

GEF INTERNATIONAL WATER SCIENCE CONFERENCE

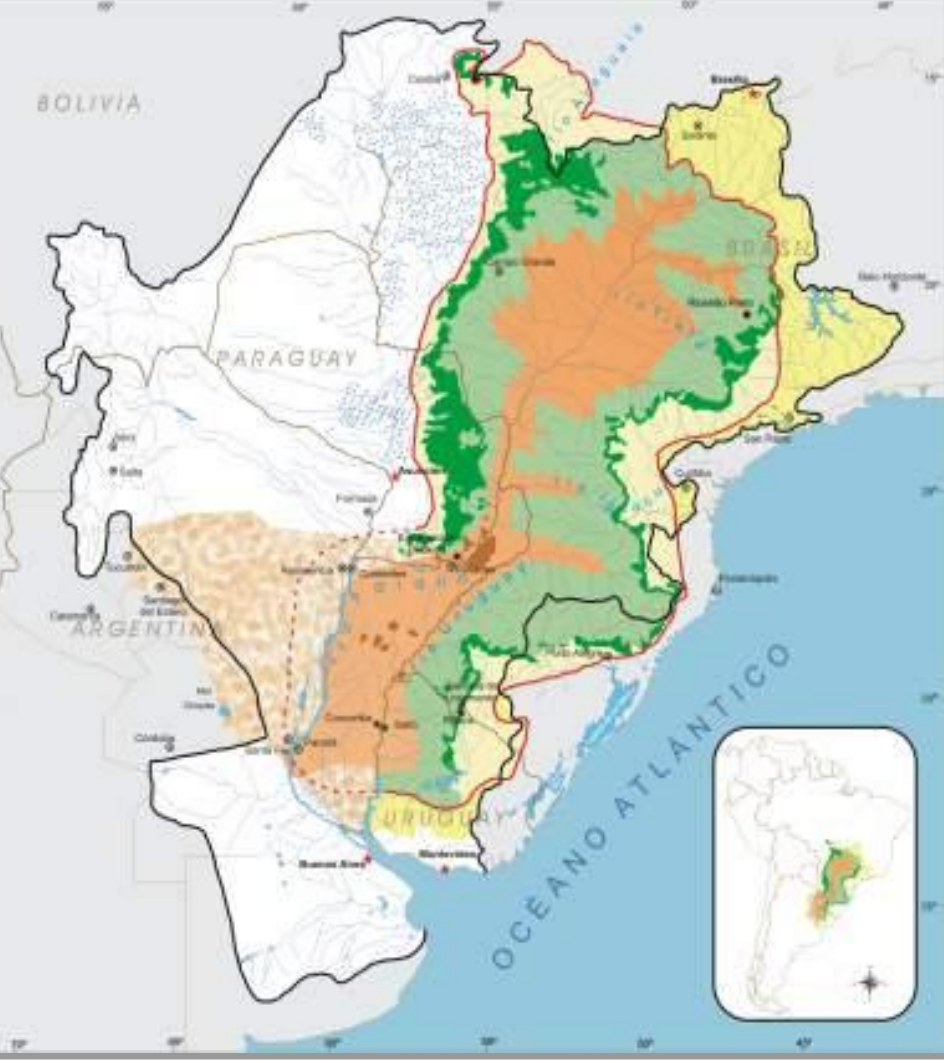
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LESSONS LEARNED FROM GUARANI AQUIFER SYSTEM PROJECT TO REPLICATE IN THE FRAMEWORK PROGRAM OF LA PLATA BASIN

La Plata Basin (Argentina, Bolivia, Brazil, Paraguay and Uruguay) is one of the largest catchment in South America, -extending over 3.1 million km²- and has enormous economic and social importance for the region. The Intergovernmental Coordinating Committee for La Plata Basin (CIC, in Spanish) was created by the governments of the five countries agreed to carry out a joint and integrated study of the area. The agreement was consolidated in 1969 with the signature of the Treaty of La Plata Basin, providing basis for further bilateral and multilateral agreements concerning to jurisdictional matters, navigation, fishing, pollution prevention, scientific research, etc. Currently, CIC has a 'Framework Program for the Sustainable Management of the Water Resources of the la Plata Basin with respect to the Effects of Climate Variability and Change (PMARCO)'. This is an ongoing project and being implemented through a participatory process among the countries, with the support of the Global Environment Facility (GEF), through United Nations Environmental Program (UNEP) and the Organization of American States (OAS), between 2010 and 2015. The PMARCO was organized in 15 subcomponents in order to facilitate its implementation. One of them is the Integrated Management of Groundwater, in the framework of IWRM. There are substantial transboundary groundwater aquifers in the region, such as Guarani, Serra Geral, Yrendá Toba Tarijeño , Cauia-Bauru, Pantanal, among others. The Guarani Aquifer System is the one of the most important groundwater reservoir, due to its extent and volume with an area of approximately 1.2 million km², with almost 15 million inhabitants. A joint project, supported by GEF until January 2009, expanded and consolidated its knowledge. This poster shows mainly upon lessons learned from the GAS project, which would be considered into the PMARCO.

Guarani Aquifer Project



Guarani is confined in **90%** of its area by Serra Geral Basalts in depths until 2,5 km.
Area of **1.084.064 km²**
Volume of **29.000 km³**
Flows until **800m³/h** in depths of 1000 m
Temperatures of **60°** (maxi) C in some points
Mostly water with good quality, locally with salts and fluorides

La Plata Basin Project



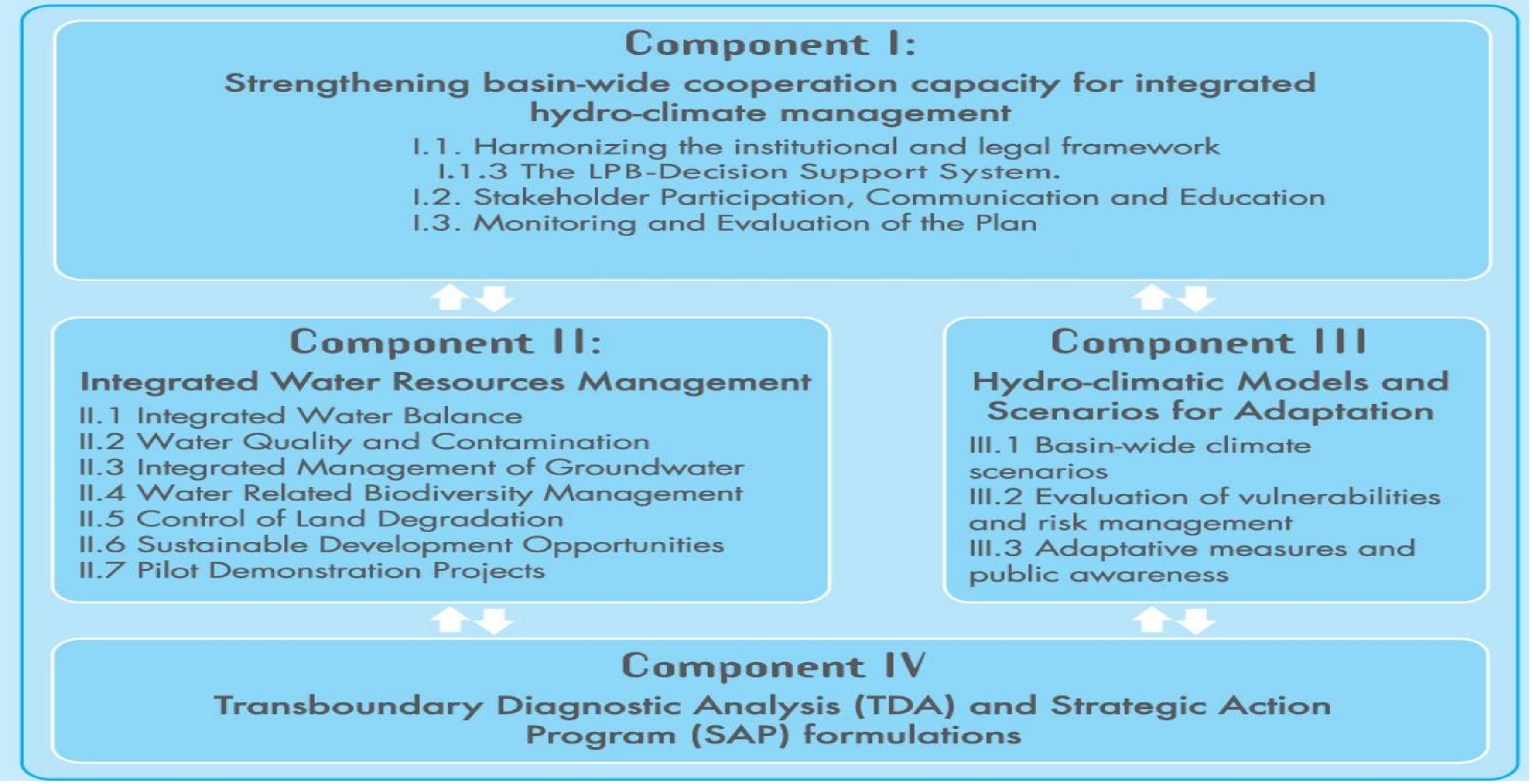
La Plata River Basin (Argentina, Bolivia, Brazil, Paraguay and Uruguay). Is the fifth largest river system in the world, -extending over 3.1 million km², population approx. 100.000.000 inh, 70% IGP from five countries, it has enormous economic and social importance for the region. The Basin hydrological system drains approximately one-fifth of South American.

The Project aims to elaborate and implement a shared institutional, legal and technical framework, among Argentina, Brazil, Paraguay and Uruguay, to preserve and manage the Guarani Aquifer System (GAS) for the current and future generations.

The overall project objective is to strengthen transboundary cooperation among the riparian countries governments of Argentina, Bolivia, Brazil, Paraguay and Uruguay to ensure the integrated and sustainable management of shared water resources of the basin, within the context of climate variability and change, while capitalizing on development opportunities.

The Project is organized in seven interrelated “components”, which are designed to aid in a better understanding of the morphology and behaviour of the GAS, its use and conservation, and its relationship with communities and institutions. This knowledge will inform the development of systems and tools for coordinated management of the waters in the GAS. Specific components of the GAS project are:

1. Expansion and consolidation of the current scientific and technical knowledge Base of the Guarani Aquifer System
2. Joint development and implementation of the Guarani Aquifer System management framework, based on an agreed Strategic Action Plan
3. Promotion of public participation, social communication and environmental education
4. Project monitoring and evaluation, and dissemination of projects results
5. Development of groundwater management measures and mitigation measures within identified critical areas (“Hot Spots”)
6. Assessment of geothermal energy potential use, “clean energy”, from the GAS
7. Project coordination and management



LEARN LESSONS

- Most of the technical issues developed in the GAP was made through large thematic blocks in order to facilitate the acquisition of technical data information due to the almost total lack of systematized information about those issues. The technical products obtained had increased, qualitatively and quantitatively, the aquifer information knowledge. As the technical works were large and complex and, there was also the need to follow the World Bank bid rules, which do not allow public entities to participate in bid procedures, those project products were developed by consortia of international companies;
- The GAP pilot projects had a broad social participation during their development;
- The political and technical discussions involving sovereignty issues were carefully addressed by the countries representatives;
- Two public funds were incorporated into the Project in order to open opportunities for public participation through universities and NGOs representatives. One of them was administered to NGOs (Citizenship Fund) and other to universities (Universities Fund), both looking for the development of scientific information related to the Guarani Aquifer;
- The original GAP did not have a communication plan to inform the society about the Guarani Aquifer's physical data and project implementation. Few months after the Project implementation began, the need to create a communication program became clear, in order to minimize the dissemination of misunderstood information by the regional press about the GAP;
- The GAP implementation experience related to the characteristics of groundwater management was successful, especially with regards to increasing knowledge about the aquifer system;
- The Project did not provide financial and institutional support to national coordinators during its implementation phases. This lack of foresight brought some operational difficulties to the coordinators;
- The Executive Secretary of the GAP was not linked to any international institution which officially represented the four countries. The GAP Coordinator Council was composed by representatives from the countries, including diplomatic representatives, but did not have an institutional character;
- As there was no international official entity to support the GAP, actions for institutional strengthening did not take place, there was only a prediction that this entity would be created in the future. In consequence, the future action implementation presented in the Strategic Action Program - SAP, is under each country's responsibility, foreseeing the need to obtain financial and institutional resources by themselves, except for large actions, like supporting the information system, monitoring, training and supporting project offices. The maintenance costs of the large actions will be shared among the countries;
- The GAP developed a Base Map which contains general information (social, economic, environmental and physical) about the aquifer system. The map confection resulted from a successfully broad negotiation among national geographical services.

ADOPTED LESSONS

- The implementation methodology of PMARCO, dividing the project scope in 10 sub-programs, and creating for each one, a technical work-group (WG), integrated by national experts from each country, has increased the participation of national entities, governmental or non-governmental, in the project development. Also, there are meetings among the different WG national experts in order to enhance the exchange of information and improve the Project implementation. This strategy has offered the conditions to strengthen national bodies, especially those related to hydrology, meteorology and geology data acquisition;
- The PMARCO pilot project's implementation is following the successful GAP methodology line which was based on a broad participation of local communities;
- The Project's political discussions are following the experience of the GAP, where these issues had a more careful treatment, mainly those related to national sovereignty;
- The PMARCO has a Public Participation Fund (as GAP replication) and its implementation will be promoted through a regional university group, called the Association of Universities from the Montevideo Group - AUGM. The role of this Association is to facilitate the implementation and social participation in the project, however, it does not preclude participation of public organizations that do not belong to the Group;
- Given the experience obtained from the GAP, it has become evident that strong communication is necessary during project implementation and thus the PMARCO financial resources provides the means for a communication plan;
- The successful experience obtained from the GAP about the technical information necessary to promote groundwater management has been used by the PMARCO in the Yrenda - Toba - Tarijeño pilot project. Also, the Groundwater Sub- Program WG is extending the studies to the main transboundary aquifer systems that exist in the Plata Basin;
- The PMARCO budget provides support for hiring an aide for each National Coordinator - CN, and the possibility to allocate a specific monthly financial resource to each CN to spend in operational needs is under discussion;
- The PMARCO Executive Secretariat is under the coordination of the Intergovernmental Coordinating Committee for the La Plata Basin Countries- CIC, an official international body created by the Treaty of the Plata Basin. The General Secretary of the CIC is the Project Director from PMARCO, and most of the country's representatives in the CIC are also integrating the Project management structure;
- As the PMARCO has been developed under the CIC's framework, the Project is providing directly or indirectly, institutional strengthening to the CIC and is also allowing for the sustainability of its activities. The implementation of the PMARCO will facilitate the pursuit for financial funds in the framework of the CIC for execution of actions foreseen in the Strategic Action Program - SAP;
- The Base Map from GAP will be expanded to the whole La Plata Basin. It will be an important element of the Decision Support System for the CIC.