

# Case study: Brazil National Water Agency Capacity Development

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## Short summary

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Domestic sewage is the main source of pollution of water resources in Brazil, as only 39% of the sewage is treated, leading to the deterioration of water quality in many urban areas with economic and social consequences. Faced with the need to expand and integrate water quality monitoring in Brazil, the National Water Agency introduced in 2010 the National Water Quality Evaluation Program (NWQEP), which aims to increase knowledge about the quality of surface freshwater, so as to guide the design of public policies to restore environmental quality. The NWQEP created the National Water Quality Network which is composed by state networks, and established national standards for water quality monitoring (parameters, frequency, methodology) that have to be followed by all states. Today, 17 of the country's 26 States monitor more than 2,100 sampling points and the goal of NWQEP is to reach more than 4,000 points in all states by 2020. The NWQEP also provides capacity building, technical support and financial resources to States for the implementation of their monitoring networks. The data generated by states is transmitted to the National Water Agency and used to develop the National Water Quality Report. Investments in sanitation have been resumed in recent years, and as a consequence a trend towards water quality improvement has been observed in some rivers. The National Sanitation Plan released in 2013 aims to provide domestic sewage collection and treatment for 93% of homes in urban areas by 2033. The implementation of this plan will have significant effects on the improvement of freshwater ecosystems and the monitoring of water quality will be an important issue in order to evaluate its effectiveness and to disseminate the information to society.

## Key words:

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*Reducing pollution ; Eliminating dumping of hazardous waste ; Minimising release of hazardous chemicals and materials - achieve sound management of chemicals through their life cycle ; Reducing untreated wastewater ; Increasing recycling and safe reuse ; Protect, restore and sustainable use of inland freshwater related ecosystems ; Prevent the introduction and significantly reduce the impact of alien species*

## Issues addressed:

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**Water quality (pollution, dumping of toxic materials, wastewater management, recycling, reuse)**

Lack of Sanitation; Water Pollution; Water Quality Monitoring; only 52% of the domestic sewage is collected and 39% is treated; severe deterioration of rivers in urban areas caused by domestic sewage; lack of water quality monitoring and dissemination of information to society.

## Means of implementation:

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**Capacity development:** The National Water Agency created a National Water Quality Evaluation Program that provides capacity building and technical support to States Agencies for the implementation of their monitoring networks in accordance with the National Water Quality Monitoring Network.

## Lessons Learned:

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**Triggers:** The environmental consciousness of Brazilian society has increased over the last 20 years, and water pollution is one of the most important issues. The Law on Access to Environmental Information released in 2003 establishes that the state agencies shall prepare and publish annual water quality reports. This law gave support to the development of the National Water Quality Evaluation Program.

**Drivers:** The main driver of change is the effort of the National Water Agency to create national protocols and assessments based on the experience of state water agencies. The National Water Agency was created in 2000 and released the first National Water Quality Report in 2005. This report showed that it was possible to aggregate state data to develop a national assessment. State Water Agencies, State Environmental Agencies.

**Barriers:** Nine states don't have monitoring networks, and all structure will have to be built from scratch. The implementation of monitoring in the Amazon Basin is difficult because of the large distances and the lack of laboratories. Each state adopts in its monitoring regime specific criteria regarding point location, sample

frequency and assessed parameters. Thus, each state should agree to adopt national standards of water quality monitoring.

**What has worked well?** National Water Quality Monitoring Network

The development of state networks now follow the planning established by the National Water Quality Monitoring Network.

National Field Guide to Water, Sediment, and Biological Sampling. Released in 2011, this guide was regulated as the technical reference document establishing the procedures for surface freshwater sampling intended for monitoring water quality throughout the national territory. Now all the monitoring in the country follow the same procedures.

Report ‘Surface Freshwater Quality in Brazil – Outlook 2012’, prepared by the National Water Agency with the support of the Inter-American Development Bank, (IDB). The report allowed a national view of water quality situation and trends.

The Water Quality Portal was established in 2010 as a virtual space within the PNQA for the dissemination of information and the exchange of knowledge on the situation of water quality in the country. This information is derived from the water quality monitoring carried out by the National Water Agency and state environmental and water resources agencies.

Capacity building – development of the Project “Water Knowledge for Management”, a cooperation between the National Water Agency and Itaipu Binational. A series of courses on water quality monitoring have been developed in Portuguese and Spanish, with participating countries from Latin America. Under the National Water Quality Evaluation Program a course on water sampling was developed to state agencies and a video showing the main water sampling methods was released in Portuguese, Spanish and English.

The institutional process has worked well as the National Water Agency has signed a Memorandum of Understanding with all 26 States and the Federal District in order to implement the national network.

At the technical level the cooperation also has worked well, with many studies developed in cooperation with state agencies to identify representative water monitoring points and the establishment of operation logistics for the networks. Courses on water quality monitoring have been developed to States and also have good participation.

**What could be improved?** The flow of water quality data from States to the National Water Agency still is very slow and time consuming. The data is uploaded to the national water resources database, HIDRO – an open source, SQL platform that allows ANA to share information with state water agencies. In the future a protocol must be developed to speed this process.

**The way forward:** The implementation of the National Sanitation Plan over the next years will have significant effects on the improvement of freshwater ecosystems and the monitoring of water quality will be important to evaluate its effectiveness and to disseminate the information to society.

Along the next years the goal is to reach more than 4,000 points in all states by 2020. The inclusion of more parameters in the National Water Quality Network after 2020 is a possibility.

The development of State Water Quality Report is also necessary.

Integration between the National Water Quality Evaluation Program and the National Program of Environmental Health Surveillance Related to Water Quality for Human Consumption is necessary in order to develop Water Safety Plans.

**Links:** Report “Surface Freshwater Quality in Brazil – 2012”-

<http://arquivos.ana.gov.br/institucional/sge/CEDOC/Catalogo/2012/PanoramaAguasSuperficiaisIngles.pdf>

National Water Quality Portal

<http://portalpnqa.ana.gov.br/>