



# MANAGING GROUNDWATER RESOURCES: THE GUARANI AQUIFER

The Guarani is the largest aquifer in South America. It extends more than 1.2 million square kilometers in Brazil alone—equal to the areas of England, France, and Spain combined. The system is shared by Argentina, Brazil, Paraguay, and Uruguay, and it already supplies some 15 million people in the region. Best estimates show that the Guarani contains enough water to supply 360 million people if this unique resource is protected and managed sustainably.

Because water consumption in South America is rising rapidly for domestic, industrial, and agricultural uses, the continent is turning increasingly to groundwater, which is especially valuable because it does not normally require chemical treatment. The four national governments, together with the Global Environment Facility (GEF), the World Bank, and the Organization of American States, have undertaken a project to help to ensure that, in the face of increasing scarcity and pollution of surface waters, the aquifer is preserved and kept available as an important reserve for the future.

The project, funded by a \$13.9 million GEF grant and \$13.3 million in cofinancing, is supporting the creation of a common institutional and technical framework for managing the Guarani. This entails consolidation of scientific knowledge, implementation of a management plan, and enhancing stakeholder participation through communication and environmental education.

Specifically, the project aims to (a) expand the knowledge base; (b) develop a joint management framework; (c) encourage public and stakeholder

participation; (d) promote monitoring, evaluation, and dissemination; (e) develop management and mitigation measures in hot spots; (f) assess geothermal potentials; and (g) coordinate and manage the project.

The project design emphasizes the importance of intervention at different levels. At the multicountry level, a steering group comprising representatives of the respective national agencies with responsibility for water resources, foreign affairs, and the environment has been established.

The project has also set up a coordination group comprising one technical coordinator from each country to lead country-based project execution units and to provide oversight and direction to the project coordinator. In addition, the project established a transboundary commission that will coordinate the management of the Guarani Aquifer at the local level.

## RESULTS AND ACCOMPLISHMENTS

In its first two years, the project has helped build awareness and set up institutional arrangements for the future joint management of the resource.

The project preparation process effectively improved knowledge about the aquifer and successfully raised awareness among stakeholders. As a result, the Guarani Aquifer is now recognized as a groundwater resource shared by the four countries, in contrast to an independent and separate aquifer in each country. To deepen participation by all stakeholders and users of the resource, the project is in the process of awarding 24 awareness-building subprojects in communica-

tion and education that will be executed by non-governmental organizations and civic organizations. The project also awarded nine research grants to universities in the four countries to conduct scientific studies about the Guarani Aquifer.

### **THE FUTURE OF THE PROJECT**

The project has garnered broad support at all levels. Future success of the project depends on three critical issues. The first is the continuity of the institutional arrangement established to develop a common management framework. In the final analysis, the success of this project depends on the commitment of the beneficiary countries to jointly manage the resource.

Second, groundwater resources are intrinsically linked with surface water and other economic activities. The future sustainable management of the Guarani Aquifer will depend on the commitment of the countries to integrate surface and groundwater into the overall management of the resource.

Third, the project has to intensify its awareness-building and communication activities to ensure that the population at large remains informed about the project activities and the need to manage the resource in a sustainable manner without compromising the needs of present and future generations.

### **FOR MORE INFORMATION**

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