

Initially buoyed by the fiscal response to COVID-19, the Chilean economy is now returning to long-standing growth challenges. Economic activity showed signs of stabilizing in the second half of 2023. Quarterly growth projections indicate a real GDP growth of around 1.5-2 percent in 2024 and 2-2.5 percent in the medium term. At the same time, inflation sharply accelerated in 2022, driven by demand pressures amid an overheated economy. This was exacerbated by high energy prices and global supply shocks.

Chile has lowered income poverty, but inequality remains high. The proportion of the population living on less than US\$6.85 a day (2017, PPP), dropped from 29.9 percent in 2006 to 8.0 percent in 2020, and to 4.8 percent in 2022.

According to the Global Climate Risk Index 2021, the country is in the top 25 of countries most vulnerable from extreme weather changes.<sup>2</sup> Extreme events such as floods and droughts are already having a significant impact on Chile's economy.<sup>3</sup> Between 1965-2019 four major droughts have been recorded in the country with losses that on average exceeded US\$ 1 billion. Drought accounted for a 0.69 percent GDP loss in 2019 alone. During the same period, the country also experienced 37 floods with an estimated loss of over US\$ 5 billion. Climate models project an increase in frequency of climate change-exacerbated floods (potentially damaging and life-threatening) and drought hazard levels.<sup>4</sup> For example rainfall data for Central Chile show deficits of 80-90 percent for the year 2019,<sup>5</sup> indicative of dire water availability challenges. As recently reported by the National disaster prevention and response service (Servicio Nacional de Prevención y Respuesta ante Desastres, SENAPRED) during June and August, 2023, central southern Chile was inundated with floods that resulted in a 'State of Catastrophe' declaration as it was the second major flood in 8 weeks.<sup>6</sup> Moreover, the country faced devastating wildfires in February 2024, which further exacerbated the vulnerability of the population and the economy, particularly affecting rural and indigenous communities where women play a central role in agriculture and family sustenance.

Current patterns reveal a consistent growth in the urban indigenous population, with 88 percent of indigenous individuals residing in urban areas, in contrast to 12.2 percent living in rural regions.

Water availability is scarce in various areas of the country, and the potential impacts of climate change, combined with water quality issues, may reduce the country's ability to meet growing water demands.

With all surface water resources already allocated, semi-arid regions like Coquimbo face frequent water conflicts and the constant threat of groundwater overexploitation.

The water resources management system has been struggling to manage these growing conflicts and adapt to the changing climate conditions.

However, it also gave rise to some water management issues, such as the need to reconcile economic incentives with the protection of the public interest and to balance the role of the State and the private sector in managing a resource that is crucial for sustainable development (World Bank, 2011). Despite undergoing reforms in 2005, 2018, and 2022, water management still requires further strengthening to better cope with growing water resource demand and water extremes, including both floods and droughts (See Technical Assessment Report). Traditionally, decisions on water investment and allocation have been driven by market incentives, often prioritizing short-term economic gains at the expense of long-term sustainability (World Bank, 2012). At the river basin level, planning weaknesses (See Technical Assessment Report) make it difficult to develop sustainable water services, impacting the reliability of these services under future climate conditions and the integration of different investment projects.

Water supply and sanitation: Chile has achieved close to universal access to safe drinking water (99.9 percent of the population) and sanitation (96.7 percent) in urban areas with a rate of wastewater treatment of 99.9 percent, making it one of the most advanced countries in the region on this front, along with Uruguay.

Rural Drinking Water Committees (Comités de Agua Potable Rural, APRs), responsible for the provision of these services, frequently face difficulties in maintaining and expanding services particularly to dispersed rural areas, due to limited financial resources, technical expertise, and governance capacities.

Between 2010 and 2016, the State spent US\$ 130 million on renting water trucks to supply 400,000 people.

SISS ensures access to drinking water in quality, quantity and continuity, as well as sanitation as established in the regulations, at a fair and sustainable price, seeking efficient use, caring for the environment, cooperating with the governance of water resources, and promoting transparency in the market.

The amount of land using these methods has increased from 93,000 hectares in 1997 to approximately 900,000 hectares today (almost 50 percent of the total productive land).<sup>9</sup> This shift to modern irrigation has been supported by the Government and has allowed for an increase in land dedicated to high-value crops such as fruit trees and vineyards.

Therefore, integrated water resource management within watersheds is essential to promote sustainable irrigation practices and prevent resource overexploitation, while continuing to incorporate climate resilience into irrigation projects to better adapt to ongoing climate change-exacerbated water scarcity and rainfall deficits (See Technical Assessment Report).

However, with urban sprawl and increasing demand for green and recreational areas, there is a growing need to integrate these solutions with natural solutions that can improve livelihoods and promote biodiversity conservation.

DOH is tasked with planning, design, and construction of hydraulic infrastructure, including dams, canals, and irrigation systems.

The Law N°20,998 (Ley de Servicios Sanitarios Rurales), adopted in January 2017 and regulated in 2019, dictates that the DOH and its SSR are responsible for the provision of technical support to rural water supply providers, including the registration of rural WSS service providers, the creation of a single rural WSS investment unit (Ventanilla Única), and the design and implementation of a rural WSS Information system.

It also directly supports the CPF's high-level objective (HLO) 2: Enhanced environmental sustainability and climate resilience, promoting comprehensive WRM that balances water demands, encourages sustainable water use, and considers surface and

<sup>9</sup> The THJ program does not consider investments in rural sanitation infrastructure for the next five years; the current priority is to close the water supply access gaps in rural Chile, specifically in semi-concentrated localities.

The PforR is an optimal instrument to support Chile's national transformational program, allowing the government to focus on results and strengthening country systems. The PforR instrument aligns financing with results, enhancing sector accountability through defined roles, transparent information, and public participation. Given that Chile's national system has consistently succeeded in achieving development objectives both effectively and efficiently, it is reasonable to capitalize on their strengths instead of introducing a parallel financing mechanism. The PforR creates an avenue to enhance existing governance capacity and facilitate the development of an integrated results-based approach for financial reporting and budgeting in the sector.

It promotes water security through climate-resilient development and strategic water resource plans for river basins. The Program supports integrated water resources management and climate empowerment, aligning with Chile's transition and sustainable development goals.

The government program translates into the below listed seven lines of investment programs with an estimated total value of US\$ 1,872.3 million for the 2022-2027 period.

Promoting gender-equality, community participation, and beneficiary engagement is key to achieving and sustaining the THJ program results.

<sup>4</sup> Implementation of NBS falls under DOH CAPEX investments, as MMA does not implement NBS. The 2 million allocated by MMA to NBS concerns consultancy expenses for the development of NBS guidelines, etc.





While

addressing climate change-exacerbated droughts, floods, and water scarcity, the PforR will focus on: (i) strengthening institutional capacities for the integrated management of water resources, including the implementation of a participatory water governance approach at basin level; (ii) improving safely managed drinking water and sanitation services in rural areas; and (iii) improving climate resilience through the development of integrated green and gray solutions for irrigation and flooding at basin level. The Program has a national geographic scope but excludes investments in new rural water supply, wastewater treatment, flood control, and irrigation infrastructure on international waterways, as well as investments that finance the expansion or alterations of such schemes in a way that would adversely impact the quantity or quality of water flows to other riparian countries (See paragraph 30).

At the basin level, the Program will support the design and implementation of IWRM key principles.<sup>2</sup> 5 The activities include the promotion of stakeholder involvement, integrated planning, and sustainable water use to improve quality and increase availability.

The Program includes investments in: (i) the development of the Rural WSS Strategic Plan to 2030 to guide investment priorities, including the development of sanitation diagnostic studies, and evaluation of management approaches for rural WSS services which consider climate change effects like droughts and floods; and (ii) the design and implementation of an SSR information system on rural WSS which includes data compiling and reporting, and rural service providers registration.

The Program aims to improve access to rural water by making substantial investments in the construction and rehabilitation of water supply systems. This includes the design, installation, expansion and/or rehabilitation of drinking water services. <sup>26</sup> Given that rural households generally rely on surface water sources (rivers, springs, estuaries or lakes), groundwater (wells) and water trucks, the investments would potentially allow connection to pre-existing supply lines, reduce water losses and wastage, and therefore reduce vulnerability against future dry shocks.

These wastewater treatment pilots will validate low-cost technologies for rural areas with sewage systems, manageable for APRs, and promote the incorporation of NBS where feasible.

tra The Program will support the GoC in integrating hydraulic infrastructure delivery as part of a river basin plan approach, improve the focus on infrastructure impacts, and improve the benefits and resilience of gray infrastructure. The Program includes: (i) the formulation of small and medium water storage plans, to maintain water supply for different uses, reducing the vulnerability to drought impacts; (ii) the rehabilitation of small irrigation storage reservoirs, which can capture runoff and reduce peak flows in rivers during rainfall season, making systems more adaptable to changing climatic conditions; (iii) the construction, rehabilitation, and modernization of primary irrigation canals, optimizing water conveyance systems to reduce water losses and ensure more reliable water availability; (iv) the development of basin-scale urban flooding master plans to identify flood-prone areas and systems that are flexible enough to accommodate changing climate conditions; and (v) the construction and rehabilitation of urban stormwater management schemes to reduce flood risk and landslides.



As agreed with the Government of Chile, the Bank financed Program also has a national scope, but activities on transboundary waterways are limited to rehabilitation investments that would not adversely affect the quality or quantity of water flows of the shared watercourse to other riparian countries or adversely affect other riparian countries' possible water use as specified in the Environmental and Social Systems Assessment (ESSA). More specifically, the Program will exclude financing support to investments in new rural water supply, sanitation (wastewater treatment), flood control, and irrigation infrastructure on international waterways, as well as investments to finance the expansion or alterations of such schemes in a way that would adversely impact the quantity or quality of water flows to other riparian countries.

A list of PDO-level results indicators has been identified to measure the achievement of the Program:

- PDO 1: Improve the GoC's WRM planning capacity at national level
- PDO 2: Strengthen participatory water governance institutions in selected basins
- PDO 3: Improve the GoC's rural WSS planning capacity at national level
- PDO 4: Increase access to safely managed rural drinking water services
- PDO 5: Increase number of people at lower risk of climate change exacerbated floods

#### E. Disbursement Linked Indicators and Verification Protocols

33.

The DLI matrix design (See Annex

1) puts emphasis on advancing needed institutional reform at the national level, providing incentives to advance on a river basin water governance structure, the proposal and approval of a National Water Security Policy, and the approval of a Rural WSS Strategic Plan to 2030. More importantly, incentives are placed on improving the integration of GoC's investment effort with a basin approach, linking disbursement to an increase in percentage of DOH investment in basins with PERHCs. At the local level, DLIs aim to encourage infrastructure investments that are based on achieving results.

- DLI7: Number of people at lower risks of flood due to new and/or rehabilitated works built by DOH.





While the SSR plans to continue implementing water supply investments, there are no plans for sanitation investments.

Chile is increasingly grappling with droughts and floods, and there is a need to improve irrigation and flood protection infrastructure to mitigate these challenges.

For example, there are gaps in irrigation infrastructure that require higher investment for expansion and comprehensive flood protection plans.



Following World Bank advice provided in 2014, the DGA has worked to strengthen its capacity by increasing its staff and pursuing capacity-building initiatives.

However, challenges arise in implementing rural sanitation projects, a new area for SSR, and sanitation projects have therefore been postponed until 2027 to allow for better planning and capacity building, supported by the World Bank.

Going forward, as DOH expands its focus on flood and landslide prevention and on NBS, they recognize the need to expand technical capacity, while improving coordination with other institutions like the SENAPRED and MMA.

The Program builds on the successful execution of activities by the main implementing agency, MOP, reflecting its successful budget execution track record. Emerging risks result from new tasks such as the improvement of a river basin governance structure, the expansion on the investment portfolio of rural WSS, and the inclusion of NBS as part of MOP's interventions.

These include: (i) the development of an outreach and communication plan explaining IWRM and river basin governance, benefits and functions; (ii) the development of an advocacy strategy for the passing of a bill to improve the governance structure for IWRM at basin level, as a proposal to modify existing legislation or to issue a new law; (iii) an action plan to improve rural WSS delivery within the context of Law N°20,998; and (iv) the creation of inter-ministerial working group for NBS, among others.

The below Expenditure Framework shows the total Program (PforR) cost (US\$ 1,546.04 million), which is the total government program cost (US\$ 1,872.3 million as described earlier) excluding (i) large infrastructure works with significant environmental and social risks, (ii) investments in new rural water supply, sanitation, flood control and irrigation infrastructure on international waterways, and (iii) expansion or alterations with adverse impact on the quantity or quality of water flows to riparian countries.

The economic analysis of the Project reviewed the potential costs and benefits of the government's US\$ 1,872.3 million THJ program.

Strengthened water resource management through the program will not only yield benefits in different regions across Chile but will also bring benefits to different sectors by increased water security in targeted areas and higher climate change resilience.

For the calculation of costs and benefits, the analysis used the social discount rate of 6 percent, set by the MDSF (2022).

The investment will be divided into the three areas of results, of which US\$ 90.3 million will be allocated to national and local institutional WRM reforms and improving the information system, US\$ 1,300 million will be allocated to increase safely managed WSS in rural areas, and US\$ 482 million will be allocated to the improvement of climate resilience through the development of gray and green infrastructure, including irrigation and storage projects, urban flooding, runoff and sediment management, and green solutions (including NBS).

The costs of expanding water-related infrastructure under RA1 align with the costs of similar efforts; hydrometeorological stations costs in Chile are comparable to other countries like Mexico and Peru.

Similarly, project costs for urban flooding control and irrigation are reasonable when compared to international cases and previous projects in Chile. For example, the urban flooding control project costs US\$ 13 million and benefits significantly more people than a similar project in Peru. Similarly, irrigation project costs are lower than those of comparable projects in Bolivia and Ecuador.

As detailed in the next table, benefits occurring from the program have been distributed in two main categories: (i) benefits resulting from improved institutional capacity for water resources management and infrastructure planning; and (ii) benefits from the expansion and rehabilitation of water infrastructure.

This

will represent a US\$ 3.5 million/year for our program.

· Based on past data on flood impacts from 1965 to 2019, the avoid costs from better flood protection are estimated in US\$ 459,584 million for 2023-2053.

investments are floods, droughts, and water scarcity.

The main climate and disaster risks likely to affect project

Chile's 2020 NDC aims for GHG neutrality by 2050, emphasizing a just transition to a climate-resilient economy. The Program complements Chile's mitigation commitment to reduce greenhouse gas (GHG) emissions to 95 MtCO<sub>2</sub>eq by 2030, as it focuses on improving water monitoring networks, modernizing systems, and enhancing water allocation efficiency, which can contribute to GHG reduction.

The procurement and financial management systems' capacity and performance, with the implementation of the proposed mitigating measures and agreed actions to strengthen the systems (see PAP), are adequate to provide reasonable assurance that Program funds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability.

If the World Bank decides to conduct its own investigation, the World Bank may request the GoC and/or MOP and/or MMA to exercise its/their legal rights and remedies (under the relevant contract/s) to obtain all information, records, and documentation that the World Bank may request, and provide these to the World Bank.

The Program would likely have overall positive social impacts mainly on the quality of lives and health of rural communities through the expansion of safely managed water and sanitation services; the health, safety, and economic activities of urban and rural population through the reduction of the risks of urban flooding and drought; better governance of water resources, strengthening transparency and improving stakeholder engagement; and the reduction of conflicts over water through the implementation of a participatory IWRM approach in selected basins.

The scale of the expected infrastructure will be small to medium and located in both rural and urban areas.

that should be relocated due to civil works;

(iii) land acquisition leading to temporary or permanent physical and/or economic displacement, or restrictions on land or resource use having adverse impacts on local livelihoods; (iv) impacts on economic activities due to the civil works; (v) possible increases in social conflict due to changes in the management of water resources supported by the Program; and (vi) risk of exclusion of vulnerable population in rural areas who, due to their low incomes, may not be able to afford some of the new water services or tariffs.

These processes will not only encompass the civil works but also the development of plans, policies, and water management governance at the river basin level.

At the river

basin level, poor planning hinders the development of sustainable water services, impacting their reliability and the integration of adaptation strategies in different investment projects.































.3 : MOP has approved the Rural Water Supply and Sanitation Strategic Plan to 2030 (Yes/No)	
Formula	Yes= US\$ 10,000,000
Description	This sub-indicator measures the approval of the Rural Water Supply and Sanitation Strategic Plan to 2030 by MOP.









inter-ministerial  
Nature-Based  
Solutions (NBS)  
Working Group  
to create  
guidelines for  
integrating NBS  
into its hydraulic  
infrastructure  
portfolio.







Thus, the DOH has requested the World Bank support in the creation of an enabling environment for NBS in flood works and will develop a regulatory and institutional framework with a defined portfolio as well as funding for integrated green and gray solutions.



Their responsibilities encompass maintaining, rehabilitating, and developing public infrastructure services and water resources.

The DGA holds responsibility for water use planning, management, and allocation, while the DOH focuses on the planning, design, and construction of hydraulic infrastructure, including dams, canals, and irrigation systems.







The SSR is responsible for the provision of technical support to rural water supply providers, including the registration of Rural WSS service providers, the creation of a One Stop Shop rural WSS investment unit (Ventanilla Unica), and the design and implementation of a Rural WSS information system.