TURNING THE TIDE:

Improving water security for recovery and sustainable growth in Colombia

Genesis of this Work: Objectives, Scope, and Process

This study seeks to help decision makers in the search for specific solutions to Colombia's water challenges. Colombia is one of the most water-rich countries in the world. However, a closer look into Colombia's management and use of water resources reveals clear challenges: many **water bodies are contaminated, a large part of the country is prone to flooding, storage capacity is insufficient cover demand during prolonged droughts, and climate change is expected to increase extreme events.** The social, economic and environmental impact of water insecurity are clear warnings and the country should move quickly to address them. The COVID-19 pandemic has also shown how important water is to protect lives and livelihoods.

Water in Colombia: A Huge Potential with Increasing Challenges

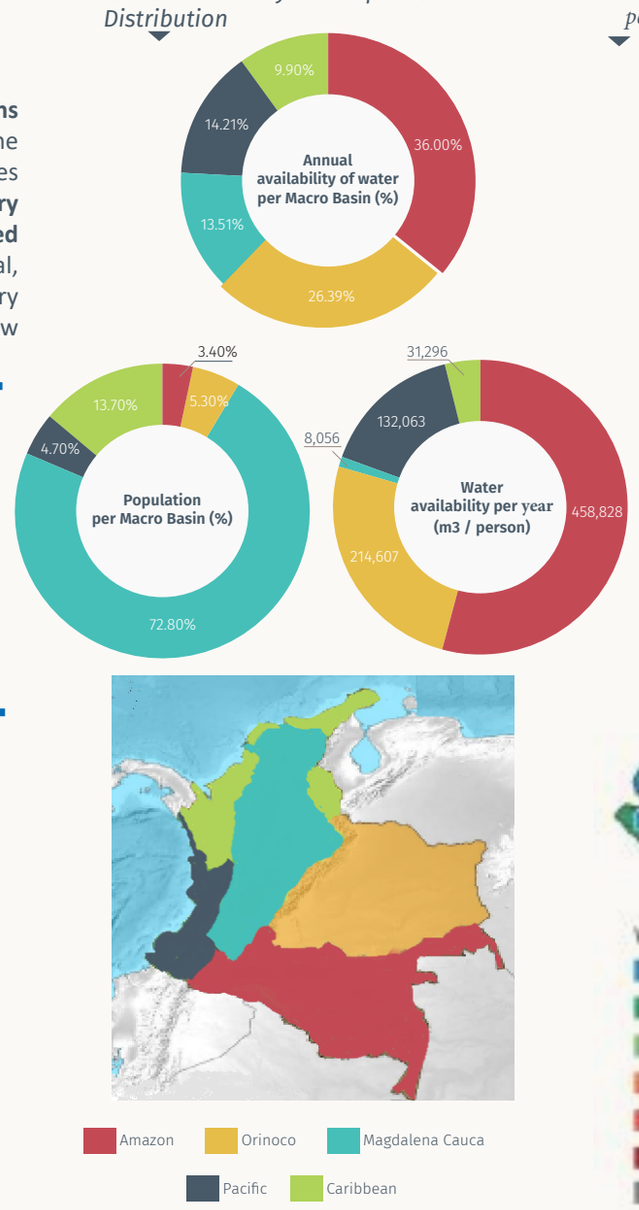
A mismatch between freshwater availability and concentrated demand makes Colombia highly vulnerable to water shortage risks in the future. To face these challenges, Colombia has taken important steps to improve the institutional framework of water, devising a series of programs and policies aimed at increasing water security. However, the institutional complexity hinders coordination and development of multi-objective projects to make better use of available resources.

Key Messages on Water Security in Colombia

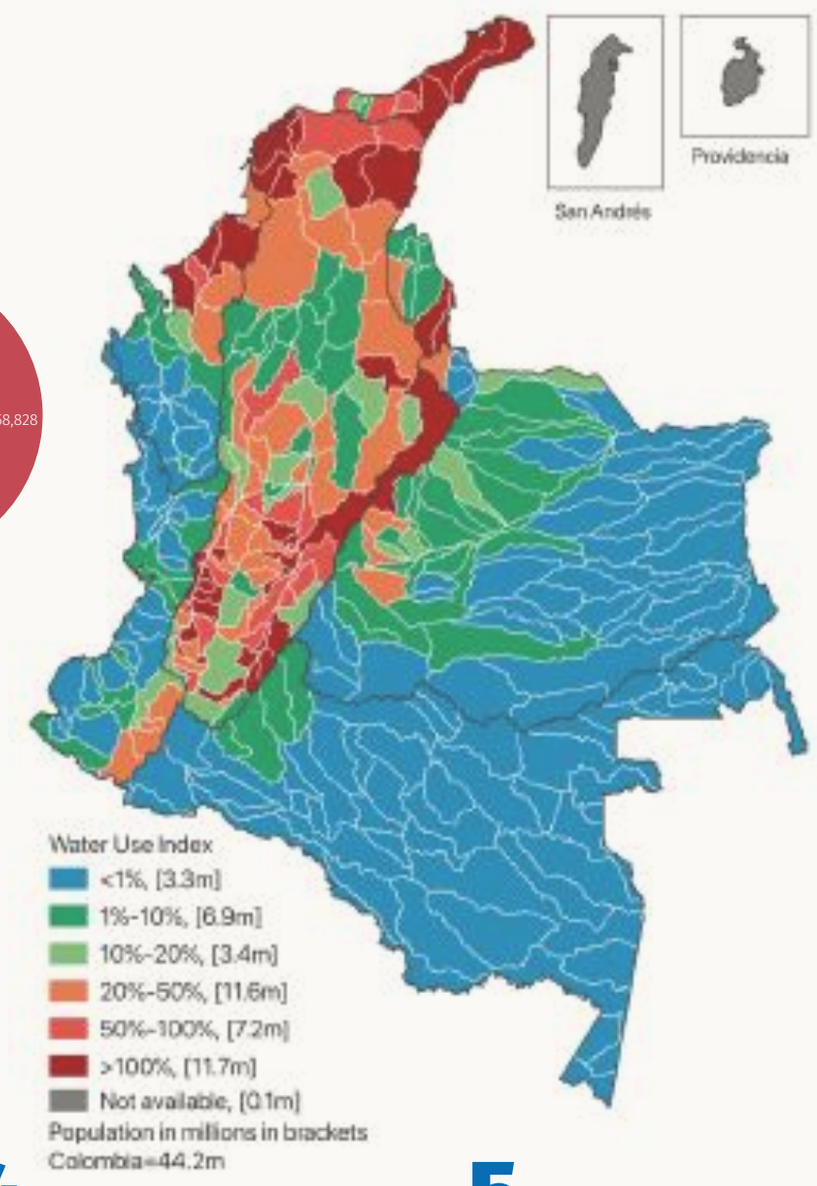
Losses in the sectors that depend on water could reach between 1.6 to 3.1 percent of GDP, depending on the magnitude and occurrence of water-related shocks (water resources, water and sanitation, and resilience). The lower bound of impacts (1.6 percent of GDP) is comparable to the Government of Colombia's public sector deficit while the upper bound impacts (3.1 percent of GDP) is comparable to Colombia's external current account deficit and fiscal deficit.

The report explores the impact of water security on five major fields using water endowment, climate change and the institutional framework as cross-cutting themes:

Water Availability and Population Distribution



Water Demand as Percentage of Available Supply per Sub-zone. Water Use Index (WUI) for Dry Year



1 Water and Territorial Development:

Water as a key element of the National Policy for Territorially Focused Development Plans (PDETs).

- Water plays a role in the **Peace Agreement** signed between the Colombian Government and the FARC in 2016.
- By volume, the biggest **water demand in Colombia comes from agriculture. The infrastructure of dams, diversions, and canals that Colombia has built in recent decades in an effort to upgrade irrigation** and other water services has substantial operational problems.
- The energy sector has achieved admirable development of hydropower, **but huge unused potential remains.**
- **Water needs to play an integrative role in territorial development**. Water for consumption, agriculture as well as for other sectors is crucial for these programs. This requires a multi-objective approach.

2 Water and Human Capital:

The effect of polluted water and lack of safe water, sanitation, and hygiene on health, education, the labor force, and future economic growth.

- Colombia shows a strong correlation between its water challenges and human capital: **individuals who are exposed during gestation to variability and scarcity of rainfall suffer poorer health, as do their mothers**, the study demonstrates.
- Among **WASH-induced illnesses**, diarrheal diseases, enteric infections, **other intestinal diseases, and malaria explain more than 50 percent** of the variation in mortality rates of infectious diseases in the country.
- **Colombia ranks above the average in Latin America and the Caribbean for WASH burden of disease** safely-managed sanitation, creating long-term drags on its economy and development.

3 Water and Resilience:

Water-related risks and resilience of water services to cope with external shocks, including climate and other stressors such as the COVID-19 emergency.

- Colombia is a country with **high exposure** to natural hazards, including cyclones, coastal and river flooding, earthquakes, landslides, and volcanoes.
- Colombia's landscape of extensive low plains and alluvial valleys, combined with the tropical climate, creates particular **risks of frequent devastating flooding and mudslides.**
- **Floods and inundations threaten the sustained growth and development** that is accompanying the country's urbanization.
- **To improve resilience, Colombia has begun to embrace the concept of green infrastructure**, often in combination with traditional grey infrastructure.

4 Water and Ecosystems:

Land-use changes and the impact of ecosystem services on storage of water, regulation of discharges, and improvement of water quality.

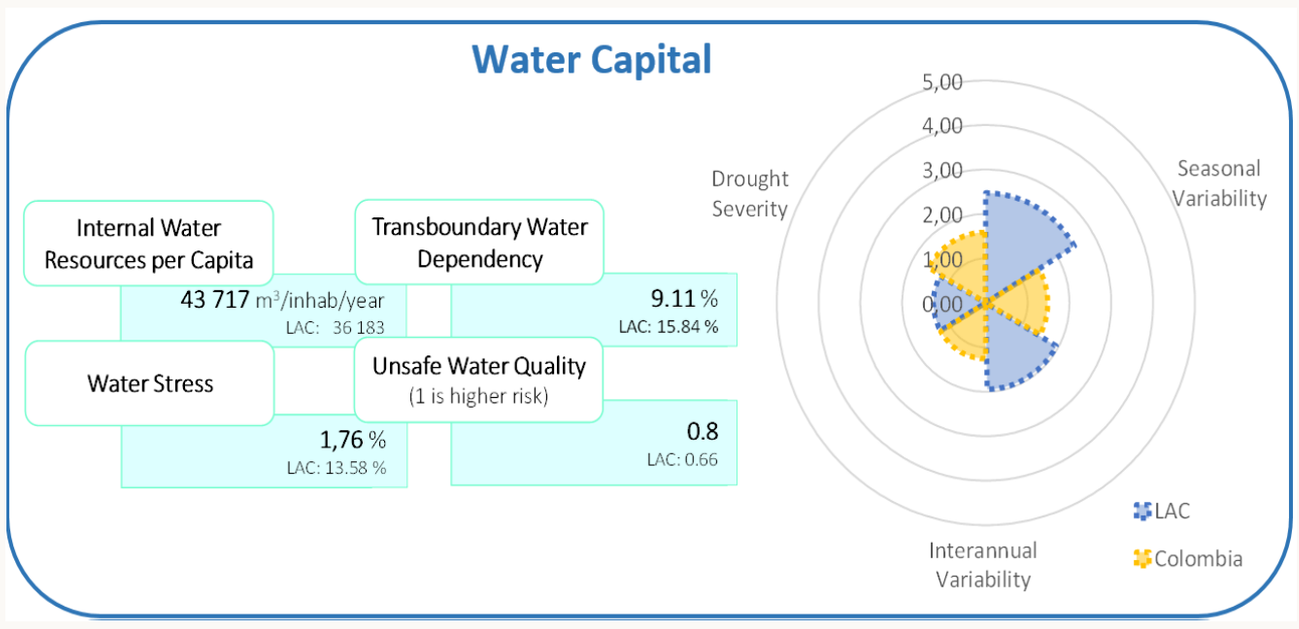
- **High population growth and economic activity lead to more forests being cleared for agriculture**, further jeopardizing the country's water systems.
- **The Páramo ecosystems, often called the water engines of the country, are nonetheless quite fragile,** making them especially to land-use change and mining.
- In response to development that is **crimping water availability and contaminating sources,** some communities have started offering environmental and aquifer protection incentives.
- Maintaining ecological flows is often very difficult, **especially when pressure on water increases**. More storage is needed to increase availability for all water users.

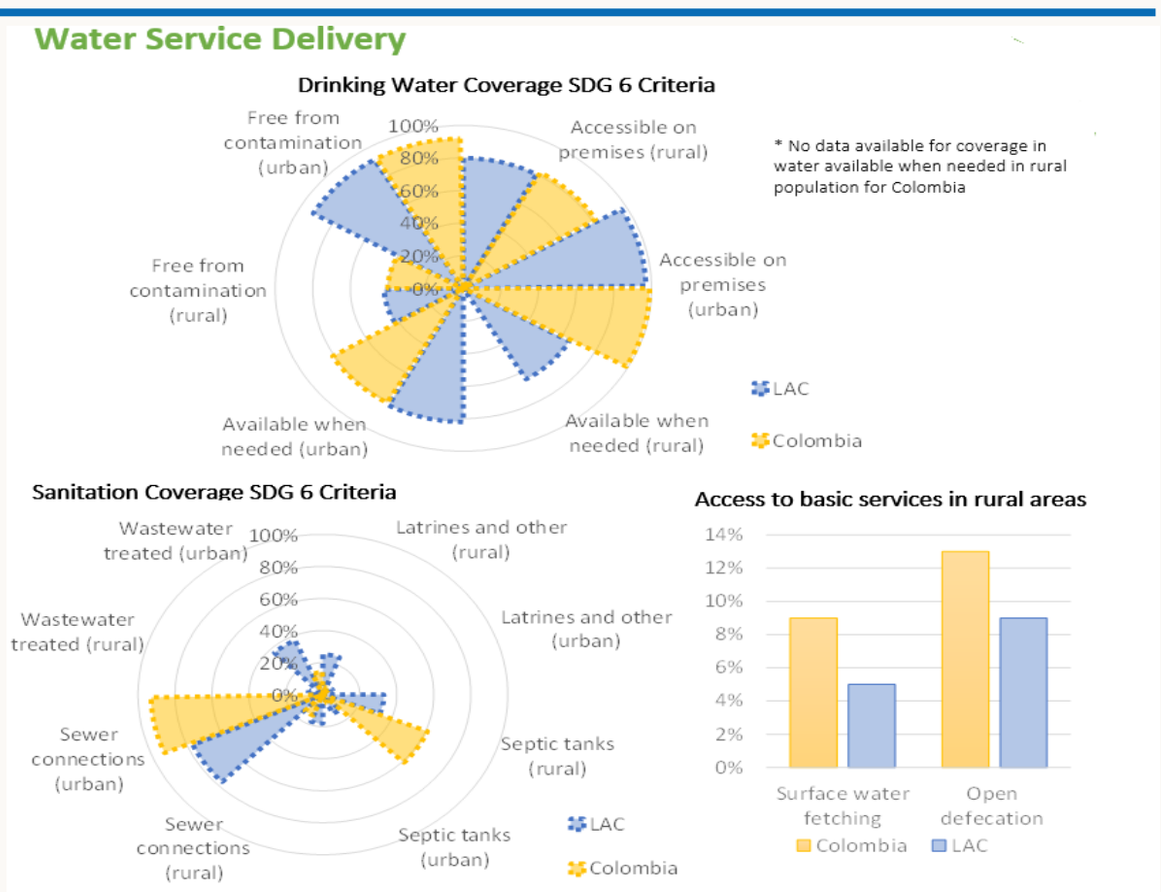
5 Water and the Circular Economy:

Wastewater as a valuable resource generating additional financing streams to help sustain sanitation investments.

- In addition to this investment gap, **water** utilities operate with substantial efficiency shortcomings related to water resources management, energy use, and environmental sustainability.
- **Applying the concept of the Circular Economy** could help **reduce the capital and operating expenditures** of wastewater treatment projects and improve utilities' performance.
- **The adoption of circular economy would require upgrading and adapting the current policy**, institutional, and regulatory framework.
- **Colombia** suspended taxes on potabilization products to **allow for necessary water treatment operations**.

Colombia's Profile

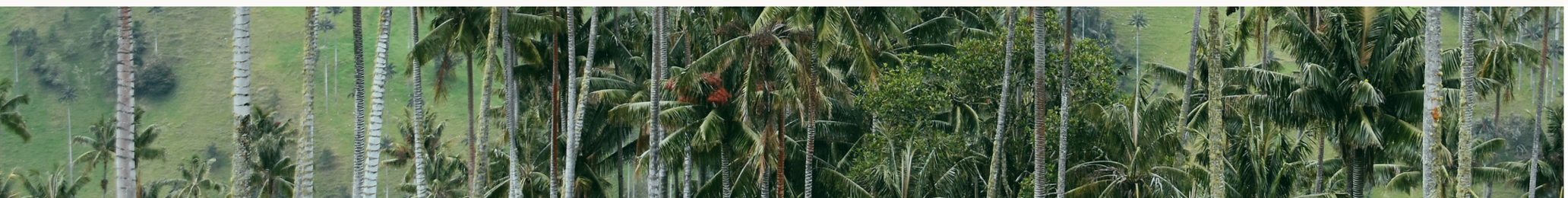




Conclusions and Policy Recommendations

The evidence presented in this report (re)affirms the notion that **water mis-allocation, pollution, and mismanagement are holding back the economic growth of Colombia** and hindering human capital accumulation. Investing in water security now bring high value due to the water dividend of abundance in Colombia.

Without substantial investments in new and existing water infrastructure, circular economy and an overhaul of the current institutional framework, the huge potential of Colombia's water capital will continue to be wasted. Institutional reforms are needed since the water sector is governed by numerous agencies, fragmenting the design, implementation, and monitoring of policies.



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