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Report to the Ranking Member, Committee on Transportation and Infrastructure, House of Representatives

June 2010

WASTEWATER INFRASTRUCTURE FINANCING

Stakeholder Views on a National Infrastructure Bank and Public-Private Partnerships

GAO-10-728

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Highlights

Highlights of GAO-10-728, a report to the Ranking Member, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

Communities will need hundreds of billions of dollars in coming years to construct and upgrade wastewater infrastructure. Policymakers have proposed a variety of approaches to finance this infrastructure, including the creation of a national infrastructure bank (NIB) and the increased use of privately financed public-private partnerships (PPP).

In this context, GAO was asked to identify (1) stakeholder views on issues to be considered in the design of an NIB and (2) the extent to which private financing has been used in wastewater PPPs and its reported advantages and challenges. In conducting this work, GAO developed a questionnaire based on existing NIB proposals and administered it to 37 stakeholders with expertise in wastewater utilities, infrastructure needs, and financing; GAO received 29 responses from stakeholders with a variety of perspectives about an NIB. To determine the extent to which wastewater PPPs have been privately financed and their advantages and disadvantages, GAO identified and interviewed municipalities involved in privately financed PPPs and wastewater services companies, conducted case studies in states with privately financed PPPs, and conducted a literature review.

GAO is not making any recommendations. While this report discusses a number of funding approaches, GAO is not endorsing any option and does not have a position on whether an NIB should be established.

View GAO-10-728 or key components.
For more information, contact David Trimble at (202) 512-3841 or trimbled@gao.gov.

What GAO Found

Stakeholders who responded to GAO's questionnaire discussed issues in the following three key areas that should be considered in designing an NIB:

- *Mission and administrative structure.* While a majority of stakeholders supported the creation of an NIB, their views varied on its mission and administrative structure. One-third supported an NIB to fund only water and wastewater infrastructure, while two-thirds responded that it should also fund transportation and energy projects. There was no consensus among stakeholders on whether an NIB should be administered by an existing federal agency, structured as a government corporation, or structured as a government-sponsored enterprise. GAO has previously reported that an entity's administrative structure affects the extent to which it is under federal control, how its activities are reflected in the federal budget, and the risk exposure of U.S. taxpayers.
- *Financing authorities.* A majority of stakeholders agreed on an NIB's financing authorities. Specifically, a majority said the federal government should provide the initial capital; an NIB should be authorized to use a variety of options to generate funds for operating expenses and lending; and an NIB should offer a variety of mechanisms for financing projects, such as providing direct loans, loan guarantees, and funding for the Environmental Protection Agency's existing wastewater funding program—the Clean Water State Revolving Fund.
- *Project eligibility and prioritization.* Stakeholders' views varied on which types of projects should be eligible for NIB financing, such as whether it should exclusively finance large projects. In addition, a majority agreed an NIB should prioritize projects that address the greatest infrastructure need and generate the greatest environmental and public health benefits.

GAO identified seven municipalities that have entered into privately financed PPPs—contractual agreements in which the private partner invests funds in the wastewater infrastructure—since 1992: Arvin, California; Cranston, Rhode Island; Fairbanks, Alaska; Franklin, Ohio; North Brunswick, New Jersey; Santa Paula, California; and Woonsocket, Rhode Island. Municipal and wastewater company officials GAO interviewed identified the following examples of advantages of privately financed PPPs:

- Provide access to financing for municipalities that have difficulty using traditional financing sources, such as municipal bond markets.
- May make operations more efficient, for example, by taking advantage of economies of scale by buying key supplies, like chemicals, in bulk.
- May bring new infrastructure online faster than traditional public procurement because companies have more flexibility.

These officials identified challenges of privately financed PPPs, including:

- Local opposition may arise out of concerns about higher wastewater rates and the potential loss of municipal wastewater jobs.
- Private financing is generally more costly than tax-exempt municipal bonds because of higher interest rates; a 2002 National Research Council study reported that private financing is 20 to 40 percent more expensive.
- Contracts can be costly and difficult to develop because they are complex, and municipalities and companies are unfamiliar with this type of PPP.

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Abbreviations

CWSRF	Clean Water State Revolving Fund
DBFO	design-build-finance-operate
EPA	Environmental Protection Agency
GSE	government-sponsored enterprise
IRS	Internal Revenue Service
NIB	national infrastructure bank
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
PPP	public-private partnership
RCRA	Resource Conservation and Recovery Act

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United States Government Accountability Office
Washington, DC 20548

June 30, 2010

The Honorable John L. Mica
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Dear Mr. Mica:

More than 220 million people in the United States are served by municipal wastewater systems. These systems consist primarily of a network of sewer pipes and treatment plants that carry and treat wastewater and then discharge it, often into surface waters such as rivers and lakes. Many systems were constructed more than 50 years ago and are reaching the end of their useful lives. The deteriorating condition of the nation's wastewater infrastructure has direct impacts on human and aquatic health. For example, many older wastewater systems lack the capacity to treat increasing volumes of wastewater, particularly during periods of wet weather. In addition, cracks in sewer pipes allow rain or snowmelt to enter the wastewater system and overwhelm its capacity to adequately treat wastewater. As a result of these two factors, wet weather can lead to the release of untreated wastewater, which introduces significant levels of pollution into local water bodies and poses risks to human health and aquatic life. The U.S. Environmental Protection Agency (EPA) estimates that over 850 billion gallons of untreated wastewater are released annually into U.S. surface waters.

Cities, towns, and other municipalities have the primary responsibility to fund wastewater infrastructure, and their wastewater spending totaled $43 billion in fiscal year 2007, according to the U.S. Census Bureau.[1] In addition, the federal government appropriated $2.1 billion in fiscal year 2010 principally to assist municipalities through the Clean Water State Revolving Fund (CWSRF),[2] which also received a one-time infusion of $4

[1]Fiscal year 2007 includes data for each individual government's fiscal year that ended between July 1, 2006, and June 30, 2007. The Census Bureau also reports that state governments spent about $1.4 billion on wastewater in fiscal year 2007.

[2]Pub. L. No. 111-5, Div. A, Tit. VII, 123 Stat. 115, 169. Under the CWSRF program, the federal government provides grants to states, which use the money to provide generally low-interest loans to fund a variety of water quality projects at the municipal level.

billion through the American Recovery and Reinvestment Act of 2009.[3] However, according to EPA estimates, current federal, state, and local spending may not cover the cost of maintaining and replacing wastewater infrastructure. Specifically, a 2002 EPA analysis estimated a gap between current levels of wastewater infrastructure spending and projected future needs of about $150 billion to $400 billion over the period between 2000 and 2019.[4] EPA has stated that without additional investment, the environmental and public health gains made under the Clean Water Act during the last three decades could be at risk.[5]

Policymakers and wastewater groups have proposed a variety of approaches to help bridge this potential gap between current levels of spending and future infrastructure needs. One approach would be to increase funding to traditional wastewater funding programs, such as the CWSRF. Alternative funding approaches could also be used to bridge the wastewater infrastructure funding gap. For example, a bill was introduced in Congress in 2009 that would establish a clean water trust fund to provide a dedicated source of federal funding for wastewater infrastructure similar to some of the trust funds that Congress has established for other infrastructure and environmental programs, such as for highway and transit infrastructure and coastal wetlands restoration.[6] In addition, several bills have been introduced in Congress since 2007 to establish a national infrastructure bank (NIB), which could finance

[3]The federal government also funds wastewater infrastructure through other programs. For example, the Department of Agriculture's Rural Utilities Service provides grants and loans for wastewater infrastructure improvements to rural communities, including those with populations of 10,000 or less. In fiscal year 2010, this program received an appropriation of nearly $569 million, primarily for grants and loans to support wastewater and other environmental infrastructure. Pub. L. No. 111–80 (2009), § 123 Stat. 2111.

[4]EPA, *The Clean Water and Drinking Water Infrastructure Gap Analysis* (Washington, D.C.: September 2002). In the report, EPA notes that this gap is not inevitable and could be addressed in part if wastewater utilities raised the rates they charge consumers. EPA estimates a potential gap for drinking water infrastructure as well.

[5]The Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 816 codified as amended at 33 U.S.C. §§ 1251-1387 (2010) (commonly referred to as the Clean Water Act).

[6]Water Protection and Reinvestment Act of 2009, H.R. 3202; the bill would establish a trust fund to assist clean water and drinking water infrastructure projects. Our previous work has found that numerous issues would need to be addressed in the design of a clean water trust fund. See GAO, *Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund*, GAO-09-657 (Washington, D.C.: May 29, 2009).

wastewater infrastructure through a variety of mechanisms, such as directly loaning money to eligible projects, guaranteeing municipal bonds to lower costs, and pooling loans from numerous smaller municipalities to lower costs.[7] Similarly, a 1992 Executive Order encouraged the use of privately financed public-private partnerships (PPP) and stakeholders have since encouraged their use for municipal wastewater facilities.[8] A PPP is a contractual arrangement in which a public entity (such as a municipal government agency) contracts with a private sector partner to contribute to the provision of a public service by planning, financing, designing, constructing, or operating and maintaining a facility or system. These PPP arrangements provide a business opportunity for private sector companies. PPP arrangements differ in the extent to which the private partner participates in each of these activities. When a PPP is privately financed, it can serve as an alternative to traditional wastewater infrastructure funding sources such as the CWSRF and tax-exempt municipal bonds.

In this context, you asked us to examine (1) stakeholders' views on issues to be considered in the design of an NIB to increase financing for wastewater infrastructure and (2) the extent to which private financing has been used in wastewater PPPs and its reported advantages and challenges.

To determine stakeholders' views on the design of an NIB, we reviewed past legislative proposals and interviewed a variety of stakeholders with knowledge of wastewater infrastructure issues, including individuals and organizations from the water and wastewater industry; financial sector; and federal, state, and local government. Based on the information gathered from these sources, we developed and administered a questionnaire to obtain the views of stakeholders on the design of an NIB. We identified organizational and individual stakeholders familiar with wastewater infrastructure financing issues and existing NIB proposals based on our preliminary interviews and our prior work on wastewater infrastructure financing. We sent this questionnaire to 23 national organizations with expertise in the wastewater industry in one or more of the following areas: financing and operating wastewater projects,

[7]The bills included the National Infrastructure Development Bank Act of 2009 (H.R. 2521), National Infrastructure Bank Act of 2007 (S. 1926 and H.R. 3401), and National Infrastructure Development Act (H.R. 3896).

[8]Executive Order 12803 was signed by President Bush on April 30, 1992.

constructing and maintaining wastewater infrastructure, local and state wastewater infrastructure needs, and environmental protection. We also sent the questionnaire to 14 individuals with expertise in financing wastewater infrastructure who are municipal financing consultants, state financing officials, officials from private investment firms, or policy consultants. Although we sought to include stakeholders with a variety of perspectives about an NIB, the views of stakeholders consulted should not be considered to represent all perspectives about an NIB. In addition, although an NIB could potentially finance many types of infrastructure, we limited our stakeholders to those familiar with the wastewater sector. We received 18 organizational responses and 11 individual responses, for an overall response rate of 78 percent. Some stakeholders did not answer all of the questions on the questionnaire, so the number of responses for each question varies. After analyzing the results from our questionnaire, we interviewed staff from the Office of Management and Budget and the Internal Revenue Service (IRS) to discuss how an NIB might affect the federal budget and U.S. taxpayers.

To determine the extent to which wastewater PPPs have been privately financed, we conducted a literature search to identify potential privately financed wastewater PPPs initiated since 1992, when President Bush signed an Executive Order encouraging these partnerships. A privately financed PPP, for purposes of this report, is a contractual agreement in which the private partner invests funds in the wastewater infrastructure but does not include full privatization, in which the municipality sells its wastewater infrastructure assets to a private partner (unless the public partner can reacquire the assets on preferential terms at the end of the contract). It is possible that we did not identify all privately financed wastewater PPPs initiated since 1992. To determine the potential advantages and challenges of privately financed wastewater PPPs, we interviewed officials at six of the largest private companies involved in water and wastewater PPPs and officials in municipalities who have used privately financed PPPs. In addition, we conducted case studies in Alaska, California, New Jersey, and Ohio in which we spoke with numerous municipalities in each state about their wastewater financing choices to get additional context about why few municipalities have entered into privately financed PPPs. These municipalities were selected to include municipalities of varying sizes, as well as municipalities who are not involved in privately financed wastewater PPPs, but who have considered the option in the past. We also interviewed officials from EPA and conducted a literature search to provide additional context about potential advantages and challenges of privately financed wastewater PPPs. A more detailed description of our objectives, scope, and methodology is

presented in appendix I. We conducted our work from June 2009 to June 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions.

Background

Americans rely on wastewater systems to protect public health and the environment. These systems are composed of a network of pipes and pumps that collect wastewater from homes, businesses, and industries and transport it to treatment facilities where it is treated prior to being discharged to surface waters. Historically, wastewater systems in the United States have been owned and operated by public agencies at the municipal level. In fact there are about 16,000 publicly owned wastewater treatment plants in the United States, which serve about 97 percent of U.S. residents served by sewers. The remaining 3 percent are served by privately owned wastewater treatment facilities. Laws and regulations applying to wastewater treatment and the financing of wastewater infrastructure often differ based on whether a treatment facility is publicly or privately owned.

Federal Laws Applying to Wastewater Treatment

EPA sets standards for the quality of wastewater that can be discharged under the Clean Water Act.[9] Under this law, the National Pollutant Discharge Elimination System (NPDES) program limits the types and amounts of pollutants that industrial and municipal wastewater treatment facilities may discharge into the nation's surface waters. Both public and private wastewater treatment facilities discharging into U.S. waters are required to have NPDES permits authorizing their discharges. Generally speaking, municipal wastewater treatment facilities are designed to treat typical household wastes and certain pollutants in commercial and

[9]Wastewater treatment generally involves two steps, called primary and secondary treatment. During primary treatment, solid materials such as sand and grit are removed from wastewater. Secondary treatment usually involves using bacteria to remove organic material from wastewater. Under the Clean Water Act, municipal wastewater treatment plants are required to provide secondary treatment for wastewater. In addition, over 30 percent of wastewater treatment plants also provide advanced treatment for wastewater, which can clean wastewater to even greater levels by, for example, removing nutrients.

industrial wastes, primarily those identified in the Clean Water Act as conventional pollutants.[10] Municipal facilities, however, may not be designed to treat toxic pollutants, such as heavy metals, which more typically occur in industrial waste streams. The Clean Water Act authorized EPA to develop pretreatment standards—implemented as the National Pretreatment Program—to prevent certain pollutants, such as toxics discharged by industries into sewers, from passing through municipal wastewater facilities and into surface waters, or from interfering with the facilities' treatment processes. The National Pretreatment Program regulations require publicly owned wastewater facilities treating more than 5 million gallons of wastewater per day, and receiving certain pollutants from industrial users, to develop pretreatment programs. It further requires that municipalities possess adequate authority to require industrial users to pretreat their wastewater before discharging it into sewers.[11] The pretreatment standards do not, however, apply to industrial discharges into privately owned wastewater facilities. Without such standards or a municipal pretreatment program, privately owned wastewater facilities may use alternative mechanisms to ensure that nonconventional waste is properly treated before it enters the sewer system, which according to EPA may be more costly and difficult.[12]

Government Funding of Wastewater Infrastructure

The Clean Water Act also authorized significant federal construction grants to help municipalities build eligible wastewater treatment facilities. In the 1980s, concerns about the federal deficit, among other factors, led to a transition from these grants to the CWSRF program, which was established in 1987. Under this program, the federal government provides capitalization grants to states, which in turn must match at least 20 percent of the federal grants. The states then use the money to provide

[10]Conventional pollutants treated in municipal wastewater facilities include: biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease.

[11]In addition, National Pretreatment Standards apply to certain categories of industrial dischargers into sewers connected to municipal wastewater facilities, regardless of whether the municipal facility has a pretreatment program.

[12]The Resource Conservation and Recovery Act (RCRA) regulates treatment, storage, and disposal of hazardous waste, among other things. RCRA regulations generally exclude sewage conveyed for treatment at publicly owned treatment facilities from the standards and permit requirements for managing hazardous waste. However, the RCRA exemption for privately owned facilities only excludes the discharge authorized under an NPDES permit; handling of wastes before and during treatment, as well as generated sludges may be subject to hazardous waste rules.

generally low-interest loans to fund a variety of water quality projects at the municipal level, and loan repayments are cycled back into the fund to be loaned out for other projects. In 2008, states provided CWSRF loans totaling about $5.8 billion to municipalities and other recipients. States can loan CWSRF funds to publicly owned wastewater treatment facilities, but privately owned facilities are generally not eligible for CWSRF loans.

The federal government also helps finance wastewater infrastructure by subsidizing municipalities' use of the bond markets through the tax code. Municipalities sell bonds to investors to gain an up-front sum to use for infrastructure or other purposes; the investors are then paid back over time, with interest. The federal government subsidizes municipalities' bond issuances by exempting the interest investors earn on these bonds from federal income tax, thus lowering borrowing costs for municipalities. The Congressional Budget Office estimated that the federal subsidy of municipal bonds for all types of infrastructure amounted to $26 billion in foregone tax revenue annually between 2008 and 2012. The federal government restricts the level of private involvement in projects financed by tax-exempt municipal bonds, limiting the extent to which private companies can benefit from the federal subsidy.

There are several types of bonds that municipalities can issue to finance publicly owned wastewater infrastructure, including general obligation bonds and revenue bonds.[13] General obligation bonds are backed by the full faith and credit of the issuing municipality, meaning that the municipality pledges to use revenue from taxes to pay back the bond. Municipalities' capacity to issue general obligation bonds is often limited by state law. In contrast, revenue bonds are backed by the revenue from the facility being constructed with bond proceeds—in the case of wastewater, revenue bonds are usually backed by revenue from sewer rates. In cases where a private company's involvement in a wastewater facility exceeds thresholds for issuing municipal bonds, the municipality may still be able to issue another type of tax-exempt bond called a

[13]Municipalities can also issue Build America Bonds, which the federal government subsidizes through tax credits (rather than tax-exempt interest). Build America Bonds were authorized in the American Recovery and Reinvestment Act of 2009 and can be issued in 2009 and 2010. According to the U.S. Department of the Treasury, as of April 30, 2010, states, municipalities, and other local entities had issued 194 Build America Bonds worth $19.8 billion for projects that include sewer or water utility improvements.

qualified private activity bond.[14] The Department of the Treasury limits the volume of private activity bonds that can be issued in each state in a given year; the national limit for calendar year 2010 was $30.86 billion. In order to issue qualified private activity bonds for a wastewater project, a municipality must receive an allocation of private activity bonds from their state, which can be difficult because wastewater projects generally must compete against projects in other sectors, which may include affordable housing, education, and health care.

Although the federal government contributes significant funds to wastewater infrastructure through the CWSRF and tax code, municipalities have primary responsibility for financing wastewater infrastructure. According to U.S. Census Bureau estimates, in fiscal year 2007[15] municipalities spent about $43 billion on wastewater operations and capital projects, while states spent about $1.4 billion. Most municipalities pay for wastewater infrastructure improvements with sewer rate revenues and by issuing municipal bonds. A 2005 National Association of Clean Water Agencies survey of 141 utilities serving more than 81 million people asked respondents which sources of revenue they used to pay for capital improvements to wastewater systems. The 75 utilities responding to this question said that 49 percent of revenues supporting capital improvements came from municipal bonds (both revenue bonds and general obligation bonds) and other types of debt, 16 percent from CWSRF loans, 16 percent from user charges such as sewer rates, and 19 percent from other sources.

In addition to obtaining funding for new infrastructure, municipalities are also generally responsible for overseeing the planning, design, and construction of wastewater facilities. Conventionally, wastewater projects follow a design-bid-build approach in which the municipality contracts

[14]Under the Internal Revenue Code and applicable regulations, generally a bond is a private activity bond when more than 10 percent of the bond issue proceeds is to be used for private business use—such as where a private contractor is leasing a facility receiving such proceeds—and if the payment of the principal or interest on more than 10 percent of the proceeds is derived from or secured by an interest in property used for a private business use. Whether a bond involving a PPP facility meets these criteria is determined by the facts and circumstances surrounding the PPP arrangement. See 26 U.S.C. § 141, 26 C.F.R. § 1.141-3 (2010). While interest on a private activity bond is generally taxable, interest on qualified private activity bonds for exempt facilities such as sewage facilities can be tax-exempt if the bonds meet applicable criteria. See 26 U.S.C §§ 103(a)-(b)(1), 141(e)(1), 26 C.F.R § 1.142(a)(5)-1 (2010).

[15]Fiscal year 2007 includes data for each individual government's fiscal year that ended between July 1, 2006, and June 30, 2007.

with separate entities for the discrete functions of a project, generally keeping much of the project responsibility and risk with the public sector. To meet the continuing need for wastewater infrastructure, some municipalities have used alternatives to this design-bid-build procurement approach, including a variety of types of PPPs, which are described in figure 1. In the last 30 years, hundreds of municipalities have entered into PPPs for the operations and maintenance of their wastewater facilities. In addition, some communities have entered into PPPs—often called design-build-operate agreements—in which the private sector designs, constructs, and then operates new wastewater infrastructure for a period of time. PPPs can also be developed to include private financing, which can serve as an alternative to traditional wastewater infrastructure funding sources.

Figure 1: Selected Types of PPPs

Extent of private sector role	Type of PPP	Private sector role
Greater private sector role  Lesser private sector role	• Design-build-finance-operate	• Designs, constructs, and operates and maintains the infrastructure; partially or fully finances
	• Lease	• Finances, operates and maintains the infrastructure
	• Design-build-operate	• Designs, constructs, and operates and maintains the infrastructure
	• Design-build	• Designs and constructs the infrastructure
	• Operate-maintain	• Operates and maintains the infrastructure

Source: GAO.

Note: For a more extensive list of types of PPP arrangements, see GAO, *Public-Private Partnerships: Terms Related to Building and Facility Partnerships*, GAO/GGD-99-71 (Washington, D.C.: April 1999).

Proposed Approaches for Bridging the Potential Wastewater Financing Gap

Policymakers and wastewater groups have proposed numerous approaches to bridge the potential gap between current levels of federal, state, and local spending and future infrastructure needs. Two such approaches build on traditional ways of financing wastewater infrastructure: increasing funding for the CWSRF and implementing EPA's Sustainable Water Infrastructure Initiative. The CWSRF has seen an increase in funding in recent years, from $689 million in fiscal year 2009 to $2.1 billion in fiscal year 2010. In addition, $4 billion was appropriated to the CWSRF as part of the American Recovery and Reinvestment Act of 2009. EPA's Sustainable Water Infrastructure Initiative encourages wastewater and drinking water utilities to improve the management of their systems, to plan ahead for infrastructure needs, and to charge the full cost of their services—including the costs of building, maintaining, and operating a wastewater system over the long term. In its 2002 report about

the clean water infrastructure gap, EPA noted that if wastewater utilities implemented annual rate increases of 3 percent over inflation over a 20-year period, the infrastructure gap would disappear.

In addition, wastewater stakeholders and policymakers have also proposed a number of alternative approaches that could be used to bridge the wastewater infrastructure financing gap. For example, one option would be for Congress to create a federal clean water trust fund. We have previously examined design issues that would need to be addressed in establishing such a fund, including how a trust fund should be administered and used; what type of financial assistance should be provided; and what activities should be eligible to receive funding from a trust fund.[16] In addition, a clean water trust fund would require a source of revenue. We found that, while a number of options have been proposed to generate revenue for a clean water trust fund—including excise taxes, a corporate income tax, and a water use tax—several obstacles would have to be overcome in implementing these options, including defining the products or activities to be taxed, establishing a collection and enforcement framework, and obtaining stakeholder support.

Policymakers and wastewater stakeholders have also suggested that Congress create an NIB to finance many types of infrastructure, including wastewater facilities. Since 2007, three bills have been introduced that outline different visions for an NIB or similar entity that would finance wastewater infrastructure:[17]

- The National Infrastructure Development Bank Act of 2009 (H.R. 2521) proposed establishing a government corporation to finance infrastructure projects across sectors, prioritizing those that contribute to economic growth, lead to job creation, and are of regional or national significance. It would have the authority to issue loans, bonds, and debt securities, as well as to provide loan guarantees.

[16]See GAO-09-657.

[17]The Build America Bonds Act (S. 2021), introduced in 2007, proposed an entity similar to an NIB but did not include wastewater infrastructure among the eligible projects. This act proposed granting recognition to a multistate transportation finance corporation, which would be authorized to issue up to $50 billion in bonds—providing federal tax credits in lieu of interest—to finance qualified infrastructure projects. The Build America Bonds Act is different from the Build America Bonds authorized by the American Recovery and Reinvestment Act of 2009.

- The National Infrastructure Bank Act of 2007 (S.1926 and H.R. 3401) proposed creating an independent federal entity to finance infrastructure projects that have "regional and national significance" with a public sponsor and a potential federal investment of at least $75 million. It would be authorized to issue up to $60 billion in bonds, which would carry the full faith and credit of the United States; the bond proceeds could be used to finance direct subsidies and loans, among other things.

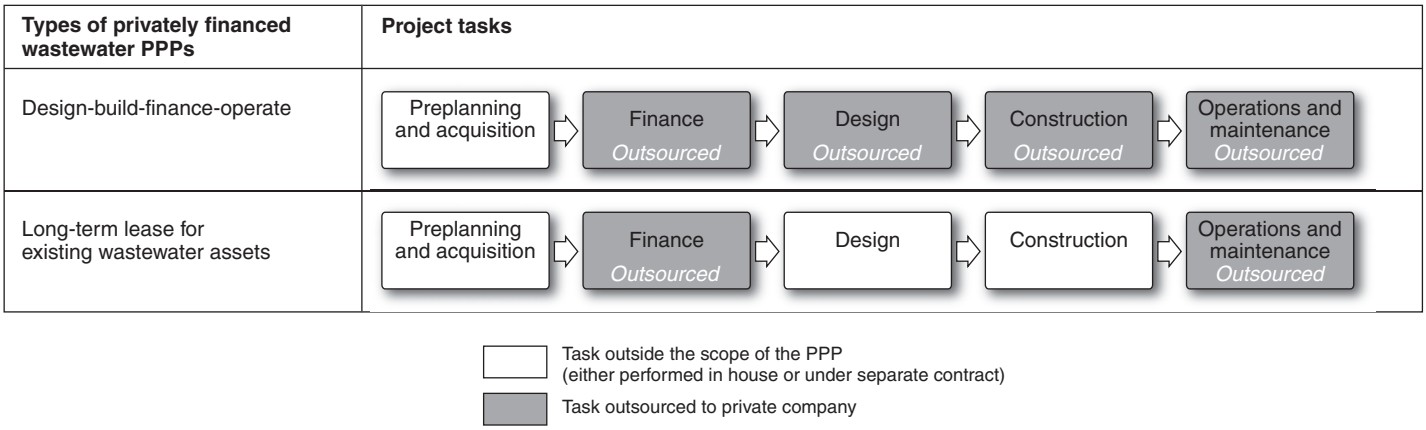
- The National Infrastructure Development Act (H.R. 3896), introduced in 2007, proposed creating two government corporations with an intended initial capitalization of up to $9 billion in federal appropriations over the initial 3 years. Thereafter, the corporations would be self-financed through business income with the possibility of converting to government-sponsored enterprises (GSE).[18]

Yet another approach for closing the wastewater financing gap is to encourage private investment in wastewater projects, including through privately financed wastewater PPPs at the municipal level. The 1992 Executive Order directed federal agencies to review and modify federal policies related to federally-financed infrastructure to encourage appropriate privatization—including long-term leases—of infrastructure at the local level. Figure 2 shows that the privately financed PPPs discussed in this report generally fall into two categories: design-build-finance-operate (DBFO) partnerships and lease partnerships.[19]

[18]GSEs are privately owned, for-profit financial institutions that have been federally chartered for a public purpose, such as facilitating the flow of investment to specific economic sectors.

[19]State law may limit or condition contract arrangements available to municipalities.

Figure 2: Types of Privately Financed Wastewater PPPs



Source: GAO.

- *DBFO.* For new infrastructure or significant upgrades, a municipality and a company enter into a DBFO partnership in which the company is responsible for designing, constructing, and financing the infrastructure and then operating and maintaining it for the term of the contract. The municipal partner typically makes payments to the company covering both debt service and operations and maintenance.

- *Lease partnership.* For existing infrastructure, a municipality and a company enter into a lease partnership in which the municipality leases wastewater infrastructure assets (such as a treatment plant) to the company, which is then responsible for operating and maintaining those assets for a set period of time. The company makes a lease payment to the municipality in exchange for the opportunity to operate and maintain the facility. This payment may be a onetime up-front payment, called a concession fee, or lease payments could be spread out over the life of the lease. Over the course of the lease, the municipality, or the ratepayers, make payments to the company for operations and maintenance services and to repay the company's periodic lease payments or initial investment (i.e., the concession fee).

  While private financing can serve as an alternative to traditional infrastructure funding sources, we have previously reported that private financing is not "free money"—rather this funding is a form of private capital that must be repaid to investors seeking a return on their

investment.[20] Depending on how a privately financed PPP agreement is structured, it may also result in joint public-private ownership of the wastewater assets being financed, which could result in the facility losing its regulatory status as a publicly owned wastewater facility as defined pursuant to the Clean Water Act. Joint public-private ownership could also result in the loss of the municipality's ability to issue tax-exempt bonds.

Stakeholders Addressed Issues in Three Key Areas That Would Need To Be Considered in Designing an NIB

Stakeholders who responded to our questionnaire addressed a variety of issues in three key areas that would need to be considered in designing an NIB: mission and administrative structure, financing authorities, and project eligibility and prioritization.[21] Appendix II lists the organizational and individual stakeholders who responded to our questionnaire. Appendix III lists the questions asked in the questionnaire and provides the full range of stakeholder responses we received.

While a Majority of Stakeholders Supported the Creation of an NIB, Their Views Varied on Its Mission and Administrative Structure

About three-quarters of stakeholders (20 of 27) responding to our questionnaire supported the creation of an NIB. Seven of these stakeholders supported an NIB because it could provide another source of funding for critical infrastructure projects. In contrast, 1 of 27 stakeholders opposed the creation of an NIB for water and wastewater, instead supporting increased financing for the CWSRF, which according to the stakeholder is a proven mechanism for providing cost-effective and sustainable financing. In addition, 6 of 27 stakeholders selected "other"—neither supporting nor opposing the creation of an NIB—and cited a variety of reasons. For example, two of these stakeholders indicated that their positions on an NIB would depend on its authorizing legislation and

[20]See GAO, *Highway Public-Private Partnerships: More Rigorous Up-front Analysis Could Better Secure Potential Benefits and Protect the Public Interest*, GAO-08-44 (Washington, D.C.: Feb. 8, 2008).

[21]A total of 29 stakeholders—18 organizations and 11 individuals—responded to our questionnaire. However, because not all stakeholders responded to each question, the total number of responses varies for each question. While we aggregated the counts of organizational and individual stakeholders' views for reporting purposes, the tables in this section include information on separate organizational and individual stakeholder views.

expressed concerns about how a new entity would affect the CWSRF. Another indicated that a clear need for an NIB had not been established.

Stakeholders had varying views on an NIB's mission and the infrastructure sectors it should finance. Of the 20 stakeholders who supported the creation of an NIB, about two-thirds (13) indicated that its mission should be to fund infrastructure in multiple sectors, such as transportation, energy, water, and wastewater. Among the reasons these stakeholders cited for supporting a cross-sector NIB are that it would allow for coordination across sectors and that financial experts at a cross-sector NIB would be able to easily apply their expertise to financing a wide range of projects. In contrast, about one-third of stakeholders who supported the creation of an NIB (7 of 20) thought its mission should be to fund only water and/or wastewater infrastructure.

Stakeholders suggested a variety of options when asked how an NIB should interact with the CWSRF—currently the largest source of federal financial assistance for wastewater infrastructure.[22] About half of stakeholders (13 of 29) suggested that an NIB assist the CWSRF in a variety of ways including, for example, providing additional capital for the CWSRF and helping states leverage their CWSRF funds.[23] About a third of stakeholders (11 of 29) suggested that an NIB act as a complement to the CWSRF. For example, according to four stakeholders with this view, an NIB should fund larger projects that the CWSRF typically does not have the funds to accommodate or multistate projects that can be administratively difficult under the CWSRF. In addition, 3 of 29 stakeholders suggested that an NIB not have any relationship with the CWSRF; one of these noted that state CWSRF programs do not need assistance from an NIB because they already have access to federal and state funds, as well as bond markets for leveraging.[24]

[22]This paragraph is based on stakeholder responses to an open-ended question. As such, some stakeholders suggested multiple ways in which an NIB could interact with the CWSRF.

[23]Twenty-seven states currently leverage their CWSRF funds by using some of their SRF assets, such as federal capitalization grants, as collateral in the public bond market.

[24]Eight stakeholders suggested a variety of other possible relationships between an NIB and the existing CWSRF. For example, one stakeholder explained that the EPA and the CWSRF could help identify eligible projects for NIB assistance whereas another suggested that an NIB could push the CWSRF programs to fund more innovative and sustainable infrastructure.

In addition, there was no consensus among stakeholders on whether an NIB should be administered as a new responsibility for an existing federal agency, structured as a government corporation, or structured as a GSE. More specifically, 4 stakeholders indicated that an NIB should be a new responsibility for an existing federal agency, 7 indicated that an NIB should be structured as a government corporation, and 4 indicated that an NIB should be structured as a GSE.[25] We have previously reported that an entity's administrative structure affects the extent to which it is under federal control, how its activities are reflected in the federal budget, and the risk exposure of U.S. taxpayers.[26] Specifically:

- Federal agencies are generally subject to greater federal control than government corporations and GSEs. For example, federal agencies receive the preponderance of their financial support from congressionally appropriated funds, and Congress can use appropriations, hearings, other lawmaking, and confirmation of senior leadership, as management tools. The President also has significant means of control, for example through responsibility for agencies' budget proposals, administrative requirements, and the appointment of leadership.

- Although no two government corporations are completely alike, Congress has generally established government corporations to provide market-oriented public services, such as the Commodity Credit Corporation, which stabilizes and protects farm income and prices. In general, government corporations are not as dependent upon annual appropriations as federal agencies to fund operations—instead, or in addition, receiving funds from consumers of their products and services.[27] As a result of this corporate structure, government corporations have been given greater operational flexibility by Congress and corporations with mixed public-private ownership may be exempt from many executive branch budgetary requirements and disclosures. Nevertheless, government corporations are subject to some federal oversight by, for example, having

[25]It is difficult to gauge the overall level of support for each potential administrative structure because 6 stakeholders selected "other" rather than indicate a specific administrative structure for an NIB and another eight stakeholders did not respond to the question.

[26]See GAO, *Federally Created Entities: An Overview of Key Attributes*, GAO-10-97 (Washington, D.C.: Oct. 29, 2009); and GAO, *Fannie Mae and Freddie Mac: Analysis of Options for Revising the Housing Enterprises' Long-term Structures*, GAO-09-782 (Washington, D.C.: Sept. 10, 2009).

[27]For example, the Federal Deposit Insurance Corporation is a government corporation that insures deposits in and is financed by premiums paid by banks and thrift institutions.

some or all board members appointed by the federal government, and/or having their budgets displayed in the federal budget.

- GSEs are privately owned, for-profit financial institutions that have been federally chartered for a public purpose, such as facilitating the flow of investment to specific economic sectors. GSEs generally do not lend money directly to the public but instead provide liquidity to capital markets by, for example, issuing stock and debt and purchasing and holding loans. GSEs are neither managed directly by the federal government, nor are their activities included in the federal budget. Although the federal government explicitly does not guarantee GSE debt obligations, investors have widely assumed that a GSE facing a financial emergency would receive federal support, which has allowed GSEs to borrow at interest rates below those of other for-profit corporations. We have previously reported that the structure of GSEs as for-profit corporations with government sponsorship has undermined market discipline and provided them with incentives to engage in potentially profitable business practices that were risky and not necessarily supportive of their public missions.[28] Indeed, the federal government extended support to two GSEs—Fannie Mae and Freddie Mac—beginning in September 2008 after they lost billions of dollars due to questionable mortgage-related investments.[29] In addition, we have also reported that developing an oversight system for GSEs can be challenging.[30] For example, regulators must have the resources, expertise, and authorities necessary to help monitor GSEs, which, due to the implied federal guarantee on their financial obligations, may have financial incentives to engage in excessive risk taking. Further, regulators must have the stature and authorities necessary to help ensure that GSEs operate within the missions for which they were established because of incentives for GSEs

[28]See GAO-09-782.

[29]On September 6, 2008, the Federal Housing Finance Agency, the regulator for two large housing GSEs, Fannie Mae and Freddie Mac, established itself as their conservator given that they had lost billions of dollars due to questionable mortgage-related investments and that their deteriorating financial condition threatened the stability of financial markets. The Congressional Budget Office estimates that Fannie Mae and Freddie Mac conservatorships could cost taxpayers nearly $400 billion over the next 10 years.

[30]See GAO, *Housing Government-Sponsored Enterprises: A Single Regulator Will Better Ensure Safety and Soundness and Mission Achievement*, GAO-08-563T (Washington, D.C.: Mar. 6, 2008); and GAO, *Housing Government-Sponsored Enterprises: A New Oversight Structure Is Needed*, GAO-05-576T (Washington, D.C.: Apr. 21, 2005).

to engage in activities that are profitable but that do not support their missions.

A Majority of Stakeholders Agreed on an NIB's Financing Authorities, Including How an NIB Should Be Funded and How It Should Finance Projects

Most stakeholders (20 of 22) agreed that the federal government should provide all or some of the initial capital for an NIB, though 4 stakeholders suggested that federal capitalization be augmented by private funds.[31] In addition, 3 of 22 stakeholders suggested that an NIB's initial capital come from user fees and/or taxes, similar to a trust fund; such user fees and/or taxes, according to 2 of these stakeholders, would provide an NIB with a stable revenue flow while spreading out the funding burden. Although most stakeholders agreed that the federal government should capitalize an NIB, they were split on whether an NIB should continue to rely on federal funds (9 of 22), or instead become self-sustaining (6 of 22).[32] Two stakeholders who supported a self-sustaining NIB explained that it should function as a bank—investing only in projects that are creditworthy and able to repay their loans. When asked about federal funding for an NIB, staff from the Office of Management and Budget noted that, for budgeting purposes, the cost to the federal government should be determined according to the Federal Credit Reform Act of 1990.[33] This act requires that covered federal entities' budgets include estimates of the government's long-term cost of issuing loans or loan guarantees, among other things.[34]

Most stakeholders (21 of 23) agreed that an NIB should be authorized to generate its own funds for operating expenses and lending,[35] with a majority of stakeholders (15) supporting an NIB authorized to use multiple

[31]This paragraph is partly based on stakeholder responses to an open-ended question. As such, some stakeholders suggested multiple ways in which an NIB should be capitalized.

[32]Seven of 22 stakeholders selected "other," neither supporting nor opposing a self-sustaining NIB. Three of these stakeholders explained they would support a self-sustaining NIB but were unsure whether it would be feasible.

[33]Pub. L. No. 101-508, Title XIII, § 13201(a) (1990) (amending the Congressional Budget Act of 1974), 104 Stat. 1388-610, codified at 2 U.S.C. §§ 661-661f (2010).

[34]Federal entities calculate these costs by multiplying the expected dollar amount of loans by a program's credit subsidy rate, which is calculated to include the possibility of a borrower default and other factors that could affect the risk to taxpayers.

[35]Of the remaining 2 stakeholders who responded to this question, one opposed giving an NIB the authority to generate its own funds for operating expenses and lending to ensure that an NIB focuses on funding infrastructure projects rather than raising capital, and another selected "other," neither supporting nor opposing giving an NIB the authority to generate its own funds for operating expenses and lending.

mechanisms to generate funds. In their responses to our questionnaire, organizations—which are generally more familiar with the wastewater industry—and individuals—who are generally more familiar with wastewater financing—had different levels of support for some of the mechanisms. Most notably, a higher percentage of organizations supported allowing an NIB to issue tax-exempt bonds, while a higher percentage of individuals supported allowing an NIB to charge fees for technical assistance or other services. Stakeholders offered a variety of reasons for supporting financial mechanisms. For example, several stakeholders emphasized the importance of an NIB having a broad range of financial tools for generating its own funds. In addition, two stakeholders who supported giving an NIB the authority to borrow from the U.S. Department of the Treasury and to issue tax-exempt bonds explained that these two options would provide an NIB with access to low-cost capital, which could then be passed on to projects. When asked about an NIB issuing bonds with tax-exempt status, IRS officials noted that there is a general prohibition on tax-exempt bonds being federally guaranteed. In order for an NIB to issue tax-exempt, guaranteed bonds, it would need a statutory exemption to this prohibition similar to those granted for bonds in other sectors, such as housing.[36] Table 1 lists the financing mechanisms most commonly supported by stakeholders.

Table 1: Stakeholder Support for Financing Mechanisms That an NIB Could Use to Generate Funds for Operating Expenses and Lending

	Number of stakeholders who indicated support for mechanism (percentage of total responses)	
	Organizational stakeholders	Individual stakeholders
Borrow directly from U.S. Department of the Treasury	9 of 11 (82%)	7 of 10 (70%)
Charge application fees	8 of 11 (73%)	8 of 10 (80%)
Issue tax-exempt bonds	9 of 11 (82%)	5 of 10 (50%)
Charge fees for technical assistance	5 of 11 (45%)	8 of 10 (80%)
Issue commercial paper	6 of 11 (55%)	6 of 10 (60%)
Borrow directly from private investors	7 of 11 (64%)	5 of 10 (50%)
Charge fees for other services, such as annual monitoring	4 of 11 (36%)	8 of 10 (80%)

Source: GAO analysis of stakeholder responses.

[36]26 U.S.C. §§ 149(b)(1), 149(b)(3)(C) (2010).

Note: This table includes only the 21 stakeholders who supported giving an NIB the authority to generate its own funds for operating expenses and lending. In addition, the table includes only the financing mechanisms supported by a majority of stakeholders.

A majority of stakeholders also agreed on some of the mechanisms an NIB should offer for financing projects. Organizations and individuals had different levels of support for some of the mechanisms—most notably, a higher percentage of organizations than individuals rated pooling loans and issuing tax-exempt bonds as very important mechanisms for an NIB to offer. In explaining the importance of the mechanisms an NIB should offer for financing projects, one stakeholder noted that direct loans, pooled loans, and/or federal loan guarantees from an NIB would help infrastructure projects attract additional sources of capital. When we asked staff from the Office of Management and Budget about financing mechanisms an NIB could offer to projects, they did not have specific views on which mechanisms an NIB should offer but emphasized that an NIB should be subject to the Federal Credit Reform Act. Table 2 shows stakeholder views on the mechanisms an NIB could offer.

Table 2: Stakeholder Views on Mechanisms an NIB Could Offer to Finance Projects

	Number of stakeholders who rated mechanism as very important (percentage of total responses)	
	Organizational stakeholders	**Individual stakeholders**
Issue direct loans to infrastructure projects	10 of 12 (83%)	9 of 11 (82%)
Pool loans for several infrastructure projects into a larger bond issue to lower the cost of borrowing	8 of 9 (89%)	6 of 11 (55%)
Provide federal loan guarantees for infrastructure projects	8 of 11 (73%)	7 of 11 (64%)
Issue tax-exempt bonds on behalf of infrastructure projects	8 of 10 (80%)	5 of 11 (45%)
Provide funding to CWSRF programs	9 of 14 (64%)	5 of 10 (50%)

Source: GAO analysis of stakeholder responses.

Note: While a total of 18 organizations and 11 individuals responded to the questionnaire, not all stakeholders rated each mechanism. In addition, this table includes only the mechanisms rated as very important by a majority of stakeholders.

Finally, stakeholders suggested various measures to mitigate the potential risk of exposing taxpayers to the financial losses that could result from multiple municipalities defaulting on NIB loans. Measures suggested by stakeholders included the use of strict credit and underwriting standards in selecting projects and the maintenance of adequate reserves, which could serve to absorb financial losses. Other suggestions included requiring general- or revenue-obligation pledges or insurance from utilities and municipalities. When asked about risk-mitigation measures, staff from the Office of Management and Budget noted that current infrastructure

financing programs have developed a variety of measures to mitigate taxpayer risk. For example, the Department of Agriculture's Rural Utilities Service provides grants and loans for eligible drinking water and wastewater projects in rural communities. Office of Management and Budget staff said that this program mitigates risk by not releasing grant funds to the recipient communities until the project is completed.

Stakeholders' Views Varied on What Projects Should Be Eligible for Financing, but a Majority of Stakeholders Agreed on How Projects Should Be Prioritized

Stakeholders had a variety of views on the types of projects that should be eligible for financing from an NIB. Specifically, half of stakeholders (12 of 24) indicated that projects of all sizes should be eligible for NIB financing, while a third (8 of 24) noted that only large projects should be eligible.[37] Three stakeholders explained that they support financing projects of all sizes because smaller projects may address important infrastructure needs. Support for an NIB that finances exclusively large projects was stronger among individual stakeholders than among organizational stakeholders, though few stakeholders defined what they meant by "large." For example, two stakeholders supported an NIB that finances exclusively large projects because it could fund projects beyond the capacity of the CWSRF. In contrast, another stakeholder opposed an NIB that finances exclusively large projects, explaining that one NIB proposal set a threshold of $75 million or more, which could render many wastewater projects ineligible. Similarly, stakeholders had a variety of views on whether NIB financing should be limited to publicly owned and operated utilities.[38] Specifically, 9 of 23 stakeholders thought all types of utilities should be eligible for NIB financing, while another 9 of 23 thought that only publicly owned utilities should be eligible.[39] Three stakeholders indicated that an NIB should assist private utilities and PPPs—in addition to public utilities—because the utilities' consumers and the general public would still benefit.

[37]Four of 24 stakeholders responded "other," neither supporting nor opposing an NIB that finances only large infrastructure projects. Two of these stakeholders suggested that an NIB should directly fund larger projects but should also use the state CWSRF programs to fund smaller projects.

[38]Since 2 stakeholders provided multiple answers in response to the question on this topic, the number of responses is greater than 23.

[39]Of the 9 stakeholders that supported only publicly owned utilities, 2 supported only publicly owned and operated utilities, while 7 supported publicly owned and operated utilities, as well as publicly owned utilities with PPPs. In addition, 2 of 23 stakeholders did not think an NIB should directly assist wastewater utilities, and 5 of 23 stakeholders expressed other views.

Stakeholders generally agreed on what costs should be eligible for NIB financing. More than three-quarters of stakeholders agreed that capital projects (24 of 26) and planning and design costs (19 of 25) should be eligible but that routine operations and maintenance costs (24 of 26) and ratepayer assistance (16 of 20) should not be eligible. Four stakeholders noted that capital and planning and design costs should both be eligible because they are closely linked—planning and designing are essential components of carrying out capital projects. Nine stakeholders explained that operations and maintenance activities and/or ratepayer assistance should be funded by utilities through the rates that they charge their customers. One stakeholder also explained that many utilities have not raised rates enough to invest in the needed operations and maintenance for their systems. Our past work has highlighted similar concerns, noting that many utilities were not routinely charging the full cost for wastewater services.[40]

A majority of stakeholders said an NIB should use a combination of methods to allocate funding to eligible projects; such methods include directly funding projects ranked using specific criteria, allocating funding to sectors, or allocating funding to states.[41] Stakeholders had differing views on which combination of methods should be used. The most commonly supported methods were directly funding projects ranked using specific criteria and allocating funding to infrastructure sectors. Stakeholders provided a variety of reasons for supporting these methods. For example, one stakeholder supported directly funding projects ranked using specific criteria to ensure that the projects most in need—including smaller projects—would receive assistance. In addition, 2 stakeholders explained that allocating amounts by sector would be necessary to ensure that each sector receives funding, while 3 others noted that the differences between sectors would make it difficult for an NIB to evaluate projects across sectors.

[40]See GAO, *Water Infrastructure: Information on Financing, Capital Planning, and Privatization*, GAO-02-764 (Washington, D.C.: Aug. 16, 2002) and GAO, *Water Infrastructure: Comprehensive Asset Management Has Potential to Help Utilities Better Identify Needs and Plan Future Investments*, GAO-04-461 (Washington, D.C.: Mar. 19, 2004).

[41]This question allowed respondents to check an individual option for an NIB to use in allocating funding to eligible projects or to check that an NIB should use a combination of options and specify which options.

Stakeholders also agreed that an NIB should prioritize projects that address the greatest infrastructure need and that generate the greatest public health and environmental benefits. One stakeholder explained that these three criteria are the main reasons for wastewater regulations. However, another stakeholder questioned how "greatest infrastructure need" would be defined. Our past work has highlighted similar concerns, noting that infrastructure "need" is difficult to define and to distinguish from a wish list of capital projects.[42] It can also be difficult to measure environmental and public health benefits. For example, while the CWSRF uses a uniform set of measures to help determine efficient and effective use of CWSRF resources, our past work has found that a lack of baseline environmental data and technical difficulties made it difficult to attribute benefits specifically to the CWSRF.[43] A complete list of criteria supported by a majority of stakeholders is shown in table 3.

Table 3: Stakeholder Views on Criteria an NIB Should Use When Evaluating and Selecting Projects

	Number of stakeholders who rated criterion as a high priority (percentage of total responses)	
	Organizational stakeholders	**Individual stakeholders**
Projects addressing the greatest infrastructure need	11 of 11 (100%)	7 of 8 (88%)
Projects generating the greatest public health benefit	12 of 14 (86%)	5 of 8 (63%)
Projects generating the greatest environmental benefit	10 of 14 (71%)	5 of 8 (63%)
Projects of national or regional significance	6 of 13 (46%)	6 of 10 (60%)
Projects for communities that have difficulty accessing other sources of revenue, such as bond markets	8 of 14 (57%)	4 of 9 (44%)

Source: GAO analysis of stakeholder responses.

Note: While a total of 18 organizations and 11 individuals responded to the questionnaire, not all stakeholders rated each criterion. In addition, this table includes only the criteria rated a high priority by a majority of stakeholders.

[42]See GAO, *Opportunities for Congressional Oversight and Improved Use of Taxpayer Funds: Budgetary Implications of Selected GAO Work*, GAO-04-649 (Washington, D.C.: May 7, 2004) and GAO, *U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary*, GAO-01-835 (Washington, D.C.: July 20, 2001).

[43]See GAO, *Clean Water: How States Allocate Revolving Loan Funds and Measure Their Benefits*, GAO-06-579 (Washington, D.C.: June 5, 2006).

Privately Financed Wastewater PPPs Are Uncommon and Have Several Reported Advantages and Challenges

We identified seven privately financed wastewater PPPs developed since 1992. Municipal and wastewater services company officials we interviewed identified numerous potential advantages to these partnerships, including faster construction of new facilities, access to alternative sources of financing, increased efficiency, and access to outside experts and technology solutions. Officials also identified numerous potential challenges to these partnerships, including public and political opposition, the higher cost of private financing, and concerns over a loss of municipal control over wastewater equipment, operations, or rates.[44]

Seven Municipalities Have Developed Privately Financed Wastewater PPPs Since 1992

As shown in table 4, we identified seven municipalities that have developed privately financed wastewater PPPs since 1992.

Table 4: Privately Financed Wastewater PPPs Developed Since 1992 Identified by GAO

Municipality	Company	Year initiated	Type	Initial term (years)	Assets included	Up-front payment (Y/N)
Arvin, CA	U.S. Filter (now Veolia Water)	1999	Lease & DBFO	35	Lease: existing treatment plant DBFO: upgraded treatment plant components	Y
Cranston, RI[a]	Triton Ocean State LLC (now Veolia Water)	1997	Lease	25	Treatment plant, collection system, pumping stations, industrial pretreatment	Y
Fairbanks, AK	Golden Heart Utilities	1997	Lease & Asset Sale[b]	30	Lease: treatment plant Asset sale: collection system	Y
Franklin, OH[c]	Wheelabrator EOS (now Veolia Water)	1995	Lease & Asset Sale[d]	20	Asset sale: treatment plant Lease: one process within the treatment plant	Y
North Brunswick, NJ[e]	U.S. Water (now United Water)	1995	Lease	20	Collection system & pumping stations[f]	Y

[44]Our examination of privately financed PPPs did not include an evaluation of the effect of these agreements on communities' sewer rates and cost or level of service. Since most of the privately financed PPPs we identified are more than 10 years old, reliable information about these issues was not readily available.

Municipality	Company	Year initiated	Type	Initial term (years)	Assets included	Up-front payment (Y/N)
Santa Paula, CA	Santa Paula Water, LLC[g]	2008	DBFO	30	New water recycling facility	N
Woonsocket, RI[h]	U.S. Filter (now Veolia Water) with third-party financing through LaSalle Bank and ABN AMRO	1999	DBFO	20	Upgrade of existing treatment plant	Y

Source: GAO.

[a]Since officials from Cranston declined to speak with us, this information about Cranston's privately financed PPP is derived from publicly available sources.

[b]The city of Fairbanks leased its wastewater treatment plant, which falls within this report's definition of a privately financed PPP. Fairbanks sold its collection system, which falls outside of the scope of this report.

[c]The wastewater treatment plant involved in the 1995 lease and asset sale was originally owned by the Miami Conservancy District, a flood-control agency in southwestern Ohio. The treatment plant serves the communities of Franklin, Carlisle, and Germantown, as well as unincorporated areas of Warren and Montgomery counties.

[d]The city of Franklin leased a portion of its wastewater treatment plant, which falls within this report's definition of a privately financed PPP. Franklin sold other parts of the treatment plant.

[e]The North Brunswick lease was terminated in 2002.

[f]North Brunswick also leased their drinking water assets, including a treatment plant, as well as the distribution system.

[g]Santa Paula Water, LLC, is a partnership between PERC Water and Alinda Capital.

[h]The wastewater treatment plant involved in the 1999 DBFO serves multiple communities: Woonsocket, Rhode Island; North Smithfield, Rhode Island; Cumberland, Rhode Island; Bellingham, Massachusetts; and Blackstone, Massachusetts.

Although all seven of these municipalities entered into privately financed wastewater PPPs, their reasons for doing so differed, as did the contract terms. Two examples illustrate these differences:

- Santa Paula, California, entered into a DBFO in 2008. The city of Santa Paula had an existing wastewater treatment plant that was not compliant with the waste discharge requirements of the Los Angeles Regional Water Quality Control Board.[45] The city entered into a consent agreement with

[45]The Los Angeles Regional Water Quality Control Board, a part of the California Environmental Protection Agency, conducts a broad range of activities to protect ground and surface waters under its jurisdiction, including enforcing water quality laws and regulations; preparing, monitoring compliance with, and enforcing waste discharge requirements, including NPDES permits; and implementing and enforcing local storm water control efforts.

the board in which it agreed to achieve full compliance with water quality requirements by December 15, 2010, or else face $8.5 million in penalties. According to city officials, the Santa Paula City Council decided to enter into a DBFO partnership because it believed a DBFO would be less expensive than a traditional procurement and could better ensure the city would meet its deadline. The city awarded a contract to Santa Paula Water—a company formed by PERC Water and Alinda Capital—to design, build, and finance a new water recycling facility as well as to operate the facility for 30 years. Through monthly service fees, the city is to repay Santa Paula Water for its investment in the plant and pay for operations, maintenance, repair, replacement, and a profit margin. PERC Water owns the treatment facility over the 30-year contract term, after which ownership reverts to the city.

- Fairbanks, Alaska, entered into a lease partnership in 1997. Fairbanks' wastewater treatment system faced a multimillion dollar deficit and needed substantial capital improvements. However, according to a city official, Fairbanks city residents were reluctant to approve bond issuances, and local government officials were reluctant to raise rates. In addition, Fairbanks was in a unique situation in that the city owned several other utilities, including a telephone utility and an electric utility. The city was approached by a consortium of companies that proposed to buy or lease all the city's utilities, and voters approved the action. As part of this deal, Golden Heart Utilities leased the wastewater treatment plant in 1997 for a 30-year term. In exchange, the company pays Fairbanks about $33,000 per month in lease payments. Golden Heart Utilities also operates and maintains the treatment plant, and its service fee is paid by ratepayers.

Reported Advantages of Privately Financed Wastewater PPPs

Municipal and company officials we spoke with identified several potential advantages of privately financed wastewater PPPs for municipalities as compared with traditional publicly financed, operated, and maintained wastewater facilities.

Faster Delivery of New Facilities or Facility Upgrades

The most commonly cited advantage was the potential for faster or more certain delivery times for new facilities or facility upgrades, as compared with traditional public procurement.[46] Three municipalities cited faster delivery times as a reason they entered into privately financed PPPs; in two cases, the municipalities were facing regulatory deadlines that required them to upgrade their facilities or pay fines. Company and

[46]This advantage would also apply to design-build partnerships that are not privately financed.

municipal officials told us private procurement may be faster because it is more streamlined than public procurement. This view was echoed in a 1992 publication on wastewater treatment privatization, which stated that wastewater industry officials believe PPPs in which a company designs, builds, and operates a facility can save time because design, construction, and operations are not compartmentalized, so design and construction phases can overlap.[47] Similarly, in a 2000 publication, a chapter discussing PPPs in the wastewater sector points out that, in a privately financed PPP, companies are not bound by the same administrative regulations as federal and state construction projects.[48] In addition, officials from Franklin, Ohio, and Woonsocket, Rhode Island, told us that they believe it took less time to secure private financing than public financing, an advantage specific to privately financed PPPs.

Access to Alternative Sources of Wastewater Infrastructure Financing

The next most commonly cited advantage of privately financed PPPs was access to alternative sources of wastewater infrastructure financing. For example, officials from Arvin, California, told us the city did not access the bond market because of its low credit rating, even as the city faced regulatory compliance concerns. Similarly, an official from Fairbanks, Alaska, said it was difficult to convince the public to approve bonds, preventing the city from using municipal bonds to finance wastewater infrastructure.

Cost and Operational Efficiencies

Another advantage cited by company and municipal officials and publications we identified is that privately financed PPPs may bring cost and operational efficiencies to wastewater collection and treatment. Several municipal officials told us companies can take advantage of economies of scale in a privately financed PPP by, for example, buying key supplies, such as chemicals, in bulk. The 2000 chapter that discussed PPPs in the wastewater sector also noted that a primary way companies can reduce costs is through managing their three chief expenses—labor, electricity, and chemicals. By operating a number of plants, a company can spread staff—and costs—more widely. However, other officials we spoke with noted that efficiencies can also be achieved by public utilities without a privately financed PPP. For example, one regional utility said

[47]Heilman, John and Gerald Johnson, *The Politics and Economics of Privatization: The Case of Wastewater Treatment* (Tuscaloosa, AL: University of Alabama Press, 1992).

[48]Haarmeyer, David in Seidenstat, P., Nadol, M., & Hakim, S., *America's Water and Wastewater Industries: Competition and Privatization* (Vienna, VA: Public Utilities Reports, 2000).

that it achieved economies of scale by constructing regional plants, each of which served multiple municipalities. In addition, according to a 2002 study of privatization of water services by the National Research Council (NRC), the private sector is not necessarily more efficient than the public sector and vice versa.[49]

While company officials said a privately financed PPP can operate more efficiently by making better capital investment decisions, this may depend on the terms of the PPP contract. According to officials at one company, municipal governments face political pressure to keep costs down in the short term, which can lead to higher costs in the long run. Company officials told us that a contract that makes the private partner responsible for both capital upgrades and maintenance can incentivize decisions that save money in the long run. For example, according to PERC Water officials, in its privately financed PPP with the city of Santa Paula, the company invested its own funds above the signed contract price for energy efficient equipment expected to reduce energy consumption and operating costs over the 30 year term of the contract. In contrast, if a contract passes capital repair costs through to municipalities, one municipal official told us that companies may have an incentive to underinvest in maintenance. In such circumstances, delaying maintenance could result in savings for the private partner but impose higher costs on the municipality by hastening the need for capital repairs.

Access to Expertise and Technology Solutions

Another commonly cited advantage of privately financed wastewater PPPs is that the private partner may have greater access to expertise and technology than some municipalities.[50] For example, officials from one company told us it spends $200 million a year on research and development and can draw on this research to solve problems municipalities have not been able to solve on their own. Similarly, according to a 2000 publication on municipal wastewater treatment outsourcing, wastewater treatment companies may have more experienced personnel and better access to the latest technologies if

[49]National Research Council, *Privatization of Water Services in the United States: An Assessment of Issues and Experience* (Washington, D.C.: National Academy Press, 2002).

[50]Other types of PPPs could also offer access to expertise and technology. For example, an official from one municipality involved in an operations and maintenance PPP told us that the contract resulted in efficiencies after the private partner installed technology to monitor its facility remotely via the Internet.

wastewater treatment is the company's core business.[51] For example, an official from Fairbanks, Alaska, told us that prior to entering into a privately financed PPP, his city had been unable to process the sludge from its wastewater treatment plant into a useful form. Golden Heart Utilities used a technology to convert the sludge into compost, which is now sold to the public. This access to expertise and technology may be particularly important for small- and medium-sized communities, which may lack the expertise to upgrade or operate plants to meet regulatory standards, according to the 2002 NRC study.

Up-front Payments to Municipalities

Several municipal and company officials also cited up-front payments to municipalities as an advantage of privately financed PPPs. Up-front payments to municipalities could be used to finance wastewater infrastructure improvements, but company and municipal officials told us these payments could also be used to finance other priorities, such as a pension fund or municipal budget gap. Although six of the seven municipalities that entered into privately financed PPPs received up-front payments from their private partners, at least three used part of the payment for nonwastewater-related activities. One municipal official told us his municipality was motivated to enter into a privately financed PPP so that it could use the up-front payment to supplement its general fund and scale back a planned property tax increase. Similarly, the mayor of Akron, Ohio, proposed that the city lease its wastewater assets and use the up-front payment to fund a scholarship program that would allow all Akron students to attend the University of Akron. Voters ultimately rejected this proposal. In a 1997 response to congressional questions about wastewater PPPs, EPA pointed out that up-front payments can be viewed as loans from the company to the municipality and will require wastewater users to repay the company, with interest.[52] According to EPA, an increase in user fees can result when an up-front payment exceeds the previously outstanding local debt on the wastewater treatment facilities. We have highlighted similar considerations about the use of up-front payments in the transportation sector.[53]

[51]Landow-Esser, Janine and Melissa Manuel in Seidenstat, P., Nadol, M., & Hakim, S., *America's Water and Wastewater Industries: Competition and Privatization* (Vienna, VA: Public Utilities Reports, 2000).

[52]EPA, *Response to Congress on Privatization of Wastewater Facilities*, EPA-832-R-97-001a (Washington, D.C.: July 1997).

[53]See GAO-08-44.

Increased Focus on Other Municipal Functions

Finally, company and municipal officials said that privately financed PPPs may allow local governments to increase their focus on other functions, such as police and fire services.[54] In contrast, however, some municipal officials told us they would not consider entering into a privately financed wastewater PPP because they believe wastewater treatment is a core municipal duty. According to the 2002 NRC study, local officials are in part drawn to private participation in their wastewater utilities because of the need to focus civic energies and resources on more immediate social problems. Although the role of a municipal government in a privately financed PPP may change, it is still important. For example, according to the NRC study, if a utility's operations are transferred to the private sector, the public sector's importance does not diminish but rather changes from that of operator to contract manager—a role that can require new talents and skills. Similarly, an official in Woonsocket, Rhode Island, told us that carrying out a privately financed PPP contract on a daily basis takes more time and expertise than he expected, because even simple questions can require a review of the city's 1,000-page contract with its private partner.

Reported Challenges to Considering and Developing Privately Financed Wastewater PPPs

Municipal and company officials also identified a number of potential challenges to considering and developing privately financed wastewater PPPs.

Public and Political Opposition

The challenge cited most often by municipal and company officials was public and political opposition. These officials told us that the public is sometimes concerned about the possibility that a company would not be as responsive to ratepayers as a municipality, about job losses for municipal employees, and about sewer rate increases. For example, North Brunswick, New Jersey, entered into a privately financed PPP in 1995, but terminated that agreement in 2002, in part because of public reaction to rate increases. An official from Fairbanks, Alaska, told us some residents feel the city "gave away" its wastewater utility in its privately financed PPP deal, and they object to a company profiting from running the utility. In at least one case, opposition from citizens as well as interest groups derailed the development of a privately financed PPP in Akron, Ohio.

[54]PPPs without private financing may also bring this advantage.

Financing Challenges

Municipal and company officials said that making private financing attractive to municipalities may be a challenge for a variety of reasons:

- *Private financing generally costs more than public financing.* Municipal and company officials told us that private financing typically costs more than tax-exempt municipal bonds. In its 2002 study, the NRC reported that the federal tax exemption on municipal bonds gave municipal borrowers a 2.5 percent to 3 percent cost advantage over private bonds. The NRC study also reported that, for municipalities, private financing is roughly 20 to 40 percent more expensive than public financing. Municipal officials told us the profit motive of companies may also drive up the cost of a privately financed PPP. However, one municipal official in Woonsocket, Rhode Island, noted that the speed at which private financing can be obtained could still result in a lower overall cost, due to the time saved. Similarly, company officials told us they are able to compensate for the higher cost of financing over the course of a contract term. For example, officials cited tax rules generally allowing companies to depreciate capital, and their ability to find cost savings through efficiencies as ways to offset their costs over the contract term.

- *Combining private financing with public financing is difficult.* In writing the contract for a privately financed PPP, the parties must carefully follow IRS tax rules to avoid changing the status of existing tax-exempt municipal bonds to taxable bonds. IRS officials told us that, under the tax code, a municipality in such a partnership could continue to issue tax-exempt general obligation bonds to finance wastewater infrastructure only under certain circumstances. For example, a sewage facility could be financed with 50 percent private financing and 50 percent tax-exempt general obligation bonds, if no payments from the private partner or ratepayers secure the public debt or are used to pay the public debt service. Under these rules, it is especially difficult for a municipality in a privately financed PPP to issue tax-exempt revenue bonds—often the preferred type of bond for wastewater facilities—because the revenue bonds are secured by payments from ratepayers. According to an official from the Office of Chief Counsel, which advises the IRS, a privately financed PPP can be financed with tax-exempt qualified private activity bonds if it meets criteria in applicable statutes and regulations.[55] However, one company official said that the volume caps imposed on the issuance of

[55]For more information, see discussion on page 8 and footnote 14 of this report.

private activity bonds in each state limit their availability for wastewater projects; he advocated lifting the state volume caps.[56]

Concern about Loss of Municipal Control

Several municipal officials told us another challenge is their concern about the loss of control over municipal wastewater facilities and rates. Officials at one municipality told us they chose not to pursue a privately financed wastewater PPP in part because they believed they would lose some control over rate setting and system growth. According to a 2000 chapter that discussed PPPs in the wastewater sector,[57] in a privately financed PPP, a local government's control over a facility's operations depends on the contract's terms. For example, officials in Santa Paula, California, told us they experienced a loss of control over plant design, choice of equipment, and construction oversight after entering into their DBFO. The officials explained that, while the city's contract with its private partner includes performance specifications, the city has no control over the methods the company uses to achieve those specifications. Further, because the city does not have detailed knowledge of the facility or its operations, it may not be able to pass on such details to other operators when its current contract ends.

Lack of Experience with Privately Financed PPPs

Municipal and company officials also cited their lack of experience with privately financed wastewater PPPs as a challenge to the development of such partnerships. For example, one municipal official commented that few municipalities will want to be the first to try something new and potentially risky. Another municipal official echoed that concern, commenting that there are few examples showing this model can work effectively in the United States. A company official told us that municipal officials are concerned about being locked into a relationship with a private partner for a long-term contract and the difficulties of maintaining a good relationship during that time. Company officials also cited the need for more education about privately financed PPPs to explain their advantages.

[56]Several bills (H.R. 537, S.3262, H.R. 4213, and H.R. 4849), introduced in the House of Representatives and the Senate, would exempt water and wastewater projects from the volume caps imposed on the issuance of private activity bonds in each state.

[57]Haarmeyer, David in Seidenstat, P., Nadol, M., & Hakim, S., *America's Water and Wastewater Industries: Competition and Privatization* (Vienna, VA: Public Utilities Reports, 2000).

Costly and Difficult Contracting

Municipal and company officials also told us that developing a contract for a privately financed wastewater PPP can be costly and difficult, in part, because of the lack of experience of companies and municipalities with these contracts and, in part, because of their complexity. For example, an official from Santa Paula, California, told us the city's attorneys did not have experience with DBFO contracts, so the city hired specialized counsel to develop the DBFO, resulting in legal fees three times greater than for a traditional procurement. A company official told us the complexity of privately financed PPPs and the differences between this type of procurement and traditional procurement can result in slower transactions. One municipal official noted that part of the complexity associated with developing a privately financed PPP contract is transitioning employees from the public to the private sector. In addition, the 2002 NRC study noted that the preparation of adequate contracts is expensive and time-consuming, and outside legal and engineering expertise is usually needed. We have cited similar concerns for highway PPPs.[58] One municipal official noted that communities often look to privately financed PPPs when they are financially stressed, but this might make it difficult to hire experienced contractors and consultants to protect the interests of the community.

State and Federal Laws

Finally, municipalities may encounter difficulties entering into privately financed PPPs due to state and federal laws as follows:

- *State laws.* Municipal officials cited state laws that, in some cases, outlaw the use of the same contractor to design and build a wastewater treatment facility as a challenge, which would prohibit the use of DBFOs, as well as other design-build PPPs. Specifically, a municipal official in Ohio told us he would like to pursue a DBFO, but state law requires design and construction to be bid separately from one another, and also requires different trades be bid separately, such as electrical and plumbing. Ultimately, he told us, this prevents design-build contracts, with or without private financing. Echoing this point, a company official told us that developing privately financed PPP contracts is complicated by the fact that every state has its own procurement rules.

- *Federal financial interest.* According to EPA officials, prior to accepting private financing, municipalities must repay any remaining federal investment for facilities built under the construction grants program of the 1970s and 1980s, as well as any other federal grants. Officials from

[58] See GAO-08-44.

Franklin, Ohio, told us some of the up-front payment from the private partner was used to repay the existing federal interest in the wastewater plant, since it was built with federal grants in 1972. EPA officials told us that, although most facilities that received funds through the construction grants program are now fully depreciated with no remaining federal financial interest, some other more recent grants, including construction grants that are still awarded to the District of Columbia and U.S. Territories, congressionally directed grants for particular wastewater facilities, and direct grants through states under the American Recovery and Reinvestment Act, would also be subject to early payback.

Agency Comments and Our Evaluation

We provided a draft of this report to EPA, IRS, the Office of Management and Budget, and the U.S. Department of the Treasury for review and comment. These agencies did not provide written comments to us. EPA and IRS provided technical comments, which we have incorporated as appropriate.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to appropriate congressional committees, Secretary of the Treasury, Administrator of EPA, Director of the Office of Management and Budget, Commissioner of IRS, and other interested parties. The report will also be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff members have any questions regarding this report, please contact me at (202) 512-3841 or trimbled@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix V.

Sincerely yours,

David C. Trimble
Acting Director
Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

To determine stakeholders' views on the issues to be considered in designing and establishing a national infrastructure bank (NIB), we reviewed past legislative proposals and wastewater industry position papers on establishing an NIB. In addition, we interviewed stakeholders with knowledge of a variety of wastewater infrastructure issues, including individuals and organizations from the water and wastewater industry; financial sector; and federal, state, and local government; and obtained their views on establishing and designing an NIB.

Based on the information obtained through these interviews, and our review of reports and legislative proposals, we developed a questionnaire to gather information about stakeholder views on an NIB's mission and administrative structure, financing authorities, and project eligibility and prioritization. We pretested the questionnaire with four stakeholders from a variety of backgrounds and made changes based on their input.

In addition to developing the questionnaire, we identified organizational and individual stakeholders familiar with wastewater infrastructure financing issues and existing NIB proposals. We developed this list based on our preliminary interviews and prior GAO work on wastewater infrastructure financing. We sent the questionnaire to 23 national organizations with expertise in the wastewater industry in one of the following areas: financing and operating wastewater projects, constructing and maintaining wastewater infrastructure, local and state wastewater infrastructure needs, and environmental protection. In addition, we identified individuals involved in wastewater infrastructure financing to provide additional perspective on the creation and design of an NIB. We sent the questionnaire to 14 individuals with expertise in financing wastewater infrastructure, including: consultants who provide advice to municipalities; state financing officials; officials from private investment firms; and policy consultants who have studied an NIB or wastewater infrastructure financing. Although we sought to include stakeholders with a variety of perspectives about an NIB, the views of stakeholders consulted should not be considered to represent all perspectives about an NIB. In addition, although an NIB could potentially finance many types of infrastructure, we limited our stakeholders to those familiar with the wastewater sector.

We received responses from 18 organizational stakeholders. Of the 5 organizational stakeholders that did not respond, 2 told us they could not

come to a consensus on behalf of their organization.[1] We also received responses from 11 individuals. Our overall response rate was 78 percent. Some stakeholders did not answer all of the questions on the questionnaire, so the number of responses for each question varies. For a list of the organizational and individual stakeholders that responded to the questionnaire, see appendix II. Appendix III provides the responses that stakeholders gave regarding design issues to be considered in creating an NIB.

To provide additional context about the potential implications of an NIB's design on the federal budget, and its risk to U.S. taxpayers, we reviewed prior GAO reports, as well as reports by the Congressional Budget Office. We also spoke with officials at the U.S. Department of the Treasury, the Internal Revenue Service, and the Environmental Protection Agency (EPA). In addition, after analyzing the results from our questionnaire, we interviewed staff from the Office of Management and Budget to discuss how an NIB might affect the federal budget and U.S. taxpayers. We conducted a similar interview with officials at the Department of the Treasury; however because the current administration is still deliberating issues related to an NIB, Treasury officials could not comment on specific issues discussed by stakeholders responding to our NIB questionnaire.

To determine the extent to which wastewater public-private partnerships (PPPs) have been privately financed, we conducted a literature search of online databases to identify academic and news articles discussing privately financed wastewater PPPs initiated since 1992, when President Bush signed an Executive Order encouraging such partnerships. Despite these efforts, it is possible that we did not identify all privately financed wastewater PPPs initiated since 1992. For purposes of this report, a privately financed wastewater PPP is a partnership involving the core business of collecting and treating municipal wastewater between a municipality (or other public entity) and one or more private partners in which the private partner(s) contribute private funds to the partnership. For our report, the public partner must retain a long-term interest in the facility. This means that, if the private partner acquires an ownership stake

[1]In addition, we received a questionnaire from a respondent not in our original selection. The respondent's views are not included in the results presented in this report. However, the respondent was opposed to an NIB, explaining that infrastructure projects have access to traditional sources of financing such as the tax-exempt municipal bond market and the Clean Water State Revolving Fund (CWSRF). According to the respondent, any new funds should be directed to the CWSRF.

in any of the wastewater assets, the public partner must be able to reacquire the assets on preferential terms at the end of the contract.

To determine the potential advantages and challenges of privately financed wastewater PPPs, we conducted interviews with officials from six of the seven municipalities we identified that entered into a privately financed wastewater PPP since 1992; officials from Cranston, Rhode Island, declined to speak with us. In addition, we conducted case studies in four of the states in which privately financed wastewater PPPs have occurred: Alaska, California, New Jersey, and Ohio. As part of our case studies, we spoke with numerous municipalities in each state about their wastewater financing choices to get additional context about why few municipalities have entered into privately financed PPPs. These municipalities were selected to include municipalities of varying sizes, as well as municipalities who are not involved in privately financed wastewater PPPs, but who have considered the option in the past. We also spoke with state officials as needed to understand more about the legal context within each state. Table 5 includes a list of the municipalities and state agencies we spoke with as part of our case studies.

Table 5: Municipalities and State Agencies Selected for Case Study Interviews, by State

	State agencies	Municipalities and local utilities
Alaska	Department of Environmental Conservation Regulatory Commission of Alaska	Anchorage Fairbanks Juneau Palmer
California	State Water Resources Control Board	Arvin Central Contra Costa Sanitary District Fillmore San Francisco Public Utilities Commission Santa Paula
New Jersey	New Jersey Board of Public Utilities	Atlantic County Utilities Authority Cape May County Municipal Utilities Authority North Brunswick North Hudson Sewerage Authority
Ohio	Not applicable	Akron Franklin Metropolitan Sewer District of Greater Cincinnati Tricities Authority

Source: GAO.

To obtain additional information about private sector views on the advantages and challenges of privately financed wastewater PPPs, we interviewed officials at the six largest water and wastewater services companies in the United States: American Water, CH2M Hill, Severn Trent Environmental Services, South West Water Company, United Water, and Veolia Water. We also interviewed officials from PERC Water, a water recycling company involved in the privately financed wastewater PPP in Santa Paula, California. In addition, we interviewed officials from EPA and numerous stakeholders in the water and wastewater industry, including national associations representing wastewater utilities, consultants that advise municipalities on wastewater financing decisions, and representatives from the financial sector involved in water and wastewater infrastructure financing.

Finally, we also conducted a literature search to identify publications that discuss the advantages and challenges of privately financed wastewater PPPs in the United States. After reviewing various publications, we

included the 10 publications that: (1) focused on the wastewater industry in the United States; (2) discussed the advantages and challenges of wastewater PPPs; and (3) specifically addressed the use of private financing in the context of a PPP. Throughout the report, we cite the advantages and challenges identified in these 10 publications to provide additional context to the information gathered in our interviews. See appendix IV for a complete list of the publications we identified.

We conducted our work from June 2009 to June 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions.

Appendix II: Stakeholders Responding to the NIB Questionnaire

The following stakeholders responded to our questionnaire regarding design issues to be considered in creating a national infrastructure bank. The individuals who responded to our questionnaire presented their personal views and not the views of the organizations for which they work.

Organizations

American Council of Engineering Companies
American Public Works Association
American Rivers
American Society of Civil Engineers
American Water Works Association
Association of Metropolitan Water Agencies
Clean Water Action
Clean Water Construction Coalition
Council of Infrastructure Financing Authorities
Food & Water Watch
Government Finance Officers Association
National Association of Clean Water Agencies
National Association of Water Companies
National Utility Contractors Association
The Associated General Contractors of America
The United States Conference of Mayors
Water and Wastewater Equipment Manufacturers Association
Water Environment Federation

Individuals[1]

Everett M. Ehrlich, ESC Company
Paul Eisenhardt, Eisenhardt Group, Inc.
John A. Flaherty, Carlyle Infrastructure Partners
James T. Gebhardt, New York State Environmental Facilities Corporation
Stan Hazelroth, California Infrastructure and Economic Development Bank
Mark Kellett, Northbridge Environmental Management Consultants
Eric P. Rothstein, Galardi Rothstein Group

[1]One additional individual responded to our questionnaire but requested that his name and organization not be listed.

Kenneth I. Rubin, PA Consulting Group
Bernard L. Schwartz, BLS Investments, LLC
Stephen M. Sorett, McKenna Long & Aldridge

Appendix III: Summary of Stakeholder Responses to the NIB Questionnaire

This appendix provides information on stakeholders' responses to our questionnaire addressing design issues to be considered in creating an NIB. The questions asked in the questionnaire are reproduced below,[1] along with a tally of stakeholder responses for each closed-ended question.[2]

1. What types of infrastructure should an NIB provide financing for?

Table 6: Stakeholder Views on Type of Infrastructure Funded by an NIB

	Number of organizational stakeholders	Number of individual stakeholders
An NIB should provide financing for a variety of types of infrastructure, which could include, among others, transportation, energy, water, and wastewater infrastructure	8	5
An NIB should finance only water and wastewater infrastructure	3	3
An NIB should finance only wastewater infrastructure	0	1
An NIB should not be created	1	0
Other	4	2
Total responses	**16**	**11**
No answer	2	0

Source: GAO analysis of stakeholder responses.

2. What should be the mission of an NIB?

Stakeholders provided a variety of open-ended responses to this question, which are discussed in the report as appropriate.

[1]Stakeholders were also asked to provide the reasons for their responses to each question.

[2]In each table in this appendix, the category "No answer" includes respondents who checked "No answer/no opinion," as well as respondents who left the question blank.

3. If an NIB is created, how should it be structured?

Table 7: Stakeholder Views on Administrative Structure of an NIB

	Number of organizational stakeholders	Number of individual stakeholders
As a new responsibility for an existing federal agency	2	2
As a government corporation, either wholly-owned by the government or mixed-ownership (government and private ownership)	2	5
As a government-sponsored enterprise (a private enterprise with implicit public backing, similar to Fannie Mae and Freddie Mac)	2	2
Other	4	2
Total responses	**10**	**11**
No answer	8	0

Source: GAO analysis of stakeholder responses.

4. What relationship, if any, should an NIB have with the existing state-level Clean Water State Revolving Fund programs?

Stakeholders provided a variety of open-ended responses to this question, which are discussed in the report as appropriate.

5. How should an NIB initially be capitalized?

Stakeholders provided a variety of open-ended responses to this question, which are discussed in the report as appropriate.

6. Should an NIB have the authority to generate its own funds for operating expenses and lending using different financing mechanisms?

Table 8: Stakeholder Views on an NIB's Authority to Generate Its Own Funds for Operating Expenses and Lending

	Number of organizational stakeholders	Number of individual stakeholders
Yes, an NIB should be able to use the following financing mechanisms to generate its own funds (see table 9 for the list of mechanisms)	11	10
No, an NIB should not have the authority to generate its own funds	0	1
Other	1	0
Total responses	**12**	**11**
No answer	6	0

Source: GAO analysis of stakeholder responses.

If you answered "yes" to question 6, which mechanisms should an NIB have the authority to use to generate is own funds?

Table 9: Stakeholder Views on Mechanisms an NIB Could Use to Generate Its Own Funds for Operating Expenses and Lending

	Number of organizational stakeholders	Number of individual stakeholders
Issue tax-exempt bonds	9	5
Issue commercial paper	6	6
Borrow directly from the U.S. Department of the Treasury	9	7
Borrow directly from commercial banks	4	5
Borrow directly from private investors	7	5
Borrow directly from international entities on the global capital market	3	4
Charge application fees	8	8
Charge fees for technical assistance	5	8
Charge fees for other services, such as annual monitoring	4	8
Other	0	1
Total responses	**11**	**10**

Source: GAO analysis of stakeholder responses.

Note: This table only includes the 21 stakeholders who supported giving an NIB the authority to generate its own funds for operating expenses and lending.

7. Should an NIB become self-sustaining after its initial capitalization? By self-sustaining, we mean an NIB that is fully reliant on funds that it generates, rather than on continued federal funding.

Table 10: Stakeholder Views on Self-Sustainability of an NIB

	Number of organizational stakeholders	Number of individual stakeholders
Yes, an NIB should be become self-sustaining and not continue to rely on federal funds	3	3
No, an NIB should not become self-sustaining and continue to rely on federal funds	5	4
Other	3	4
Total responses	**11**	**11**
No answer	7	0

Source: GAO analysis of stakeholder responses.

8. How important is it that an NIB has the authority to provide each of the following financing mechanisms?

Table 11: Stakeholder Views on Financing Mechanisms an NIB Could Offer to Finance Projects

		Not at all important	Moderately important	Very important	Should not be provided by an NIB	Total responses	No answer
Issue tax-exempt bonds on behalf of infrastructure projects	Organizations	0	1	8	1	**10**	8
	Individuals	1	0	5	5	**11**	0
Issue tax-credit bonds on behalf of infrastructure projects	Organizations	1	3	6	0	**10**	8
	Individuals	1	1	3	5	**10**	1
Pool loans for several infrastructure projects into a larger bond issue to lower the cost of borrowing	Organizations	0	1	8	0	**9**	9
	Individuals	1	1	6	3	**11**	0
Issue direct loans to infrastructure projects	Organizations	0	1	10	1	**12**	6
	Individuals	0	1	9	1	**11**	0
Provide federal loan guarantees for infrastructure projects	Organizations	0	3	8	0	**11**	7
	Individuals	1	2	7	1	**11**	0
Issue commercial paper on behalf of infrastructure projects	Organizations	1	3	1	2	**7**	11
	Individuals	2	4	1	4	**11**	0
Provide grants to infrastructure projects	Organizations	3	2	6	1	**12**	6
	Individuals	2	0	3	6	**11**	0
Provide funding to Clean Water State Revolving Fund programs	Organizations	1	0	9	4	**14**	4
	Individuals	1	1	5	3	**10**	1
Other	Organizations	0	0	2	0	**2**	16
	Individuals	0	0	1	0	**1**	10

Source: GAO analysis of stakeholder responses.

9. If an NIB suffers from financial losses due to municipalities defaulting on loans or commercial paper, taxpayers may be at risk to cover those financial losses. How should an NIB mitigate this potential risk to taxpayers?

Stakeholders provided a variety of open-ended responses to this question, which are discussed in the report as appropriate.

10. How should an NIB distribute financing to qualified projects?

Table 12: Stakeholder Views on How an NIB Should Distribute Financing to Qualified Projects

	Number of organizational stakeholders	Number of individual stakeholders
Directly from an NIB to the qualified project	3	3
From an NIB to existing federal programs (such as the Clean Water State Revolving Fund), which select qualified projects	0	1
From an NIB to individual states, which select qualified projects	0	1
Some combination of the above	8	6
Other	0	0
Total responses	**11**	**11**
No answer	7	0

Source: GAO analysis of stakeholder responses.

11. What types of wastewater utilities, if any, should an NIB have the authority to assist? Please check all that apply.

Table 13: Stakeholder Views on Types of Wastewater Utilities an NIB Should Have the Authority to Assist

	Number of organizational stakeholders	Number of individual stakeholders
State, local, and nonprofit (such as a rural sewer district) utilities that own and operate wastewater infrastructure	9	9
Utilities engaged in public-private partnerships with publicly owned but privately operated wastewater infrastructure	7	9
Private utility companies that own and operate wastewater infrastructure	3	6
An NIB should not have the authority to directly assist wastewater utilities	2	0
Other	3	2
Total responses	**12**	**11**
No answer	6	0

Source: GAO analysis of stakeholder responses.

12. Assuming constrained resources, by what method should an NIB prioritize eligible projects for financing?

Table 14: Stakeholder Views on How an NIB Should Prioritize Eligible Projects for Financing

	Number of organizational stakeholders	Number of individual stakeholders
First-come, first-served	0	0
Use a formula to allocate a specific amount for each infrastructure sector, such as transportation, energy, or wastewater	1	1
Use a formula to allocate a specific amount for each state	1	0
Rank projects according to specific criteria	2	2
Some combination of the above options	8	5
Other	3	2
Total responses	**15**	**10**
No answer	3	1

Source: GAO analysis of stakeholder responses.

13. What should be the level of priority for the following criteria that an NIB could use to evaluate projects and select those that should be financed?

Table 15: Stakeholder Views on Criteria an NIB Could Use when Evaluating and Selecting Projects

	Number of Stakeholders	Low priority	Medium priority	High priority	Total responses	No answer
Projects addressing greatest infrastructure need	Organizations	0	0	11	**11**	7
	Individuals	1	0	7	**8**	3
Projects generating greatest environmental benefit	Organizations	0	4	10	**14**	4
	Individuals	2	1	5	**8**	3
Projects generating greatest public health benefit	Organizations	0	2	12	**14**	4
	Individuals	2	1	5	**8**	3
Projects serving the largest number of people	Organizations	1	8	4	**13**	5
	Individuals	2	4	3	**9**	2
Projects generating the most economic growth and jobs	Organizations	1	7	6	**14**	4
	Individuals	3	1	5	**9**	2
Projects of national or regional significance	Organizations	1	6	6	**13**	5
	Individuals	1	3	6	**10**	1
Projects with the greatest current and projected use	Organizations	2	8	2	**12**	6
	Individuals	2	2	4	**8**	3

	Number of Stakeholders	Low priority	Medium priority	High priority	Total responses	No answer
Projects serving a population with the lowest median household income	Organizations	3	5	5	**13**	5
	Individuals	4	2	3	**9**	2
Projects for communities that have difficulty accessing other sources of revenue, such as bond markets	Organizations	1	5	8	**14**	4
	Individuals	2	3	4	**9**	2
Projects that include private financing	Organizations	2	6	3	**11**	7
	Individuals	4	1	4	**9**	2
Projects that are ready to begin construction	Organizations	8	2	3	**13**	5
	Individuals	1	4	4	**9**	2

Source: GAO analysis of stakeholder responses.

14. Should an NIB exclusively finance large infrastructure projects?

Table 16: Stakeholder Views on Minimum Size of Projects Eligible for NIB Financing

	Number of organizational stakeholders	Number of individual stakeholders
Yes, an NIB should exclusively finance large infrastructure projects	3	5
No, an NIB should finance infrastructure projects of all sizes	8	4
Other	3	1
Total responses	**14**	**10**
No answer	4	1

Source: GAO analysis of stakeholder responses.

15. Should there be a limit on the amount of financing that one project can receive from an NIB?

Table 17: Stakeholder Views on Limits on Amount of Financing One Project Could Receive From an NIB

	Number of organizational stakeholders	Number of individual stakeholders
Yes, there should be a maximum limit related to the overall financial resources of an NIB	3	7
No, there should not a maximum limit	3	3
Other	1	0
Total responses	**7**	**10**
No answer	11	1

Source: GAO analysis of stakeholder responses.

16. In your opinion, which of the following wastewater infrastructure activities should an NIB finance?

Table 18: Stakeholder Views on What Activities Should be Eligible for NIB Financing

	Number of stakeholders	Yes	No	Total responses	No answer
Routine operations and maintenance	Organizations	1	15	**16**	2
	Individuals	1	9	**10**	1
Planning and design of wastewater infrastructure projects, such as feasibility review, permitting, environment reviews, or preconstruction planning	Organizations	13	3	**16**	2
	Individuals	6	3	**9**	2
Ratepayer assistance to low-income households	Organizations	3	9	**12**	6
	Individuals	1	7	**8**	3
Capital costs, such as reconstruction, rehabilitation, replacement, or expansion	Organizations	14	2	**16**	2
	Individuals	10	0	**10**	1

Source: GAO analysis of stakeholder responses.

17. In addition to design issues discussed above related to administration, authorities, financing prioritization, and financing eligibility (questions 1 through 16), what other design issues should be considered in designing and establishing an NIB, if any?

Stakeholders provided a variety of open-ended responses to this question.

18. Please provide any additional information that would be helpful to GAO in better understanding potential issues related to establishing an NIB.

Stakeholders provided a variety of open-ended responses to this question.

Appendix IV: Published Works Addressing Privately Financed Wastewater PPPs

We identified the following published works which address privately financed wastewater PPPs and were published since 1992:

Haarmeyer, David. "Environmental Infrastructure: An Evolving Public-Private Partnership." in Seidenstat, P., Nadol, M., & Hakim, S. *America's Water and Wastewater Industries: Competition and Privatization.* Vienna, VA: Public Utilities Reports, 2000.

Heilman, John and Gerald Johnson. *The Politics and Economics of Privatization: The Case of Wastewater Treatment.* Tuscaloosa, AL: University of Alabama Press, 1992.

Landow-Esser, Janine and Melissa Manuel. "Environmental and Contracting Issues in Municipal Wastewater Treatment Outsourcing." in Seidenstat, P., Nadol, M., & Hakim, S. *America's Water and Wastewater Industries: Competition and Privatization.* Vienna, VA: Public Utilities Reports, 2000.

Matacera, Paul J. and Frank J. Mangravite in Seidenstat, P., Haarmeyer, D., & Hakim, S. *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management.* New York: J. Wiley, 2002.

National Research Council. *Privatization of Water Services in the United States: An Assessment of Issues and Experience.* Washington, D.C.: National Academy Press, 2002.

Seidenstat, Paul, Michael Nadol, and Simon Hakim. "Competition and Privatization in the Water and Wastewater Industries." in Seidenstat, P., Nadol, M., & Hakim, S. *America's Water and Wastewater Industries: Competition and Privatization.* Vienna, VA: Public Utilities Reports, 2000.

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Appendix V: GAO Contact and Staff Acknowledgments

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