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*Introducing sustainable grazing practices in the highlands of Peru can influence river levels far downstream (and many months later) in major coastal cities such as Lima. Photo credit: Michell Leon*

## The Infrastructure Upgrade, Reimagined

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**W**hen it comes to threats to water security from climate change, Peru is one of the most vulnerable countries in the world. In the last 50 years, it has lost more than half of its glaciers, a key source of water for the country's population. Water supplies are becoming unpredictable: In Lima, Peru's capital and the second-largest desert city in the world (after Cairo), rivers and reservoirs go dry in one season and flood in the next. National states of emergency due to drought, fires, floods, and landslides are increasingly frequent, and have cost Peru's government billions of dollars in damages in recent years. In 2017, unusually heavy rains led to floods and landslides that killed 162 people and left almost 70,000 homeless and nearly 124,000 acres of crops destroyed.

A number of major infrastructure projects have been proposed to address this mounting water crisis. These include new dams, reservoirs, and diversion systems to carry water from the Amazon Basin across or even through (via tunnels) the

*For more information, please visit [Globalwaters.org](http://Globalwaters.org).*

towering Andes mountains to Peruvian cities on the Pacific Coast. Construction of a desalination plant for Lima is also underway as yet another means of bolstering freshwater supply.

In addition to being astonishingly expensive, many of these projects are subject to the same threats — landslides, reduced rainfall, and depleted underground water stores — that they are designed to address.

“During the 20th century in Peru, development planners relied on engineered infrastructure. Today we are seeing the limits of that approach,” says Lawrence Rubey, USAID/Peru Mission Director. “We need to rethink what we mean by ‘infrastructure’ in addressing water security. We in USAID are increasingly using approaches that recognize the valuable role forests and wetlands play in creating stable and predictable water supplies.”

To help address the country’s pressing water infrastructure needs in an environmentally sustainable fashion, USAID and the Government of Canada announced in June 2018 that the two countries would invest \$27.5 million in the Natural Infrastructure for Water Security (NIWS) project in Peru. One of the new project’s central goals is to create momentum for the Government of Peru’s recent water policy advances to fully mainstream “natural infrastructure” and ensure that the committed funds result in demonstrated improvements to water and climate risk resilience. But what is natural infrastructure exactly and why is Peru embracing it as a national priority to redress water insecurity?

## **Natural Infrastructure for Water Security**

The search for new approaches to more effectively manage the country’s limited water supply has led many high-level officials in the Government of Peru and local water service providers to look at a very old solution — nature itself. Better management of forests and wetlands, for example, can help ensure cleaner and more reliable water supplies and provide a buffer against flooding and landslides. These types of natural infrastructure can also enhance the performance and lifespan of engineered infrastructure projects, including the kinds that Peru is currently pursuing through government entities such as the National Superintendence of Water and Sanitation Services (SUNASS), the National Water Authority (ANA), and the Ministry of Environment.

In the last decade, a series of national policy advances have elevated natural infrastructure to a remarkably central role in Peru’s water security and climate resilience strategies. Innovations enabled through a new regulation in Peru’s water sector allow water utilities to allocate a portion of their user fees to investments in watershed health and climate change adaptation. More than \$30 million has already been committed to natural infrastructure through this funding mechanism, with another \$86 million allocated to climate adaptation and disaster risk management in general, which could also potentially fund natural infrastructure projects.

Fernando Momiy, director of the NIWS project, says NIWS will help elevate the prominence of natural infrastructure by helping further strengthen its financial foundations. “Our goal is to facilitate new investments in natural infrastructure in Peru,”

he says. “Peru is poised for a paradigm shift in thinking about designing and investing in infrastructure that could be a model for the entire world. We have an opportunity to move decision-makers in the country from planning only for engineered ‘gray’ infrastructure, to a broader approach that considers how gray infrastructure systems interact with and are supported by investments in natural infrastructure, in ancestral water management systems, and in human capital in the water sector.”

“This calls for integrated management,” adds ANA’s Chief Walter Obando. “Local, national, regional, public, and private stakeholders will have a platform to work together in order to implement more and more natural infrastructure projects. We hope that in the near future, our country will be identified as a pioneer of natural infrastructure in Latin America and even at a global level.”

## **Piuray Declaration Signals Peruvian Water Sector’s Commitment to Natural Infrastructure**

NIWS welcomed a major milestone in November 2018 at Peru’s first National Water Summit, where senior executives and general managers of 23 water utilities representing 14 regions of the country signed the Piuray Declaration. The Declaration committed signatories to protect the country’s source water areas and the natural environments that sustain them. NIWS organized the National Water Summit in partnership with SUNASS, the National Association of Sanitation Services Providers, and the Ministry of Environment.

Investing in natural infrastructure assets requires developing new financial models to mobilize funds. Peru’s new water sector regulations allow public water companies to earmark a small portion of water user tariffs for a special account that compensates land managers in upstream areas for the care and protection of water sources. This Ecosystem Service Compensation Mechanism generates an incentive for citizens and communities to be good stewards of the land, and creates a long-term sustainable funding source.

“Compensation mechanisms for ecosystem services will improve the quality of water resources and ensure the supply of drinking water in the future,” says José Luis Becerra, general manager of SEDACUSCO, the water utility for Cusco, Peru.

NIWS is also studying how fixing and maintaining ancestral water management practices, such as pre-Incan infiltration canals known as amunas, can contribute to water security. [One study carried out by NIWS implementer Forest Trends in 2015](#) found that amuna restoration and wetland restoration were the most cost-effective ways to restore dry-season river flows in Lima, outperforming all of the engineered infrastructure projects being proposed at the time.

## **Women in Water: Championing New Leaders**

The Piuray Declaration also commits water companies to reducing inequality in leadership opportunities for women in the water resources and sanitation services sectors.

“People, and human capital, are part of our ‘water infrastructure’ investment strategy,” says Brigitte D’Aoust, Canada’s Director of Cooperation for Peru and Bolivia. “It’s critical to cultivate women’s leadership. Women have been underrepresented in the water sector for a long time, but their contribution and perspectives are essential if we are going to address the water and climate crisis in Peru.”

Peru is already the first country in Latin America to incorporate gender into climate action, with its [Gender and Climate Change Action Plan](#) released in 2016. This plan resulted from a participatory planning process involving the Ministry of Women and Vulnerable Populations and the Ministry of Environment and assigns responsibilities for mainstreaming gender equality into climate strategies in other sectors, with particular emphasis on the management of water resources.

In early June 2019, NIWS, together with the Peruvian Ministry of Environment, the Ministry of Women and Vulnerable Populations, ANA, and SUNASS, will host the Gender Equality and Water Security Summit in Lima. The summit will convene water sector leaders from Peru and around the world for a public conversation on the need and opportunity to invest in gender equality and natural infrastructure. The summit will also serve as the launching platform for the Natural Infrastructure Leadership Program. Based on a gender diagnosis currently underway, NIWS will set out a strategy for ANA and SUNASS to become “gender transformative institutions,” with leadership development and clear pathways for women in these organizations to assume management roles.

The Natural Infrastructure Leadership Program will also work at the community level to identify women leaders in priority basins and provide them with skills development and networking opportunities, including exchanges, internships, and participation in national and international events, in order to foster a greater role in decision making.

“Our goal is to close the gap in the water sector in participation by men and women,” says Dirk ten Brink, climate and water specialist at USAID. “Elevating women in leadership at the same time that we are exploring these promising new nature-based solutions for water — there is just so much untapped potential.”

By Genevieve Bennett



### **Additional Resources:**

- [USAID/Peru](#)
- [Natural Infrastructure for Water Security \(NIWS\) project](#)
- [Forest Trends](#)

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