



INTERNATIONAL WATERS RESULTS NOTES

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Integrated management of Land-based activities in the São Francisco River Basin

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1. The project oversaw the organization and compilation of a data bank of references, information, and studies about the river basin that had been held in private institutions. The data bank initially contained 1400 items and will be continuously updated under the supervision of the Basin Committee.
2. Established the Committee of the São Francisco Basin through an election process stemming from 39 regional meetings, 27 state meetings, and 26 meetings with Indian communities. The Committee represents the interest of over 500 municipalities in 7 states which contain over 500 million people.
3. The project created an Environmental Quality Index, which incorporates sustainable environmental components together with physiochemical, biological, economic, social and cultural components. This led to the implementation of a Water Quality Monitoring System for the Sub-Middle Basin of the São Francisco.

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PROJECT OBJECTIVE

The main objective of the São Francisco full size project was to promote sustainable development of the São Francisco River Basin (SFRB) and its coastal zone and address the physical, biological, chemical, and institutional root causes of progressive degradation affecting the basin, by developing a Strategic Action Program (SAP) for the integrated management of the São Francisco River Basin and its coastal zone. The project focused on the identification and implementation of appropriate economic instruments and the incorporation of land-based environmental concerns affecting the coastal zone into the future federal and state development policies, plans, and programs.

RESULTS: PROCESS

INDICATOR#1 (Revitalization of the São Francisco River Basin Committee)

The integrated and participative management of the Basin was one of the main goals of the project, and essential to this was the revitalization of the São Francisco River Basin Committee (CBH-SF). Under the National Policy on Water Resources (NPWR), this committee is now responsible for developing a system of water rights and water charges.

INDICATOR#2 (Formulation of the Basin Management Program)

In order to address the main goal of the project, the TDA and SAP were both developed, which supported the preparation of an Integrated Managing Program for the basin including coastal zone management, fisheries management, navigation and water resource management, as well as including operational policies for large reservoirs.

The project also provided the framework for the Brazilian Water Agency and was catalytic in helping the CBH-SF formulate its first comprehensive programme for the integrated, sustainable, and participative management of the basin and its environmental revitalization. Through directives of the Brazilian Water Law, the project helped formulate and establish effective structures, legal controls, and fiscal instruments to mitigate land and water practices that adversely affected the Basin and its coastal zone.

RESULTS: STRESS REDUCTION

INDICATOR#1 (Impacts on Fish Migration in the Middle SFRB)

An analysis of the effects of the Xingo hydroelectric power plant reservoir on the composition and diversity of fish species revealed that most decreased fish production occurred downstream of the plant, fishing by local communities was no longer feasible, restoration of the fish stock was necessary, and demonstrated how fish production overall has decreased in the lower São Francisco.

INDICATOR#2 (Impact of mining on water resources in the Rio das Velhas)

An important component of the project was identifying the impact of external forces on water resources, and the project therefore oversaw the completion of an integrated environmental diagnosis that identified the environmental interferences on water resources based on a 20-year analysis. Various recommendations included the definition of a hydro-geological model for the development of an integrated management plan for the aquifer system and, on a regional level, evaluation of the principal mining districts on water resources.

INDICATOR#3 (Impact of Agriculture on Groundwater in Rio Verde/Jacaré's Basin)

Both surface and underground water sources were evaluated to test the impact of intensive agriculture on groundwater replenishment and quality, resulting in the successful management of water availability and irrigation needs in the Irece region by using a known *"decision support system for agriculture"*

RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

INDICATOR#1 (Multi-temporal analysis of dynamic alterations in riverbed morphology)

Sediment production on the middle reach of the river basin was analyzed in conjunction with a study of riverbed morphology that was done through satellite imagery, qualifying and quantifying changes in channel shapes. The images showed growth of river islands, changes in the sedimentation of riverbanks, and changes in hydraulic gradient.

INDICATOR#2 (Determination of land use in the Lower to Middle São Francisco River Basin)

A detailed physical and socio-economic characterization of the river basin subdivided land into 24 different classes based on radar and satellite images, resulting in 24 thematic maps and one integrated map which show the preserved natural coverage, the spoiled natural coverage and areas affected by anthropogenic development.

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