# Water Trade-Off DA

## Water Trade-Off – 1NC Shell

#### A. Funding for water infrastructure is sustainable, but investments must continue

PR Newswire 4-2-12

(4-2-12, PR Newswire, “National Report Underscores Critical Water Infrastructure Needs; Investing In Ductile Iron Pipe Is The Only Rational Solution,” <http://www.prnewswire.com/news-releases/national-report-underscores-critical-water-infrastructure-needs-investing-in-ductile-iron-pipe-is-the-only-rational-solution-145763015.html>, accessed 7-12-12, YGS)

A new report by the [American Water Works Association](http://www.awwa.org/files/GovtPublicAffairs/GADocuments/BuriedNoLongerCompleteFinal.pdf) (AWWA) puts the challenge in sharp perspective: If we delay this infrastructure work or fail to do it properly, the problem will only grow worse and become more expensive to fix.

"For all of those who care about reliable and [safe drinking water](http://www.wateronline.com/doc.mvc/National-Report-Underscores-Critical-Water-0001), the report by AWWA is a must-read. It is an eye [opening account](http://www.wateronline.com/doc.mvc/National-Report-Underscores-Critical-Water-0001) of the necessity of investing in water infrastructure today, while giving good indications of how those investments can best be made," said Gregg Horn, President of the Ductile Iron Pipe Research Association. "Delay and denial," Horn said, "are not responsible options."

"As the results of the AWWA report indicate, based on their own experiences, utilities throughout the country know that properly designed modern ductile iron pipe will serve in excess of 105 to 120 years," said Horn. "By contrast, those same utilities derived an expected service life for PVC pipe of as low as 55 years, with an average of just 70 years."

Horn points out, "One way to help ensure our nation gets it right for the long term is to use ductile iron pipe instead of weaker, less proven PVC for our water infrastructure projects. The reason: ductile iron pipe is the strongest, most durable and reliable pipe material on the market. When life expectancies, added to the cost of materials, labor and maintenance are figured in, ductile iron is not only more cost-effective than the alternatives, it is also a far more environmentally responsible choice—ductile iron is a recycled and recyclable product that requires less pumping energy than alternatives (generating fewer greenhouse gases), while PVC production results in highly toxic dioxin and chlorine use, among other toxins and pollutants."

The 2010 investment estimate of $13 billion a year will increase to $30 billion annually by the 2040s. These investments must be sustained year after year, whether through long-term financing or a "pay-as-you-go" basis. Failure to address the situation and to invest in water infrastructure renewal will only complicate the challenge, and its eventual solution. Aging water pipes may leak, break or fail and thereby compromise businesses, communities and public health.

"Right now," Horn said, "infrastructure decisions worth tens of billions of dollars are being made at the local, state and federal levels to address our water challenges. We cannot afford to make the wrong choices. Uncounted miles of pipe are in need of replacement and we must invest in additional piping to meet our growing demands. Using the right materials—getting this work done right—is a vital matter to us all."

#### B. Link – Budget proves transportation hikes trade off with water infrastructure

Ichniowski, Washington Bureau Chief, and Hunter, Engineer News Record, 11

(Tom, Pam, 2/16/11, Engineering News Record, “Obama Budget Hikes Transportation but cuts other Construction Projects”, <http://enr.construction.com/business_management/finance/2011/0216-ObamaBudgetHikes.asp>, accessed: 7/5/12, KR)

President Barack Obama's proposed $3.8-trillion budget for fiscal year 2013 would continue to squeeze discretionary spending and make further cuts in many construction programs that were trimmed this year. The proposal includes some construction hikes and repeats Obama's 2011 call for a sharp, immediate boost for highways and transit. But the transportation proposal's outlook is dim, because Congress turned it down twice before. Obama's budget request, sent to Congress on Feb. 13, is just the beginning of a long, tough partisan fight over 2013 spending. The outcome will have a direct impact on design and construction firms that focus on government projects. The battle already has begun. House Budget Committee Chairman Paul Ryan (R-Wis.) quickly blasted Obama's proposal as «a political plan for the president's reelection.» Ryan said the GOP would draw up a different budget plan of its own. Jeffrey Shoaf, Associated General Contractors of America senior executive director for government affairs, predicts that «the president's proposal is likely to be rejected by the Senate and not considered by the House at all.» Final 2013 numbers won't become clear until fall at the earliest. But lawmakers from both parties have little room to increase even favored line-items. The failure of the congressional «super committee» to come up with a $1.2-trillion, 10-year deficit-reduction plan has triggered $984 billion in mandatory spending cuts over 10 years. That reduction, split between defense and nondefense programs, starts to take effect in January, unless Congress approves an alternate way to make similarly large deficit cuts. In that environment, it's no surprise that Obama's 2013 construction numbers mostly carry minus signs. Reflecting new Dept. of Defense belt-tightening, Obama seeks a 20% cut in DOD construction. Part of that is the phase-down of the Base Realignment and Closure program, whose spending would drop 43%, to $191 million. In 2010 BRAC got nearly $8 billion. DOD wants two new BRAC rounds, but, if approved, they would not show results quickly and may not lead to a burst of construction. The Corps of Engineers civil works program would be trimmed 5%, including a 13% construction-account cut. Robert Flowers, federal program director for Netherlands-based Arcadis, expects Congress to alter those Corps numbers. Flowers, a former Corps commanding general, adds, «There's a little bit of gamesmanship that goes into this, where the Corps budget gets cut because there's probably the knowledge that Congress will 'plus it up.'» He thinks Corps operations and maintenance and environmental cleanup accounts «will probably get a fair, robust budget.» Environmental Protection Agency water infrastructure funds would be pared 7%, to $3.4 billion. Within that total, aid for clean water State Revolving Funds (SRFs) would drop 20%, to $1.1 billion, and drinking water SRFs would be sliced 8%, to $850 million.

#### C. Impacts

#### 1. Lack of investment leads to diseases and economic collapse

Biederman, General Electric Intelligent Platforms Water Global Industry Manager, 12

(Terry, 3-21-12, Our Water Counts, “Can we afford not to pay for America’s water infrastructure improvements?” <http://www.ourwatercounts.com/blog/index.php/2012/03/22/can-we-afford-not-to-pay-for-americas-water-infrastructure-improvements/>, accessed 7-12-12, YGS)

Lack of water infrastructure investment will jeopardize other critical public and private assets, such as roads, bridges, buildings, sewer mains, and electric, gas, phone and cable lines — all of which are very susceptible to damage from system failures like water main breaks and leaks. Unchecked [water system](http://www.ourwatercounts.com/blog/index.php/2012/03/22/can-we-afford-not-to-pay-for-americas-water-infrastructure-improvements/) loss will also continue to waste billions of dollars in treatment, power, labor, chemical and capital costs associated with producing it. Worst-case water infrastructure failure scenarios could also include increased waterborne diseases and even economic collapse.

#### 2. Economic decline causes protectionism and war

Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 10

[Jedediah Royal, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-215]

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defense behavior of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson’s (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crisis could usher in a redistribution of relative power (see also Gilpin, 1981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Seperately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland’s (1996, 2000) theory of trade expectations suggests that ‘future expectation of trade’ is a significant variable in understanding economic conditions and security behavious of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations, However, if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crisis could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states. Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favor. Moreover, the presence of a recession tends to amplify the extent to which international and external conflict self-reinforce each other. (Blomberg & Hess, 2002. P. 89) Economic decline has been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. ‘Diversionary theory’ suggests that, when facing unpopularity arising from economic decline, sitting governments have increase incentives to fabricate external military conflicts to create a ‘rally around the flag’ effect. Wang (1996), DeRouen (1995), and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, recent economic scholarship positively correlated economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels. This implied connection between integration, crisis and armed conflict has not featured prominently in the economic-security debate and deserves more attention.

#### 3. Disease spread risks extinction

Skelding, University of Toronto Clinical Ethics Fellow, 10

(Julia, contributions from Ross Upshur (also at Toronto), “SARS, Pandemics and Public Health,” The Integrated Assessment Journal 10.1, 2010, p41-50, <http://journals.sfu.ca/int_assess/index.php/iaj/article/viewFile/291/254>, accessed 3-24-12)

Emerging and re-emerging infectious diseases are newly or previously identified diseases that are increasing in incidence or changing in geographic range (Lederberg et al., 1992). Severe acute respiratory syndrome (SARS) and avian influenza are two of the most prominent recent examples of such diseases. It has been apparent for the better part of two decades that a host of interacting factors are causally linked to this emergence, including ecological changes, changes in human demographics and behaviour (particularly the explosion of air travel in the past twenty years), technology and industry, and microbial adaptation and change. More importantly, deficiencies in public health infrastructure coupled with globalization have diminished the capacity of public health systems to respond adequately to the threat of infectious diseases. Authoritative scholars have issued warnings about viral emergence and detailed the steps necessary for civilization to respond. These seemingly dire and apocalyptic warnings have, in fact, come partly true. The emergence of infectious disease is an enduring aspect of human existence, one neglected at our peril.

## Neg Block AT – Aff Args

### AT – Inadequate Funding Now

#### Funding now

U.S. Bureau of Reclamation, 2-8-12

(2-8-12, U.S. Department of the Interior, Bureau of Reclamation, “Salazar Announces $50 Million in Funding for Water Infrastructure Projects in Western United States,” <http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=39184>, accessed 7-10-12, LH)

WASHINGTON – Secretary of the Interior Ken Salazar today announced $50 million in funding for water infrastructure projects in the West – including $30 million in funding for rural water construction projects. The funding will support a variety of efforts – providing financial assistance and construction support for rural water projects, addressing aging infrastructure to maintain system reliability and safety, restoring aquatic habitat and meeting the increasing water demands of the western United States.

"Water is the lifeblood of our communities, and clean, reliable drinking water is absolutely vital to build healthy people and healthy economies – especially in rural areas in the West," Secretary Salazar said. "Building the infrastructure we need to deliver clean water to our nation's rural and tribal communities will create construction jobs and, when complete, will provide lasting benefits for local economies and public health."

#### Current innovative infrastructure funding stretching budget

Gies, Forbes environment reporter, 6-28-12

(Erica, 6-28-12, Forbes, "Spending Cuts Threaten U.S. Water Infrastructure," http://www.forbes.com/sites/ericagies/2012/06/28/spending-cuts-threaten-u-s-water-infrastructure/2/, accessed 7-12-12, CNM)

Some recent innovations could save a lot of infrastructure investment dollars – and be more sustainable and better for the environment: permeable surfaces rather than storm water treatment centers, distributed water collection and reuse, and variable quality for variable uses (cleaning water to drinking level quality is energy intensive and not necessary for many uses, such as watering gardens, washing cars, flushing toilets, and industrial activities).

Another recent innovation could also help: watershed management, which means managing water supplies across political or management borders can better control pollution and track water withdrawals. Such an approach can help use less water, eliminating the needs for capital-heavy investment such as desalination projects or long water pipelines.

### AT – Cuts Inevitable – Wasteful Spending Perception

#### Asset management solves – shows public money is used effectively

Fallon, National Environmental Services Center, Training Specialist, and Kemp, Editor, 9

(Sandra, Mark, September 2009, National Environmental Services Center at West Virginia University, “Managing Aging Water Infrastructure Assets: Planning Ahead Saves Time and Money,” <http://www.nesc.wvu.edu/waterwedrink/articles/aging_infrastructure.cfm>, accessed 7-8-12, LH)

Any size system can benefit from asset management planning. For example, the asset management plan may indicate that it's more cost-effective to replace a piece of equipment now, rather than spend money maintaining it for several more years. It can also help identify the cost to replace and maintain all equipment over the next 10 or 20 years, and help calculate how much money to set aside in reserve each year to cover these future expenses. In the long run, asset management can help you move out of crisis management mode, extend the service life of equipment, reduce system down-time, identify repair and replacement costs, give you more time to plan and research cost-effective solutions for replacing and rehabilitating assets, improve your ability to comply with regulations, show the public and investors that you are using their money effectively and efficiently, enhance your opportunity for obtaining financing, and enable system personnel to use their limited time and resources most efficiently. Asset management resources are listed at the end of this article, including streamlined approaches for small systems.

### AT – Plan Generates Revenue

#### Need to fix water infrastructure now- it will only cost more as time goes on

American Water Works Association, 12

(February 2012, American Water Works Association, “Buried No Longer: Confronting America’s Water Infrastructure Challenge,” <http://www.awwa.org/files/GovtPublicAffairs/GADocuments/BuriedNoLongerCompleteFinal.pdf>, p. 13, accessed 7-12-12, LH)

Overlooking or postponing infrastructure renewal investments in the near term will only add to the scale of the challenge we face in the years to come. Postponing the investment steepens the slope of the investment curve that must ultimately be met, as shown in Figure 11 (next page). It also increases the odds of facing the high costs associated with water main breaks and other infrastructure failures. The good news is that not all of the $1 trillion investment through 2035 must be made right now. There is time to make suitable plans and implement policies that will help address the longer-term challenge. The bad news is that the required investment level is growing, as more pipes continue to age and reach the end of their effective service lives.

As daunting as the figures in this report are, the prospect of not making the necessary investment is even more chilling. Aging water mains are subject to more frequent breaks and other failures that can threaten public health and safety (such as compromising tap water quality and fire-fighting flows). Buried infrastructure failures also may impose significant damages (for example, through flooding and sinkholes), are costly to repair, disrupt businesses and residential communities, and waste precious water resources. These maladies weaken our economy and undermine our quality of life. As large as the cost of reinvestment may be, not undertaking it will be worse in the long run by almost any standard.

## Trade Off Links

### Transportation Infrastructure Trades-Off with Water

#### Infrastructure investment is subject to tradeoff

Schraven, University of Twente, Engineering Technology, and Hartman, Construction Management & Engineering, 10

(Dan, Stephan, 2010, Housing and Urban Analysis Laboratory, “Trade-offs in Infrastructure Investment Decisions: between Financial and Public Interests,” [http://ua.t.u-tokyo.ac.jp/okabelab/yasami/CIB/10-SQ/806.pdf, p. 9](http://ua.t.u-tokyo.ac.jp/okabelab/yasami/CIB/10-SQ/806.pdf%2C%20p.%209), accessed 7-5-12, KR )

The Liability Role represents the party or parties that are obligated to deliver the objective physically for payment. An example of this role is a consortium of more than one construction companies performing the maintenance tasks or construction. This role is important for the realization of the objectives to the asset. However, any further elaboration on this role is out of the scope of this paper. In sum, this conceptual framework gives an outline of the domain in which trade-offs for infrastructure investment decisions are made. The balancing between public and financial interests is indicated to be amongst the Asset and the Equity role. However, sources from the year 2006 to 2009 indicate that the proper identification of these trade-offs are still underdeveloped for infrastructure investment decision making. In the next section, we propose an application by combining the public and financial interests.

#### Different infrastructure funds trade off

Gibbs, House Subcommittee on Water Resources and Environment, Chairman, 12

(Bob, 3-16-12, U.S. House of Representatives, “Hearing on “A Review of Innovative Financing Approaches for Community Water Infrastructure Projects (Part II)” <http://republicans.transportation.house.gov/Media/file/112th/Water/WREMemo03212012.pdf>, p. 8, accessed 7-5-12, KR)

In recent years, there has been a rapid increase in the creation and size of infrastructure investment funds. Tens of billions of dollars have been invested in these funds to date. Managers of these funds are actively looking for deals where they can put this new money to work for their investors. Key targets include transportation, energy, and water/wastewater related assets. Investors in these funds are often pension funds (including public pension funds such as State-sponsored teacher and public employee plans), insurance companies, or foundations, which have large amounts of capital to invest and are looking for stable, long-term investment returns that basic infrastructure assets can provide. Many of these funds are looking for opportunities to invest in long-lived tangible assets that generate predictable and stable cash returns Ihat are indexed or hedged against inflation and pose limited risk. Water and wastewater infrastructure projects fit this bill.

### Funding Trades-Off With Water

#### Budget proves water infrastructure is first to get cut

Ambrosia, Daily Environmental Report, 12

(Patrick, 2/14/12, Bloomberg BNA, “EPA Proposal Cuts Water infrastructure Funds, Increases air, water, and pollution Grants,” <http://www.bna.com/epa-proposal-cuts-n12884907868/>, accessed 7/5/12, KR)

Governmentwide Effort to Cut Spending EPA Administrator Lisa Jackson told reporters during a Feb. 13 telephone news briefing that the proposed budget is part of a “governmentwide effort to reduce spending and find cost savings.” “It demonstrates the fiscal responsibility called for at this moment,” Jackson said. “Some difficult choices are being made in this budget.” In other environmental spending, the president's proposed budget for the Energy Department emphasizes development of clean energy sources. The budget proposal also includes a slight increase in funding for the Interior Department. (See related stories in this issue on the Interior Department and clean energy programs.) Moreover, the administration's budget requests a 1.4 percent increase in federal research programs, including increases for the National Nanotechnology Initiative and climate change. Pipeline safety programs also would see a significant budget increase. (See related stories in this issue on nanotechnology, climate change, and pipeline safety). Proposed Cuts to Water Revolving Funds Most of the savings achieved in the president's proposed EPA budget are the result of a $359 million decrease in funding for the clean water and drinking water state revolving funds. The budget proposal calls for approximately $1.18 billion for the clean water state revolving fund, which provides funds for wastewater treatment and watershed management programs. This is a 19.8 percent reduction from the approximately $1.47 billion enacted in fiscal 2012. The drinking water state revolving fund would see a smaller decrease under the president's budget, which allows for $850 million in fiscal 2013. The drinking water state revolving fund received $918 million in fiscal 2012. The revolving funds allow states to make loans to municipalities to fund water infrastructure projects. EPA said in its budget justification document that the agency will work to target assistance to “small and underserved communities.” Concerns Raised About Cuts Steve Brown, executive director of the Environmental Council of the States, told Bloomberg BNA that although ECOS was expecting a cut to the SRFs, the proposed cuts are “a little more than we were hoping to see.” Brown added that “everybody goes to the SRF to find money” when looking for a place to cut funding. Brown said that ECOS was pleased to see that some of the funding taken away from the state water revolving funds was redirected to state categorical grants. However, he noted that EPA's decision to eliminate funding for state categorical grants for beaches will likely have some opposition. “I know there is going to be a reaction to that,” Brown said.

#### Other priorities will tradeoff

Gibbs, House Subcommittee on Water Resources and Environment Chair, 12

(Bob, R-OH, 2-24-12, U.S. House of Representatives, “A hearing on A Review of innovative Financing Approaches for Community Water Infrastructure Projects” <http://republicans.transportation.house.gov/Media/file/112th/Water/2012-02-28-Briefing_Memo.pdf>, p. 3, accessed 7-5-12, KR)

The projected total cost to larger municipalities of implementing the terms of each of these settlements could end up being as much as $1-5 billion per city, or even more in some instances. There are well over 700 communities, located in 31 States and the District of Columbia, with combined sewer systems and CSO issues potentially facing these sorts of costs. Many more communities have SSO issues. EPA estimates that there are at least 23-75 thousand SSOs per year (not including sewage backups into buildings), amounting to an estimated three to ten billion gallons per year of untreated releases. In recent years, other regulatory issues have also become national priorities, which is placing a further demand for resources on municipalities’ utilities. For example, while the nation’s wastewater utilities have already removed the vast majority of conventional pollutants from municipal wastewater, looking forward, they face significantly higher costs to remove the next increment plus control pollutants from urban runoff.

#### Infrastructure investments tradeoff with water

Kosik, CNN, 11

(Alison, 1-21-11, CNN, "Experts: U.S. water infrastructure in trouble," http://www.cnn.com/2011/US/01/20/water.main.infrastructure/index.html, accessed 7-12-12, CNM)

But as they say, timing is everything. The aging infrastructure threat also comes in the wake of a recession, when politicians are struggling to maintain state and federal budgets. Also, water systems must compete with needs for other underground systems, such as communications networks.

When crews dig to fix broken water pipes, "there's now Verizon lines that didn't used to be there, cable lines, fiber lines, electrical lines," said District of Columbia water general manager George Hawkins. "So much has been added to the underworld, that each one of the these fixes is getting more and more complicated to get done properly." The nation's capital, Hawkins said, averages about one water pipe break each day.

How much would it cost to fix? Every year, according to the EPA, the estimated price tag for repairing the nation's water infrastructure rises. The best guess at a total cost over the next 20 years has skyrocketed from about $198 billion in 1999 to the latest estimate -- $335 billion.

"We also need a national political leadership that understands the extraordinary significance and importance of this investment and why it matters to them and why it will pay us back," said Hawkins. "Conservative or liberal does not matter."

So how did things get so complicated? Through the 1970s most of the cost of building sewage plants and drinking water systems was paid for by Washington, said Goldstein. Federal leaders "understood what a national priority this is," he said. "You can't have jobs, you can't have businesses, you can't have hotels, homes, if this infrastructure isn't in place."

During the past couple of decades federal money for water systems has been cut significantly, he said. Economic stimulus legislation in 2009 was a "drop in the bucket," said Goldstein, who said about $10 billion was aimed at U.S. water infrastructure projects -- out of $787 billion in total stimulus.

### Public Transit

#### Public Transportation bills trade off with water infrastructure

Cho, Engineering News-Record, Senior Editor, et al., ’10

(Aileen, Scott Judy, Southeast Editor, Debra Wood, reporter, J.T. Long, Journalist, 2/15/2010, Engineer News Record, “View the Winners, Losers in Obama’s 2011 Budget”, EbscoHost, accessed 7-5-12, KR)

DOT: Federal Transit Administration The President's budget seeks to increase spending for public transportation by 1%, to $10.8 billion. Of that, $835 million would go for 19 new construction projects, including rail lines in Denver, Honolulu, Minneapolis-St. Paul and San Francisco, as well as a busway in Connecticut. DOT: New infrastructure fund The plan calls for a $4-billion National Infrastructure Innovation and Finance Fund at the Dept. of Transportation to award grants to transportation projects that have "regional and national significance." DOT Secretary Ray LaHood says prospects of congressional approval are "very bright." EPA: Clean-water revolving fund The proposal recommends a 5% cut to the clean-water state revolving fund. Still, the $2-billion budget allocation for fiscal 2011 is "close to a tripling of where clean-water SRF was at its low," which was about $650 million, observes Adam Krantz of the National Association of Clean Water Agencies. EPA: Drinking-water revolving funds The budget calls for $1.29 billion for drinking-water state revolving funds, a 7% cut from the 2010 appropriation. Given Obama's proposal to freeze overall non-security domestic discretionary funds, water-program advocates are pleased to see funding for those accounts remain key parts of EPA's budget.

#### Transit funding would cause cuts to water infrastructure

Ichniowski, Washington Bureau Chief, and Hunter, Engineer News Record, 11

(Tom, Pam, 2/16/11, Engineering News Record, “Obama Budget Hikes Transportation but cuts other Construction Projects”, <http://enr.construction.com/business_management/finance/2011/0216-ObamaBudgetHikes.asp>, accessed: 7/5/12, KR)

Highways, transit and passenger rail are the big winners among construction programs in President Obama’s $3.7-trillion fiscal 2012 budget request, which calls for sharp increases in those sectors next year, kicking off a proposed $556-billion, six-year surface transportation bill. But many other major construction accounts would suffer cuts under Obama’s plan to help meet his goal of freezing overall non-security-related discretionary funding. Among programs that would be trimmed are Environmental Protection Agency water infrastructure, Army Corps of Engineers civil-works construction and General Services Administration new buildings construction.

### Rail

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Ichniowski, Washington Bureau Chief, and Hunter, Engineer News Record, 11

(Tom, Pam, 2/16/11, Engineering News Record, “Obama Budget Hikes Transportation but cuts other Construction Projects”, <http://enr.construction.com/business_management/finance/2011/0216-ObamaBudgetHikes.asp>, accessed: 7/5/12, KR)

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### High Speed Rail

#### HSR funding would cause cuts to water infrastructure

Ichniowski, Washington Bureau Chief, and Hunter, Engineer News Record, 11

(Tom, Pam, 2/16/11, Engineering News Record, “Obama Budget Hikes Transportation but cuts other Construction Projects”, <http://enr.construction.com/business_management/finance/2011/0216-ObamaBudgetHikes.asp>, accessed: 7/5/12, KR)

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### Banks

#### The proposed budget increases funding for infrastructure bank and cuts funding for water infrastructure

Cho, Engineering News-Record, Senior Editor, et al., ’10

(Aileen, Scott Judy, Southeast Editor, Debra Wood, reporter, J.T. Long, Journalist, 2/15/2010, Engineer News Record, “View the Winners, Losers in Obama’s 2011 Budget”, EbscoHost, accessed 7-5-12, KR)

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#### Transportation investment bills such as the National Infrastructure Bank would cut construction programs, including water infrastructure

Ichniowski, Washington Bureau Chief, and Hunter, Engineer News Record, 11

(Tom, Pam, 2/16/11, Engineering News Record, “Obama Budget Hikes Transportation but cuts other Construction Projects”, <http://enr.construction.com/business_management/finance/2011/0216-ObamaBudgetHikes.asp>, accessed: 7/5/12, KR)

Highways, transit and passenger rail are the big winners among construction programs in President Obama’s $3.7-trillion fiscal 2012 budget request, which calls for sharp increases in those sectors next year, kicking off a proposed $556-billion, six-year surface transportation bill. But many other major construction accounts would suffer cuts under Obama’s plan to help meet his goal of freezing overall non-security-related discretionary funding. Among programs that would be trimmed are Environmental Protection Agency water infrastructure, Army Corps of Engineers civil-works construction and General Services Administration new buildings construction. The Associated General Contractors calculates that the Obama budget seeks a total of $164 billion for construction programs, up $36.3 billion, or 28% from enacted 2010 appropriations. But if a proposed $50-billion 2012 infusion for highways, transit, rail and airports is subtracted, construction accounts are down $13.7 billion from 2010 levels. Even the huge proposed transportation bill—nearly double the last multiyear authorization—is not as promising as it sounds, transportation and construction industry officials say, because the White House did not identify any new funding source or recommend hiking existing taxes and fees to pay for the measure. «They’re willing to talk about construction but not particularly willing to invest more in it,» says Jeffrey Shoaf, AGC’s senior executive director for government affairs. «They beef up the highway account without providing any revenue to fund [the] beef purchase.» The release of Obama’s budget blueprint on Feb. 14 intensifies an already heated Capitol Hill debate over federal spending. Republicans, who now control the House and increased their minority in the Senate, have been pushing hard to cut non-defense funding. House Budget Committee Chairman Paul Ryan (R-Wisc.), a major GOP voice on spending issues, blasted Obama’s plan, saying, «The President’s budget spends too much, taxes too much and borrows too much.» But Democrats, who still control the Senate, defended the White House plan. Senate Majority Leader Harry Reid (D-Nev.) said, «The President’s budget offers a long-term plan to responsibly cut the deficit in half in his first term while investing in things that grow our economy, such as education, innovation and infrastructure.» As construction officials study the budget request, a major focus is the proposed outline of a $555.9-billion, six-year surface transportation bill. The long-awaited framework would combine authorizations for highways and transit and, for the first time, passenger rail as well as a national infrastructure bank. According to the Dept. of Transportation, of the $555.9 billion, highways and bridges would receive $336.4 billion—up 48% from the last multiyear authorization—in the 2005 Safe, Accountable, Flexible, Efficient, Transportation Equity Act: a Legacy for Users. Transit would get $119.2 billion, up 127% from SAFETEA-LU. The measure also has $52.6 billion for intercity passenger rail, $30 billion for the envisioned National Infrastructure Bank, $29.8 billion for safety programs, $2 billion for a new National Infrastructure Investment grant program and $3.4 billion for aviation infrastructure. Under the administration’s plan, annual funding would peak in 2012, the bill’s first year, with a total of $112.5 billion. That would include the one-time infusion of $50 billion above current funding levels for highways, transit, rail and airports. The $112.5 billion for 2012 would include $69.7 billion in obligations for highways, $22.2 billion for transit, $8 billion for passenger rail and $5 billion for the infrastructure bank. The budget repeats Obama’s statement that the new transportation bill would be «paid for,» but it doesn’t say how. Instead, it states, «The President is committed to working with the Congress to ensure that funding increases for surface transportation do not increase the deficit.» Obama and other administration officials have said they oppose raising the federal motor-fuels tax, the prime revenue source for the Highway Trust Fund. Transportation Secretary Ray LaHood told reporters on Feb. 14 that the administration’s position hasn’t changed. He said, «There are many people in the country that are without work. There are many people in the country that are hurting economically. This administration has said time and time again that we are not in favor of raising the gas tax when we have a lousy economy.» Highway and transit programs have been operating under stopgap measures since Sept. 30, 2009, when SAFETEA-LU expired. With the current extension set to lapse on March 4, another stopgap is inevitable. Among non-transportation accounts, EPA water infrastructure takes a heavy hit under the Obama request. Aid for Clean Water State Revolving Funds (SRFs) would be cut 26%, to $1.55 billion, and drinking-water SRFs would be slashed 29%, to $990 million.

#### Bank transportation infrastructure funding would crowd out water funding – water can’t provide revenue and doesn’t compete

Puentes, Brookings Institution Metropolitan Policy Program senior fellow, & Istrate, Metropolitan Infrastructure Initiative senior research analyst and associate fellow, 9

(Robert and Emilia, Brookings Institution, "Investing for Success Examining a Federal Capital Budget and a National Infrastructure Bank," December 2009, p. 16, <http://www.brookings.edu/~/media/Files/rc/reports/2009/1210_infrastructure_puentes/1210_infrastructure_puentes.pdf>, accessed 6-25-12, CNM)

Sectors. There is also a concern that an NIB would favor transportation over other infrastructure modes, due to potentially larger projects and associated revenue streams. The wastewater and drink- ing water advocates are worried that water projects would not be able to compete with transportation, because the water projects have a localized effect and usually do not reach the size of transportation construction projects.

## Internal Links

### Water Funded Through State Revolving Funds

#### Water infrastructure funding appropriated via State Revolving Funds

Copeland, Congressional Research Service, specialist in resource and environmental policy, Stubbs, CRS agriculture and natural resource policy analyst, and Stern, Natural Resource Policy analyst, 10

(Claudia Copeland, Megan Stubbs, Charles V. Stern, May 28th, 2010, Congressional Research Service, “Water Infrastructure and Funding in the American Recovery and Reinvestment Act of 2009,” <http://www.nationalaglawcenter.org/assets/crs/R40216.pdf>, p. 4, accessed 7/5/12, KR)

The federal Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) impose regulatory requirements regarding wastewater treatment and drinking water quality in the United States. For wastewater treatment, the CWA prescribes performance levels to be attained by municipal sewage treatment plants in order to prevent the discharge of harmful wastes into the Nation’s lakes, rivers, and other surface waters. For drinking water quality, public water systems are subject to federal regulations under the SDWA which limit levels of contaminants in treated water and require, for example, system monitoring, treatment to remove certain contaminants, and reporting. Both of these laws authorize financial assistance so that communities can construct treatment facilities in compliance with these requirements.5 Under both laws, Congress appropriates federal capitalization grants as seed money to support State Revolving Funds (SRFs), and states provide matching funds equal to 20% of the federal capitalization grant. States, in turn, provide loans from the SRFs to communities for water infrastructure projects. Over the long term, the loan programs are intended to be sustained through repayment of loans to states, thus creating a continuing source of state assistance for other communities. The SRF capitalization grants are appropriated through the Environmental Protection Agency’s (EPA’s) State and Tribal Assistance Grants account (in the Interior and Environment Appropriations bill) and are allocated among the states according to formulas. Historically, the federal government has had a large financial role in assisting communities to meet their wastewater funding needs (having appropriated more than $75 billion since 1973) and also more recently in meeting drinking water treatment needs (more than $10 billion since 1997). However, estimates of funding needs remain very high ($203 billion for wastewater and $277 billion for drinking water), while appropriations for EPA assistance have declined in recent years. The economic recovery legislation provides additional FY2009 funding for the two SRF capitalization grant programs. The Recovery Act provides an additional $4.0 billion for clean water SRFs and $2.0 billion for drinking water SRFs. Total stimulus funding for the two SRF programs is four times larger than the funding levels for these programs in regular FY2009 appropriations. As requested by many states, the legislation waives the current law requirement that states must provide a 20% match to the federal capitalization grant.

#### Clean Water and Drinking Water State Revolving Fund allocates money to water infrastructure

MacGillis, Washington Post, 10

(Alec, 5-5-10, The Washington Post, “New EPA water infrastructure policy seeks to encourage smart growth,” <http://www.washingtonpost.com/wp-dyn/content/article/2010/05/04/AR2010050404310.html>, accessed 7-10-12, LH)

Such is the thinking behind a policy released late last month by the Environmental Protection Agency that instructs states to adopt smart-growth principles in allocating the $3.3 billion in water infrastructure funding that the federal government doles out each year. States, it asserts, should prioritize projects that upgrade the drinking water and wastewater infrastructure in cities over projects intended to serve new developments on the suburban fringe.

The new guidance arguably arrives five years too late -- after a home building boom that swallowed up vast swaths of land. But building will eventually resume, and EPA officials say the leverage of the federal funding -- the Clean Water and Drinking Water State Revolving Fund -- could coax states toward a more sustainable form of development. With so many cities contending with aging water pipes and sewer lines, officials say, it makes most sense to address those needs first.

#### Existing state funds solve

Cooper, Center for American Progress Senior Fellow, and Eizenga, Center for American Progress Policy Analyst, 11

(Donna and Jordan, 9-2-11, Center for American Progress, "Increasing the Impact of Federal and State Funds for Water Infrastructure," http://www.americanprogress.org/issues/2011/08/water\_infrastructure\_howto.html, 7-12-12, CNM)

The Environmental Protection Agency estimates that over the next 20 years, more than $600 billion in water system infrastructure improvements will be necessary. Much of the cost of these improvements will be borne by consumers. But state drinking and clean water revolving loan funds do subsidize a portion of the project costs by offering low-interest loans to water authorities and water companies for these improvements.

These state water revolving loan funds administer loans and deliver low-cost capital to local governments and other qualified entities responsible for drinking and sewer water systems. Still, federal law establishes a number of requirements by which state revolving funds can set up state-level programs and deliver low-cost capital to local governments and other qualified entities responsible for drinking and sewer water systems. These requirements include:

Loans with terms of up to 20 years

Purchase of municipal debt obligations

Direct guarantee of obligations

Investment in reserves to secure bonds

Limitations on amount of funds used for direct grants

Restriction on interest earnings from invested public funds

The state loan funds traditionally invest their unused funds in short-term, conservative assets so they can meet their borrower’s future financing needs with low-risk and highly liquid investments. This conservative investment approach means the funds forgo billions of dollars in earnings and weak capital growth, and as a result limit the amount of funds available for additional water infrastructure projects.

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Two reports from the EPA’s Environmental Finance Advisory Board show how innovative asset management strategies are being employed by some water funds, thereby boosting funds available for water infrastructure improvements. The advisory board outlined three steps state revolving funds can take to free up capital for infrastructure improvements:

### State Revolving Funds Get Cut First

#### State revolving funds are the first to be cut

Ambrosia, Daily Environmental Report, 12

(Patrick, 2-14-12, Bloomberg BNA, “EPA Proposal Cuts Water infrastructure Funds, Increases air, water, and pollution Grants,” <http://www.bna.com/epa-proposal-cuts-n12884907868/>, accessed 7/5/12, KR)

Steve Brown, executive director of the Environmental Council of the States, told Bloomberg BNA that although ECOS was expecting a cut to the SRFs, the proposed cuts are “a little more than we were hoping to see.” Brown added that “everybody goes to the SRF to find money” when looking for a place to cut funding. Brown said that ECOS was pleased to see that some of the funding taken away from the state water revolving funds was redirected to state categorical grants. However, he noted that EPA's decision to eliminate funding for state categorical grants for beaches will likely have some opposition. “I know there is going to be a reaction to that,” Brown said.

## Impacts

### Laundry List

#### Water key to health, the economy, and the environment

Gibbs, House Subcommittee on Water Resources and Environment Chair, 12

(Bob, R-OH, 2-24-12, U.S. House of Representatives, “A hearing on A Review of innovative Financing Approaches for Community Water Infrastructure Projects” <http://republicans.transportation.house.gov/Media/file/112th/Water/2012-02-28-Briefing_Memo.pdf>, p. 3, accessed 7-5-12, KR)

It is widely accepted that clean drinking water and public wastewater services are necessary priorities to sustain public health, support our economy, and protect the environment. Significant amounts of public resources have been devoted to water infrastructure in American communities over the last 40 years to meet these priorities. An impressive inventory of physical assets has been developed over the course of this period.

### Economic Collapse

#### Lack of investment leads to diseases and economic collapse

Biederman, General Electric Intelligent Platforms Water Global Industry Manager, 12

(Terry, 3-21-12, Our Water Counts, “Can we afford not to pay for America’s water infrastructure improvements?” <http://www.ourwatercounts.com/blog/index.php/2012/03/22/can-we-afford-not-to-pay-for-americas-water-infrastructure-improvements/>, accessed 7-12-12, YGS)

Lack of water infrastructure investment will jeopardize other critical public and private assets, such as roads, bridges, buildings, sewer mains, and electric, gas, phone and cable lines — all of which are very susceptible to damage from system failures like water main breaks and leaks. Unchecked [water system](http://www.ourwatercounts.com/blog/index.php/2012/03/22/can-we-afford-not-to-pay-for-americas-water-infrastructure-improvements/) loss will also continue to waste billions of dollars in treatment, power, labor, chemical and capital costs associated with producing it. Worst-case water infrastructure failure scenarios could also include increased waterborne diseases and even economic collapse.

#### Failing water infrastructure hurts the economy

American Water Works Association, 12

(February 2012, American Water Works Association, “Buried No Longer: Confronting America’s Water Infrastructure Challenge,” <http://www.awwa.org/files/GovtPublicAffairs/GADocuments/BuriedNoLongerCompleteFinal.pdf>, p. 13, accessed 7-12-12, LH)

As daunting as the figures in this report are, the prospect of not making the necessary investment is even more chilling. Aging water mains are subject to more frequent breaks and other failures that can threaten public health and safety (such as compromising tap water quality and fire-fighting flows). Buried infrastructure failures also may impose significant damages (for example, through flooding and sinkholes), are costly to repair, disrupt businesses and residential communities, and waste precious water resources. These maladies weaken our economy and undermine our quality of life. As large as the cost of reinvestment may be, not undertaking it will be worse in the long run by almost any standard.

#### Turns case – hurts jobs and the economy

American Society of Civil Engineers, civil engineering national professional body, 11

(2011, American Society of Civil Engineers, “Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure,” <http://www.asce.org/uploadedFiles/Infrastructure/Failure_to_Act/ASCE%20WATER%20REPORT%20FINAL.pdf>, p. 28-29, accessed 7-12-12, YGS)

Negative impacts on the U.S. economy are a result of businesses and households managing unreliable water delivery and wastewater treatment services, which in turn result from a lack of investment in the national water network. Strategies such as relocation, investing in conservation technologies, and self-supplying services can create costs that reduce business income (and, as a consequence, productivity and wages). Costs associated with water-borne illnesses and higher utility rates divert income from other uses.

The report has examined these effects in two ways. First, the report assumes that households and businesses do not adjust behavior or implement technologies beyond what is being done today, and that new conservation methods and technologies are not implemented. However, in a second approach, businesses and households are assumed to adjust to unreliable water delivery and wastewater treatment service by strengthening their conservation efforts in production and daily water use.

By 2020, the predicted deficit for sustaining water delivery and wastewater treatment infrastructure will be $84 billion. This may lead to $206 billion in increased costs for businesses and households between now and 2020. In a worst case scenario, the U.S. will lose nearly 700,000 jobs by 2020. Unless the infrastructure deficit is addressed by 2040, 1.4 million jobs will be at risk in addition to what is otherwise anticipated for that year.

The impacts of these infrastructure-related job losses will be spread throughout the economy in low-wage, middle-wage and high-wage jobs. In 2020, almost 500,000 jobs will be threatened in sectors that have been traditional employers of people without extensive formal educations or entry-level workers. 23 Conversely, in generally accepted high-end sectors of the economy, 184,000 jobs will be at risk. 24 Unless the infrastructure gap is addressed, by 2040 its impacts will put at risk almost 1.2 million jobs within basic sectors, while a relatively stable net amount of 192,000 jobs in knowledge-based industries may be jeopardized. In this latter grouping, approximately 415,000 jobs will be threatened; however, medical services are expected to grow between 2020 and 2040 due to increasing outlays to fight water-borne illnesses.

25 The impacts on jobs are a result of costs to businesses and households managing unreliable water delivery and wastewater treatment services. Between now and 2020, the cumulative loss in business sales will be $734 billion and the cumulative loss to the nation’s economy will be $416 billion in GDP (Table 3). Impacts are expected to continue to worsen. In the year 2040 alone, the impact will be $481 billion in lost business sales and $252 billion in lost GDP. 26 Moreover, the situation is expected to worsen as the gap between needs and investment continues to grow over time. Average annual losses in GDP are estimated to be $42 billion from 2011 to 2020 and $185 million from 2021 to 2040.

### Economy – Growth

#### Water infrastructure is key to economic growth

American Society of Civil Engineers, ’09

(American Society of Civil Engineers, 2009, Report Card For American Infrastructure, “2009 Water Drinking Report Card”, <http://www.infrastructurereportcard.org/fact-sheet/drinking-water>, accessed 7/7/12, KR )

Drinking water systems provide a critical public health function and are essential to life, economic development, and growth. Disruptions in service can hinder disaster response and recovery efforts, expose the public to water-borne contaminants, and cause damage to roadways, structures, and other infrastructure, endangering lives and resulting in billions of dollars in losses. The nation’s drinking-water systems are not highly resilient; present capabilities to prevent failure and properly maintain or reconstitute services are inadequate. Additionally, the lack of investment and the interdependence on the energy sector contribute to the lack of overall system resilience. These shortcomings are currently being addressed through the construction of dedicated emergency power generation at key drinking water utility facilities, increased connections with adjacent utilities for emergency supply, and the development of security and criticality criteria. Investment prioritization must take into consideration system vulnerabilities, interdependencies, improved efficiencies in water usage via market incentives, system robustness, redundancy, failure consequences, and ease and cost of recovery.

#### Current water investment has spurred our economy helping farmers, fishing, manufacturers, and tourism

Gibbs, House Subcommittee on Water Resources and Environment Chair, 12

(Bob, R-OH, 2-24-12, U.S. House of Representatives, “A hearing on A Review of innovative Financing Approaches for Community Water Infrastructure Projects” <http://republicans.transportation.house.gov/Media/file/112th/Water/2012-02-28-Briefing_Memo.pdf>, p. 3, accessed 7-5-12, KR)

Since 1972, ‘with the enactment of the Clean Water Act, Federal, State, and local investment in our national wastewater infrastructure has amounted to well over $250 billion. This investment has provided significant environmental, public health, and economic benefits to the nation. The nation’s farmers, fishermen, manufacturers, and tourism industries rely on clean water to carry out activities that contribute well over $300 billion to our economy each year.

### Economy – Jobs

#### Water infrastructure investment key to jobs, healthy environment – comparable to transportation infrastructure

National Association of Clean Water Agencies, 11

(September 1, 2011, National Association of Clean Water Agencies, “Investing More Now in America’s Clean Water Infrastructure: Good for Jobs, the Economy, and the Environment,” <http://win-water.org/legislativecenter/2011-09-01investing.white.paper.pdf>, p. 1-3, accessed 7-12-12, YGS)

Of course, the opposite also is true — if we disinvest in these critical facilities, we will backslide on hard-earned environmental gains and lose substantial economic and public health benefits associated with a cleaner environment. This is precisely what has been happening slowly since the 1980s and is about to accelerate if clean water infrastructure funding is reduced as a result of prospective federal fiscal cutbacks. A picture of what the world looks like when our water infrastructure systems are disrupted was made clear with Hurricanes Katrina and, just recently, Irene.

Federal Investment in Clean Water Creates Jobs and Lasting Environmental Benefits Since 1972, total investment in wastewater infrastructure has increased an average of 3.4% annually, which on a cumulative basis, amounts to $1.4 trillion to build, operate and maintain wastewater facilities and collection systems. More than 90% of this investment has come directly out of the pockets of residents and businesses in communities that generate wastewater. Because of these investments, we can point to impressive cases of once impaired waters that are now fishable and swimable. Communities that once shunned sewage-laden waterfronts have turned these areas into economic drivers of regional revitalization efforts across the country. But nationwide, EPA and state monitoring data over the last several decades suggest broad declines in the miles of streams, shoreline and acres of lakes that meet water quality standards sufficient to meet the designated uses such as drinking, fishing, or swimming. These declines in water quality have occurred in lockstep with declines since the early 1980s in federal funding for clean water infrastructure, both in absolute terms and in terms of the federal share of total clean water spending.

How could total investment increase but overall results decline? Because these investments, including federal funding, have been stretched thinner and thinner due to increasing Gross Domestic Product (GDP), growing population, and expanding regulatory mandates. Since 1972, real GDP has grown by 3.3% a year on average, which has led to higher volumes of wastewater treated daily by wastewater treatment facilities. At the same time, the population served by wastewater utilities has increased by about 1.6% a year over the same period, so a large portion of our investment has gone toward simply keeping up with growth. Finally, federal regulations to address concerns such as wet weather, biosolids management and air quality have expanded, leading to more expensive levels of treatment under the Clean Water Act (CWA), stretching total investment still further.

The result is predictable — utilities must defer some capital needs due to lack of funding. The Nation now faces a $23 billion (and growing) annual gap between what is currently being invested and the actual needs for clean water infrastructure in order to maintain and meet the nation’s water quality standards. Thus, in the case of the American Recovery and Reinvestment Act (ARRA), there were $40 billion of identified project needs but only $4 billion of funds made available to help address them.

Increased Federal Clean Water Investment Spurs Economic Growth and Jobs While it is difficult to argue against reducing our federal deficit, federal priorities should ensure that economic growth continues and jobs are created, not lost. Increasing federal investment in clean water infrastructure by several billion dollars a year, at a minimum, not only would help reverse declines in water quality and meet a well-documented investment gap, but more importantly would expand GDP and create hundreds of thousands of jobs. In fact, for every $1 billion spent on clean water infrastructure in the U.S., 28,500 new jobs are added, $3.4 billion is added to the GDP, and personal income is boosted by $1.1 billion.2 Capital invested in clean water infrastructure is proven to generate more jobs per dollar than a comparable investment in schools, transportation infrastructure, energy infrastructure, or broadbased tax cuts.3

Moreover, about half the jobs created from clean water investments are located in small communities with high unemployment and few prospects for reducing it. Much of the remaining investment goes to larger cities that have the highest costs to finance their wastewater infrastructure while often facing large hurdles in terms of high rates of poverty, increasing debt loads, and shrinking rate-bases.

Clean water infrastructure is critical for private sector development as well. For every $1 billion in new investment in core infrastructure, we can expect an extra $840 million added to GDP each year from the private economy, of which about $141 million is increased output from the manufacturing sector.4 Several mechanisms deliver these outcomes:

- Treatment capacity and cleaner input water enable expanded private production;

- Healthier ecosystems deliver more productive commercial fisheries ;

- Cleaner water delivers higher rates of water-based recreation with an accompanying stimulus to local economies;

- Agricultural and tourism output increase with better water quality; and

- The wealth created through increased land values adjacent to clean water bodies translates into enhanced demand for new construction, furnishings, appliances, and the like.

Decreasing Federal Investment Will Have Long-term Negative Impacts on

GDP, Jobs, Local Governments and Households

Most wastewater utilities issue bonds or borrow privately to finance capital investments. So, reducing federal wastewater funding as part of a broader federal budget cutback will have worse long-term effects on the ability of cities to borrow than just the direct withdrawal of federal wastewater funds.

At first, local debt will have to increase to offset the withdrawal of federal support. This will cause rates and costs of debt to increase. Then, as federal spending is cut back on such big-ticket programs as defense, infrastructure, health and education, the economies of cities and even entire states that depend on federal programs will contract, jobs will be lost, and more households and businesses will be unable to pay for basic services like wastewater treatment.

#### Deteriorating water infrastructure kills the economy- job loss

American Society of Civil Engineers, 11

(2011, American Society of Civil Engineers, “Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure,” <http://www.asce.org/uploadedFiles/Infrastructure/Failure_to_Act/Water%20Report%20Executive%20Summary.pdf>, p.4, accessed 7-12-12, LH)

By 2020, the predicted deficit for sustaining water delivery and wastewater treatment infrastructure will be $84 billion. This may lead to $206 billion in increased costs for businesses and households between now and 2020. In a worst case scenario, the U.S. will lose nearly 700,000 jobs by 2020. Unless the infrastructure deficit is addressed by 2040, 1.4 million jobs will be at risk in addition to what is otherwise anticipated for that year.

The impacts of these infrastructure-related job losses will be spread throughout the economy in low-wage, middle-wage and high-wage jobs. In 2020, more than 500,000 jobs will be threatened in sectors that have been traditional employers of people without extensive formal educations or entry-level workers. Conversely, in generally accepted high-end sectors of the economy, 184,000 jobs will be at risk.

The impacts on jobs are a result of costs to businesses and households managing unreliable water delivery and wastewater treatment services. As shown in Table 3, between now and 2020, the cumulative loss in business sales will be $734 billion and the cumulative loss to the nation’s economy will be $416 billion in GDP. Impacts are expected to continue to worsen. In the year 2040 alone, the impact will be $481 billion in lost business sales and $252 billion in lost GDP. Moreover, the situation is expected to worsen as the gap between needs and investment continues to grow over time. Average annual losses in GDP are estimated to be $42 billion from 2011 to 2020 and $185 million from 2021 to 2040.

### Economy - Consumers

#### Collapsing water infrastructure would drive up costs and taxes for American families

Hiltzik, Los Angeles Times, 12

(Michael, 3/18/12, LA Times, “Water's costly trip to your tap,” LexisNexis, accessed 7-5-12, KR)

The water service bill of the average Southern California family of four will include about $34 a month in MWD charges, not including add-on fees charged by its local water district; of that, about $7 is the cost of the water itself. "The repair and replacement of our aging infrastructure is probably the No. 1 driver of our rates," says MWD General Manager Jeffrey Kightlinger, who had invited me and Times photographer Al Seib along on his inspection visit to the work at Hinds. In the 1990s, the MWD says, the huge water district's annual average capital budget of about $500 million included perhaps $30 million for maintenance. The rest went to expanding facilities to manage growth and provide storage, including the construction of Diamond Valley Lake reservoir near Hemet. Over the next two years, the capital budget will average about $275 million a year, but as much as 60% will cover maintenance and repair of infrastructure that includes the Colorado aqueduct, begun in 1933, and the MWD's share of similar costs incurred by the State Water Project, which carries water from Northern California. The bill for all this is already in the mail. From 1995 through 2003, the MWD went without a rate increase; then rates began climbing, with a cumulative increase of nearly 70% from 2008 through this year. Next month the district's board will consider a proposal to raise rates about 12% over the next two years. Some of that will cover the costs of an entirely unexpected development, the appearance after 2007 of the dreaded quagga mussel in the Colorado River system. The tiny pest, an ineradicable interloper that probably made its way to the river from the Great Lakes by hitching rides on recreational boats, can clog channels, pipes and other waterworks if not regularly blasted away or scraped off. The MWD has spent $30 million over the last five years to fight the quagga and might be spending $8 million to $10 million a year on it into the unfathomable future. As it is in so many other respects, when it comes to facing the challenges of maintaining such an indispensable infrastructure, California is a bellwether for the country. That's despite the relative youth of water systems in the West compared with other regions: More than 60% of the Northeast's large-scale water infrastructure but less than 10% of the West's dates to the 1920s or earlier, according to the American Water Works Assn., which represents water utilities and consultants. The group estimates the nationwide bill for maintaining and expanding existing water treatment and delivery systems will come to $1 trillion over the next 25 years.

### Disease

#### Water Infrastructure is key to prevent the spread of diseases

American Society of Civil Engineers 9

(American Society of Civil Engineers, 2009, Report Card For American Infrastructure, “2009 Water Drinking Report Card”, <http://www.infrastructurereportcard.org/fact-sheet/drinking-water>, accessed 7/7/12, KR )

Drinking water systems provide a critical public health function and are essential to life, economic development, and growth. Disruptions in service can hinder disaster response and recovery efforts, expose the public to water-borne contaminants, and cause damage to roadways, structures, and other infrastructure, endangering lives and resulting in billions of dollars in losses. The nation’s drinking-water systems are not highly resilient; present capabilities to prevent failure and properly maintain or reconstitute services are inadequate. Additionally, the lack of investment and the interdependence on the energy sector contribute to the lack of overall system resilience. These shortcomings are currently being addressed through the construction of dedicated emergency power generation at key drinking water utility facilities, increased connections with adjacent utilities for emergency supply, and the development of security and criticality criteria. Investment prioritization must take into consideration system vulnerabilities, interdependencies, improved efficiencies in water usage via market incentives, system robustness, redundancy, failure consequences, and ease and cost of recovery.

#### Poor water infrastructure leads to disease outbreaks – Colorado proves

Homeland Security News Wire, 11

(1-24-11, Homeland Security News Wire, “U.S. water infrastructure in desperate need of repair,” <http://www.homelandsecuritynewswire.com/us-water-infrastructure-desperate-need-repair>, accessed 7-12-12, LH)

Furthermore, poor infrastructure is believed to the cause of large disease outbreaks.

According to Eric Goldstein of the Natural Resources Defense Council, contaminated drinking water as a result of poor water infrastructure caused a 2008 salmonella outbreak that affected more than 250 people in Colorado.

“Anytime you’re breaking the seal of the system that brings water into your homes and apartments, you’re risking contamination from bacteria and viruses,” Goldstein said.

#### Poor water infrastructure leads to disease – empirically proven

Environmental Protection Agency, 9

(December 2009, Environmental Protection Agency, “Water on Tap: What you need to know,” <http://water.epa.gov/drink/guide/upload/book_waterontap_full.pdf>, p. 5, accessed 7-12-12, LH)

The potential for health problems from microbial-contaminated drinking water is demonstrated by localized outbreaks of waterborne disease. Many of these outbreaks have been linked to contamination by bacteria or viruses, probably from human or animal wastes. For example, in 1999 and 2000, there were 39 reported disease outbreaks associated with drinking water, some of which were linked to public drinking water supplies.

Certain pathogens (disease-causing microorganisms), such as Cryptosporidium, may occasionally pass through water filtration and disinfection processes in numbers high enough to cause health problems, particularly in vulnerable members of the population. Cryptosporidium causes the gastrointestinal disease, cryptosporidiosis, and can cause serious, sometimes fatal, symptoms, especially among sensitive members of the population. (See box on Sensitive Subpopulations on page 1.) A serious outbreak of cryptosporidiosis occurred in 1993 in Milwaukee, Wisconsin, causing more than 400,000 persons to be infected with the disease, and resulting in at least 50 deaths. This was the largest recorded outbreak of waterborne disease in United States history.

#### Waterborne pathogens can cause massive breakouts- Milwaukee proves

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, LH)

Moreover, the ability of waterborne pathogens to cause massive outbreaks has been demonstrated. In 1993, a huge outbreak of cryptosporidiosis occurred in Milwaukee, Wisconsin. Cryptosporidium organisms passed undetected through two water treatment plants and are estimated to have caused more than 403,000 illnesses and 4,400 hospitalizations among the 800,000 customers served by the water system.19 Although this incident was not the result of bioterrorism, it demonstrated to public health professionals the vulnerabilities of populations to microbial contamination of treated water supplies. Cryptosporidium was first identified in 1907, but it was not recognized as a source of waterborne disease until 1987 when it was associated with a 15,000-person outbreak in a filtered system in Georgia.20 This suggests that there is much work to be done in improving our understanding of drinking water as a source of community illness.

### Bioterrorism

#### Lack of funds makes water infrastructure vulnerable to attack – a biological attack would scare public confidence and hurt the economy

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, THW)

In addition to providing potable drinking water, U.S. water systems are critical to the maintenance of many vital public services, such as fire suppression and power generation. Disruption of these systems would produce severe public health and safety risks, as well as considerable economic losses. Thus, water systems have been designated as critical to national security by the U.S. government. Previous outbreaks of waterborne disease have demonstrated the vulnerability of both the water supply and the public’s health to biological contamination of drinking water. Such experiences suggest that a biological attack, or even a credible threat of an attack, on water infrastructure could seriously jeopardize the public’s health, its confidence, and the economic vitality of a community. Despite these recognized vulnerabilities, protecting water supplies from a deliberate biological attack has not been sufficiently addressed. Action in this area has suffered from a lack of scientific understanding of the true vulnerability of water supplies to intentional contamination with bioweapons, insufficient tools for detecting biological agents, and a lack of funds to implement security improvements. Much of what is needed to address the vulnerability of the national water supply falls outside the influence of individual utilities. This includes developing a national research agenda to appropriately identify and characterize waterborne threats and making funds available to implement security improvements.

#### Terrorists target water infrastructure – past threats prove

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, LH)

Recent threats to the U.S. water supply have been documented. In January 2001, the FBI warned U.S. water utilities of a threat from a “very credible, well funded, North Africa-based terrorist group” to “disrupt water operations in 28 U.S. cities.”9 In July 2002, following the acquisition of Al Qaeda documents that included detailed maps of several U.S. public water systems, the FBI warned of possible terrorist attacks against American targets and specifically advised the nation’s water utilities to prepare for attacks on pumping stations and pipes that deliver water to consumers.10 In 2003, when the national alert status was elevated to “high risk,” the Centers for Disease Control and Prevention (CDC) and EPA issued a health advisory via the CDC’s Health Alert Network (HAN) that recommended increased vigilance by the public health community and water utilities regarding the possibility of a terrorist attack on water supplies.11 Later, in 2004, the FBI and DHS issued a four-page bulletin to law enforcement agencies and water utilities that detailed a plot by unnamed terrorists to inject poison into the water supply during chlorination. The bulletin suggested that terrorists were interested in recruiting water utility insiders to carry out the plot.12

There have been additional threats to the water supply that have not received widespread media attention. A 2003 report commissioned by the American Water Works Association Research Foundation queried water utilities, government agencies, and established terrorism incident databases and found more than 100 cases of actual, threatened, and disrupted plots to contaminate water supplies. Of those cases, 20 incidents involved actual contamination events, more than half of which occurred in modern water supplies with pressurized pipe distribution.13

#### Bio-terrorist attack destroys water infrastructure – Kills thousands

Gleick, Pacific Institute for Studies in Development co-founder and president, 6

(Peter H., 7-31-06, Water Policy, “Water and Terrorism,” [http://www.pacinst.org/reports/water\_terrorism.pdf, p](http://www.pacinst.org/reports/water_terrorism.pdf%2C%20p). 491, accessed 7-12-12, JC)

The most traditional form of water-related terrorism involves physical attacks on water infrastructure – specifically water-supply dams and pipelines. One such attack might target a large hydroelectric dam on a major river or a major water supply system for a city. Terrorists equipped with a relatively small conventional explosive might not be able to cause serious structural damage to a massive dam, which is, after all, usually a giant block of rock, earth or concrete. But the adverse consequences of a major dam failure make the risk worth both assessing and reducing. A major dam failure can kill thousands of people and even more modest damage might interrupt power generation or affect some other important water- system operation.

#### Even a threat of a biological attack on water infrastructure would damage public confidence and economy

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, THW)

IN THE UNITED STATES, more than 160,000 public water systems provide drinking water to more than 300 million Americans. In addition to providing potable drinking water, U.S. water systems are critical to the maintenance of many vital public services, such as fire suppression and power generation. Disruption of these systems would produce severe public health and safety risks and could be associated with considerable economic losses. Previous outbreaks of waterborne disease have demonstrated the vulnerability of both the water supply and the public’s health to contamination of drinking water. Such experiences suggest that a biological attack, or even a credible threat of an attack, on water infrastructure could seriously jeopardize the public’s health, its confidence, and the economic vitality of a community. For these reasons, water systems have been designated as critical to national security by the U.S. government.

#### Water infrastructure is vulnerable to a terrorist attack

Copeland, Specialist in Resources and Environmental Policy, 10

(Claudia, 12/15/10 , Congressional Research Service, “Terrorism and Security Issues Facing the

Water Infrastructure Sector,” <http://www.fas.org/sgp/crs/terror/RL32189.pdf>, Accessed: 7/13/12, GJV)

Damage to or destruction of the nation’s water supply and water quality infrastructure by terrorist attack or natural disaster could disrupt the delivery of vital human services in this country, threatening public health and the environment, or possibly causing loss of life. Interest in such problems has increased greatly since the September 11, 2001, terrorist attacks in the United States. Across the country, water infrastructure systems extend over vast areas, and ownership and operation responsibility are both public and private, but are overwhelmingly non-federal. Since the attacks, federal dam operators and local water and wastewater utilities have been under heightened security conditions and are evaluating security plans and measures. There are no federal standards or agreed-upon industry practices within the water infrastructure sector to govern readiness, response to security incidents, and recovery. Efforts to develop protocols and tools are ongoing since the 9/11 terrorist attacks. This report presents an overview of this large and diverse sector, describes security-related actions by the government and private sector since 9/11, and discusses additional policy issues and responses, including congressional interest.

#### A terrorist attack on the US water infrastructure would cause mass destruction

Doro-on, Ph.D. in Environmental Science and Engineering, 11

(Anna, 8/17/11, CRC Press, “Risk Assessment for Water Infrastructure Safety and Security,” <http://www.routledge.com/books/details/9781439853412/>, Accessed: 7/13/12, GJV)

One of the seventeen critical infrastructures vital to the security of the United States, the water supply system remains largely unprotected from the threat of terrorism, including possible revenge by Al Qaeda over the killing of Osama Bin Laden. Recognizing and identifying prospective events of terrorism against the water infrastructure is critical to the protection of the nation, as the consequences triggered by a terrorist attack on the water supply would be devastating. Risk Assessment for Water Infrastructure: Safety and Security provides a unique quantitative risk assessment methodology for protection and security against terrorist contamination, vandalism, attacks against dams, and other threats to water supply systems.

### AT – No Bioterror – Resources

#### Easy to create pathogens

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

In fact, nearly 80 percent of the bioterrorism agents recognized by the U.S. government started in animals. "Many of them were considered for use as such agents only after they emerged from nature as a result of transmission from animals to humans," says Dr. Thomas Monath, who formerly headed a CIA advisory group on ways to counter biological attack. "And nature will spawn new agents continuously."

This means a terrorist may need few tools, little training, minimal money and no published blueprint to harvest a superbug and then unleash it in food, water, air or via insect vectors such as fleas or mosquitos. "As a normal person, you can collect anthrax in Texas soil or ebola in Africa by hunting down a monkey," says Ramon Flick, chief scientific officer at BioProtection Systems Corp., which develops anti-viral vaccines. "It's so easy to get a potential bioterror agent in your hands."

#### Yes bioterror threat – Al-Qaeda

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

In December, at the Seventh Review Conference of the Biological Weapons Convention, Secretary of State Hillary Rodham Clinton got more specific. Al-Qaida, she said, was known to be seeking "brothers with degrees in microbiology or chemistry to develop weapons of mass destruction."

"There are warning signs," added Clinton, "and they are too serious to ignore."

#### Yes disease spread but detection is key – Sars prove

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

Lillibridge recalls his time in China during the SARS epidemic of 2003. "I was back home [in the U.S.] within 19 hours from Beijing," he says. "I easily could have been incubating something."

At the time, scientists had not yet identified the newly emerging pathogen, which meant no diagnostic tests.

The ability to detect and identify diseases as they initially emerge can go a long way in thwarting an outbreak, he says. It can provide the time to prepare, including upgrading quarantines at the border.

### Hegemony

#### Water infrastructure is key to US hegemony and scientific innovation – a rising China proves

Saran, Observer Research Foundation, Senior Fellow and Vice President, 10

(Samir, Masters in Media Studies from the London School of Economics and Political Science, 5-13-10, The Financial Express, “Climate's holy trinity,” <http://www.financialexpress.com/news/climates-holy-trinity/617947/>, accessed 7-12-12, THW)

It is also determined to tap into the Chinese diasporas that are part of the research and technology industry. Their policy initiative 'Chinese serving China' seeks to reverse the traditional flow of knowledge to western shores. The results of these initiatives are bearing fruit and there are reports that tens of thousands of non-resident Chinese have returned home; the process no doubt aided by the financial crisis and shortage of research funding in the US and EU. But the key learning here is that the Chinese are pricing the human capital right and offering salaries far in excess of their business as usual salary structures. They, unlike India, have realised that human resource is at the core of the IPR chain and they are now unwilling to reduce talent and merit to a UGC prescribed salary handout that India seeks to attract and retain talent with. A recent management reports has cautioned that US hegemony in scientific innovation can no longer be taken for granted. China will be investing over half a trillion dollars on green technology research in the next decade and furthermore has committed to deploy 2.5% of their GDP annually by 2012 towards R&D in line with the OECD levels. As a part of the economic stimulus China deployed $221 bn towards the green economy as against $112 bn by the US. Though much of this was for rail transport and water infrastructure, significant efficiency innovations and applications were in the mix as well.

### Value to Life

#### Water is a human right - water scarcity causes a loss in value to life and dehumanization

Environment News Service, 10

(7/29/10, Environment News Service, “UN recognizes Access to Clean Water as a Human Right”, <http://www.ens-newswire.com/ens/jul2010/2010-07-29-01.html>, accessed 7/7/12, KR)

NEW YORK, New York, July 29, 2010 (ENS) - [Access](http://www.ens-newswire.com/ens/jul2010/2010-07-29-01.html) to clean, safe drinking water is now an official basic human right everywhere in the world, like the rights to life, health, food and adequate housing. The water rights resolution was approved late Wednesday by the United Nations General Assembly, not unanimously, but without opposition. Safe and clean drinking water and sanitation is a human right essential to the full enjoyment of life and all other human rights, the United Nations General Assembly declared Wednesday, voting to expand the [Universal Declaration of Human Rights](http://www.un.org/en/documents/udhr/index.shtml) to include the right to clean water and sanitation. The 192-member Assembly called on United Nations member states and international organizations to [offer](http://www.ens-newswire.com/ens/jul2010/2010-07-29-01.html) funding, technology and other resources to help poorer countries scale up their efforts to provide clean, accessible and affordable drinking water and sanitation for everyone. Introduced by Bolivia, the resolution received 122 votes in favor and zero votes against, while 41 countries abstained from voting. The text of the resolution expresses deep concern that an estimated 884 million people lack access to [safe drinking water](http://www.ens-newswire.com/ens/jul2010/2010-07-29-01.html) and a total of more than 2.6 billion people, 40 percent of the global population, do not have access to basic sanitation. About 1.5 million children under the age of five die each year because of water-related and sanitation-related diseases.

### Impact Calculus – Exacerbates Impacts

#### Lack of water infrastructure exacerbates impacts

Office of the Director of National Intelligence, 12

(February 2, 2012, Office of the Director of National Intelligence: Intelligence Community Assessment, “Global Water Security,” <http://www.dni.gov/nic/ICA_Global%20Water%20Security.pdf>, p. iii, accessed 7-12-12, YGS)

A. We assess that during the next 10 years, water problems will contribute to instability in states important to US national security interests. Water shortages, poor water quality, and floods by themselves are unlikely to result in state failure. However, water problems—when combined with poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions—contribute to social disruptions that can result in state failure. We have moderate confidence in our judgment as we have reliable open source reporting on water pricing and infrastructure investments and reliable but incomplete all-source reporting on water quality.

The lack of adequate water will be a destabilizing factor in some countries because they do not have the financial resources or technical ability to solve their internal water problems. In addition, some states are further stressed by a heavy dependency on river water controlled by upstream nations with unresolved water-sharing issues. Wealthier developing countries probably will experience increasing water-related social disruptions but are capable of addressing water problems without risk of state failure.

# Water Trade-Off – Aff Answers

## Uniqueness Answers

### Inadequate Funding Now

#### Status quo won’t solve – $1 trillion is needed- water infrastructure won’t receive sufficient investment with or without the plan

American Water Works Association, 12

(February 2012, American Water Works Association, “Buried No Longer: Confronting America’s Water Infrastructure Challenge,” <http://www.awwa.org/files/GovtPublicAffairs/GADocuments/BuriedNoLongerCompleteFinal.pdf>, p. 10, accessed 7-8-12, LH)

Investment needs for buried drinking water infrastructure total more than $1 trillion nationwide over the next 25 years, assuming pipes are replaced at the end of their service lives and systems are expanded to serve growing populations. Delaying this investment could mean either increasing rates of pipe breakage and deteriorating water service, or suboptimal use of utility funds, such as paying more to repair broken pipes than the long-term cost of replacing them. Nationally, the need is close to evenly divided between replacement due to wear-out and needs generated by demographic changes (growth and migration). Over the coming 40-year period, through 2050, these needs exceed $1.7 trillion. Replacement needs account for about 54% of the national total, with about 46% attributable to population growth and migration over that period. Figure 6 (previous page) shows aggregate needs for investment in water mains through 2050, due to wear-out and population growth.

#### EPA increased water infrastructure funding after 9/11, but it’s not nearly enough

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, THW)

Concern over security at water utilities increased dramatically after September 11. Since 2001, there has been an increased investment in water security efforts. In fiscal year 2002, the U.S. Environmental Protection Agency (EPA) awarded approximately $51 million in grants to help the largest community water utilities complete vulnerability assessments. Since 2002, EPA has provided over $150 million in support for development of water security–related tools, training, and technical assistance to the water sector, states, and other supporting partners.1

Despite these investments, much work remains to protect the U.S. water supply from attack. Most work to date has been at the local level and has been ad hoc; it has focused largely on physical security and has not benefited from a strategic analysis of risks and benefits. Current attempts to safeguard the nation’s water supply are, therefore, hindered by a lack of science-based analysis of water threats, inadequate tools for detecting and responding to possible attacks, insufficient federal guidance to ensure that vulnerabilities are being thoroughly identified by individual utilities, and a lack of financial resources within the water sector to appropriately implement security programs.

#### Lack of utilities funding now

Walters, Public Policy Institute Consumer and State Affairs member, 11

(Neal, November 2011, AARP, "Replacing the Nation’s Deteriorating Water Infrastructure," http://www.aarp.org/money/budgeting-saving/info-11-2011/Replacing-the-Nations-Deteriorating-Water-Infrastructure-While-Maintaining-Affordable-Water-Rates.html, accessed 7-11-12, CNM)

Despite substantially increasing water rates in an effort to cover the expense of infrastructure repairs, there is concern that water utilities will not have sufficient funds available to make the necessary repairs. This may create a gap between the amount of money needed for infrastructure repairs and the

### Inadequate Infrastructure Deteriorating Now

#### Water infrastructure deteriorating now – ending its useful life and prices are increasing

Walters, Public Policy Institute Consumer and State Affairs member, 11

(Neal, November 2011, AARP, "Replacing the Nation’s Deteriorating Water Infrastructure," http://www.aarp.org/money/budgeting-saving/info-11-2011/Replacing-the-Nations-Deteriorating-Water-Infrastructure-While-Maintaining-Affordable-Water-Rates.html, accessed 7-11-12, CNM)

Water and wastewater systems are vital to the nation’s public health, protecting the environment, and supporting economic activities. However, much of the drinking water and wastewater infrastructure in the nation is at or near the end of its useful life. As such, it is necessary to replace and upgrade the deteriorating water infrastructure so it can meet the needs of the nation.

Keeping water rates affordable for consumers is an important issue as water rates are increasing at a much faster pace than inflation or other utility rates. This is a particular hardship for those with low incomes or on fixed incomes as the percentage of their income needed to pay their water bill increases. As a result, policymakers and regulators are seeking ways to keep water rates affordable while ensuring water utilities have sufficient funds to replace and upgrade the water infrastructure.

#### Studies prove

Walters, Public Policy Institute Consumer and State Affairs member, 11

(Neal, November 2011, AARP, "Replacing the Nation’s Deteriorating Water Infrastructure," http://www.aarp.org/money/budgeting-saving/info-11-2011/Replacing-the-Nations-Deteriorating-Water-Infrastructure-While-Maintaining-Affordable-Water-Rates.html, accessed 7-11-12, CNM)

The report’s key findings are:

Water systems face challenges due to the deteriorating infrastructure that is in need of substantial upgrade and replacement. The 2009 infrastructure report card by the American Society of Civil Engineers (ASCE) gave the nation’s wastewater and drinking water systems a grade of D-.

amount of money actually spent by utilities on these repairs.

#### Lack of an updated system

Cimons, National Science Foundation, 11

(Marlene, November 10, 2011, US News & World Report, "Urban Water Infrastructure," http://www.usnews.com/science/articles/2011/11/10/urban-water-infrastructure, accessed 7-11-12, CNM)

“Our water infrastructure is at the end of its service life,” says Richard Luthy, professor of civil and environmental engineering at Stanford University. “Something has to be done. The technology we have today is mid-20th Century at best. When most of these systems were built, construction costs received the attention, while the energy to run the systems was secondary. Today, it’s reversed.”

### Status Quo Funding Inadequate to Solve

#### Can’t solve – 633 billion dollars is needed just to maintain current levels of service

Walton, Circle of Blue Reporter, 3-7-12

(Brett, National Water Resources Association, "America’s Water Infrastructure Shows Its Age — the National Debate About How to Pay for Repairs," http://www.nwra.org/content/articles/americas-water-infrastructure-shows-its-age-the-na/, accessed 7-12-12, CNM)

Funding is always a challenge. In a report released last week, the American Water Works Association (AWWA) analyzed water systems of all sizes across the country and estimated that restoring just the underground pipes will cost $US 1 trillion over the next 25 years. That figure does not include repairs to the treatment plants nor any new construction. According to the EPA, $US 633 billion is needed for capital improvements for drinking water and sewage in the U.S. alone, just to maintain current levels of service over the next two decades.

## Other Sources of Funding

### MAP-21 Funding Mechanism Solves

#### MAP-21 solves – allows bond funding

Saiyid, Bloomberg BNA, 2-10-12

(Amena H., 2-10-12, Bloomberg BNA, "Senate Finance Backs Proposal to Lift Cap On Bonds to Fund Infrastructure Repairs," http://www.bna.com/senate-finance-backs-n12884907796/, 7-12-12, CNM)

The Senate Finance Committee has approved a measure that for the next six years would eliminate the annual cap on how much cites and towns may raise through private tax-exempt bonds to fund drinking water and wastewater infrastructure repairs.

Approved Feb. 7 as part of a measure to fund the surface transportation bill, the proposal offered by Sen. Robert Menendez (D-N.J.) would amend the Internal Revenue Service code by removing the cap on the amount that municipalities may raise through private-activity bonds for water and wastewater projects.

Menendez sought the amendment to make water and wastewater infrastructure project financing more affordable for communities.

“The inclusion of water and wastewater infrastructure projects in the annual volume cap on private activity bonds that can be issued per state impedes the effectiveness of private activity bonds driving financing for these critically needed projects,” he said.

Other environment-related provisions in the Senate Finance Committee bill include a proposal to transfer $3 billion from the Leaking Underground Storage Tank trust fund to the Highway Trust Fund. (See related article in this issue.)

The Finance Committee approved the financing package on a 17-7 vote. It will be added on the Senate floor to an underlying surface transportation reauthorization bill, known as the Moving Ahead for Progress in the 21st Century (MAP-21) Act (S. 1813).

A Senate Democratic leadership aide said the current plan is to have the transportation bill on the chamber floor for the remainder of the work period and to have a final vote before lawmakers leave for the Presidents' Day recess.

### Private Funding

#### Water infrastructure can be funded by users or private companies

Homeland Security News Wire, 11

(1-24-11, Homeland Security News Wire, “U.S. water infrastructure in desperate need of repair,” <http://www.homelandsecuritynewswire.com/us-water-infrastructure-desperate-need-repair>, accessed 7-12-12, LH)

According to Randal O’Toole, a senior analyst at the Cato Institute, a think tank in Washington, D.C., “All the costs of construction and maintenance might be borne by users out of annual or monthly fees.”

O’Toole suggests privatizing community water facilities, citing the fact that “in the 19th century, almost every major American city had private water companies” and as a result lower costs and higher quality of water.

### State Funding Solves

#### States solve- bonds fund water infrastructure- California proves

Legislative Analyst’s Office, California’s Nonpartisan Fiscal and Policy Advisor, 11

(8-25-11, Legislative Analyst’s Office, “A Ten-Year Perspective: California Infrastructure Spending,” <http://www.lao.ca.gov/reports/2011/stadm/infrastructure/infrastructure_082511.aspx>, accessed 7-10-12, LH)

Over two–fifths of state spending on resources infrastructure over the last decade was for local assistance, with that amount funded almost entirely from general obligation bonds. These monies support a variety of program areas, including local park projects, land conservation activities, wastewater treatment and safe drinking water infrastructure, and flood management and other water management infrastructure. Reflecting largely the variability of available bond funds from year to year, the proportion of spending on state projects versus local assistance in any given year is also highly variable.

## Water Infrastructure Fails

### Can’t Solve Bioterror/Disease

#### Water supply monitoring fails now- too slow, can’t detect threats

Nuzzo, UPMC, Center for Biosecurity, 6

(Jennifer B., 2006, Center for Biosecurity of UPMC, “The Biological Threat to U.S. Water Supplies: Toward a National Water Security Policy,” <http://www.upmc-biosecurity.org/website/resources/publications/2006/2006-06-15-watersecuritypolicy.html>, accessed 7-12-12, LH)

A fundamental challenge to protecting water supplies from deliberate or threatened contamination is our inability to rapidly assess whether an attack has occurred. Strategies that are currently used for routine monitoring of water supplies are not adequate for detecting threats real-time or for determining the presence of exotic contaminants. Water supplies are monitored routinely for only a small number of contaminants, and results may take from hours to days.

For more than a century, public health professionals have relied on an indicator organism approach to assessing microbial contamination of water supplies. That is, drinking waters are routinely monitored for enteric bacterial organisms that might suggest the presence of microbial contamination from human waste. This conventional analysis is slow and will not detect the presence of bioweapons agents that are not likely to be associated with sewage.

### Can’t Solve – Technology

#### Water infrastructure doesn’t solve – technology is untested

Cimons, National Science Foundation, 11

(Marlene, November 10 2011, US News & World Report, "Urban Water Infrastructure," http://www.usnews.com/science/articles/2011/11/10/urban-water-infrastructure, accessed 7-11-12, CNM)

Experts acknowledge the looming crisis, and recognize the opportunities available through new technology and innovation, which “should lead to reinvention,” Luthy says. “But there are a few speed bumps along the way. The technologies may be untested, there may be legal impediments, possibly public health risks, and we are dealing with a conservative industry.” As a result, “we need to listen and understand the viewpoint of utilities just as much as we do the engineering consultants.”

### Can’t Solve – Barriers to Funding Innovation

#### Can’t solve – barriers to funding innovation

Cooper, Center for American Progress Senior Fellow, and Eizenga, Center for American Progress Policy Analyst, 11

(Donna and Jordan, 9-2-11, Center for American Progress, "Let It Flow: Innovative Investment Strategies Can Increase Money for Safe and Clean Water," http://www.americanprogress.org/issues/2011/08/let\_it\_flow.html, accessed 7-12-12, CNM)

So why aren’t more states adopting similar strategies? One reason is that states are concerned that these types of innovative financing strategies run afoul of the federal laws that created the state revolving loan funds in the first place. That’s why Congress should amend the Clean Water and Safe Drinking Water Acts to make it clear that these innovations are permitted. In doing so, Congress should require all states to employ the loan management model now used in a majority of states where a combination of tax-exempt bonds and reserve funds increase the portfolio earnings over time. Congress should go a step further and explicitly provide fund administrators with the investment authority necessary to invest in high-quality, long-term fixed-income assets that allow for greater returns and increased capital available for lending.

Of course, there is greater market and credit risk in investing in assets beyond conservative, short-term fixed-income securities. These risks can be effectively managed by matching investment horizons with project-financing horizons and by adopting portfolio diversification requirements and sound due diligence standards for evaluating credit risk. The EPA and Congress can develop regulatory and investment standards, similar to those employed by pension funds and university endowments, to ensure administrators do not take on excessive levels of risk.

The funding model and investment strategy innovations pioneered by New York and Connecticut provide a roadmap for the country as it faces a critical and growing safe drinking water and wastewater infrastructure funding gap. Unless states harness these gains and strive for continued innovations to better put these funds to work today, we won’t be able to meet our infrastructure needs tomorrow.

### Can’t Solve Contaminants – Regulations

#### Can’t solve contaminants - regulations

Environmental Working Group, non-profit environmental research group, 09

(Environmental Working Group, December 2009, "Policy Gaps Lead to Health Risks: Federal source water protection programs are failing," http://www.ewg.org/tap-water/waterlegislationgaps, accessed 7-12-12, CNM)

• EPA bases its standards not only based on health considerations, but on cost; the agency is required to prove that the cost of removing a contaminant does not exceed the benefits. Because of this provision, EPA has set legal limits for 40 percent of regulated contaminants at levels higher than its own recommended health-based limits.

EWG's analysis of tap water tests from 45 states shows that 252,730,000 people in communities have been supplied with drinking water contaminated with one or more pollutants at levels above those health-based limits. In 21,901 communities four or more contaminants exceeded health-based limits between 2004 and 2009.

### Can’t Solve – Main Breaks

#### Water infrastructure can’t solve – main breaks

Loranger, ITT Corporation Chairman, President, and CEO, 10

(Steven R., 5-3-10, Huffington Post, "Water Infrastructure: The Unseen Crisis ," http://www.huffingtonpost.com/steven-r-loranger/water-infrastructure-the\_b\_561852.html, accessed 7-12-12, CNM)

One barrier to investment is that water infrastructure is almost invisible to the average person - and even when something breaks, it often goes unnoticed. Unlike a bridge collapse or a power blackout, which immediately leads to calls for infrastructure reviews, water infrastructure failures typically do not draw public outrage in the same fashion. For example, little attention is paid to the fact that 240,000 water main breaks occur around the United States each year, or that the value of the lost water alone from such breaks is $2.6 billion annually.

### Can’t Solve – Too Old

#### Pipes are too old – wastes 7 billion gallons of water a day

Kosik, CNN, 11

(Alison, 1-21-11, CNN, "Experts: U.S. water infrastructure in trouble," http://www.cnn.com/2011/US/01/20/water.main.infrastructure/index.html, accessed 7-12-12, CNM)

Each day, leaking pipes account for an estimated 7 billion gallons of water, according to the American Society of Civil Engineers.

Much of this is blamed on age. A large part of the U.S. water delivery system dates back to the years shortly after World War II. "Now it's time to replace that system and we've got to make those investments or we'll suffer the consequences," said Goldstein.

To get an idea of how old the nation's water pipes are, 30% of pipes in systems that deliver water to more than 100,000 people are between 40 and 80 years old, according to the EPA. About 10% of pipes in those systems are older.

### Can’t Solve – Regulations

#### Regulations prevent lower prices

Walton, Circle of Blue Reporter, 3-7-12

(Brett, National Water Resources Association, "America’s Water Infrastructure Shows Its Age — the National Debate About How to Pay for Repairs," http://www.nwra.org/content/articles/americas-water-infrastructure-shows-its-age-the-na/, accessed 7-12-12, CNM)

National water quality regulations have become stricter — and thus more expensive — in the last few decades, especially since 1994, when the U.S. Environmental Protection Agency (EPA) issued its policy for controlling discharges from combined sewers. The settlements that the EPA signs with affected communities can be billions of dollars, because they often rely on expensive engineered solutions like tunnels and reservoirs. Communities, like Philadelphia, have responded by requesting more flexibility from the EPA, and environmental groups are joining them by promoting more affordable “green infrastructure” solutions that do not need pipes, filtration, or pumps. The EPA is considering these changes.

## Government Funding Bad

### Net Worse for Infrastructure

#### Government involvement fails – 19th century proves

Kosik, CNN, 11

(Alison, 1-21-11, CNN, "Experts: U.S. water infrastructure in trouble," http://www.cnn.com/2011/US/01/20/water.main.infrastructure/index.html, accessed 7-12-12, CNM)

Government funding of community water systems may be partially to blame for the crumbling water infrastructure, said Randal O'Toole, senior analyst for the Cato Institute policy think tank.

"The money should come from user fees," said O'Toole. "All the costs of construction and maintenance might be borne by users out of annual or monthly fees."

To keep prices down, O'Toole suggested privatizing community water utilities. "In the 19th century, almost every major American city had private water companies," said O'Toole. "And then we had this wave of socialization where the government took everything over and mismanaged it so the quality of tap water is lower and costs are higher."

#### Federal involvement fails – empirics prove

Edwards CATO Institute director of tax policy, 11

(Chris, 10-24-11, Downsizing the Federal Government, a project by the CATO Institute, "Infrastructure Projects to Fix the Economy? Don't Bank on It." http://www.downsizinggovernment.org/infrastructure-projects-fix-economy-dont-bank-it, accessed 7-12-12, CNM)

For plenty of examples of the downside of federal infrastructure, look at the two oldest infrastructure agencies — the Army Corps of Engineers and the Bureau of Reclamation. Their histories show that the federal government shouldn't be in the infrastructure business. Rather, state governments and the private sector are best equipped to provide it.

The Corps of Engineers has been building levees, canals and other civilian water infrastructure for more than 200 years — and it has made missteps the entire time. In the post-Civil War era, for example, there were widespread complaints about the Corps' wastefulness and mismanagement. A 1971 book by Arthur Morgan, a distinguished engineer and former chairman of the Tennessee Valley Authority, concluded: "There have been over the past 100 years consistent and disastrous failures by the Corps in public works areas ... resulting in enormous and unnecessary costs to ecology [and] the taxpayer."

Some of the highest-profile failures include the Great Mississippi Flood of 1927. That disaster dramatically proved the shortcomings of the Corps' approach to flood control, which it had stubbornly defended despite outside criticism. Hurricane Katrina in 2005 was like a dreadful repeat. The flooding was in large part a man-made disaster stemming from poor engineering by the Corps and misdirected funding by Congress.

## Link Turns

### Infrastructure Bank Funds Water

#### Link turn- NIB finances water infrastructure

Green, Bloomberg, 2-2-12

(Peter S., Bloomberg News, "America's Trillion Dollar Leaky-Pipe Bill," http://www.bloomberg.com/news/2012-02-02/america-s-trillion-dollar-leaky-pipe-bill.html, accessed 7-12-12, CNM)

America's got a plumbing problem. The country's aging water infrastructure is leaking, and the plumber just came in with an estimate: $1 trillion, payable over the next 25 years.

That's the figure given by American Water Works Association, an industry training and research group, to ensure clean and abundant water in a country that's grown to expect it. Unfortunately the bank account needed to pay this bill -- government spending and bonds backed by taxes and utility bills -- is running dry.

What America needs is a new bank to finance its aging pipes and more incentives to reuse waste water, according to a report released this month by Ceres, the Johnson Foundation at Wingspread and American Rivers. They call for a government-funded infrastructure bank that leverages private capital to bring the U.S. water system into the 21st century.

## Impact Defense

### AT – Disease

#### No terminal impact – diseases are either too fast or too slow

Arthur, The Independent, 3

(Charles, 5-25-03, Common Dreams, "Future Tense: Is Mankind Doomed?" http://www.commondreams.org/headlines03/0725-04.htm, accessed 7-13-12, CNM)

"Within a few years, it may be possible for an inexperienced graduate student with a few thousand dollars' worth of equipment to download the gene structure of smallpox, insert sequences known to increase infectiousness or lethality, and produce enough material to threaten millions of people," wrote Henry Kelly, the president of the Federation of American Scientists, in The New York Times earlier this month. Maybe - though plenty of experienced graduate students could already have a stab. But nature knows that infectious diseases are very hard to get right. Only HIV/Aids has 100 per cent mortality, and takes a long time to achieve it. By definition, lethal diseases kill their host. If they kill too quickly, they aren't passed on; if too slowly, we can detect them and isolate the infected. Any mutant smallpox or other handmade germ would certainly be too deadly or too mild. And even Sars killed fewer people worldwide than die on Britain's roads in a week. As scares go, this one is ideal - overblown and unrealistic.

### Bioterrorism Defense – No Threat

#### Bioterror threat is exaggerated

Bain, Carnegie Endowment Fellow, and Cirincione, Carnegie Endowment Director for Non-Proliferation, 6

(Ben and Joseph, 3-16-06, Carnegie Endowment for International Peace, "Exaggerating the Threat of Bioterrorism," http://www.carnegieendowment.org/2006/03/16/exaggerating-threat-of-bioterrorism/4o2, accessed 7-13-12, CNM)

Leitenberg points out that there are fewer state bioweapons programs today than 15 years ago and “to date, no state is known to have assisted any nonstate or terrorist group to obtain biological weapons.” Additionally, “there is no justification for imputing to real world terrorist groups capabilities in the biological sciences that they do not possess.”

According to Leitenberg, the exaggeration of the threat developed as “bioterrorism” became an all-encompassing term for any biological weapon use, be it by state or non-state actors. He writes,

That simple switch in language made it easy to transfer levels of state capability to “terrorists.” Everything became and was referred to as “bioterrorism.” This wiped out any discrimination, or attempt to discriminate, between the relevant capabilities of state programs and existing terrorist groups as they are known to date.

The perceived threats were blown out of proportion:

The possibility of incidents involving low numbers of casualties evolved in 2 or 3 years to “mass casualty” terrorism, and in several more years to “Apocalyptic Terrorism.” Generic terrorist groups…were endowed with the prospective ability to genetically engineer pathogens. Yet the resources and capabilities available to states and to terrorist groups are vastly different.

His carefully written monograph puts the bioterrorism threat in context with other pressing problems, such as malaria, tuberculosis, and HIV/AIDS (that together kill 5 million people a year), diarrheal diseases (kill 3.5 million a year), and smoking (kills 5 million people a year) – not to mention the massive casualties from a possible pandemic flu outbreak.

[Note – Leitenberg, Milton, University of Maryland senior research scholar, one of America’s leading scientific experts on biological weapons]

#### Not an existential threat – empirics prove

Leitenberg, University of Maryland senior research scholar, 6

(Milton, 2-17-06, Los Angeles Times, "Bioterrorism, hyped," http://articles.latimes.com/2006/feb/17/opinion/oe-leitenberg17, accessed 7-13-12, CNM)

THE UNITED STATES has spent at least $33 billion since 2002 to combat the threat of biological terrorism. The trouble is, the risk that terrorists will use biological agents is being systematically and deliberately exaggerated. And the U.S. government has been using most of its money to prepare for the wrong contingency.

A pandemic flu outbreak of the kind the world witnessed in 1918-19 could kill hundreds of millions of people. The only lethal biological attack in the United States -- the anthrax mailings -- killed five. But the annual budget for combating bioterror is more than $7 billion, while Congress just passed a $3.8-billion emergency package to prepare for a flu outbreak.

### Bioterrrorism Defense – Alt Cause – No Resources

#### Alt cause – no resources

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

Yet federal funding to prevent and respond to bioterrorism is plummeting. The U.S. Centers for Disease Control and Prevention's biodefense budget peaked in 2005 at about $1.2 billion. The 2012 budget is down to $800 million, with state and local programs -- the country's first line of defense -- absorbing some of the most significant cuts.

"We haven't had enough resources to do as much training. It's taking longer to revise plans so they may not be as current." says Jane Braun, director of the Office of Emergency Preparedness at the Minnesota Department of Health. "It's hurting our ability to respond as rapidly and as effectively. And this is true for all states."

### Bioterrrorism Defense – Alt Cause – No Security Standards

#### Alt cause – no security standards

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

Greg Koblentz, a biosecurity expert at George Mason University in Virginia, adds that labs around the world are inconsistent in their safety and security standards. Nevertheless, he says that "we still shouldn't be going around making new versions" of deadly viruses without fully considering the possible implications.

### Bioterrorism Defense – Alt Cause – Accidents

#### Alt cause - Accidents

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

By mapping both human and animal cases, and the direction of the wind, U.S. scientists established the path of the airborne agent and concluded that the so-called "biological Chernobyl" had actually originated from a secret military facility, says Dr. Peter Rabinowitz, an environmental medicine expert at the Yale University School of Medicine.

The accidental release of anthrax killed animals over a far wider range than it killed people who breathed the spores. This is not surprising, given that livestock spend more time outside and have greater susceptibility to anthrax than humans. But the implications could be powerful. If local farmers and veterinarians had recognized the animal infections and shared their findings with medical doctors, early courses of antibiotics may have saved human lives.

"The government spends a lot of money developing biosensors," says Princeton's Kahn, referring to air sampling surveillance and other sophisticated systems. "But I would argue the best ones are flying around," or in this case, hanging out on farms.

### Bioterrorism Defense – Alt Cause – Zoos

#### Alt cause – terrorists can attack zoos

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

Zoos can be particularly good sources of sentinels, she adds, as they house a wide array of animals from around the world with different levels of susceptibility. Most zoos are also located near densely populated urban centers, which tend to be terrorism "hot spots."

### Bioterrorism/Disease Defense – AT – Medication Solves

#### Not enough medical countermeasures

Peeples, Huffington Post environmental and health reporter, 2-10-12

(Lynne, Huffington Post, "Bioterrorism Funding Withers As Death Germs Thrive In Labs, Nature," http://www.huffingtonpost.com/2012/02/10/bioterrorism-bioterror-funding-\_n\_1263903.html, accessed 7-13-12, CNM)

Further, the Biomedical Advanced Research and Development Authority receives about 10 percent of the funding it needs to develop antibiotics and other medical defenses, according to the bipartisan Weapons of Mass Destruction Terrorism Research Center.

"A bio-response enterprise without adequate medical countermeasures is like an Army without bullets -- it may look good on a parade ground, but has minimal value for national security," says an October publication from the center. The center's "report card" concluded that the U.S. "remains largely unprepared for a large-scale bioterrorism attack or deadly disease outbreak."

### Bioterrorism/Disease Defense – Silk

#### Silk solves disease

Homeland Security News Wire, 3-16-12

(Homeland Security News Wire, "Killer silk kills anthrax, other microbes dead ," http://www.homelandsecuritynewswire.com/dr20120316-killer-silk-kills-anthrax-other-microbes-dead, accessed 7-13-12, CNM)

A simple, inexpensive dip-and-dry treatment can convert ordinary silk into a fabric that kills disease-causing bacteria — even the armor-coated spores of microbes like anthrax — in minutes, scientists are reporting in the journal ACS Applied Materials & Interfaces. They describe a range of potential uses for this new killer silk, including make-shift curtains and other protective coatings that protect homes and other buildings in the event of a terrorist attack with anthrax.

An American Chemical Society release reports that Rajesh R. Naik and colleagues explain that in adverse conditions, bacteria of the Bacillus species, which includes anthrax, become dormant spores, enclosing themselves in a tough coating. These spores can survive heat, radiation, antibiotics and harsh environmental conditions, and some have sprung back to life after 250 million years. Certain chemicals — most popular among which are oxidizing agents, including some chlorine compounds — can destroy bacterial spores, and they have been applied to fabrics like cotton, polyester, nylon and Kevlar. These treated fabrics are effective against many bacteria, but less so against spores. The researchers tried a similar coating on silk to see if it could perform better against these hardy microbes.

They developed a chlorinated form of silk, which involves soaking silk in a solution that includes a substance similar to household bleach and letting it dry. Silk treated for just an hour killed essentially all of the E. coli bacteria tested on it within 10 minutes and did similarly well against spores of a close anthrax relative used as a stand-in. “Given the potent bactericidal and sporicidal activity of the chlorinated silk fabrics prepared in this study, silk-Cl materials may find use in a variety of applications,” the authors say. Other applications, they add, include purifying water in humanitarian relief efforts and in filters or to mitigate the effects of toxic substances.