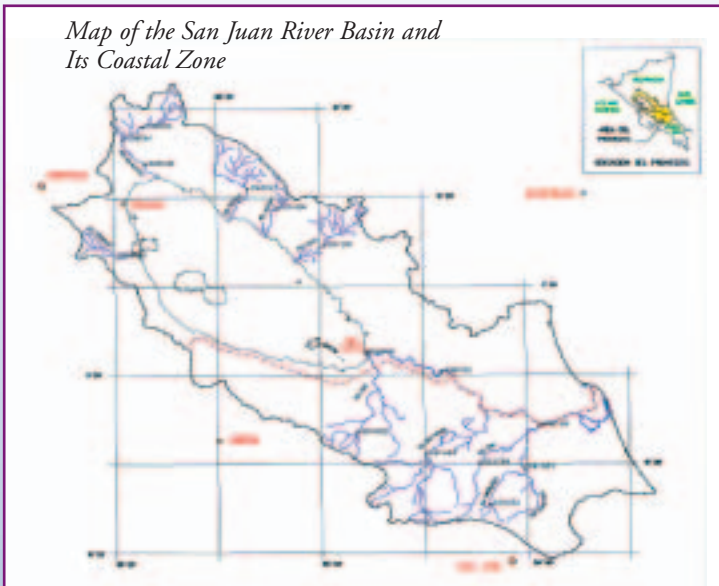


# PROCUENCA-SAN JUAN

## *An Eco-Management Vision for the Integrated Management of Water Resources and the Sustainable Development of the San Juan River Basin and Its Coastal Zone*

### FORMULATION OF A STRATEGIC ACTION PROGRAM FOR THE INTEGRATED MANAGEMENT OF WATER RESOURCES AND THE SUSTAINABLE DEVELOPMENT OF THE SAN JUAN RIVER BASIN AND ITS COASTAL ZONE

*Map of the San Juan River Basin and Its Coastal Zone*



**COUNTRIES:** Costa Rica and Nicaragua

**IMPLEMENTING AGENCY:** United Nations Environment Programme (UNEP)

**REGIONAL EXECUTING AGENCY:** Organization of American States/Office for Sustainable Development and Environment (OAS/OSDE)

**NATIONAL EXECUTING AGENCIES:** Ministry of Environment and Energy of Costa Rica (MINAE) and Ministry of Environment and Natural Resources of Nicaragua (MARENA)

**PROJECT DURATION:** 2001-2005

**WEBSITE:** <http://www.procuencia-sanjuan.org>

**GEF GRANT:** 3.93 US\$ millions

**CO-FINANCING:** 1.43 US\$ millions

**PROJECT COST:** 5.36 US\$ millions

## INTRODUCTION

Shared by Costa Rica and Nicaragua, the San Juan River Basin encompasses about 38,500 km<sup>2</sup>, including its associated coastal zone on the Caribbean Sea. The planning area covers the Lake Nicaragua and San Juan River subbasins, as well as four smaller but significant subbasins with natural links to this system – the Indio and Maíz river basins in Nicaragua and the Colorado and Tortuguero river basins in Costa Rica. With an annual rainfall that varies between 1,500 and 6,000 mm, a flow that reaches 1,308 m<sup>3</sup>/s at the river mouth, abundant and high-quality groundwater, and the largest freshwater lake in Central America – Lake Nicaragua (with an area of 8,000 km<sup>2</sup> and a volume of 104,109 hm<sup>3</sup>), this transboundary basin constitutes the most significant freshwater reserve in Central America.

Most of the land area of the Basin is below 500 m, characterized by extensive plains that climb slowly from the Atlantic Coast to the Central Volcanic Cordillera (at an elevation of 1,500 to 3,000 m), the waters of the Lake Nicaragua-San Juan River system flow

through at least eight distinct terrestrial ecosystems. In addition, the San Juan River Basin and its Coastal Zone (SJRBC) includes a range of freshwater and marine ecosystems including rivers and their tributaries, freshwater lagoons, the marine littoral zone, middle shelf, and continental slope.

## ENVIRONMENTAL, SOCIO-ECONOMIC PRESSURES

Due to this range of ecosystems and associated habitats, the San Juan River Basin and Its Coastal Zone has a wealth of biodiversity. Its location in the natural biological corridor running the length of Central America – the Meso-American Biological Corridor (MBC) – has made it a meeting ground for species from the subarctic areas of North America and from the subtropics of South America.

The SJRBC has a population of about one million, who are generally below the poverty-line, lack access to safe drinking water, adequate sanitation, and schools. All economic and quality-of-life indicators are significantly below the national averages for both Costa Rica and Nicaragua. An imbalance in employment and income-

generating opportunities also exists between the neighboring countries – the Nicaraguan has lower incomes and a subsistence economy – migration exacerbates pressures on institutions



to meet the sanitation, health, and educational needs. These poverty conditions are worsened by the threats of hurricanes and tropical storms-the area is a common westward passageway for cyclones from the Atlantic to the Pacific-as well as volcanic and seismic activity. These natural hazards add risks to the freshwater supply. In addition, recent studies indicate that climate variability is an aggravating factor to transboundary migration, as inhabitants of areas subject to periodic flooding and drought use this coping mechanism as their only resort for adaptation to climate variability.

## THE PROJECT

After completing a Transboundary Diagnostic Analysis during a GEF PDF-Block B, the current phase of the project, which is ending, sought to formulate a Strategic Action Program (SAP) for the Integrated Management of Water Resources and the Sustainable Development of the SJRB. Formulation of the SAP relied on three working elements: (1) basic studies, (2) demonstration projects, and (3) public participation workshops.

In addition, a thorough gender analysis was carried out using census data and domestic surveys, as well as interviews with women's groups and with the governmental institutions responsible for mainstreaming gender in the ministries of environment and other governmental bodies. This analysis helped to mainstream gender in the proposed SAP.



Other activities included a study on transboundary human migrations and the implementation of a basin-wide information system for the decision-making with regard

to water resources management. Particularly, a strong component of the project is its support to public participation. A Dialogue on Water and Climate (DWC) was carried out with funding from the Netherlands and the sponsorship of the International Secretariat of the DWC (IS/DWC). The DWC resulted in a characterization of the Project area in terms of climate variability and an inventory of coping practices and strategies undertaken by the water users. Complementing the information derived from these activities, national plans and policy guided the definition of strategic actions

and the establishment of priorities for the formulation of the SAP.

With basic studies and demonstration projects completed, a more precise characterization of the erosion-sedimentation and contamination processes has been prepared. This includes an analysis of the origin of land-based activities and their impact in the entire hydrographic system and the coastal zone. Intervention measures and monitoring and evaluation systems form part of the SAP. The basic studies provided scientific data to better explain the sedimentation and contamination processes.

In turn the demonstration projects provided information on productive activities, their impacts, and alternatives for the sustainable management of the natural resources in the Basin.



Financing institutions, development banks, and donors are being approached as projects and programs are being developed, in order to

ensure the baseline funding required for the implementation of the SAP. In some cases, these negotiations have resulted in funding to support activities already under execution. This is the situation in the cases of the DWC, funded by the Government of the Netherlands under the sponsorship of IS/DWC of the Third World Water Forum, and the Management Plan for the Frio River Basin, funded by the Government of the US through its Environmental Hub for Central America and the Caribbean. Financial support for the implementation of these two initiatives is being negotiated with various donors and will be included in the SAP financial plan.

The formulation of the SAP integrates three crosscutting issues: (1) gender, (2) human transboundary migrations, and (3) vulnerability to natural hazards. The gender analysis has identified gender-related conditions of the use, access, control, and decision-making with regard to water resources by men and women. The analysis relied both on census data and surveys, as well as on primary data gathered through a series of workshops and by observation of demonstration projects. More than 61 events were held with the participation of about 200 people. The gender analysis contributed also to the research carried out by the Central American University on human migrations, as these two issues are closely inter-dependant. The above mentioned DWC contributes to the SAP with an inventory of lessons learned and best practices with regard to coping practices and strategies to address floods and droughts, in addition to specific recommendations for action in the SAP.

## PRINCIPLES THAT GUIDE THE ACTION

- **An eco-management vision:** Based on the principles of conservation and rationale use of water and land, strengthening the use of the Bi-national Basin as the planning and management unit, within an approach that takes into consideration the structure and functions of the ecosystems present at the SJRB

■ **Public participation and gender equity:** Based on the principles of the Inter-American Strategy for Promoting the Public Participation in Decision-making for the Sustainable Development (ISP):



Pro-activity, Inclusiveness, Shared responsibility, Openness throughout the process, Access, Transparency, and Respect for public input; and

■ **Building local capacity:** Strengthening institutional capacity and developing human resources in local governments, and establishing multi-stakeholder governance for river basin throughout the Basin.

## IMPLEMENTATION STATUS

The SAP formulation phase started in January 2001, and is currently being completed. Activities are being undertaken by the Ministries of Environment of Costa Rica and Nicaragua, with support from UNEP, as GEF implementing agency, and OAS/OSDE, as regional executing agency.

As of December 31, 2003, basic studies and demonstration projects had been completed, and a first draft of the SAP was prepared for discussion. In order to ensure the consolidation of the coordinated approach to the joint management of the San Juan River Basin and Its Coastal Zone, as well as to complete the formulation of the SAP and secure funds for its implementation, the project was extended until June of 2005. In addition to the completion of the SAP, on-going activities include the preparation and negotiation of a Financing Plan, the strengthening of the role of the municipalities in the preparation and implementation of the SAP, and the implementation of communication and information tools of the Project, as to ensure continuity in the public involvement process.

The chief achievements and success indicators to date include:

- (1) *a joint binational vision* of the San Juan River Basin. The shared vision includes social and economic development priorities that balance/integrate principles of conservation and rationale use of water and land, strengthening the use of the Basin as the planning and management unit, within an ecosystem approach that takes into consideration the structure and functions of the ecosystems present at the Basin and its Coastal Zone;
- (2) *a binational management unit* established for the completion of the formulation of the SAP, in preparation for its execution. The new binational management unit represents the first concrete effort towards a joint management of the Project and the implementation of the SAP. The two ministries of environment have agreed to set up the Binational Executing Unit in the city of Granada, Nicaragua, in the heart of the San Juan River Basin, where the PROCUENCA-SAN JUAN will have its headquarters for the joint execution of the SAP, while the National Executing Units will continue to operate at the ministries of environment in San José and Managua;

- (3) *a sound public participation process*, which evolved from rounds of consultations during the PDF-Block B phase for the drafting of the TDA to a direct involvement in the formulation and execution of the demonstration projects and basic studies;

## PUBLIC INVOLVEMENT PROCESS

During the PDF-Block B phase, about 221 institutions were directly involved in the execution of the activities: 97 governmental, 29 non-governmental, 22 international organizations, 14 academic/research institutions, 3 cooperatives, 14 grass-root organizations, 14 private companies, 20 local governments and 8 media organizations

About 340 individuals, including government officials, scientists, water experts, consultants, and member of the community.

- (4) *strategic alliances* within the national territories and across the international border created through the demonstration projects and basic studies implemented during the SAP-Formulation phase. This includes 40 legal-administrative instruments (establishing the basis for the institutional arrangements for the execution of the SAP, and strategic alliances within the national territories and across the international border); 24 memorandums of understanding, 12 letters of understanding, 4 cooperation agreements, and 221 institutions involved.
- (5) *an information and knowledge base* to support the decision-making processes with regard to water resources management in the Basin. This includes the Geographic Information System (GIS) of the Project (which was consolidated with the cataloguing of existing data, metadata, and integration of new data as it was produced for the SAP), and a dynamic Web site and Institutional Mapping Tool (IMT), which was developed in partnership with IW:LEARN as part of the Information System of PROCUENCA-SAN JUAN. The IMT represents a Virtual Library built with

## INFORMATION AND KNOWLEDGE BASE

Achievements to date include:

- A Basin-wide GIS: a catalogue of existing data, metadata, and new data on water quality, erosion-sedimentation processes, aquatic habitats, sedimentation plume, transboundary migrations, water users and gender, and others.
- Transboundary Diagnostic Analysis, TDA 2004: an up-to-date and more precise characterization of the transboundary environmental issues in the Basin and its Coastal Zone.
- An Institutional Mapping Tool, constituting a virtual library with referential information on the basin and for sharing information and experiences.

referential information, which provides an innovative tool for the “distributed” management of the information and for the sharing and exchange of experiences, lessons learned and best practices within the Basin, the Central American Isthmus and the rest of the Americas.

Finally, and although the SAP Financing Plan has not yet been completed, the governments of Costa Rica and Nicaragua are supporting this effort at the highest level. The PROCUENCA-SAN JUAN SAP is part of a broader border development strategy that the Ministries of Foreign Affairs of Costa Rica and Nicaragua are implementing under the direct leadership of the Presidents, and in close collaboration with the Ministries of Planning. Full support to negotiation round-tables is expected from the Presidents and the Ministries of Finance and Planning.

### THE ROAD AHEAD

The final phase of the project will complete the SAP and formation of the Binational Institutional Arrangements for its execution. In addition, the Binational Executing Unit will work on the formulation and negotiation of proposals for priority intervention, with a goal of securing funding for baseline investment projects identified in the SAP.

Proposals will build on successful activities developed through the demonstration projects, as to provide continuity.



The governments of Costa Rica and Nicaragua, with the support of UNEP and the GS/OAS, are currently in negotiations with the Central American Bank for Integration (BCIE) and other financial institutions to access funds of the Bi-national Border Area Development Plan. These funds would be devoted to strengthen the legal and institutional framework required for the execution of the SAP, and to advance on meeting the Development Millennium Goals (DMG) with regard to access to safe-drinking water and development of sanitation infrastructure, making the SJRB a pilot project for both countries. Nicaragua is one of the three countries in

the Americas selected to receive support for meeting the DMG. The country has established a target, by 2015, for meeting 80% to 90% of safe-drinking water and sanitation indicators, respectively. Costa Rica seeks to increase on 34% the population served by sewage networks, to cover an 89% of the population; and maintain the current coverage of safe-drinking water (98.5%), but increasing the coverage in rural areas, from the current 75.4% to 90%, by 2015.

With the financial support of the GEF, through a Medium Sized Project (MSP) starting by the end of 2005 and ending by mid 2007, the ministries of environment of Costa Rica and Nicaragua, with the technical assistance of UNEP and the GS/OAS, will support local governments, NGOs, and governmental institutions in building capacity (institutional, technical, administrative, and financial) for the execution of the SAP components.

Other peripheral and enabling activities include:

- (1) Continuing with the implementation of a communication and information strategy, within the national, local and international communities. Supporting documents and publication material, such as posters, brochures, videos, publication of the Gender Diagnostic and other relevant studies are being prepared and made available for wide distribution. Also, the up-to-date TDA and the SAP will be published and widely distributed;
- (2) Strengthening of strategic alliances built during the SAP-Formulation phase, within the national territories and across the international border; and
- (3) Strengthening of local governments and the Binational Executive Secretariat.



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This document has been prepared by the Office for Sustainable Development and Environment of the General Secretariat of the Organization of American States, as the regional executing agency for the San Juan Project, in collaboration with the United Nations Environment Programme (implementing agency for the Global Environment Facility), the Ministry of Environment and Energy of Costa Rica (MINAE), and the Ministry of Environment and Natural Resources of Nicaragua (MARENA). The document is intended to provide general information on the status, preliminary results and follow-up activities regarding project implementation, and do not necessarily reflect the opinion of MARENA or MINAE, the United Nations Environment Programme, the Organization of American States, or the GEF.