

Chapter 21



The Certificado Azul: Peru's innovation for encouraging sustainable use of water by industry

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Keywords: Certificado Azul, incentive for good water use, innovate incentive program, Peru National Water Authority, recognition for water efficiency, shared value plan, sustainable water use, water footprint, water and social responsibility, watershed

21.1 INTRODUCTION

Peru, a country with approximately 32 million inhabitants, faces significant water challenges. The country contains 70% of the world's tropical glaciers and its total natural water resources are 2 million cubic hectometers ($2 \times 10^{12} \text{ m}^3$), which includes superficial and underground water, per year. The United Nations Office for Project Services describes Peru as a country with 'vast natural resources and rich biodiversity', but also notes that 'years of misuse of water resources by the manufacturing industry, effects of climate change, a growing population, and inadequate agriculture practices have increased water scarcity.' Water distribution is particularly difficult: according to [UNOPS \(2020\)](#) the Peruvian coast is home to more than 65% of the country's population, but has access to less than 2% of its freshwater supply.'

Climate change is affecting Peru's rainfall patterns and the intensity of rainfall, causing extreme hydrometeorological phenomena and increasingly frequent flooding in urban areas; it is also accelerating the process of deglaciation in the Andes mountain range, increasing river discharges, so that freshwater is lost to the sea ([Figure 21.1](#)). Water governance in watersheds is often lacking, so that the public, private, and community actors independently compete to meet their own needs. Private businesses are often unaware of water supply and water quality risks in the watersheds where they operate, not recognizing that these could ultimately make it impossible for them to maintain operations and productivity in the catchment. Water costs are low, regulation and public policy related to water use are

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DOI: 10.2166/9781789060676_0235



Figure 21.1 Lagoon Lacacocha in the Raura mountain range is an example of the glacier-fed lakes threatened by climate change.

limited, and financing is generally lacking to support water system improvements needed in both public and private infrastructure.

Recognizing these challenges, the National Authority of Peru has found a way to move forward by implementing an innovative incentive program, the Certificado Azul. This program, which provides guidance, encouragement, and recognition for efficient water use by industry, addresses water use at both the facility and the watershed level. This initiative, first implemented by the Peruvian government in 2015, continues to evolve over time, and is under consideration for implementation more broadly in Latin America (e.g., Chile, Mexico, and Colombia). This chapter provides: (1) information on the Certificado Azul methodology; (2) examples of achievements in the area of water supply, water quality, and watershed-level water management; and (3) a discussion of possible next steps to improve on the current program to further support sustainable use of water by industry.

21.2 THE PURPOSE AND METHODOLOGY OF PERU'S CERTIFICADO AZUL

The Certificado Azul recognizes private companies for efficient use of water, encouraging not only sustainable water use within the facilities and operations of private companies, but also social responsibility in the management and sharing of water resources within the watersheds where they

operate. Participation in the Certificado Azul program reflects the commitment of a business to modify its own water use and provide leadership in water sustainability efforts through collaboration with public and private entities and communities (including business partners and suppliers).

The program is a voluntary procedure implemented by the National Water Authority of Peru in the framework of the water resources law. The Participation is open to Peruvian businesses that are in compliance with all water regulations, and have no outstanding administrative action against them by the National Water Authority (e.g., penalties or sanctions). The initiative is intended to create synergies between the private sector, public sector, and communities to promote sustainable water use at the basin level. While the initiative has been implemented at a national level, it is notably international in its perspective, reflecting United Nations Sustainable Development Goals (SDGs) relating to water supply and water quality, and internationally recognized methodologies for assessing and improving industrial water use.

The Certificado Azul program helps businesses by improving their economic sustainability by addressing water risks, strengthening their image and brand with customers and suppliers, reducing their operating expenses, and strengthening their relationships with neighboring communities. In addition, companies that have earned the Certificado Azul have a slight competitive advantage when the State tender for the acquisition of goods and/or services needed by the national government. To obtain the Certificado Azul, companies must complete each of the following steps:

- (1) Definition of the Water Footprint of a facility's current operations
- (2) Development of a plan and commitment for reduction of the company's Water Footprint at the site
- (3) Collaboration between the private sector, the public sector, and the community to develop a plan for managing and sharing water resources at the watershed level
- (4) Execution by the company of the plans and commitments outlined in the plans adopted for changes at both the site and watershed level
- (5) Evaluation of the company's execution of its plans by the Committee of National Water Authority (Water Authority of Peru)

21.2.1 Definition of the water footprint of a facility's current operations

The National Water Authority provides forms as well as guidance on how the Water Footprint Analysis is to be conducted and documented: The methodology used to define the Water Footprint of the company's existing industrial activities at a given site must be consistent with the Water Footprint Network, the ISO 14046 guideline for water footprint analysis, or the AWS Standard developed by the Alliance for Water Stewardship.

- The methods and models used for analysis must be scientifically and technically valid.
- The report on the findings of the Water Footprint analysis must be transparent and consistent.
- The report must be done with guidance and support from a third-party verification entity with sufficient expertise to ensure the validity of findings.

21.2.2 Development of a plan and commitment for reduction of the company's water footprint at the site

The commitment to using less water and/or protecting water quality should apply to direct uses (e.g., in principal activities and processes) as well as indirect uses (e.g., energy consumption, transportation processes and use of fuel, and water use by suppliers). Examples of plans developed by companies that have earned the Certificado Azul are provided below

21.2.2.1 CELESPA

At both the facility and the watershed level, CELESPA, a hydropower company, focused on SDG 6.A, improved efficiency in water use. A water footprint analysis of the company's San Juanito power plant showed that the dominant water use associated with the facility was evaporation from the reservoirs that stored water prior to its use for hydropower production. Evaporation is extremely difficult to address in terms of both technology and investment. However, the company was able to reduce water use related to the facility by installing water monitoring and control of the domestic water use at the residences and dining rooms of the employees who were employed at the plant.

21.2.2.2 CIA Minera Coimolache

The facility-based improvement adopted by CIA Minera Coimolache in relation to its mining facilities related to SDG 6.3, Water Quality. CIA Minera Coimolache operates both gold and silver mines. When rainfall enters open mines, its water quality is degraded by contact with minerals; this effluent needs to be treated before discharge into the environment. The water treatment process requires energy consumption and also results in water evaporation. Installing geomembrane 'raincoats' over open mines kept water from coming into contact with minerals, so that over 100,000 m³ of water per year no longer needed to be treated.

21.2.2.3 Nestlé

Nestlé addressed the SDG 6.4 water efficiency goal by savings 14,232 m³ of water per year at its D'onofrio Ice Cream Plant in Lima. The ice cream plant has 25 distribution points for cleaning and maintenance of the facility, and production machines in the plant. The traditional hoses did not allow optimized water consumption, so they were replaced with high-pressure hoses. Procedures for use of the hoses were drafted, and training was provided to employees on how to use the new equipment, which has had the additional benefit of increasing working efficiency, productivity, and safety.

21.2.3 Collaboration between the private sector, the public sector, and the community to develop a plan for managing and sharing water resources at the watershed level

This watershed level plan, which should be developed in collaboration with others drawing water from the watershed, should allow for the needs of the community as well as natural ecosystems. Within catchments, water risks are defined through use of the World Wildlife Fund's Water Risk Filter. Examples of components to be considered in the watershed-level plan include the following:

- Improved availability and accessibility of water resources to different kinds of users in the watershed;
- Improved quality of the water available: treatment plants for potable water and/or wastewater treatment for effluent from domestic, industrial, and municipal users;
- Improved water and sanitation in rural and periurban areas;
- Automated irrigation to reduce water consumption for agriculture;
- Construction and optimization of hydraulic systems that support increased water efficiency;
- Public education on the importance of public education on the importance of the protection and conservation of water resources;
- Implementing systems for monitoring and control of water resources;
- Protection of the watershed and conservation of ecosystems; and
- Funding for water improvements.

Examples of watershed-level contributions made by private companies in connection with the Certificado Azul initiative include the following:

21.2.3.1 *El Platanal hydroelectric power plant*

CELEPSA CELEPSA invested in concrete coating for irrigation channels s used to transport water from the Caete River to fields used by 232 users associated with agricultural associations in campesina community. Their activities included choosing channels to be coated, identification of sections to be coated, determining the efficiency of the uncoated channels, hiring local workers to do the concrete coating, coating the channels, and determining the effectiveness of the coatings. Over 1,000 meters of irrigation channels were coated in connection with this project, resulting in water savings of 2,900,000 cubic meters of water.

21.2.3.2 *CIA Minera Coimolache*

Coimolache's water-shed level program related to water use efficiency. Within the watershed focused on the communities of Chenchá and Ramírez; both of these communities have livestock farming as one of their major economic activities. Water is used to irrigate the grass pastures used to feed cattle. In this project, eight mini-reservoirs that were coated with geo-membranes were installed, as well as eight sprinkler irrigation systems. The project also included training to residents on how to maintain these water improvements, which benefited 60 people and saved 5,760 cubic meters of water per year.

21.2.3.3 *Nestlé*

Nestlé donated treated wastewater from a Nestlé wastewater treatment plant for irrigation and sustainable development of green areas in Lima Peru. This was done to improve environmental conditions in Cercado de Lima, which was characterized by a deficit of green space for the population, insufficient water for irrigation of green areas, limited ornamental plants and infrastructure for maintaining them, and insufficient public awareness of the value of upgrading the local environment. Nestlé worked with the National Water Authority (ANA) to obtain permission to reuse treated wastewater for irrigation, coordinated with the community where the treated water would be used, and was able to provide indirect benefits for 20,000 people through the reuse of over 24,000 m³ of water per year.

21.2.4 **Award**

If the plans, and the company's execution of the plans, meet the standards set by the Water Authority of Peru, the Certificado Azul is awarded by administrative resolution to the private business that has met the Certificado standards (Figure 21.2).

21.3 **ACHIEVEMENTS OF THE CERTIFICADO AZUL INITIATIVE**

To date, eight businesses in Peru have been awarded the Certificado Azul. Three have renewed their certifications. Eleven companies are in the process of obtaining certification, and 10 are initiating a water footprint analysis.

Programs initiated in connection with the initiative have resulted in the following benefits:

- 4.3 million cubic hectometers (4.3×10^6 m³) of water saved;
- 122 million cubic meters of water reused'
- 110 million cubic meters of water treated;
- \$11.2 millions of dollars invested (USD);



Figure 21.2 Delivery of Blue Certificate: NESTLE PERÚ, El Platanal Electric Company - CELEPSA y Mining Company Coimolache.

- Almost 25,000 persons receiving indirect benefit of investments; and
- Over 12,000 persons receiving direct benefits from the program.

21.4 CONSIDERATIONS FOR FUTURE IMPROVEMENT

As the National Water Authority of Peru considers how to build on the achievements of the Certificado Azul initiative, one alternative under consideration is to increase the financial incentives associated with the award, which are currently minimal. While the current financial incentives are sufficient to interest companies that have a long-term perspective, an awareness of water issues, sufficient financial resources to invest in upgrades at the facility and watershed level, and a commitment to positive company image and branding, they are not large enough to make the program appealing to the majority of businesses in Peru. The positive impact of the program can be increased by making the program appealing to a wider range of businesses.

The National Water Authority is aware of the need to create both economic and non-economic incentives for sustainable water use by industry; numerous factors influence industrial water use. Factors where government can play a role include the following:

- Water charges, because unmonitored consumption or low water rates encourage water waste;
- Regulations on the amount of water that can be consumed, and the quality of water released to the environment (with adequate enforcement and penalties for inappropriate use, applying the polluter pays principle);

- Public and private sector awareness of water risks, and the urgent need for water conservation, water resource protection, water equity, and natural resource protection, to protect business interests as well as the community;
- Policies and regulations that support better governance of water resources and water-sharing at the catchment level; and
- Support for alliances between the private sector, public sector, and civil society, prioritizing environmental and social responsibility.

Many positive changes require investments in technology, such as technologies for monitoring and managing water flow and water quality, and to support water reuse. In some cases, private entities have sufficient funding to make these investments. However, additional financing options should be developed to help both public and private entities that lack sufficient resources to make the investments required (e.g., green or grey infrastructure projects). One important aspect will be improved use of information technology, such as analysis of big data and storage of data on the cloud.

It is important not only to do more but to move in these directions as quickly as possible to counteract the pace of population growth, the cumulative impacts of environmental damage, and climate change. Increased collaboration among countries, among different levels of government, and among different sectors of society will be required in order to bring improvements that are commensurate with the magnitude of the challenges before us.

REFERENCE

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