



## CASE STUDY

# Panama: The management of the Panama canal watershed



## Summary

To protect the Panama Canal Watershed, formal limits to its utilisation was set up, including the Panama Canal Treaty and the creation of a Panama Canal Authority. This case study predominantly illustrates the peculiar problems that arise when a highly artificial watershed is managed by a modern, internationally oriented public corporation with a country that is still coping with the hydraulic culture and a national water policy.

## Background

The Panama Canal Watershed (PCW) was developed when the Panama Canal was constructed (1904-1914). It covers 5,527.6 km<sup>2</sup>, equivalent to 6.5% of the country's territory which includes two main components-the "traditional" watershed and the "western" watershed. The PCW unites the basins of the Chagres and Grande Rivers into a single hydraulic system. The Chagres and Grande Rivers drain into the Atlantic and the Pacific Oceans, respectively. Damming the Chagres River provides water to operate the canal locks. By the mid 1930's, an additional lake had been created in the upper basin of the Chagres River to increase the water storage capacity of the system. In 1999, the formal limits of the PCW were established by law and segments of the Indio, Caño Sucio and Coclé del Norte River Basins were added. All these rivers drain separately into the Atlantic Ocean to the north-west of the PCW. Three factors have been identified which could affect the quality, availability, and sustainability of the water supply to the Panama Canal and surrounding cities, that are erosion-sedimentation, quality of water, and increased demand for water. The PCA started to build new capacities so that it would be able to work with the people- and not just with the Government- of the country which now owns the Canal. This, in turn, also created, for the first time in the history of the Republic, the possibility to start an IWRM process associated with the country's most important

watershed.

## **Actions taken**

Under the Panama Canal Treaty (1977) the Republic of Panama was obliged to provide sufficient water for the operation of the Canal and for cities in the area. This led to the creation of several national parks, the promotion of sustainable development activities, and the implementation of base-line studies, all with support from USAID (United States Agency for International Development).

A Panama Canal Authority (PCA) was created by Constitutional reform in 1994 which granted legal obligations and rights to manage the PCW. A land use plan and an Organic Law for the PCA were approved in 1997, though the former has yet to be implemented. Selecting ways to define and implement a plan and creating and strengthening the co-ordination mechanism for all the parties involved in the Inter-institutional Commission for the Hydrographic Watershed (ICHW) are probably

the most important problems being faced by the PCA at this time. The Department of Security and the Environment includes an Environmental Management Division and a Watershed Management Section, all formalised between January and March 2002. The new structure includes a specialised unit for monitoring the PCW, and studies of the “western” watershed are under way. Besides this, the PCA has obtained advisory and training services from US agencies and consulting firms with experience in watershed management.

## **Outcomes**

The outcomes to date include:

- The creation of a legal framework;
- The ICHW has been organised and is working;
- The identification of some key issues;

- The PCA is supplying most of the resources (human, technical, financial) needed for the work under way;
- The other ministries and institutions participating in the ICHW were also providing technical personnel and support.

Although the watershed management plan is still in its early stages, the PCA has demonstrated its willingness and capacity to adapt and evolve in the face of new challenges. There will be greater changes and more complex demands in the future, particularly regarding the issues of co-ordination with other Government agencies, and social participation in the management process.

## **Lessons Learned**

The IWRM concept could be useful for the management of the PWC

IWRM has many prerequisites, including an adequate legal framework and effective structures for water management, scientific knowledge and knowledge dissemination.

Traditional centralized approaches to government and to lack of public participation severely hinder the practical implementation of IWRM.

It is vital to recognize that there may be legitimate conflicts between stakeholders; this recognition encourages collaboration between all parties involved in IWRM.

IWRM should be seen as a component of a broader sustainable development strategy.

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**Related IWRM Tools**

Integrated Drought Management Plans, The Rights of Rivers

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