

## *Integrating green and gray infrastructure planning for water*

### **1. Context**

Nature-based solutions for water, such as wetland restoration, reforestation, soil health practices and other agricultural best management practices (BMPs) have demonstrable benefit to water quality and water quantity regulation in multiple ecological and socioeconomic systems. The challenges for widespread deployment range from awareness by key decision makers, policy constraints that prevent investments, lack of implementation capacity that can transcend jurisdictional boundaries, and inadequate consideration of nature-based solutions at the time of infrastructure planning and project development.

Addressing this requires innovative approaches to shape water infrastructure planning. Developing an integrated planning approach that combines gray infrastructure with NbSW can be a feasible way to achieve the major task of supplying and delivering water to communities in a secure and sustainable way.

### **2. Rationale of the contribution**

Conventionally, efforts to address water problems have been focused in developing gray infrastructure, which provides a short-term solution to water pressing problems, and is not adaptable enough to evolving climate changes pressures. NbSW solutions are delivering demonstrable positive impacts in the medium to long term with multiple benefits possibly including biodiversity conservation, carbon mitigation, and livelihoods resilience.

There is no doubt that each of these viable alternatives on their own contributes to address water problems, but they are not enough by themselves.

The theory of change envisions that a new integrated planning approach that combines gray and green infrastructure could be applied by water utilities – the target actor for this contribution – transforming the way water is sustainably managed and delivered to effectively respond to a changing climate and growing population demands.

### **3. An overview of the contribution**

This contribution includes:

- (i) A methodological component, that supports the valuation of the benefits delivered by NbSW; and the innovative business cases that incentivize private, public, and development sector investment to integrate NbSW into gray infrastructure planning for water systems, and;
- (ii) A transformational uptake required to make this integrated planning approach become the norm, considering political, institutional and stakeholder behavior

### **4. How the contribution will be delivered? How will different stakeholders be engaged in its implementation?**

For the development of the methodological component, this contribution would work with the governments of Peru and Kenya to deploy their political will at the domestic level with water regulators and water utilities and other relevant stakeholders, and through these countries' leadership mobilize other countries in their respective regions in the lead up to the World Water Forum in 2021 in Senegal.

The aspects to be addressed in the development of the methodological component are: policy, institutional, financial and data & analysis.

As for the transformational political uptake from the local to the global level, this component would be delivered through a process that considers the following stages:

**(i) Building a coalition of the willing**, to support the concept of integration of gray and green infrastructure and follow concrete steps to apply it into their bodies of work. This Coalition would include the governments of Peru, Kenya, Switzerland, the Netherlands, as well as 2030 WRG and IWA;

**(ii) Global facilitation**, to spread lessons of the concept application and coordinating model mechanisms. These facilitation efforts would be led by the governments of Peru and Switzerland, with support from the WEF and TNC;

**(iii) Modelling implementation**, through (i) *open “challenges”* advance model replication focused on on-the-ground implementation, and (ii) an “open source lab” build integration models for green-gray infrastructure in real time for mid-size cities

**(iv) Landing target**, being that a global policy decision-making body, such as the G20 that adopts the resolution/commitment on mainstreaming the integrated approach to green and grey infrastructure planning.

## 5. What are the potential transformational impacts?

One half of cities are in water-stressed basins. 40% of source watersheds show high to moderate levels of degradation, which creates risk to water supplies.

There is potential for a transformative impact. 4 out of 5 large cities (~4,000 cities) can improve water quality through upstream forest protection, reforestation and improved agriculture practices. We estimate that 1 out of 6 large cities – roughly 690 cities serving more than 433 million people globally— has the potential to fully offset conservation costs through water treatment savings alone. If nature-based solutions are fully scaled in source watersheds, the water supply for 1.2 B people could be made more secure, reducing risk of extinction to over 5000 species and enhancing high biodiversity freshwater systems.

## 6. Which organizations are involved in the contribution?

We are currently partnering with 2030 WRG in Peru and looking to expand our collaboration globally.

2030 WRG is a public-private-civil society partnership hosted by the World Bank Group. The initiative supports government-accelerated reforms with the aim of ensuring sustainable water resources management for the long-term development and economic growth of their country. It does so by helping to change the ‘political economy’ for water reform in the country through convening a wide range of actors and providing water resources analysis in ways that are appealing for politicians, administrators and business leaders outside the traditional water sector.

## 7. Where can the contribution be put into action?

The main target of this contribution are water utilities. By developing the necessary methodologies, the institutional and financial supporting mechanisms, and the political will of the relevant actors, water utilities would mainstream NbSW into their business and investment infrastructure plans, enhancing their resilience to climate change, and increasing the capturing of carbon emissions via wetland restoration, reforestation, soil health practices and other agricultural BMPs.

When water utilities successfully mainstream NbSW they would in turn be contributing, on the one hand, to their country’s national adaptation plans, by enhancing the resilience to climate impacts of their infrastructure, and, on the other, to their national long-term emission reduction strategies.

## 8. Is this initiative contributing to other Climate Action Summit workstreams?

The potential contributions of NbSW to SDGs through the delivery of water and sanitation have a high impact in terms of SDG 6 and non-water related co-benefits, in particular SDGs 1, 2, 8, 9, 11, 12, 13 and 15.