Naturally Stronger: How Natural Water Infrastructure Can Save Money and Improve Lives

Executive Summary

Communities in the United States are being threatened by sewage overflows, flooding, polluted stormwater, leaky pipes, and at-risk water supplies. These threats are a result of our nation's outdated water infrastructure and water management strategies, and their impacts fall disproportionately on low-wealth neighborhoods and communities of color that are already suffering from a lack of investment and opportunity. To solve this problem, we do not just need more investment in water infrastructure. We need a new kind of water infrastructure and management, and we need it in the right places. The solution is the equitable investment in and implementation of natural infrastructure. ***Naturally Stronger*** **makes the case that if natural infrastructure is used in a more integrated water system, we can transform and restore our environment, invigorate the economy, and confront some of our country's most persistent inequities.**

Natural water infrastructure protects, restores, or mimics natural water systems, working with traditional infrastructure, like pipes and treatment plants, and reducing the strain on those systems. Examples include protecting source water streams that provide drinking water to our communities, reducing water treatment costs; protecting natural floodplain areas to reduce flood damage; and restoring or increasing urban trees and green space to soak up and clean polluted stormwater, which reduces the surges in stormwater pipes and prevents flooding. These natural solutions add flexibility and resiliency to our water infrastructure due to their ability to complement and supplement existing infrastructure efficiently and the ease with which they can be adapted to changing community needs.

It is easy to overlook the extent to which we depend on natural infrastructure until catastrophe strikes. We take for granted that water will continue to flow from the tap, reliable and safe, that our homes are protected, and that our local waterways are healthy. We have been steadily losing the natural systems that provide communities with these benefits, and as we have lost this natural infrastructure, we have failed to adequately replace the lost services they provide. The result is decaying or outdated infrastructure that cannot keep pace with changing demand for water and wastewater treatment, growing populations, and increasingly severe storms. While these challenges affect all communities, the most severe impacts often fall on low-wealth communities and communities of color due to historic underinvestment and disinvestment in these communities.

Equitable investment in water infrastructure explicitly engages community voice, policy, planning, investment, hiring, contracting, and operations to ensure that historically underserved communities receive the water infrastructure investment they need, in a manner that improves public health, improves livability, and supports community cohesion. Since, historically, infrastructure investments have closely followed the geography of opportunity – higher income areas have high-quality infrastructure investments, and low income areas have suffered decades of underinvestment and disinvestment, and crumbling systems of transportation, schools, and, in particular, drinking water and waste water. These disadvantaged communities often lack adequate infrastructure, lack affordable water rates, and lack access to clean, safe water.

Disadvantaged communities are often located in floodplains, in drained wetlands, or adjacent to sewage outfalls, as a result of historic discrimination. Besides suffering damage to health and livelihood, their problems then flow downstream, affecting other communities and ecosystems. By addressing the infrastructure needs of vulnerable communities, we are addressing the water quality needs of everyone. New equitable water infrastructure investments can play a fundamental role in local and regional economies, and ensure that historically underinvested communities-- where the greatest water vulnerabilities manifest – can both address water security and advance greater economic inclusion. To ensure equitable water infrastructure investments, vulnerable communities must have a voice in where and how investments in water infrastructure are made.

Water infrastructure and equity challenges can be effectively overcome together through a more holistic approach, particularly when natural infrastructure, with its flexibility, is included as part of the solution. This "integrated" or One Water approach to water management centers on breaking down 'silos' to create holistic,

coordinated water systems that maximize economic, social, and environmental benefits in an equitable and sustainable manner. This integrated approach is achieved by bringing together city agencies, nonprofits, and other diverse stakeholders for collective problem-solving and decision-making that benefits all members of the community.

Natural infrastructure provides substantial economic and social benefits to the nation and to neighborhoods. The U.S. Water Alliance states in their ***Value of Water*** report that **the U.S. needs to invest an additional $82 billion per year in water infrastructure – both natural and traditional – to meet projected needs.** The same report states that by closing this gap **over $220 billion in total annual economic activity would be added to the economy every year and would sustain approximately 1.3 million jobs over the next 10 years.** In addition, **investment in natural infrastructure creates local jobs.**

According to a report by the Environmental Finance Center at the University of Maryland, natural infrastructure often increases local jobs, since these practices rely more heavily on local workers for installation and continued maintenance, in contrast to traditional infrastructure, which often relies on larger firms that outsource the work. As the number and scope of natural infrastructure initiatives increase, opportunities for developing more jobs will increase as well. According to the Brookings Institute**, green job growth outpaced traditional job growth at a rate of nearly 2-to-1 in the nation's 100 largest metropolitan centers** from 2008 to 2010, providing diverse, career-starting opportunities in growth industries for communities that need them most.

Communities that have invested in natural infrastructure have not only reaped the economic benefits, but also have experienced other social benefits as well. Studies demonstrate that people with access to parks and green space live healthier, lower-stress lives. They have an easier time living active outdoor lifestyles, reducing medical expenses. And, of course, clean local waterways, improved by reductions in polluted runoff, mean higher-quality drinking water and safer places to recreate.

To address the significant water infrastructure needs of the nation, greater investments in both natural and traditional water infrastructure are needed. From major metropolitan areas to unincorporated rural communities – particularly those home to low-wealth communities and communities of color –investments are needed to address the consequences of long deferred maintenance, underinvestment, and disinvestment. And while infrastructure investments face budget restrictions at all levels of government, integrated water management approaches can often deliver overall cost savings by simultaneously addressing multiple issues and providing multiple benefits. Going forward, we will need to use existing water infrastructure funding mechanisms in order to implement natural infrastructure at the scale and scope needed to address our nation's water infrastructure inequities. Funding mechanisms for natural infrastructure are diverse and include traditional mechanisms such as bonds, general funds, and state revolving funds as well as innovative approaches like public/private partnerships or incorporating water management in all types of infrastructure projects.

Naturally Stronger provides an overview and introduction to the water challenges we face and lays out the need for investment in water infrastructure and why natural water infrastructure is a necessary component of that investment. This investment comes with both economic and social benefits that can be optimized by planning, designing, investing, and implementing new water infrastructure in an intentional, equitable, and integrated fashion. But we cannot achieve these results by using the same water management strategies we have used in the past. To achieve more effective and equitable water infrastructure we must engage with multiple, cross-cutting stakeholders. Where our planning and decision-making tables are too small or exclusive, we must make them bigger and add more chairs, integrating communities and partners that have not always had a seat at the table. The water management sector must break out of the silos that constrain diverse and innovative solutions. The challenge before us is clear. The solutions are tangible. The moment to create a better future for clean water and communities is now.