Natural de Vaquerias covering 3 sq. km and the Reserva Natural de Fauna Laguna De Felipa covering 13 sq. km.

The most popular nester is the Chilean Flamingo, indigenous to South America, which breeds in 10 areas only. The population declined in the 70s and 80s. In 1998 around 100.000 adults and 50.000 young were counted.

Wilson's phalarope nest in the North American prairies and spend the winter in Peru, Chile, Bolivia and Argentina. After the breeding season they cover a long distance non-stop to the North American salt lakes. At the Great Salt Lake up to 600.000 species and at Mono Lake up to 140.000 Wilson's phalaropes were counted. There they moult and double their weight before flying over the Pacific and the Andes mountains. Adult birds cover this distance (5000 km) in three days by flying 70 km/h. In the 70s, up to 500.000 species of Wilson phalaropes spent the winter at Mar Chiquita.

The main problem for Mar Chiquita is the projected water withdrawal from the Dulce River for irrigation purposes. It is extremely important to set up a water management system that includes Mar Chiquita and the wetlands as well.

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 Website: www.efn.uncor.edu/dep/cza

Lake Facts

Origin	tectonic, 30,000 years
Size	1,960 – 5,770 km ²
Water Volume	0.15 – 2,390 km ³
Maximum depth approx.	11 m
Sea Level	62 – 71 mm
Catchment area	37,570 km ²
In-Flows	3, largest is Dulce river
Out-flows	0
Salt Content	29 – 275 mg/l
Mean Precipitation	700 mm/a
Mean Air Temperature	18 – 19 °C
Location	Argentina
Vegetation	forest, savannah, pastures, fields, salt-marsh
Biggest Problem	Withdrawal of water
Specials	Chileflamingo, 100.000 adults, 50.000 young (approx. 10% of world population)

MAR CHIQUITA

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No

A.2. Other Agenda 21 or comparable sustainable development commitments

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Lack of progress regarding Agenda 21 initiatives is due to

Lack of public awareness.

Lack of government support. Argentina has not implemented the national Biodiversity Strategy.

The economic situation of the country, close to bankruptcy that restricts public funds available for environmental issues, considered a non-priority.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

- Promote environmental education activities focused in the main Agenda 21 issues and objectives
- Promote conservation projects that are relevant to the local reality and consistent with Agenda 21 main goals
- Promote a basin-oriented approach to wetland management. In the case of Mar Chiquita, to achieve sustainable management of the main tributary (Rio Dulce) is essential for the survival of the lake

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

The main conservation initiative associated with Agenda 21 in the Mar Chiquita region has been promotion of the initiative that led to Mar Chiquita being proposed (and later nominated) as a Ramsar site. This nomination, achieved in 2002, will allow new initiatives and actions that are directly related with Agenda 21

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Actions leading to the Ramsar proposal for Mar Chiquita included collaboration between the Municipality of Miramar, Anibal Montes Museum, Morteros Museum, Cooperativa Electrica de Miramar, Centro de Zoologia Aplicada (University of Cordoba), and provincial government agencies.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The initiative aimed at developing and submitting a formal proposal for the nomination of Mar Chiquita as a Ramsar site. The proposal was elaborated following the Ramsar guidelines and requirements.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

None at the moment. It is expected that after Ramsar nomination, specific actions will start to be developed in 2003

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Same as in A3

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Ramsar nomination will have a positive impact in increasing law enforcement and biodiversity conservation in the area. Moreover, environmental standards will be raised and more strictly reinforced in the area.

C.2. Social

Social impacts are not detectable at this early stage of implementation of the Ramsar site

C.3. Economic

No changes detectable at this early stage of Ramsar implementation

VI. La Nava and Boada, Spain



Living Lakes Partner

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Lake Facts

Origin	Depression in a plateau
Size	4 km ² , originally 25 – 50 km ²
Maximum depth approx.	1.6 m
Sea Level	737 m
Catchment area	21 km ²
In-Flows	several
Out-flows	none
Salt Content	nil
Mean Precipitation	393 mm
Mean Air Temperature	12° C
Completely frozen over	never
Location	Castile-León, Spain
Vegetation	steppe, fields
Inhabitants	more than 4,000
Biggest Problem	smallness of lake
Specials	Drainage during the 1950s Restoration 1990

The lagoon La Nava is located in northwest Spain on the Tierra de Campos Plateau near Palencia. It is fed by two rivers: the Valdejinata and Retortillo.

Politicians had a dream of a blooming landscape producing a rich harvest. In the 1940s, the construction of 15 large and many small canals and ditches nearly drained Lake La Nava, but the expected super harvests did not come.

In 1990, the Living Lakes partner organisation Fundación (2001) Global Nature España brought Lake La Nava back to life. At present, it covers about 400 hectares.

La Nava has become again an internationally important nature reserve and resting place for migratory birds.

183 species of birds were counted – among them 50 % of the species living in Spain, and more than 60 % of the birds registered in the Red List.

LA NAVA AND BOADA

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, the recovery of La Nava and Boada Lakes is a project where philosophy and development criteria are close to the environmental sustainability aims of Agenda 21. This project is financed to 50% by money from the EU Life Environment programme. The rest of the financing needed for accomplishing the aims envisaged has been obtained through different administration and environmental authorities such as the National Ministry of Environment, the autonomic administrations, and private supporters such as Lever Faberge.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Lack of finances

Lack of enough administrations working in this field

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

More financial support

More sensitisation actions with local population

More collaboration from public administration

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

The name of the EU LIFE environment project that started in 2000 is “**Living Lakes; Sustainable Management of Wetlands and Shallow Lakes**”. But the Fundación Global Nature already began the restoration project for La Nava in 1990.

In the past, La Nava Lake was one of the largest marshlands in Spain covering an average area of 2500 hectares. In summer, evaporation of lake waters exposed large grazing areas that feed more than 20,000 head of livestock, mainly horses. During the rest of the year the locals exploited the natural riches of the lake. This steppe lake was drained in the 1950s and its surface assigned to intensive agriculture. The Foundation initiative tried to recover this wetland, which is one of the most important wildlife habitats of Spain.

Today, La Nava Lake has an extension of between 300 and 500 ha and Fundación Global Nature is still looking for improved methods to improve the management of this area implementing different measures and actions.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

The partners involved in the EU Life Project are the following:

- Global Nature Fund (Co-ordination. This foundation co-ordinates the EU LIFE project and is responsible for the financial aspects as well as for the reporting. It also co-ordinates the expert team contributions) .- NGO
- Lake Constance Foundation (Expert team, contributes knowledge gained from their own experience in different fields and has organised the first training course).- NGO
- Fundación Global Nature Spain (Local partner, responsible for the local co-ordination and implementation of the demonstration project in Spain).-NGO
- Fuentes de Nava and Boada de Campos communities (Local partner, involved in the local installation of buffer zones and in the implementation of the workshops and training courses in Spain).- Public authority
- EPO, Society for Protection of Nature and Ecodevelopment (Local partner and responsible for the local co-ordination and implementation of the demonstration project in Greece).-NGO
- AENAK, Development Agency of the prefecture of Kavala (Local partner and involved in the local installation of buffer zones and in the implementation of the workshops and training courses in Greece).- Public authority
- The Broads Authority (Expert team, provides expert knowledge to the project and is responsible for running the wetland management training courses).- Public authority
- BiCon AG Incorporated (External partner which will contribute technical know-how in different areas)

The management being carried out in La Nava and Boada is a result of the combined efforts of different organisations. This project will promote the exchange of experience and information. It will intensify the contact between communities, authorities and research institutes and other decision makers and stakeholders. It will also involve young people, volunteers and engineers at European level.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The overall aim of this project is to demonstrate how wetlands can generally be restored and managed wisely in ways that are compatible with sustainable development. Objectives:

- Demonstration projects of sustainable management of wetlands in Spain and Greece.
- Information and sensitisation of the local people in the demonstration areas and the broad population in Spain, Greece, England, Germany and Austria.
- Transfer of technology, experience and good practice in wetland management.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

The actions developed and implemented to bring principles into action in La Nava and Boada Lakes have relation with the following Agenda 21 items:

I. SOCIAL AND ECONOMIC DIMENSIONS

- International co-operation

II. CONSERVATION AND MANAGEMENT OF RESOURCES

- Managing Land sustainably
- Sustainable Agriculture and Rural Development
- Conservation of Biological Diversity
- Protecting and Managing Fresh Water
- Managing Hazardous Wastes

III. STRENGTHENING THE ROLE OF MAJOR GROUPS

- Partnerships with NGOs
- Local Authorities
- Scientist and Technologies

IV. MEANS OF IMPLEMENTATION

- Technology transfer
- Education, training and public awareness
- International law

The concrete actions and measures to cover all these Agenda 21 commitments will be taken through the following activities. The implementation of these actions will help to bring Agenda 21 principles into action in the lake region of La Nava and Boada

- Preparation of an agricultural extensivisation proposal
- Proposal for La Nava as a Ramsar Site in order to promote legal protection and national and international recognition.
- Installation of buffer zones between wetlands and lakes and cultivated land to reduce diffuse nutrient intake
- Installation of a green filter in order to purify the nutrients out of the water in the river Lobate shortly before the river reaches the lagoon Boada
- Project of reforestation to plant approximately 105,000 plants.
- Production of Good Practice Guidelines so that other wetlands can benefit from the experience gained during the project
- Development of a brochure about the project
- Development of an interpretation trail between the village of Boada de Campos and Boada lagoon including information panels
- Construction and installation of observation platforms
- Four international work camps in Spain
- Classes from schools in the region to visit the area
- Mobile exhibition with information presented in the local language
- Public and educational material
- Educational puppet shows for children living in and around the demonstration sites
- Organised trips for the media and regular contacts with local and national media
- Workshops
- Training courses with practical and theoretical elements
- Video documentation from the project
- Dissemination of all outputs via World Wide Web and the establishment of an open discussion forum on the Internet for experts and interested persons
- Develop a visitor management plan.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Lack of finances
Lack of enough governmental support

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Volume of sewage water treated
Improvement of the results of water analysis
Square metres of Green Filter installed
Increase of biodiversity
Reduction of nutrient inputs used in agriculture
Declaration of La Nava as a RAMSAR site
Number of hectares that has agroenvironmental measures in the frame of an extensification programme

C.2. Social

Rise of income rates of the population from the catchment area
Increase of the sensitisation of people
Number of kids from local schools that receive environmental education
Number of young people that followed the workcamps programmes
Number of press articles published during the project lifespan

C.3. Economic

· Number of visitors that come to the catchment area
· Number of new jobs created in the communities in the project area
At this time there is no economic improvement indicator raised by the project to measure the number of new jobs created

VII. Lake Constance, Germany/Switzerland/Austria



Living Lakes Partner

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Lake Constance is the second largest freshwater lake in Central Europe.

2,2 million people live, work, and relax in the Lake Constance region covering an area of about 12,500 square kilometres. 4.5 million people drink Lake Constance water, and up to 50,000 boats are based on the lake.

In spite of a wide variety of human activities, Lake Constance has preserved a natural landscape with rich biological diversity. About 200,000 water birds rest or hibernate in the region. These include about 80,000 Tufted Ducks, 50,000 Pochards, and 7,000 Great Crested Grebes. The water of Lake Constance is teeming with fish - 26 different species live there.

Lake Facts

Origin	ice age: glacial river erosion, 16,000 years ago
Size	540 sq. km ² ; 14,000 years ago: over 1,000 km ²
Water Volume	50 billion m ³
Maximum depth approx.	252 m
Sea Level	395 m
Catchment area	12,000 km ²
In-Flows	236 creeks and rivers; Largest in-flow Alpine Rhine (70 %)
Out-flows	1, Rhine
Salt Content	0
Mean Precipitation	800 mm (west side) 1,400 mm (east-side)
Mean Water Temperature	8.6 °C
Completely frozen over	33 times since 875; last time in 1880 and 1963
Location	Germany, Switzerland, Austria
Vegetation	Cultural landscape, 25 % woods, Higher plants > 2,000 species
Inhabitants	1.3 million
Biggest Problem	population growth
Greatest success	reduction of phosphate loading

Partner of Living Lakes is Bodensee-Stiftung, an international foundation for nature. Together with the Environmental Lake Constance Council (Umweltrat Bodensee) the Bodensee-Stiftung provides a platform for all associations aiming at sustainable development at the same time preserving its actual natural and cultural landscape. The Council comprises about 20 nature protection associations from Switzerland, Austria and Germany. The main stress is put on "Sustainable Tourism", "Organic Farming" and "Renewable Energies" e.g. solar technology for water sport.

LAKE CONSTANCE

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

Yes, there are. For further information please consult the presentation about Agenda 21 at Lake Constance of Dr. Tillmann Stottele, Director of the Office for Environment and Nature Conservation of the City of Friedrichshafen, Germany, in the Documentation of the 7th Living Lakes Conference "Implementation of Agenda 21 in Lake Regions".

A.2. Other Agenda 21 or comparable sustainable development commitments

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

International Competition "Environmentally sound canteen kitchens at Lake Constance"

About 3.5 million people live in the Lake Constance area. The canteen kitchens (canteens, refectories, conference centres, hospitals, schools, etc.) in the Lake Constance region have the potential for high sales of regional organic products. But until now it was only possible to gain a few canteens as customers. The share of regional organic products in the retail food business is very small. The fact that there is no general frame of reference nor a marketing strategy is an important obstacle for an increase in sales. The decision-makers in canteen kitchens should get

informed and sensitised about the connection between organic agriculture, healthy food, preservation of cultural landscapes and nature protection. Apart from that, there is a need to train canteen kitchen chefs and their personnel on these topics. To get in contact with them, the idea of an international competition in the region of Lake Constance was developed and implemented. The project won a prize in the international AGENDA21 competition in the Lake Constance region.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Seven regional districts (Germany, Switzerland, Austria) around the Lake Constance were involved in the preparation and realisation of the competition. Nine governmental and non-governmental institutions worked together intensively in a working group: regional administrations and AGENDA 21 offices, economic administrations, health administrations, agricultural organisations and nature conservation organisations. Regional work groups were constituted in some of the regional districts. The working group developed a package of questions which was sent to over 700 canteen kitchens around the lake. Nearly 250 packages were sent back. The working group organises an international conference in October 2002 for canteen kitchen chefs, organic farmers, trade/distribution business, politicians and administrations to present the winners and to promote regional organic food.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The **environmental goals** of the competition were: Development and establishment of environmentally sound working methods in canteen kitchens around the Lake Constance; Reduction of food transport in the region

The **social goals** of the competition were: Information of canteen kitchen chefs and personnel; Establish best practise canteen kitchens; International know-how transfer around the Lake Constance

The **economic goals** of the competition were: building up of a professional and powerful supply logistic for regional organic products; New alliances and co-operations between regional organic farmers, trade, distribution and canteen kitchens; Raising of regional value added tax

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

The working group developed a package of questions which was sent to over 800 canteen kitchens around the lake. Nearly 250 packages were sent back. The working group organised an international conference in October 2002 for canteen kitchen chefs, organic farmers, trade/distribution business, politicians and administrations to present the winners and to promote regional organic food.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

In the official regional Agenda 21 process at Lake Constance, there is a lack of finances. A competition for regional Agenda 21 initiatives was organised but the financial support is not enough to put in practise the projects in a professional way.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

- ◆ More organic and regional food used in canteen kitchens
- ◆ Less traffic and energy consumption by use of regional food products
- ◆ Environmental information and education for canteen kitchen managers and their staffs

C.2. Social

- ◆ Environmental information and education for canteen kitchen managers and their staffs
- ◆ Improvement of the international cooperation around the Lake on the topic of organic and regional food in canteen kitchens
- ◆ Regional working groups will offer special training courses and consultations on topic of specific features of organic food.
- ◆ Competence centres will be built up in some regions around Lake Constance. Those centres should be the contact for canteen kitchen chefs for all questions concerning organic food, should offer training courses and information material and should organise weeks of action in the canteens.
- ◆ Two members of the working group are regional partners of the nation-wide information campaign “Organic food in canteens and restaurants”.

To monitor the progress made by the competition, a new competition will be organised by the working group in 2003/2004.

C.3. Economic

- ◆ Support of the organic and regional farmers around Lake Constance
- ◆ Raising of the GDP of region Lake Constance

The already existing regional infrastructure for the food supply should in future be used more for regional organic products and be optimised. Through the enlargement in diversity on the part of the wholesale trade, canteen kitchens will be able to order regional organic products with less problems in the future.

VIII. Lake Võrtsjärv, Estonia



Living Lakes Partner

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Lake Võrtsjärv and Lake Peipsi are large shallow lakes, which are situated in Northern Europe and are part of the Baltic Sea basin. The two lakes are connected by the Emajõgi River, which drains from Lake Võrtsjärv to Lake Peipsi. The two lakes build an Estonian double partnership in the Living Lakes Network.

Võrtsjärv is the largest lake within the boundaries of Estonia (270 km²). Despite its large surface area, the lake is shallow. 35 fish species occur in Lake Võrtsjärv. Pike-perch, eel, bream, and pike are the most important commercial fish while perch and roach are also abundant. The lake is an important habitat for nesting birds like the Black Tern and migratory bird species like the Whooper Swan, Crane, Wigeon, Scaup and the Wood Sandpiper.

Lake Võrtsjärv is mainly used for industrial fishery, recreation, and tourism.

The fast expansion of reed thickets and the deterioration of biological diversity are a clear evidence of the eutrophication of the lake during the last decades. Low water level reinforces the rise in trophic level. In future even higher phosphorus and nitrate loads from the agriculture are expected. Non-purified or only unsatisfactory treated wastewater runs into the lake.

Lake Facts

Origin	Glacial
Size	270 km ²
Water Volume	0.76 km ³
Maximum depth approx.	6 m
Mean depth	2.8 m
Sea Level	33.7 mm
Catchment area	3,374 km ²
In-Flows	18 rivers
Out-flows	Emajõgi River
Salt Content	0
Mean Precipitation	591 mm per year
Mean Air Temperature	4.9 °C
Completely frozen over	135 days/year
Location	Central Estonia
Vegetation	Agriculture, forestry (36 %)
Inhabitants	24.4 inhabitants per km ²
Biggest Problem	Eutrophication

LAKE VÖRTSJÄRV

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

Yes, the **regional development plan** of the Lake Vörtsjärv region for 2000-2005 (Signing of the protocol of joint intentions, by 7 local authorities around the lake, 3 counties, and the Ministry of Environment, aimed at the elaboration and implementation of the Lake Vörtsjärv region development strategy, in order to guarantee socio-economic welfare for the inhabitants in the region, and create preconditions for the coming of investments and people in the region, concurrently improving the environmental situation of Lake Vörtsjärv and its nearby surrounding)

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, **land use plan** of the Lake Vörtsjärv region (based on the Vörtsjärv regional development plan 2000 – 2005, includes interested groups, inhabitants and key persons in the decision-making process)

Water Management Plan for Lake Vörtsjärv

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Proceeding from the priorities of the Vörtsjärv region development plan, the Lake Vörtsjärv Foundation, an organisation, aimed at planning regional joint activities, was established.

Several joint projects and activities were started together with environmental and science organisations and institutions and also with local people and entrepreneurs.

The main obstacle to move towards Agenda 21 initiatives is the lack of finances.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

To rise environmental and sustainable human development awareness ensuring that sustainable human development principles will be commonly understood via sharing analysed knowledge and experiences with public.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

1994-1997: Estonian-Finnish joint research project on the state of Lake Võrtsjärv (Ministries of Environment). Results of this research have been published in a book "Present state and future fate of Lake Võrtsjärv" (authors Timo Huttula and Tiina Nõges). This project determined the situation of the lake and the possible means for improving, and for avoiding the worsening of the situation. In the framework of Estonian-Finnish cooperation programme, it was tried to find possibilities for using the results of the above-mentioned research in real life practice. Unfortunately, it turned out that it is impossible to use the results in their existing manner, as the region does not have a development plan which would take into account the restrictions regarding the usage of Lake Võrtsjärv.

1998-1999: Estonian and Finnish Ministries of Environment implemented a joint project regarding the involvement of general public in the compilation of joint development strategy in the Lake Võrtsjärv region. The result: tender announcement for finding the compiler of development plan for Lake Võrtsjärv region.

1999- 2000: The Estonian Ministry of Environment project "Evaluation of environmental impact of the Lake Võrtsjärv catchment area development plans and general plannings". As a result of the 1st stage of the project, the consolidated report including the initial data regarding the evaluation of environmental impact has been completed. During the second stage of the project, the environmental impact of the completed Võrtsjärv development plan will be evaluated, and the principles for the determination of environmental restrictions, regarding development activities in the Võrtsjärv catchment area, will be worked out.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

- 7 local authorities around the lake (Rural Municipality Governments),
- 3 counties -Viljandi, Valga ja Tartu
- Estonian and Finnish Ministries of Environment
- Dalarna County Government, Sweden
- Estonian Agricultural University

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The elaboration and implementation of the Lake Võrtsjärv region development strategy; involvement of general public in the compilation of joint development strategy in the Lake Võrtsjärv region

Evaluation of environmental impact of the Lake Võrtsjärv catchment area development plans and general plannings

The compilation of general planning of the Lake Vörtsjärv region; including interested groups, inhabitants and key persons in the decision-making process

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

The document (development strategy) details the methods and working process of the strategy, gives an analysis of the existing situation (resources, development assumptions and problems) and presents the results of research made on the activities of work in which the background of landowners and entrepreneurs from the Lake Vörtsjärv region were studied. The Development Strategy gives an overview of different possibilities for the region's development within in frame of different national development scenarios and presents various interpretations of the development vision as well as aims and activities for developing the Lake Vörtsjärv region.

In different stages of the working process, the shared interests of the region, the conditions and problems surrounding different fields of activities were identified. The development trends for the recreation and fishing industry in the Lake Vörtsjärv region were also worked out through the year 2005.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

See A.3

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Though there exist some data about the status of Lake Vörtsjärv already from 17th century, the regular studies of biota at the lake begun in 1964 at Vörtsjärv Limnological Station (a department of the Institute of Zoology and Botany), water chemistry in 1968 and external load in 1975. The permanent state monitoring program at the lake functions since 1989. The nutrients load to the lake from the catchment area has been decreasing since 1981. This was mainly due to significant reduction of the agricultural activity (fertilizer use and animal breeding), and better waste water purification of populated places. Despite of this, the improvement of the water quality in the lake has been modest mainly due to internal nutrient load. The biological indicators show continual eutrophication, e.g. abundance of small-size zooplankton (rotifers *Anuraeopsis fissa*, *Keratella tecta*, *Trichocera rousseleti*) has considerably increased during last decade.

Lake Vörtsjärv as a unique water body is proposed for European ecological network of special areas of conservation - NATURA 2000. The lake has been evaluated to be in good quality and in good status of the nature preservation, serving as habitation for several rare bird, fish, and plant species.

On the basis of the knowledge of the existing staff, rooms and equipment of Võrtsjärv Limnological Station, Educational Centre of Inland Waters (ECIV) together with Lake Museum is being established. Following educational actions are being prepared and performed: guided excursions for school classes and other groups to the Lake Võrtsjärv, including several-level lectures about Lake Võrtsjärv and surrounding (status, inhabitants, environmental problems, and scientific work at the station); for the excursions, showing materials are being prepared, environmental information among this; educational programmes for special groups, as school pupils, teachers, students, and public servants.

C.2. Social

C.3. Economic

There is no remarkable percentage of tourism in relation to Estonian overall tourism
The region's social and economical welfare remains below the average of Estonia. In 1996–1998 an official unemployment (4,3%) raised over average of Estonia (3,4 %). Very big problems appear in Põdrala and Kolga-Jaani communities (unemployment correspondingly 6,4% and 8,0%). The real unemployment may be three times higher (provisional evaluation at least 15%). The number of registered unemployed persons in the region increased 1,5–2 times.

IX. Lake Peipsi, Estonia/Russia



Living Lakes Partner

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Lake Peipsi is the largest transboundary water body in Europe and the fourth largest lake in Europe. The area of Lake Peipsi is 3,555 km², of which 44 % belongs to the Republic of Estonia and 56 % to the Russian Federation. Peipsi is a shallow lake; its average depth is 7.1 m and maximum depth 15.3 m. Up to one million migratory birds like geese, swans and ducks use Lake Peipsi as a resting place every year. 100 couples of White Stork and 30-40 couples of Corn-crakes are breeding there.

Lake Facts

Size	3,555 km ²
Water Volume	25.07 km ³
Maximum depth approx.	15.3 m
Mean depth	7.1 m
Sea Level	30 m
Catchment area	47,800 km ²
In-Flows	240 rivers and streams
Out-flows	Narva River, connection to Gulf of Finland
Salt Content	0
Mean Precipitation	575 mm/ year
Completely frozen over	114 days/ year
Location	Estonian and Russian border
Inhabitants	11-24 inhabitants/km ²
Biggest Problem	Eutrophication, overfishing

Lake Peipsi is a eutrophic and biologically highly productive lake. The major threat to water quality in the lake is eutrophication, which is caused by the high nutrient load. Agriculture is the main source of nutrient water pollution and the oil-shale industry has big influence to the outlet from Lake Peipsi – the Narva River. One part of this pollution is coming through Rannapungerja River directly into Lake Peipsi.

The lake is most important as a resource for fisheries and recreation. Peipsi is one of the best lakes in Europe for commercial fishing, with a total catch of 8,000-11,000 tons/year. The fish stock in Lake Peipsi is one of the richest in Europe. Besides eutrophication unregulated fishing in the lake is one of the most critical environmental issues for the Peipsi watershed.

LAKE PEIPSI

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

No, Lake Peipsi is a transboundary Lake between Estonia and Russia and it would be difficult to get a formal commitment to Agenda 21, which involves both countries. Several smaller activities which take place in one or another sides of the lake, take place continuously.

In Estonia, there is following legal basis on Sustainable Development:

The Act on Sustainable Development was passed by the Parliament (Riigikogu) in 1995.

Estonian Commission on Sustainable Development was created in 1996.

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, according to the Estonian law all local governments need to have ratified local development plan or local agenda, which is in most cases developed under the principles of Agenda 21.

Most of the Estonian local governments prepared the local agendas in the end of 1990s.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

There are several smaller initiatives on sustainable development of Lake Peipsi region taking place in different communities but the biggest problem is the lack of holistic view and joint Agenda 21 for the whole region. The lake is divided between two countries, between 4 counties in Estonia and 2 oblast (region) in Russia, which makes achievement of one common commitment quite difficult.

In order to inform different interested groups, various formats should be used. According to Peipsi CTC research and experience gained through implementation of several practical projects, the following forms are the most efficient for the dissemination of information among local inhabitants: articles in a local newspaper, various forms of data, reaching homes by way of children, such as leaflets, stickers, information booklets, etc.; materials presented on the notice boards of local governments, know-how disseminated by professional associations; more definitely directed information of various forms distributed by way of non-governmental organisations. The best information channels for enterprises, the second large target group, are the following: technical and marketing information, disseminated via the Internet; market and advertising news spread through media channels; more circumscribed special data delivered at seminars and training events. The great importance of disseminating more definite professional information among the second target group was underlined, the aspects connected with responsibility and

profit being in the foreground. Professional associations can also substantially contribute to the better inclusion of this group. As we are dealing with the inhabitants of border areas, it is an especially relevant necessity to disseminate information both in the Estonian and Russian languages

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

Very important issue is public participation in Agenda 21 process. Public participation at local level is important and most effective as local environmental problems such as water pollution are to be managed locally; people meet these problems in their everyday life and are therefore most active to take action, which guarantees most effective public participation. In the cases of Lake Peipsi at local level the regions includes the most diverse set of groups, which have their own specific cultural and economic background. It is the biggest challenge to water management to work with these diverse groups.

One of the most important stakeholder groups at local level is local government. They have the role of a mediator between the decision-makers and interested stakeholders; they have the responsibility to conduct public participation and to find the ways for the public to affect the decision-making. It requires regular informing and encouraging of active participation by all the local governments in the river basin. Local governments are responsible in water management within their territory and recognize the link between development and sustainable management of water resources. Active participation at that level is still missing and this should be the stakeholder group under special concern.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

1. Strategies for Public Participation in Management of Transboundary Waters in Countries in Transition: Lake Ohrid and Lake Peipsi Case Studies

Transboundary water bodies Lake Peipsi (Estonian-Russian border) and Lake Ohrid (Macedonian-Albanian border) are managed by countries in transition that share many common features. Both regions have severe economic, social and environmental problems and see more efficient cooperation across the border as an important part of regional development. Another common feature is that in both regions public participation in the decision making process and NGO involvement in policy making is in its beginning phase.

In 2000 two international NGOs: Peipsi Center for Transboundary Cooperation (Peipsi CTC), working in the Estonian-Russian border and ALLCOOP-Alliance for Lake Cooperation in Ohrid and Prespa, working in the Macedonian-Albanian border, started a common project which was aiming at increased participation of NGOs and general public in the transboundary water management issues.

Public participation in making decisions is vital: people feel more part of a community and authorities have better relationships with these communities where the public participation is higher. However, the experiences of the Peipsi CTC and ALLCOOP have shown that it is difficult to attract the public to participate, as public participation is a relatively new issue and that's why we decided commonly to approach these problems.

The project was organized through two study visits, international and domestic workshops, children contest of creative works in the field of environmental protection was organized. In the end of the project guidelines for public participation in transboundary lake regions were developed.

2. The Estonian-Russian joint project “Development and Implementation of the Lake Peipsi/Chudskoe Basin Management Programme”

This Project was launched in January 2003, and is financed by GEF. The transboundary project contributes to the lessening of contamination in Lake Peipsi and to the preservation of natural resources. The three-year long (Jan 2003 - Dec 2005) project was launched in co-operation with the UN Development Programme, Global Environment Facility (GEF), Peipsi Center for Transboundary Cooperation, Estonian Ministry of the Environment and Ministry of Natural Resources of the Russian Federation. The steering committee comprises the representatives from the Ministry of the Environment, Ministry of Agriculture, Ministry of Foreign Affairs, Tartu and Ida-Viru County Governments, and the third sector organisations.

The main goal of the project is to develop and start implementation of the Lake Peipsi/Chudskoe Basin Management Programme including practical recommendations for the Lake Peipsi/Chudskoe nutrient load reduction and prevention and the sustainable conservation of habitats and ecosystems in the cross-border region. Project activities take place in Estonia as well as in Russia, both jointly and separately. Joint efforts will be used for the devising of the basin management plan and for the launch of the co-ordinated water-monitoring programme.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Please see the box B.1 (Peipsi Center for Transboundary Cooperation involvement in transboundary watershed management project.)

Peipsi CTC is also actively participating in the Estonian-Russian Intergovernmental Transboundary Water Commission's working group “Cooperation with local authorities, NGOS and international organizations”.

The other NGOs, active in water management and environmental protection issues in the regions are: Estonian Fund for Nature, Estonian Green Movement, Mustvee Ecotourism Foundation, Foundation “Tartu County Tourism”, Tartu University students environmental protection association etc.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

International project "Strategies for Public Participation in Management of Transboundary Waters in Countries in Transition: Lake Ohrid and Lake Peipsi Case Studies" which was implemented in 2000, draw the following conclusions

- There is a very large range of stakeholders with a large extent of interest differing from each other ready to participate in the water management issues;
- Each of those stakeholder groups at every water management level needs a special approach to reach their needs and interests - different channels and tools of communication, different information packages, different level of detailed description; but all of them need clarity and transparency in the information;
- The package of programs and activities to enhance public participation should be as diverse as possible and reach the audience wherever possible;
- One of the most important pre-condition for stakeholder involvement is to formulate very clearly the problems and questions in which stakeholders can contribute the most;
- The involvement of the wider public into water management issues is rather challenging and it is not an easy task even for the environmental experts to find ways for the public to take part in complicate water management discussions and decision-making;
- The strategy for stakeholder and general public participation in water management should be developed and contributed by the decision-makers themselves with the help of administrators, politicians, NGOs and scientists.

The more developed is the society the more it is concerned about the state of the environment and the more important is environmental protection. In a more developed society the need and will for information is raising as well. The most important element for contributing to water management at all levels is trust building in stakeholders through information exchange and regular communication. This project was a good example of this kind of cooperation between different cultures and contexts.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

UNPD supported project "Local Sustainable Development Projects in Mustvee and Kallaste" was implemented during the period 1997-2000. The project offered (among other pillars) detailed training program on Agenda 21 principles, about special techniques of the Agenda 21 process, public participation process etc in two Lake Peipsi communities: Mustvee and Kallaste. Consultations by Agenda 21 experts were given to local authorities in order to help them to develop their local development plans. In both towns three-day brainstorming sessions on town development plans took place in 1999 and based on the results local agendas were concluded.

Peipsi CTC environmental program is putting special focus on the following issues:

1. Public involvement in water management, including

- Analysis of the situation,
- Formulation of recommendations for public involvement in the dialogue with authorities,

- Training and capacity building of administrators and stakeholders,
 - Implementation of good practices of participatory water management
2. Environmental education
- Several programs for children and youth: contests, summer and winter camps, lakeside cleaning etc.
 - Publications in local languages and to different stakeholder groups
3. Peipsi Water Club
- Active information dissemination and consultations on participatory water management
 - Responsible Tartu NGO Advisory Service The lectures and consultations by specialists will be conducted to stakeholder groups – local authorities, unions of farmers, unions of land owners, NGOs, women groups, school teachers, etc.
 - World Water Day and Earth Days promotional activities, yearly
4. Lake Peipsi Water Management Plan (GEF project)
- Improvement of social and economic conditions and sustainable use of natural resources in the Lake Peipsi Basin through developing and implementing the Lake Peipsi Basin Management Program
 - Elaboration and implementation of the Management Program includes development of an institutional and legal framework for the regional sustainable development, capacity of the national and local authorities, communication and information system across the border and promoting public involvement on the issues of the sustainable development and environmental protection with a special focus on reduction and prevention of the nutrient load and eutrophication; and conservation of habitats and eco-systems in the Lake Peipsi Basin.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

[It is difficult to fill in the following points because of the lack of long-term data]

C.2. Social

C.3. Economic

X. St Lucia, South Africa



Living Lakes Partner

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Lake St Lucia, with a size of 350 sq. km, lies in the centre of the 2,550 square kilometre large protected area of the "Greater St Lucia Wetland Area", the oldest protected area in Africa. It is surrounded by massive vegetated dunes on the eastern shores.

About 530 species of bird are recorded in Lake St Lucia, among them White Stork, Fish Eagle, Bee Eater, Oriole and Curlew. The range of reptiles is equally diverse, with leatherback turtle, Nile crocodile and the African python. Hippopotamus are found in the Lake as well.

The Living Lakes partner organisations in South Africa are the Wilderness Foundation and the Wildlands Trust.

Many species of plants and animals were and still are threatened by the impact of human activities upon the environment such as the devastation of dunes by a mining project.

A campaign of about 400 nature conservation associations from all over the world convinced the South African government to stop open pit-mining. In December 1999, UNESCO recognised the Greater St Lucia Wetland Park as a World Heritage Site thus acknowledging the universal value of this unique landscape.

Lake Facts

Origin	Sinking sea level, 25,000 – 18,000 years
Size	350 km ²
Water Volume	525 km ³
Maximum depth approx.	5 m
Sea Level	0,5 m (-0,4 m dry period)
Catchment area	14,860 km ²
In-Flows	5, largest Nyalazi river
Out-flows	Estuary to Indian Ocean
Salt Content	0 – 70 ppt
Mean Precipitation	700 – 1,200 mm/a
Mean Air Temperature	22°C
Completely frozen over	never
Location	South Africa, KwaZulu Natal
Vegetation	world's highest wooded dunes, grassland, swamps Reedbeds, papyrus jungle, bushland, savannah
Biggest Problem	Drainage of Mfolozi swamps
Greatest success	Recognition as "World Heritage"

ST LUCIA

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

There is no formal commitment to Agenda 21 at a regional or local level. However, there is an explicit commitment to the promotion and realisation of a sustainable development strategy in and around the Lake. This is an integrated national and regional strategy currently being promoted at a local level.

A.2. Other Agenda 21 or comparable sustainable development commitments

Key focal areas:

Development and implementation of integrated marine, terrestrial, estuarine and freshwater resources management and sustainable use management strategies.

The development and implementation of an eco-tourism concept plan – structured around the afore-mentioned resources.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Over the last 10 years there has been significant progress – key highlights:

Blocking of the proposed dune mining operation

Consolidation of the Lake and surrounding area into a single proclaimed conservation area

Achievement of World Heritage Site Status

Commitment by the RSA Government of over 80 Million Euros to the development of tourism infrastructure and rehabilitation of Lake and surrounding habitat.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

Stronger emphasis on local stakeholder participation. Most of the process to-date has been chosen by NGOs of 6 State agencies – with limited local involvement. Emphasis needs to be placed on the local rural communities where activities impact on the Lake and surrounding areas.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

SIMUNYE Greater St Lucia Wetlands Community Tourism Association

Established to:

- Improve local community understanding of the “conservation value” of the Lake and surroundings
- Promote the local leadership with a mechanism for engaging in the Lake sustainable development activities and process
- Promote and support the development of responsible and relevant community “eco-tourism opportunities”.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

- 7 Community tourism organisations (section 21 companies which are non-profit companies)
- The Wildlands Trust – core support and fund raising, technical advise
- KZN Wildlife – as for WT
- Green Trust (WWF SA) and Ford Foundation founders

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

See Simmunye constitution and articles of Association

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

SIMUNYE Association activities are in their stages.

The Association has been formed - drawing representation from the local traditions and leadership structures

The Association representatives have formulated a constitution

They have met with the regional councils and agencies to begin positioning themselves, raising their profile and lobbying for greater participation.

They have initiated an active local community tourism awareness and facilitation process

They have secured their 1st significant funding grants and aimed at youth development and training within the eco-tourism and conservation management fields.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Key obstacle is the reluctance of the GSLWP Authority to recognise issues raised by “local leadership”. This is fundamentally a process ownership issue, which will only be reduced since the local interests are able to generate a vocal and coherent voice – i.e. have sufficient understanding of the issues and process and the confidence to enter the debate and challenge process directly.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Elephant and baboon have been reintroduced

Marine and estuary management processes have been improved to try and curb unsustainable harvesting practise

A 200 000 ha state conservation area has been proclaimed

Over 10 000 ha of communal land has been converted into conservation areas – including key forest and grassland areas

Funding has been secured for the development and application of environmental awareness resource activists for the lake, marine system, various threatened species.

Driving has been banned on the beach

Central governments have committed themselves to the conservation of the lake and surroundings

C.2. Social

C.3. Economic

XI. Uluabat Lake, Turkey



Living Lakes Partner

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Lake Facts

Origin	tectonic
Size	135 km ²²
Maximum depth approx.	2,5 m
Sea Level	9 m
Catchment area	1752 m ²
In-Flows	1, Mustafakemalpaça River
Out-flows	Kocaçay
Salt Content	0
Location	Turkey
Vegetation	swamp
Inhabitants	20.000
Biggest Problem	water pollution by industry and agriculture, eutrophication

The lake is located in the northwestern part of Turkey. It has a surface of 135 sq. km and a maximum depth of 10 metres. There are nowhere more water lilies found than on this lake. Up to 1.000 Pygmy Cormorant, 42.000 Pochard, and 320.000 Peewit winter in this area. About 800 pairs of Pygmy Cormorant, 150 Little Bittern, 48 Spoonbill, 30 Ferruginous Duck and 660 Whiskered Tern nest in the lake region.

Lake Uluabat is one of nine RAMSAR sites in Turkey. Problems are caused by the introduction of untreated industrial and communal wastewater, pesticides and fertilisers, over-fishing and dams. The goal of the Living Lakes partner organisation and the Turkish Ministry of Environment is sustainable development in the lake region to become a model for other Turkish RAMSAR sites.

ULUABAT LAKE

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

Yes, there is none for the entire lake. However, Bursa Local Agenda 21 office is interested in the lake. Local Agenda 21 supports an "Uluabat Lake Working Group" of volunteers, which is moderated by Local Agenda 21 staff. The working group was very active till the end of 1990s. Today although as not active as in the past, "Uluabat Lake Working Group" still exists and get together once in 3 or 4 months.

A.2. Other Agenda 21 or comparable sustainable development commitments

There are several NGOs working on women rights, rural development, wise use of natural resources, education and capacity building, etc in the province of Bursa, also working on Uluabat Lake region (e.g. Women's Statue Unit, Rotary Clubs, Education Volunteers, Youth Clubs, etc). Turkish Ministry of Environment and the Turkish Society for the Conservation of Nature has carried out the "Uluabat Lake Management Plan Project" based on Ramsar Methodology and wise use principles for the entire lake. The management plan involves 52 activities to promote sustainable use of natural resources, increase income based on wetland resources, sustainable fisheries, etc. Turkish Society for the Conservation of Nature has undertaken 12 activities within the management plan with the financial support of Unilever Turkey.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Within the last 10 years there is a considerable progress achieved in Agenda 21/sustainable development in the lake region. There is increasing interest in conservation of natural resources and importance of cooperation in achieving that. Especially within the last three years the number of projects aiming sustainability increased considerably around the lake. In the past the main obstacle in achieving progress was mainly lack of coordination and cooperation among different stakeholders. Therefore the very limited financial resources were not used efficiently till the coordination was made.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

The coordination among stakeholders should be improved and its sustainability must be ensured through a reliable body. This body should include representatives of all stakeholder groups and control and unite dispersed initiatives for the similar goals to one or two main initiatives. This body should act independently on the line through Local Agenda goals regardless of the changes in local or national

government and should not lose the civil, voluntary inspiration. Where this cannot be achieved the National Coordinator of Local Agenda 21 should be involved in the solution process of the problem.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

“Uluabat Lake Management Plan Project” by the Turkish Ministry of Environment and Turkish Society for the Conservation of Nature. Uluabat Lake (Bursa) is one of the 9 Ramsar sites in Turkey. Despite its international importance the Lake is severely threatened. Due to the complicated and contradictory nature of existing environmental legislation, the legal status does not guarantee the protection of the sources of the wetland. In 1998, following the designation of area as Ramsar Site Turkish Ministry of Environment and Turkish Society for the Conservation of Nature have initiated a joint project in order to prepare an Integrated Management Plan for Uluabat Lake with the active participation of all stakeholders. The aim has been to ensure the management of the site according to the Ramsar principles.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Government (Headquarters and Provincial Directorates): Ministry of Environment- authority responsible for the management of Ramsar Sites, Ministry of Energy-State Hydraulic Works- authority responsible for management of water, hydraulic structures, Ministry of Agriculture- Authority responsible for agriculture, fisheries, animal husbandry, Ministry of Forestry- Authority responsible for hunting, national parks and game reserves, forestry, Ministry of Culture, Ministry of Tourism, etc. Karacabey, Nilufer and Mustafakemalpaşa Governorships.

NGOs: Turkish Society for the Conservation of Nature, Local Agenda 21, ULUKUS Birdwatchers Club, Society of Bee Producers, Rotary Clubs, Women’s Statue Unit, Chambers and Unions for Tourism Agents, Architects, Environmental Engineers, Bursa Photographers Club, TEMA (erosion control), CEKUL (cultural heritage), etc

Press: Bursa Haber (Newspaper), Bursa Hakimiyet (Newspaper), Olay TV (Local TV), NTV (national TV)

Fishermen, Farmers: Golyazi Fisheries Cooperative, Karacabey and Mustafakemalpaşa irrigation cooperatives, local people

Industrialists: Bursa Society for Industrialists and Businessmen, Unilever Turkey, TAT Canned Food, SUTAS, KEREVITAS, TURBEL, etc

Local Authorities: Nilufer, Mustafakemalpaşa, Golyazi, Akcalar Municipalities, Community Leaders of the villages around the lake

Universities: Bursa Uludağ University

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

The main output of the project is the Uluabat Lake Management Plan based on Ramsar Principles. It is the first management plan in Turkey based on the active participation of all relevant stakeholders to the preparation and implementation of management plan and thus, proper management of the wetland and the wise use of the its natural resources. The management plan is composed of the 4 ideal objectives, which are to decrease pollution and sedimentation of the lake, to promote sustainable fisheries, to ensure wise use of lake resources and to improve wildlife habitats around the lake. There are a total of 52 activities to serve those 4 ideal objectives. 52 activities have been undertaken by several stakeholders including state authorities, NGO's, local municipalities, university, etc.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region?

- Surveys and studies are carried out to find out the gaps in knowledge and fill in those. Stakeholder analysis is made and key stakeholders and their point of view are determined.
- Several stakeholder meetings (visits to key stakeholders and group meetings) are organised to discuss the results of the surveys and studies, problems, limitations, supporters, various solutions and possible effort of each stakeholder for the solutions.
- Informative speeches on the goals and methods are given, printed materials such as handouts, brochures, etc are produced to reach a wider public
- Establishment of a Local Steering Committee is encouraged and initiated
- "Management Planning Training Course for Wetlands" is realised in the lake region
- A series of workshops are realised to prepare the management plan with the participation of relevant stakeholders

As a result of those activities the 5-year management plan for Uluabat Lake is prepared in April 2002 together with a wide public and most of the activities are undertaken by civil organisations. By July 2002, 7 activities of total of 52 activities of management plan are realised, more are in progress.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Generally the obstacles that slow down the progress in Uluabat Lake are the problems with the national economy and insufficient information of stakeholders about the opportunities they can use in order to solve problems of the lake.

More effective progress can be achieved if capacity building is provided for key stakeholders, especially for local NGOs to produce projects in cooperation with the others. Lack of finances is an obstacle, which can be overcome if the stakeholders are improved in fundraising.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

Awareness about the lake itself and its conservation increased rapidly within the last 2 years. Communication and cooperation among stakeholders are increased considerably. Local people started to invite the industrialists to invest on conservation of the Lake. Two of the Companies dwelling in the vicinity of lake suggested to provide manpower, equipment, logistic support to activities for the conservation of lake.

Lake is involved into Living Lakes Network in November 2000. Involvement to the network was encouraged by local people.

Awareness of fishermen about their negative impact on fisheries and the their role in lake ecology has increased. This resulted in a better compliance with fishery regulations.

The amount of suspended matter in main inflow decreases over the past decades. Decrease in the suspended matter load is probably related to the lower activity of mining activities.

Sand extraction facilities on the main river course, which increase suspended matter load into the lake, are moved to ex-river course.

Number of Industrial Treatment Plants increased due to stricter enforcement, due to increased awareness for conservation of lake.

A domestic treatment plant for the biggest and closest district to the lake started to be designed.

An artificial wetland treatment is being designed for a village, which discharges its wastewaters directly into the lake.

Presence of otter, which is a Bern Species, is verified at Uluabat Lake. A survey on the feeding and breeding locations of otter is started by Turkish Society for the Protection of Nature.

Pygmy Cormorant monitoring has started besides wintering waterfowl counts.

C.2. Social

A local steering committee is being formed to take care of implementation of Uluabat Lake Management Plan.

Uludag University ULUKUS Birdwatchers Club is established. Some of the civil society groups such as Society of Bee Producers, Tophane Rotary Club or Women's Statue Unit directed their activities towards the lake region. Uludag University, Uludag University ULUKUS Birdwatchers Club, and Education Volunteers have started environmental education activities in the schools around Uluabat Lake.

20 key local government, NGO and University staff trained on functions and values of wetlands and wetland management methodology.

An e-mail group named uluabat_golu has been established in February 2002. The discussion group has 82 members by August 2002.

C.3. Economic

Number of nature friendly tourists (especially birdwatchers and photographers) increased within the last 2 years. The ceased festival at Golyazi Municipality started to be realised with higher participation. Integration of women into family income is increased through local products sales.

The Union for Tourism Agents, which was totally unaware of the nature friendly tourism potential in Uluabat Lake, is developing tour plans and printed materials for the lake in cooperation with the Ministry of Tourism and the Turkish Society for the Conservation of Nature.

A Pilot study for bee producing is developed in three villages around Uluabat Lake.

Uludag University Veterinary Faculty suggested to provide free, mobile medication for waterbuffalo husbandry around Uluabat Lake.

XII. Lake Biwa, Japan



Living Lakes Partner

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Lake Biwa evolved from a tiny lake formed ca. 4 million years ago - it is the Methuselah among our living lakes (but Baikal is 6X as old!). It has a surface area of 670 square kilometres, and is located near Kyoto in the south of the largest Japanese Island Honshu. Lake Biwa is an important link between settlements on the lake.

The bio-diversity of this region is very rich: about 500 species of plants and 600 species of animals have been recorded. More than 400 brooks and rivers flow into Lake Biwa. In recent

years, more than 24 million people visited the Lake area annually. Lake Biwa water is used as drinking water for 12 million people and for irrigation purposes.

The Living Lakes partner is the International Lake Environment Committee Foundation (ILEC), Shiga Prefecture. The rapid economic development that began in the 1960s led to drastic changes, and in 1984 the Shiga Prefecture started a programme to clean the water.

Today both official and private nature protection associations work closely together developing sustainable development schemes for the benefit of the local people as well as the fauna and flora of the Lake Biwa region.

Lake Facts

Origin	Tectonic
Size	674 km ²
Age	4-5 million years
Water Volume	27.5 km ³
Maximum depth	104 m
Sea Level	84m
Catchment area	3.174 km ²
In-Flows	460
Out-flows	1 (Seta river)
Salt Content	fresh water
Mean Precipitation	1,600-3,000 mm/ year
Mean Air Temperature	15 °C
Completely frozen over	no freezing
Location	Shiga Prefecture, Japan
Vegetation	temperate climate vegetation, mountain forests
Inhabitants	1.32 mil.
Biggest Problem	Eutrophication

LAKE BIWA

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

- A local agenda 21 called "**Agenda 21 Shiga**" was developed in April, 1992, as a local initiatives for Agenda 21, to promote environmental conservation activities in Shiga Prefecture.
- "**Shiga Comprehensive Environmental Conservation Plan**", which is based on "Shiga Environmental Protection Ordinance" (1994), also took into shape the concept of Agenda 21. Environmental management plans and their progress have been reported every year with Shiga Environment White Paper (according to Article 9 of the Ordinance).
- **New Shiga Environmental Conservation Plan** is now in preparation, responding to the changes of society.

A.2. Other Agenda 21 or comparable sustainable development commitments

"**Mother Lake 21 Plan**" is a guideline developed by the Shiga Prefectural Government, which is to involve all the people in Shiga for the integrated watershed management of Lake Biwa. The goal of the plan is to restore the water quality of L. Biwa back to the 1960s.

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

Some obstacles include:

1. Difficulties to reduce nutrient loadings to the lake, especially ones from non-point sources.
2. Difficulties in securing funds to protect forestry in the catchment area.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

Individual's action based on environmental awareness that everyone is responsible for the pollution of the lake. Environmental education and activities of NGOs help to foster people's awareness.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

New Comprehensive Conservation Plan is being introduced to follow up the Lake Biwa comprehensive Development Project (1972 - 1996).

Establishment of watershed management committees for each major rivers flowing into L. Biwa has been encouraged based upon "**Mother Lake 21 Plan**".

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

Most of the Lake Biwa basin is within Shiga Prefectural Government's jurisdiction. Main stakeholders and their roles are:

- People: Learning about Lake Biwa and reducing domestic wastes and nutrient loadings
- Private sector: Reducing & proper treatment of industrial wastes and wastewaters
- Local government: Implementation of Shiga Comprehensive Conservation Plan (Mother Lake 21 Plan), which includes, a) Improving water quality, b) Proper management of forestry, and c) Conservation of nature and scenery.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

Restoration of Lake Biwa will be achieved by specific goals that are set for 2010, 2020 and 2050 for the conservation of Lake Biwa and its watershed. See attached "p6plan.pdf" in details.

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

Fact-findings by Survey ? Scientific analyses ? Setting goals ? Planning ? Preparation (including funding) ? Budgeting ? Implementation ? Monitoring the progress ? Revising or Adjusting of the plan, if needed

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

Lack of funds

Conflicts between ecosystem conservation and flood control

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

	1996	2000
Population	1,299,046	1,342,832
Water quality of Lake Biwa (Southern Lake) mg/L (yearly average)		
CODMn	3.0	3.2
T-N	0.42	0.32
T-P	0.018	0.019
Municipal population in the catchment area with public sewerage (%)	46.7	64.5

C.2. Social

No relevant data are available.

C.3. Economic)

No relevant data are available.

XIII. Laguna De Bay, Philippines



Laguna de Bay is the largest lake of the Philippines covering a surface of 900 sq. km stretching over the provinces Rizal and Laguna. Larger cities located in the vicinity are Manila, Quezon and San Pablo. Laguna de Bay is fed by 21 rivers; its catchment area comprises about 3,820 km².

The only outflow of the lake which is, on average, 2.8 m deep, is the Pasig River.

The rivers flowing into Laguna de Bay serve as a refuse heaps for 60% of the 8 million people living around the lake. Untreated sewage is another cause of pollution. Highly problematic is also intensive fishing and the large number of fish farms in this region. In 1993 already, the Laguna Lake Development Authority has presented a plan for a controlled economical and social development of the region with the main objective to maintain the quality of life for both - man and ecosystems.

Lake Facts

Size	900 km ²
Water Volume	3.2 km ³
Maximum depth	7.3 m
Mean depth	2.8 m
Sea Level	1.8 m
Catchment area	3,820 km ²
Salt Content	0
Mean Precipitation	2,069 mm/ year
Completely frozen over	never
Location	Riza and Laguna Provinces, Luzon, Philippines
Inhabitants	2,381,300

Living Lakes Partner

CLEAR - Conservation of Laguna de Bay's Environment and Resources - Tripartite Partnership of:

Society for the Conservation of Philippine Wetlands
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LAGUNA DE BAY

A. Sustainable development processes or commitments

Is there a formal commitment to Agenda 21 or a comparable sustainable development process?

A.1. For the entire lake area or at local level (Local AGENDA 21)

Yes, after the Rio Summit, the Philippines initiated its own Philippine Agenda 21 composed of multi-sectoral body that would oversee the implementation of the summit agreements at the national level. Officially the Philippine Agenda 21 is known as the National Agenda for Sustainable Development. It has three main sections-namely 1) Principles of Unity 2) the Action Agenda 3) The Implementing Mechanisms. In the Principles of Unity there are three main actors namely the government, the key actor in Policy, the business sector, the key actor in economy and the civil society, the key actor in culture. Thus, in essence the Phil. Agenda 21 is the harmonious integration of a sound and viable economy, responsible governance, social cohesion/harmony and ecological integrity to ensure that development is a life-enhancing process.

A.2. Other Agenda 21 or comparable sustainable development commitments

Yes, in support to Philippine Agenda 21, the Laguna Lake Development Authority formulated the Laguna de Bay Master Plan, there are various on-going projects within the Lake Region, and these are:

1. CLEAR (Conservation of Laguna de Bay's Environment & Resources)

A tripartite partnership among 3 sectors- Laguna Lake Development Authority (government), Unilever Philippines (Business) and Society for the Conservation of Philippine Wetlands (Non-Government Organization). The main objective of this partnership is to conserve Laguna de Bay through awareness building activities, characterization of the lake in terms of biodiversity and ecological richness and advocacy activities with the participation of various stakeholders.

2. Sustainable Development of Laguna de Bay Environment (SLdBE)

A Dutch funded project with the objectives of ensuring future sustainable development of Laguna de Bay resources based upon a sound knowledge of the functioning of the system, its users and the institutional setting-supporting integrated water resources management.

3. Environmental User's Fee Program

A market-based instrument that applies the "polluters pay principle" and serve as an economic means to force polluters to reduce and abate water pollution while instituting remedial measures within their establishment.

4. Lake Fishery Management Program

The most feasible management system for equitable allocation of lake fishery resource with emphasis on full implementation of the Revised Zoning & Management Plan for the Laguna de Bay. One of the objectives of this Program is to reduce the fish pen area of the lake from 25,000 hectares to 10,000 hectares and 5,000 hectares for fish cages that is considered the lake's carrying capacity. With the reduction of fish pen structures, the possibility of pollution from aquaculture structures within and around the lake area is reduced.

5. Laguna de Bay Shoreland Management

This is the proper management and control of the use or occupancy of shoreland areas highlighted by the demarcation of the reglementary 12.5 meter elevation around the lake.

6. River Rehabilitation Program

A multi-sectoral and multi-agency river basin approach with community organizing and information, education & communication component. The partnerships of various sectors have given way to the formation of River Basin Councils all over the lake region

A.3. Could you briefly give your opinion on the progress achieved in Agenda 21 / sustainable development in your lake region. If there has been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc)?

There are on-going small projects related to sustainable development around the lake region. Small success projects being undertaken by different Local Government Units (LGUs) are mostly related to solid waste management such as in Brgy. Ugong, Pasig City or the Ecological Wastes Centres established in Muntinlupa City and Carmona, Cavite. But when you sum this up the efforts are so small.

There are problems being encountered such as lack of funds, lack of public interest since poverty is the most pressing problem around the lake region (the people would rather find ways to look for food and additional income rather than join in environment related projects). Another problem is lack of political will on the part of the Local Chief Executives since environment is not a priority project of some LGUs. Political will in terms of implementing the laws related to environment.

A.4. What recommendations do you have to improve the Agenda 21 or sustainable development process in your lake region:

Provide the necessary financial support to worthy projects.

Intensify public information campaign and awareness building in the LGU level as well as the whole lake region population.

Encourage stakeholder's participation in every project by adopting effective community organizing strategies.

Provide environment friendly livelihood opportunities to under privileged population in the lake region.

B. Best Practice Example

Development and implementation of the Agenda 21-process or sustainable development Initiative

B.1. Please name the initiative. What was the motivation for the Agenda 21 or sustainability initiative (Starting-Point for the initiative)?

1. CLEAR (Conservation of Laguna de Bay's Environment and Resources)
This initiative is anchored on the principle that projects are better implemented through the participation of the different sectors within the Lake Region. Project implementation is smoother when there is division of labour and sharing of resources among different sectors rather than "doing everything, achieving nothing" mentality.
2. River Rehabilitation Project
A model multi-sectoral and multi-agency basin approach in rehabilitating major river basins and sub-watersheds that drain into the Laguna de Bay. The partnership gave way to the formation of River Basin Councils/Foundations where there are no political boundaries, instead the basin or watershed approach to rehabilitation is adopted. The approach is integrated and holistic.

B.2. Please name the stakeholders involved (i.e. NGOs, authorities, enterprises and local communities) and – if possible – their role:

1. CLEAR (Conservation of Laguna de Bay's Environment and Resources)
Laguna Lake Development Authority (LLDA) as the collaborating agency has the following roles & responsibilities:
 - Coordinate the tripartite partnership's activities in view of its objectives and goals;
 - Conduct information sourcing and relevant research on the lake's biodiversity;
 - Provide funding support on biodiversity studies in the lake and on environmental education project, in full view and consideration of the LLDA's budget and financial guidelines;
 - Provide logistical support and coordination support in studies on the biodiversity of Laguna de Bay, production of IEM materials and the conduct of capacity building trainings/seminars for the various communities within the lake's watershed.
- Unilever Philippines**, Incorporated as the initiating entity and private sector partner shall:
- Provide funding support for advocacy initiatives such as IEM campaigns, production of IEM materials, capacity building trainings/seminars, school outreaches and other activities relevant to the conservation of Laguna de Bay;
 - Initiate activities that would influence and mobilize the business sector towards corporate social responsibility and advocacy for lake conservation efforts.

Society for the Conservation of Philippine Wetlands (SCWP) as the Non-Government Organization partner, shall:

- Design and implement advocacy activities for the conservation of Laguna de Bay such as capacity building trainings/seminars, IEM campaigns and IEM material distribution;
- Provide technical expertise and design and conduct training courses for the capacity building of the River Rehabilitation and Protection Councils/Foundations and the Fisheries and Aquatic Resource Management Councils and other relevant groups in the Laguna de Bay watershed;
- Be the focal point for coordination with the Global Nature Fund and the Living Lakes Partnership;
- Coordinate with other environmental NGOs working in the Laguna de Bay Region, facilitate funding request and act as fund administrator in accordance with the standard operating policy of the Global Nature Fund once Laguna de Bay has become a Living Lake Partner.

2. RIVER REHABILITATION PROJECT

The stakeholders involved in this project when a certain River Council/Foundation is formed came from **business sector** such as the industries located within a certain sub-watershed, **non-government organizations**, **religious organizations**, **civic organizations** (Rotary Clubs, Kiwanis Clubs, etc), **Local Government Units**, **People's Organizations** and the **Laguna Lake Development Authority (LLDA)** acts as Secretariat of the River Councils/Foundations. The membership in the River Councils/Foundations is voluntary in nature and sharing of resources is also encouraged depending on the capability of each sector.

Functions of the River Councils/Foundations:

- Vigorously pursue a River Rehabilitation program for each of the sub-watershed including minor tributaries and creeks.
- Mobilize various sectors in the community to be involved in the effort to protect the rivers and lake.
- Undertake information, education as well as motivation campaigns to raise the level of awareness of as many people in the community as possible.

The Councils will undertake the following tasks

- Conduct the actual physical survey of the river systems to determine the exact state that it is in, pinpoint sources of pollution and use such data to identify measures for the river's rehabilitation.
- Formulate technically and environmentally sound river rehabilitation for each of the rivers.
- Establish close linkage with agencies of government that have the necessary technical expertise and know-how as well as capability to undertake regular sampling and water quality assessment particularly of the pinpointed industries discharging wastewater directly into the rivers with the end view of establishing which of those are failing to meet the environmental standards set by the government.
- Set-up a River Rehabilitation Foundation that would be the mechanism, which would in turn be, used to set-up a Trust Fund for the rehabilitation of the rivers.

Also conceived under this program is the Environmental Army. This army of volunteer environmentalists will not only serve as extension arms of various government agencies and units mandated to protect the environment. They will also serve as the core group of a network of environmental watchdogs ready to report all acts or incidents of environmental pollution and degradation.

B.3. Please describe the concrete goals, principles and guidelines that have been developed:

Under CLEAR, the tripartite body is tasked with the following objectives:

- To fully characterize Laguna de Bay in terms of its biodiversity status and ecological richness;
- To increase the awareness of stakeholders in the importance of conserving the Laguna de Bay and its resources;
- To conduct capacity building activities among the River Rehabilitation Councils and the Fisheries and Aquatic Resource Management Councils;
- To conduct advocacy activities which will encourage the active participation and support of various establishments around the lake.

Under the River Rehabilitation Project, major components are:

1. River Survey
2. Information, Education and Motivation campaigns
3. River Clean-ups
4. Organizing the River Rehabilitation & Protection Councils
5. Formulation of River Rehabilitation Plans
6. Water Quality Monitoring & Compliance Monitoring for Industries

B.4. What measures have been developed and implemented to bring Agenda 21 principles into action in the lake region? Please describe!

All development projects within the Laguna de Bay Region are anchored on the Philippine Agenda 21. The Laguna de Bay Master Plan was made to develop strategies for the protection and sustainable development of 3 major development zones within the Laguna de Bay namely the industrial zone, watershed protection zone and lake resources management zone.

B.5. If there had been no sufficient progress made towards active Agenda 21 initiatives, what are the obstacles (e.g.: lack of public, governmental support, lack of public interest, lack of finances etc):

During the course of implementation of the initiatives mentioned above, there are problems being encountered such as lack of LGU (Local Government Units) support especially if environment is not a priority and lack of public interest because of lack of awareness.

C. Results – Future Perspectives

Please describe what results have been achieved since the process was started (please compare to the beginning of the Agenda 21 or sustainable development initiative in your region)? How will sustainability of the measures be secured and how is it monitored?

C.1. Environment

During the course of project implementation, the water quality of the lake has maintained its Class C standard i.e., the lake's water is suitable for aquaculture and industrial use. Data are also generated to predict future lake scenarios and develop practical and realistic solutions to current problems and issues regarding the lake. Lake biodiversity profile is established in order to have an accurate account of the lake's resources.

C.2. Social

There are information, education and communication materials produced such as brochures, posters, banners and websites to increase the level of awareness of various stakeholders around the lake region. There are organized civil society groups namely the River Rehabilitation and Protection Councils/Foundations and Fisheries and Aquatic Resources Management Councils that regularly conduct information, education campaigns in their respective sub-basin.

C.3. Economic

No detailed data.

XIV. The Living Lakes Network



- | | |
|-----------------------------|-------------------------------|
| 1. Columbia River Wetlands | Canada |
| 2. Mono Lake | USA |
| 3. Lago de Chapala | Mexico |
| 4. Laguna Fúquene | Colombia |
| 5. Pantanal | Brazil, Paraguay, Bolivia |
| 6. Mar Chiquita | Argentina |
| 7. Norfolk & Suffolk Broads | UK |
| 8. La Nava | Spain |
| 9. Lake Constance | Germany, Switzerland, Austria |
| 10. Peipsi, Võrtsjärv | Estonia, Russia |
| 11. Milicz Ponds | Poland |
| 12. Nestos | Greece |
| 13. Larache | Morocco |
| 14. Lake Victoria | Kenya, Uganda, Tanzania |
| 15. Lake St. Lucia | South Africa |
| 16. Lake Uluabat | Turkey |
| 17. Dead Sea | Israel, Palestine, Jordan |
| 18. Lake Tengiz | Kazakhstan |
| 19. Lake Baikal | Russia |
| 20. Lake Poyang | China |
| 21. Lake Biwa | Japan |
| 22. Laguna de Bay | Philippines |
| 23. Mahakam Lake | Indonesia |

Global Partner:



Supporters:

