American Sustainable Business Council

THE BUSINESS CASE FOR

Federal Investment in Water Infrastructure

America is fortunate to have thousands of municipal water systems to provide reliable, plentiful, clean drinking water and sanitary waste disposal. But across the country, much of our infrastructure for managing wastewater and providing drinking water is inadequate, obsolete or seriously deteriorated. Continued failure to address this major infrastructure problem is increasingly detrimental to our economy and businesses nationwide. If we make the necessary investments in water infrastructure, however, the return will be significant job creation, a better competitive position for U.S. businesses, and resilient economic growth.

The American Society of Civil Engineers (ASCE) 2017 report card gave the U.S. drinking water infrastructure a "D" grade and wastewater infrastructure a "D+" for overall quality.

Ranging from several decades to over a century old, our water infrastructure suffers from neglect, wear and obsolescence. It needs repair and replacement most urgently: In 2017, the American Society of Civil Engineers (ASCE) issued a report card that gave the U.S. drinking water infrastructure a "D" grade and wastewater infrastructure a "D+" for overall quality. ASCE estimated in 2013 that nationwide, 240,000 water main breaks occur every year, interrupting service to businesses and households. Meanwhile, economically disruptive, supply chain-disrupting floods are increasingly frequent, and water pollution is a growing problem for the many industries that rely on the ecosystem services provided by our nation's waterbodies. All of these issues will only worsen as our nation's infrastructure continues to deteriorate and climate change brings more extreme weather.

Increasing federal investment is vital for addressing the nation's failing water infrastructure. While state and local government spending on water infrastructure has more than doubled over the last 40 years, federal spending has fallen dramatically.[1] As the economic crises wrought by the Covid-19 pandemic puts unprecedented pressure on state and local budgets, it is more important than ever for the federal government to deploy its spending capabilities to invest in our nation's water infrastructure. Such an investment will yield significant economic reward.

The Economics of Water Infrastructure: Deficit Impacts and Growth Potential

A report from the US Water Alliance and the American Civil Society of Engineers states that the nation needs a total investment of $129 billion per year from 2019 to 2039 to achieve a state of "good repair," but annual state, local and federal funding only amounts to $48 billion, creating a $121 billion annual gap.[2]

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[1] Value of Water Campaign & America Civil Society of Engineers (ASCE). (2020). The Economic Benefits of Investing in Water Infrastructure: How a Failure to Act Would Affect the US Economic Recovery. http://www.uswateralliance.org/sites/uswateralliance.org/files/publications/The%20Economic%20Benefits%20of%20Investing%20in%20Water%20Infrastructure_final.pdf

[2] Office of Water. (2018) Drinking Water Infrastructure Needs Survey and Assessment: Sixth Report to Congress. U.S. Environmental Protection Agency. https:// www.epa.gov/sites/production/files/2018-10/documents/corrected_sixth_drinking_water_infrastructure_needs_ survey_and_assessment.pdf

Failure to invest in water infrastructure directly and indirectly impairs economic activity. Increasing service rates and fees, service disruptions, and flooding increase production costs for businesses and shrink the purchasing power of households, especially low-income households, as they spend more to obtain essential water and cope with flooding damage. Higher prices for goods and lower available incomes can depress domestic and foreign demand for U.S.-manufactured goods. Projections show that merely maintaining current water infrastructure investment levels would lead to a $732-billion loss in business sales (gross output) by 2029 and over $4.5 trillion by 2039; with 636,000 jobs lost each year by 2039.[3]

On the other hand, making the necessary water infrastructure investments could increase business sales by $5.6 trillion over the next 20 years[4] and create approximately 1.3 million jobs per year.[5] These investments would spur growth directly by creating opportunities in the design, engineering and construction of water infrastructure — where jobs are stable and well-paying, with an average wage of $63,000 — and indirectly through increased demand for machinery, equipment, and primary materials. Further, businesses across sectors would see increased productivity and efficiency from more reliable water services, freeing up capital for investment and operations and management spending. In turn, households will generate economic activity by increased spending on personal goods and services from the wage growth and through the savings in avoided service disruptions and flooding.[6]

How Failure to Invest in Water Infrastructure Impacts Businesses

- ***Increasing disruptions create rising costs***

Cities and towns across the country are already beginning to experience disruptions in their water delivery and wastewater removal services due to aging infrastructure. Many businesses are highly reliant on water use to provide their service or produce their product, and virtually all businesses rely somewhat on water.

On average, U.S. businesses lose $230 in sales per employee every day there is a disruption in water service and up to

$5,800 per day for businesses in industries most reliant on water.[7] In 2019, the top 11 water-reliant industries (excluding energy and agriculture) lost $51 billion due to water service disruptions as a result of production delays, sale losses, and other effects. Those losses could reach $111 billion annually by 2029 and $250 billion annually by 2039.[8]

- ***Flooding causes costly damage and further disruptions, now and long-term***

Poorly planned and failing infrastructure, in addition to heavier rainfall and extreme weather events brought on by climate change, has been a major contributor to the increased prevalence and severity of flooding in the United States over the last few decades, affecting families, communities, and businesses.

In general, the disruption of hydrological cycles through conversion of land to paved surfaces and industrial agriculture is making flooding worse. In cities and towns, stormwater infrastructure, often over a century old, was not built to handle current levels of rainfall. Along major rivers, misplaced dams and unnecessary levees have aggravated the problem. In the Mississippi River basin, the U.S. region hardest hit by flooding, with $20 billion in losses in 2019,[9] the increase in levee construction after the 1993 flood on the Upper Mississippi River has caused severe flooding to become more frequent by decreasing the width of the riverbed, and flood control mechanisms have encouraged people to build homes and businesses in floodplains that are in harm's way as these systems fail.[10]

[3] Value of Water Campaign / ASCE (2020). These estimates do not take into the sales losses from polluted waterways affecting businesses that rely on clean waterbodies to attract customers or provide their product or service. This topic is explored in the section of this report titled 'Polluted Waterways'.

[4] Value of Water Campaign / ASCE (2020)

[5] Value of Water Campaign. (2017). The Economic Benefits of Investing Water Infrastructure. http://thevalueofwater.org/sites/default/files/Economic%20Impact%20of%20Investing%20in%20Water%20Infrastructure_VOW_FINAL_pages.pdf

[6] Value of Water Campaign / ASCE (2020)

[7] Value of Water Campaign (2017)

[8] Value of Water Campaign / ASCE (2020)

[9] Askew-Merwin, C. (2020). Natural Infrastructure's Role in Mitigating Flooding Along the Mississippi River, Northeast-Midwest Institute Report. https://www.nemw.org/wp-content/uploads/2020/03/Natural-Infrastructures-Role-Mitigating-Flooding.pdf

[10] American Rivers. (2017). Naturally Stronger. https://medium.com/naturally-stronger/chapter-2-our-communities-at-risk-ffb76c32a3e9

The obvious short-term impacts of flooding on businesses are damages and inability to conduct business due to closures and disrupted supply chains. Research also shows that long-term harm includes disrupted cash flow and loss of income, increased staff anxiety, higher insurance premiums, and decreased spending in communities as affected businesses lay off employees.[11]

Every year, 900 billion gallons of untreated waste-water and storm-water are released into water bodies.

- ***Polluted waterways impair business and endanger health***

Improving water infrastructure would help significantly to clean up waterways across the country, primarily through reducing stormwater runoff and preventing combined-sewage system overflows. Stormwater picks up contaminants and runs, sometimes untreated, into rivers, streams, and other water sources. Even when this runoff is treated, heavy rainfall can overburden sewage systems, which in many U.S. cities are combined storm-waste water systems, allowing overflow to release raw sewage directly into waterways, carrying bacteria E. Coli and other pollutants.[12] Every year, 900 billion gallons of untreated wastewater and stormwater are released into water bodies.[13]

Many businesses rely directly on clean waterways, and pollution of rivers, streams, lakes, and coastal areas can directly impact businesses bottom lines. When pollution forces localities to shut down waterbodies to swimmers or impacts other recreation and tourism, nearby restaurants, boating companies, lodging, fishing gear suppliers, and other service providers suffer. The more polluted the nearby waterbody, the less likely consumers are to visit its scenic and recreational attractions, reducing income to local economies. Water pollution can also seriously impair commercial fishing and seafood harvesting companies. In Machias Bay, Maine, temporary pollution closures, mostly caused by combined-sewage overflows, led the shellfish harvesting industry to lose $3.6 million in forgone revenue over a ten-year period.[14]

Why government should support nature-based infrastructure solutions

Nature-based solutions to water management — often referred to as green stormwater infrastructure (GSI) — in urban and suburban settings are often more cost-efficient, effective, and climate-resilient alternatives to conventional "gray infrastructure" in reducing flooding, combined-sewer overflows, and runoff pollution. Accordingly, these GSI solutions should be specified whenever appropriate in federal programs for funding water infrastructure.

Nature-based/GSI solutions protect, restore, or mimic the natural water cycle to reduce flooding and pollution from stormwater runoff. Such solutions can include conservation and restoration of wetlands, forests, shorelines, and other ecosystems that regulate the water cycle. In urban and suburban areas, GSI can replace pavement and other impervious surfaces to divert stormwater from the sewer system and direct it to areas where it can be infiltrated, reused or be taken up by plants. Soil and vegetation are used instead of, or in conjunction with, traditional drains, gutters, pipes and treatment plants. Examples of GSI include green roofs, rain gardens, and porous concrete and asphalt.

The potential value to the economy of nature-based solutions that reduce flooding are well researched. For example, a 9000-acre conservation area of parks and forest in St. Louis County, Missouri, has helped the county avoid $13 million per year in flood damages. During the mid-Atlantic Super Storm Sandy in 2012, wetlands prevented an estimated $625 million of property damage losses.[16]

Businesses benefit directly from the implementation of GSI on their properties and in their neighborhoods, as GSI installations reduce the damage of flooding and combined-sewage overflows on property and surrounding areas. A secondary benefit is that research has shown the creation of attractive landscapes using nature and tree cover encourages consumers to spend more, make more frequent visits,

[11] Wedawatta, G., Ingrige, B., & Proverbs. D. (2014). Small businesses and flood impacts: the case of the 2009 flood event Cockermouth. J of Flood Risk Management. https://onlinelibrary.wiley.com/doi/pdf/10.1111/jfr3.12031

[12] American Rivers. (2019). 3.5 million Americans get sick each year after swimming, boating, fishing, or otherwise touching water they thought was safe. https://www.americanrivers.org/threats-solutions/clean-water/sewage-pollution/

[13] Galavotti, H. (2015). EPA's Stormwater Program and Improving Resiliency with Green Infrastructure. U.S. Environmental Protection Agency. https://www.epa.gov/sites/production/files/2016-11/documents/4-holly_galavotti_0.pdf

[14] Evans, K. and Athearn, K., et al. (2016). Measuring the impact of pollution closures on commercial shellfish harvest: The case of soft-shell clams in Machias Bay, Maine. https://www.sciencedirect.com/science/article/pii/S0964569116301144

[15] Kousky, C., Walls, M., and Chu, Z. (2013). Resources for the Future. Flooding and Resilience: Valuing Conservation Investments in a World with Climate Change. https://www.rff.org/publications/working-papers/flooding-and-resilience-valuing-conservation-investments-in-a-world-with-climate-change/

[16] Siddharth, N. and Beck, M., et al. (2017). The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA. https://www.nature.com/articles/s41598-017-09269-z

Cities Using Nature-Based Solutions

In Davenport, Iowa, flooding is a perpetual issue, but the community has opposed building a flood wall as has been done in many other Mississippi River communities. Davenport wants to maintain the city's waterfront, which attracts people to local businesses and events. So the city government engaged in nature-based solutions including remediating and preserving the Nahant Marsh. These efforts have reduced flooding somewhat, but results would improve dramatically if more nature-based solutions were implemented by communities upstream and throughout Upper Mississippi River Basin.[17]

Photo: Basel-Almisshal

Philadelphia is several years into a 25-year, comprehensive, nature-based stormwater management plan that will reduce the city's combined sewer overflows by 85 percent. Rather than spending an estimated $9.6 billion to update its gray infrastructure, the city is instead investing an estimated $2.4 billion in public funds — matched by private funds — to create green stormwater infrastructure throughout the city. A study by the Sustainable Business Network of Greater Philadelphia (SBN) projects the city's efforts will produce a $4 billion benefit in the Philadelphia economy, supporting about 1,000 jobs per year and generating $2 million per year in local tax revenues throughout the entire 25-year period.[18]

[17] Askew-Merwin, C. (2020). https://www.nemw.org/wp-content/uploads/2020/03/Natural-Infrastructures-Role-Mitigating-Flooding.pdf

[18] Melissa, M. & Anna, S. (2019) Why green stormwater infrastructure is smart policy and smart business. https://www.bizjournals.com/philadelphia/news/2019/05/24/green-stormwater-infrastructure-philadelphia.html

and travel further to destinations; and can improve the health and job satisfaction of office workers.[17]

Federal Investment in Water Infrastructure is Good for Business

Despite the need for investment, the federal government's per capita spending on water infrastructure dropped from $76 per person in 1977 to $11 per person in 2014 (2014 dollars; CBO 2015). Local and state spending has filled some of the investment gap but has led to raising service rates and fees for businesses and households.

If federal support for water infrastructure is not improved, the cost of service will continue to rise. Because water is an essential, businesses that rely heavily on water services will likely take serious hits to their bottom line and consumer spending, especially by low-income households, could drop, afflicting many other businesses. With continued federal underinvestment, flooding and water pollution rates will keep rising, harming businesses across all sectors. Conversely, if the federal government steps up and makes the long-deferred, extremely necessary investments in our national water infrastructure, it will create needed jobs in both gray and green infrastructure construction, and create a beneficial economic ripple effect across the whole economy.

Investment from private businesses and local and state governments will continue to play an important role, but only the federal government has the capacity to close our serious water infrastructure investment gap. Doing so is costly, but not doing so will be far costlier, as is already being seen. To protect our businesses and our environment, and to fuel economic activity, America needs a powerful federal investment in water infrastructure now. ★

[19] Urban Land Institute. (2017). The Business Case for Green Infrastructure. https://ulidigitalmarketing.blob.core.windows.net/ulidcnc/sites/50/2019/12/The-Business-Case-for-Green-Infrastructure.compressed.pdf

The American Sustainable Business Council is a coalition of over 250,000 business organizations advancing market solutions and public policies at the national, state, and local level that support a vibrant, just and sustainable economy. ASBC informs and engages business leaders while educating decision-makers and the media about opportunities and public policies that can lead to an equitable and sustainable economy. **www.asbcouncil.org**

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