

United States Environmental Protection Agency

Office of the Chief Financial Officer

**Meeting Summary of the
Environmental Financial Advisory Board (EFAB)**

August 4-5, 2008

held at the

**Hyatt at Fisherman's Wharf
San Francisco, California**

Environmental Financial Advisory Board Meeting

Meeting Summary August 4-5, 2008

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Environmental Financial Advisory Board (EFAB)

EFAB OPEN MEETING

August 4-5, 2008

Meeting Summary

Monday, August 4, 2008

(1:00 p.m.)

Opening Remarks and Meeting Overview

Stan Meiburg, EFAB Designated Federal Official (DFO) welcomed members and guests to the Environmental Financial Advisory Board (EFAB or the Board) open meeting in San Francisco, CA. He acknowledged the members who were not able to be present for personal and business reasons: Scott Haskins, Helen Sahi, and Sonia Toledo, and the Environmental Finance Center Directors, Mark Lichtenstein, Gerritt Knaap, and Heather Himmelberger.

James Barnes, EFAB Chair welcomed the Board members, EFCN Directors, and guests and said that he was impressed with the work and commitment of the Board.

DFO Meiburg reviewed the meeting agenda. On Monday, *Robert Kerr, Managing Director, Pure Strategies*, will discuss Environmental Protection in 2020. This would be followed by EFAB Workgroup Report Outs on Environmental Management Systems, Public-Private Partnerships, and Leveraging the SRFs. On Tuesday, *Kevin Shafer, Executive Director, Milwaukee Metropolitan Sewerage District* will discuss the Clean Water Trust Fund, *Michael Dean, Associate Assistant Administrator, Office of Water, EPA* will discuss Office of Water Issues, *Jeff Hughes, President of the Environmental Finance Center Network* will provide an update of the Network's activities, *Marcia Mulkey, Acting Director, EPA, Office of Site Remediation Enforcement, OECA* will discuss the EPA's National Financial Assurance Priority, and EFAB Workgroup Report Out for Financial Assurance. Discussion of the Strategic Action Agenda would include proposed new projects, followed by public comments.

Welcome to San Francisco

Laura Yoshii, Deputy Regional Administrator, EPA, Region 9, was introduced by *DFO Meiburg* as a strategic thinker, who has supported the Board and has been with EPA for 30 years. *Ms. Yoshii* thanked the Board for helping EPA on financial matters because one of the most pressing challenges is financing environmental protection at all levels of government. In the future, the focus needs to be on financing creative solutions which go beyond regulation. Two successful examples include diesel emission reduction to improve air quality and working with the private sector. Two opportunities for the Board's advice and recommendations are on energy financing, including green buildings and the diesel campaign, and on inventory work that will require trading. The diesel reduction program has the co-benefits of pollution reduction and greenhouse gas reduction.

Ms. Yoshii acknowledged the Board's help with the border region regarding the creation of an institution to deal with transporter issues. Strides have been made on infrastructure

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improvements in water and wastewater in the border area. Other media priorities were air monitoring and tire removal and management. Creative ideas provided by the Board about innovative systems used by other states are also helpful.

Region 9 has jurisdiction over the outer Pacific Islands. EFAB Board member *Michael Curley* assisted them with financial mechanisms to advance infrastructure. In Guam, Region 9 has a partnership with the Department of Defense. A buildup of forces in Guam that transferred from Okinawa presented leveraging opportunities to improve unmet infrastructure needs.

DFO Meiburg pointed out that *Michael Curley* gave a report on transport-related emission reductions to the Office of Air.

Next, the Board members introduced themselves. *DFO Meiburg* noted that this was a time for reflection and thinking about the future, since the Board would not receive any new charges from EPA until the change of administration in January 2009. *Chuck Kent*, from EPA's Office of Policy, Economics and Innovations, has been working on future directions and was asked to introduce the next speaker. The ideas being presented are not to come up with a conclusion, but to provide the context for ways in which the Board could be helpful to the EPA.

Chuck Kent introduced *Robert Kerr of Pure Strategies, Inc.*, who consults on sustainability, environmental market initiatives, strategic planning and pollutions prevention with state environmental agencies, EPA, environmental advocacy groups and businesses. He worked on environmental policy and energy policy with U. S. House and Senate staff and worked at EPA on the development of pollutant trading programs.

Environmental Protection in 2020

Robert Kerr, Managing Director of Pure Strategies, Inc., said that the genesis of this project was not to figure out what environmental protection would look like in 2020, but about building a tool to stimulate discussion. Contractors were asked to survey the literature and to develop scenarios that would stimulate innovative thinking. Four scenarios were developed: Market World, Open World, Asian World, and Security World, which posed a range of plausible, but different futures. Different groups were brought together, such as EPA staff in December 2007; state environmental offices and EPA staff in January 2008; and business groups, state and EPA staff at an Environmental Summit in May 2008. The simulations brought people out of their usual view and focused them on the prospective challenges that might be faced in the year 2020.

Each group was presented with different scenarios, and pretended they were a 2020 Presidential Advisory Committee. Each group presented recommendations based on the specific scenario and then looked for common conclusions across scenarios. The exercises were effective in provoking people's thinking about environmental institutions both nationally and internationally. The main idea was to think about what EPA needs to change to meet the new challenges. The business group was asked to think beyond their own business point of view.

The environmental scenarios could not be solved without including the economic and business aspects. The U. S. has done well in the world marketing scenario. Under the *Market World*, environmental problems related to international fisheries, water shortages, and severe environmental and economic impacts. The markets are focused on where to get creative solutions using technology. Internationally, there are a lot of agreements and successes in dealing with poverty, but each success derives a new set of problems. Generating more jobs and more demands means water scarcity and other problems. In an ideal world, collaboration is needed between governments, non-governmental organizations, and businesses to identify solutions.

In the *Asian World*, the Chinese have been racing ahead technologically, but this has produced more pollution; however, this has spurred major investments in new environmental protection technologies. A global infrastructure is needed. In the *Security World*, terrorism could cause a slowdown in production, but water shortages would still remain. EPA and state agencies are limited by traditional methods.

After all four group discussions, the creative ideas that came up within the different scenarios included early warning problem identification, sustainable relocator planning, an Eco-Corps, a comprehensive national environmental offset program, an environmental WTO, and use of advanced technologies to engage citizens in decision-making. Common themes were to break away from traditional thinking, leveraging governmental funds, new environmental legislation to deal with future problems, and compensation for environmental impacts.

The outcomes for EPA included:

- Focusing on an array of potential longer-term challenges;
- Engaging audiences from diverse backgrounds in identification of robust long-term strategies;
- Raising issues important to institutional development for coping with future challenges; and
- Developing tools for engaging a wider audience in strategic thinking.

Mr. Kerr concluded by stating that the workshops were well received and that participants thought the workshops should last longer.

Questions and Comments:

Q. Did you think about projected existing trends vs. discontinuities that might occur or innovation breakthroughs that could not have been anticipated? *Mr. Kerr* responded that they did talk about some of those issues, but the main idea was to get at a range of problems. A list of other alternatives that could be used was developed.

Jim Tozzi commented that deficits in trade and finance are very bad and the new President would have to deal with the devaluation of the dollar. Are there areas that the agency should be looking at if these conditions continue and should we ask the agency about their priorities? *DFO*

Meiburg asked the Board to think about what they should be asking the agency and giving advice on.

Steve Thompson wondered if EPA and the states are doing what they do best and whether they need to look for duplication of efforts in a time of limited resources. If you look at enforcement and the science of environmental protection, could duplication be eliminated? A survey of duplicated efforts could be done.

DFO Meiburg thought that EPA could do more analysis in financial assurance and see what is working and what is not. This would get the government more into the collection and analysis of information than it is presently.

Lindene Patton: The agency is structured in a manner that looks at media separately. The scientific community has moved beyond the agency, which needs to be re-structured. The way regulations create and enforce structure does not meet the current reality. Climate change requires a multi-media approach and interactions between state and federal agencies. The system was developed to make rational solutions about current conditions.

Jennifer Hernandez responded that increasing efficiency should be reviewed. One example is the need for environmental advocacy groups at the state level as in the federal level. If you want to be systematic you could strip state and federal governments from the enforcement role and have a back-up public enforcement mechanism. It has to be recognized that environmental stakeholder groups will not give up on the issues.

Another issue is the debt buildup from lack of taxation. In California, the Governor recently signed a regulation, #80-811, that any city or county can create a non-contiguous assessment district for the purpose of retrofitting private homes with energy efficiency, climate-change technology. Homes can enroll voluntarily and can finance through their property tax assessment district for retrofit improvements. This could be applied to open space districts or storm water management streams that have higher environmental value. There is acceptance of voluntary spending using financing tools for existent homeowners for life values. The idea of selling to home owners what they are willing to pay for and providing them with financing tools does turn things over.

Jim Gebhardt said with climate change we have a new set of issues, which requires a national mechanism to work with states and private entities and an international mechanism to work with other countries. Radon is a case in point, because it trips detectors. With the lack of new money from Congress, the people need to be educated, the private sector needs to be involved, and new EPA staff may be needed. Changes need to be made in the Clean Air Act and other national acts as well.

Rachael Deming commented that a major change is needed to address cross media issues, rather than media by media and statue by statue. Another idea is to move away from the enforcement-based mentality and try to promote and support innovation and new technologies. *DFO Meiburg*

asked rhetorically: Can federal agencies afford risk-adverse behavior? *Ms. Deming* also noted the importance of non-governmental organizations, but only one of the scenarios presented by *Mr. Kerr* mentioned NGOs which are an important factor in the credibility of the system.

Sam Merrill stated that they have done scenario modeling in New England and have found that film is the best communication method to use with local audiences. *Valleyfutures.org* has spent millions of dollars to get producers, directors, actors, and screen play writers to do professional film productions on what the world would look like in future scenarios. Different kinds of financial tools, instruments, and metrics could be displayed through the use of films.

Sarah Pesak noticed that research and development and environmental technology have transcended all of the scenarios. At USDA, a program called Ace Net, which was an equity investment fund for agricultural technologies failed. The Small Business Innovation Research Program is the only EPA investment in environmental technologies that costs around \$2 million per year. For eight companies, it was a minor amount. While most venture efforts are expected to fail, if one in ten succeed it would be more than EPA could fund.

Terry Agriss noted that one area that was common to all the scenarios was the need for international cooperation, both economically and at the policy level. EFAB has had an international committee in the past, so in the future we could look at international finance. One topic could be the relationship between international development efforts and organizations and EPA.

Jim Tozzi posed the dilemma that when the economy goes down the regulators regulate less across all levels of government. If enforcement goes down, can the Board come up with alternative economic incentives to help EPA and the states do enforcement?

Keith Hinds added that in New Mexico the push is to fully price water. If water goes through pipes or the river, regulations are needed on moving drinking water similar to regulations for moving water downstream. This would require interstate cooperation.

Langdon Marsh was concerned that many of the problems discussed here are outside the purview of EPA's jurisdiction. One idea would be to ask how to finance outcomes that people want in climate, water, health, transportation, etc. Much of this is outside the Board's ability and scientific advice is needed. We could look at ways to finance the early retirement of assets that are contributing to the problem, such as coal plants or flood control systems that are causing damage. EFAB is unique in the government advisory groups in looking at the broad perspective over the next 20-25 years. We need to look at everything being done by the federal and state governments in financing and how to do it more efficiently, and take advantage of symbiosis with different areas, such as transportation and the environment.

DFO Meiburg added that we ought to be looking at the kinds of skills the agency should be recruiting for this board to fill vacancies to meet the new challenges.

Jennifer Hernandez said she had spent several hours with a Silicon Valley billionaire on an enterprise to structure a \$10 million dollar prize for an energy-efficient house. Another “hollywood” type idea was to build micro houses in New Orleans; and for this, \$150 million dollars was offered by some billionaire. Money has been raised for micro-lending programs for small projects just by asking people who want to help and want a direct connection with a project that could be filmed to demonstrate the benefits. Perhaps EPA could collaborate with some of these donors.

In response to *Mr. Tozzi’s* idea that governments pull back in times of recession, *Steve Thompson* thought we could help states to use resources more wisely or differently to make more of an impact.

Ms. Patton discussed water scarcity and the need to use financing tools that have been used to create heavily institutionally-driven, centralized water treatment to expand and leverage financing old technology that is needed today, such as roof tops, forced green water recycling, and re-injection to conform to the Clean Water Act. In California, a forced green water program was implemented. *DFO Meiburg* added that in the area of grey water, state and local health departments were seen as obstacles. *Ms. Patton* agreed and said that commercial interest have asked if they could provide pollution coverage for recycling and the barriers were state health departments. She would support a workgroup on promoting a dialogue between EPA and the Center for Disease Control and Prevention (CDC).

Sarah Diefendorf said that they are working in the Southern Congo in Mumbashi, a city of two million people with a \$900,000 annual budget and no infrastructure since the Belgians left the country. The question is how to set up and finance infrastructure when there is no government in the developing world.

DFO Meiburg closed the discussion by stating that the objective of the exercise was thought promotion on what things EPA might do in the future, and this objective had certainly been achieved.

Project Report Outs

DFO Meiburg stated that several of the EFAB reports had received favorable responses from EPA, specifically Environmental Management Systems and Public-Private Partnerships.

Rachel Deming, Chair, Environmental Management Systems Workgroup, announced that EPA followed up on recommendations from the EMS Report recommendations by sponsoring a dialogue in June on how to increase access to EPA databases. The questions were: What can we do with EPA information and how to utilize the data to try to evaluate financial performance? Major discussion topics included the following:

1. There was difficulty in compiling reliable facility identification and combining that into company-wide data. The financial markets evaluate financial data on a company-wide

- basis, but most of EPA's data is based on a facility-basis. EPA made changes in the system over time, and the old data got put on the new system without being deleted or updated, so it was not reliable. There was no clear way to deal with changes in ownership as companies buy and sell divisions and plants. The accuracy was a problem because there was no data overrides and poor quality control.
2. The use of the toxic release data was interesting. The question was: Does this provide useful information or is it because that is all we have? EPA was surprised at the interest in this data for evaluation. EPA needs to determine what would be good information to collect.
 3. The last idea was to create a new system similar to the EDGAR PC database. SEC fought using EDGAR. They were looking into a privately financed system. EPA does not need to recreate what it collects, but determine how to take information it has and make it useful to others.

Chuck Kent, EPA, said that our role is to convene people that manage data for EPA to learn who is using the data, how it can be better utilized, and the best possible intersection of data on environmental financial performance. The Office of Environmental Information (OEI) is working on this and we will continue to work with them.

Ms. Deming added that the MSRB, Municipal Securities Rule-Making Board, has launched a pilot system which will work on government bonds and it will be called EMMA. The MSRB website has information about municipal bonds with real-time data. EPA might want to review how the system is set up to pull data from other systems and make it publicly available. The system is free and available to the public to provide more information.

Public-Private Partnerships (PPP)

John Boland, Chair, said that EPA was very responsive to the PPP report that was approved at the last meeting. The EPA letter stated what was being done on several recommendations. At the last Board meeting, *Scott Haskins* suggested looking at policy innovations in the provision of water and wastewater services in Canada. The Canadian experience is included as an Addendum to the PPP Report.

Canada is an entirely different paradigm with different agencies and organizations involved. The assumption is that a new major public infrastructure project is designed, built, and financed by a PPP, unless it can be shown that the public sector can do a better job in terms of value or money. Value includes the amount of risk and who bears the risk. They have developed models to develop these comparisons. We did not highlight water examples, because the projects were for health, transportation and transit waste facilities. We did not make recommendations because we don't have a mandate to do this, and secondly, Canada has very different institutions than the U.S.

Some things worth looking at include:

1. The model is a Public Sector Comparator which is used to determine whether the public sector is better than a PPP and considers costs, benefits, and risk. It is complex and run by consulting firms. It would be labor intensive for the workgroup to investigate the model.
2. In the U.S. some states have PPPs and we could look at what states have done and compare them to the Canadian system.
3. DOT is also doing this and that might be a model for EFAB to review for specific aspects that would be applicable to EPA. EPA's Office Water is looking at it.

Mr. Boland said he doesn't want to hold up the report, but the cover letter could mention that EFAB is willing to look into these things.

Michael Dean added that this is an important topic and EPA needs to keep this on the front burner. The participation of private companies in delivery of public service in water and waste water is very important for 2020. *Mr. Dean* urged the board to make recommendations to EPA about this and not to wait for a mandate from EPA. EFAB could also work with the Department of Transportation (DOT), which has worked well with PPPs. *DFO Meiburg* noted that this could be discussed tomorrow afternoon.

A member commented that DOT has made a huge commitment and asked if EPA was going to set up the infrastructure for PPP or give this resource a priority. *Mr. Dean* responded negatively for the present, even though he has been working on this for several years. Now EPA is dealing with institutional barriers and deciding which programs could implement it. It might take several years, because of the lack of resources, but he urged them to keep up the pressure. *DFO Meiburg* said it was similar to the Leveraging Report and the lack of public funds, which is an institutional incentive to obtain support from the private sector.

Mr. Dean added that last week on Capitol Hill a water funding symposium was hosted by the Chamber of Commerce and the Conference of Mayors and included discussions about trust funds and private activity bonds.

DFO Meiburg noted that tomorrow, *Kevin Shafer* from Milwaukee is going to talk about a clean water trust fund. There is some Agency interest, and if there are legislative proposals on trust funds, EPA might want opinions from the Board. The Board can decide tomorrow if they want to pursue the idea of a trust fund. As for the PPP Workgroup, the Board and EPA have affirmed its continuation. The actual action agenda and the composition of the workgroup would be discussed the following day.

Leveraging the State Revolving Funds

George Butcher, Chair, reported that the workgroup expected to have a final product several months ago, but now they have an approved version. There was heavy involvement by a large number of people. *Greg Swartz* took on the task of pulling together and analyzing the statistical information, including additional analyses in the new draft. *Jim Gebhardt* and *Jim Smith* made

substantial contributions, and *Terry Agriss* did the editing and compiling of the report. *Stan Meiburg* gave the report a careful read and made suggestions. At this morning's discussion, some changes were made and the workgroup will meet during the lunch hour tomorrow to finalize the report. The Report's conclusions and recommendations are as follows:

Conclusions:

1. SRF programs provide states with financial flexibility in the design of their programs.
2. The direct loan and leveraged loan programs have been successful in funding SRF programs with greater value than the amount of the federal capitalization grants.
3. If federal capitalization grants decline in the future, SRFs will have to depend more on the internal growth of equity to sustain their programs.
4. States will have to be able to sustain their SRF programs by leveraging, which allows them to meet current demands by using more of their earning on equity for loan subsidies.
5. Direct loan programs can take advantage of recent financial innovations developed by leveraging SRFs to fund the same amount of loans they currently would fund and also to grow their equity more than they currently can by using the direct loan approach alone.
6. EPA can facilitate the use of financial innovations to grow equity by allowing capitalization grants to be drawn without regard to the expenditure of SRF funds for project costs and could be more flexible by taking into account expected earnings over time, rather than on current earnings.
7. Arbitrage relief would have a greater impact on SRFs to retain and grow equity and become sustainable.
8. An area of future study by the Board is whether a different approach to investing SRF equity would enhance the ability of SRFs to grow equity.

Recommendations:

- EPA should encourage direct loan states to improve SRF sustainability by showing states how leveraging can be used to increase retained earnings.
- EPA should assist states to develop sustainable SRFs by administratively allowing states to accelerate draws of capitalization grants, modifying its interpretation of the Perpetuity Rule, and by advocating for arbitrage relief focused on SRF programs.
- EFAB should explore the benefits of developing more aggressive parameters for SRF equity investments and recommend appropriate program changes to EPA.

DFO Meiburg said the report, entitled *Relative Benefits of Direct and Leverage Loans in SRF Programs*, was the most extensive piece of analytical work in the history of the Board during his tenure. The recommendations could be transformative. Members need to be sure the report conveys their ideas and will approve the final report so it could be sent to EPA.

Questions and Comments

In response to a question about what could go wrong with leveraging, *Mr. Bucher* said that leveraging has a tremendous track record with minimal risk. *Terry Agriss* thought some risk was not avoidable, but was worried that some people might see this as a way to get more retained earnings into the SRF program so that the federal government would not have to fund it. She urged members to read the report despite its thickness, because *Mr. Swartz* has provided the best background for the SRF programs and delineates how programs have been functioning.

DFO Meiburg Stan added that today's Environment Report states that the Inspector General's report said that one of EPA's challenges is to bridge the gap between the one trillion dollars needed for the water and wastewater infrastructure over the next 20 years and five hundred billion dollars that the utilities are expected to pay. The demand is still greater than the funds even if you used everything available. Leveraging would not close this gap.

Some of the concerns, comments, and suggestions by Board members were as follows:

- There is a possibility of risk and unrecorded delinquencies.
- The reaction of states that are reluctant to take leveraged funds, and who are dependent on direct loans needs to be considered.
- The report fails to address the demand.
- There is a risk that the program's success would imply that there is no need for federal contributions.
- A concern that every year, the President's budget cuts SRFs, whereas more funds are needed.
- The federal budget problems have nothing to do with the value of the program, but there has been discussion about a post-capitalization grant plan. Yet, 85 percent of the states do not use SRF funds, so the pressure for re-capitalization is strong.
- States need the capitalization grants, but one argument is that they should be supported by SRFs.
- Leveraging does not use the compensation model of Wall Street. Leveraging maximizes the value of finite resources and learning how to use them in innovative ways does not diminish the credit quality. EPA should make a case for SRF funding to supplement direct grants.
- Full cost pricing is valid, but in some small communities, people on low incomes cannot pay the full costs. Even grant money to small communities needs to comply with EPA standards.
- The report could be used to educate policymakers at the state level.
- The report assumes that the reader has a lot of knowledge about infrastructure and clean water. The report should have a paragraph about the need and the cost basis, which would give the reader the context to make choices.

Greg Swartz commented on the risk, because one company that was not familiar with how the program should work ended up spending contributed capital to support debt service. The SRF

program has many rules that should alert managers to problems before they get out of hand. One bias is that many states that could leverage want to remain undetected and some Governors do not even know the program exists. His firm, Piper Jaffrey & Co., underwrites and advises SRF programs. The product requires a hard sell, but is it a powerful statement that could transform programs. The message has to be kept simple, so that Governors will ask their staff why they are not increasing loans and increasing retained earnings. *Mr. Swartz* is willing to simplify and strengthen the message, so that anyone can understand it. The Board responded to his strong message with a round of applause.

DFO Meiburg stated that the universal consensus would not be as strong except for *Mr. Swartz's* input. He understood that after the workgroup meets tomorrow, the report would be ready to send to EPA. *Michael Dean* said that with some clarification the agency would be able to understand it, but the report should be understandable for various audiences. When EPA receives the report, EFAB members should be involved in the presentation. *DFO Meiburg* requested a quick response and hoped that EPA would see that the report is discussed with many different groups and venues.

Tuesday, August 5, 2008

(9:15 a.m.)

Opening Remarks

DFO Stan Meiburg opened the meeting and reviewed the day's agenda. Next, he introduced *Kevin Shafer, Executive Director, and Milwaukee Metropolitan Sewerage District*, who is responsible for the overall management, administration, leadership and director for the MMSD. He has had 10 years in private industry in Chicago and 6 years with Army Corps of Engineers. He received the 2001 individual merit award for Engineer in Public Service from the Wisconsin Section of the American Society of Civil Engineers.

Clean Water Trust Fund

Kevin Shafer, Executive Director, Milwaukee Metropolitan Sewerage District (MMSD), will talk about the Milwaukee financial picture and the National Clean Water Trust Fund. He provided a handout and utilized slides for his presentation, which included a description of the MMSD financial program and the Trust Fund.

Milwaukee is a regional utility that serves 28 satellite systems that treat the flow and discharge of flood water and wastewater into Lake Michigan. In the 1980's, they implemented the water pollution abatement program, which cost \$3 billion dollars paid for by construction grants and the SRF. The debt will be paid off in 2017.

By 2010, the MMSD would be investing \$4 billion dollars for a community of 1 billion to reduce combined and separate sewer overflows, which will be financed by municipal bonds and the SRF program. Prior to 1994, they had 50-60 sewer overflows per year, and after the program, this was reduced to 2.2 overflows. Prior to 1994, there were 8 to 9 billion gallons of overflow, which

has been reduced to 1.1 billion gallons. From 2010 to 2020, MMSD has a \$1.6 billion water quality improvement program programmed out and they need to know how to pay for this. Wastewater treatment plants, sewers, and flood management are being improved. By 2012 the debt service payments will be higher than capital improvements. These payments will require funds from a water trust fund, municipal bonds, and private activity bonds.

Programs to remove pharmaceuticals and nutrients, and climate change events will need to be paid for. Sustainable funding is needed from the federal government, because everything is based on a watershed approach, which crosses state lines. A survey has found that 84 percent of Americans would support long-term, reliable sources of funds from the federal government. The major provider of funds for utilities is municipal bonds, but SRFs are a link by providing insurance and guarantees for those bonds. *Mr. Shafer* posed the question for the Board of how a trust fund could strengthen municipal bonds.

A National Clean Water Trust Fund is being proposed by Congressman Blumenhauer of Wisconsin. About \$10 billion annually is proposed for a trust fund, of which \$8 billion is for matching grants, and \$2 billion for the SRF program. The states would receive and administer the funds.

Construction grant funds still need to be provided to help municipalities. Funds are needed for research and development, for EPA's Section 108, the Clean Lakes Program, and the Clean Estuary Program. Sources of funds could include flushable products, a container fee on bottled beverages, industrial discharge penalties, a corporate environmental income tax, and an agricultural products tax. The major source of pollution in Milwaukee is from non-point sources, such as agricultural run-off. Grants and loans to states could use the Clean Water and Drinking Water SRF formula. A trust fund is needed because water is a national priority and it would provide a stable and predictable source of funds. The U.S. has a trust fund for highways and airports.

EFAB can help by focusing on how a trust fund could support municipal bonds, the bond market, and the SRF. The SRF formula is from the 1980s, and needs to be brought up-to-date for changes in population and state revenues to the federal government. The trust fund legislation is being drafted, so this is a good time for discussion.

Questions and Comments

Jim Tozzi: How could the trust fund support the municipal bond market? *Mr. Shafer* responded that the trust fund would support SRF funding which provides guarantees to the bond market.

Justin Wilson: What is the objection to a user tax or water fee? *Mr. Shafer* said that Milwaukee has a tax levee on users for water and wastewater, which covers 50% of the cost.

Lindene Patton: What is the district doing in terms of climate change, such as methane trapping, and managing water and energy intersections? What about using SRF money for projects that improve the water overflow and re-injecting it locally?

Mr. Shafer said that Milwaukee is investing \$500,000 to \$1 million in green approaches, such as porous parking lots, green roofing, and installing mechanisms to keep storm water out of sewer systems. Other projects are solar panels on the treatment plant, wind power on Lake Michigan, methane gas for energy, and looking at a landfill for methane that could be cleaned and used for dry cleaning.

Other comments and concerns of members were as follows:

- Whether a corporate environmental tax would be national and raise the rates for everyone.
- Flushable taxes could be regressive for low-income people.
- A trust fund looks like free money and fiscal discipline could be lost.
- If there are \$8 billion in grants, no one would go for the loans, so a formula would be needed.
- Whether the SRF would manage the whole \$8-10 billion.
- Going from grants to loans to guarantees looks like we would be going backward in time.
- New science is needed and new requirements to go in a different direction.
- If a trillion dollars was available through the bond market, would the trust fund be needed?
- EFAB objectives are based on reducing the costs of financing infrastructure and creating incentives for private investment, and promoting public-private partnerships, so how would a trust fund, based mostly on government funding, meet our objectives?
- The board should look at what Milwaukee has done since they have done well by using financial markets.
- Most states are now looking at appropriateness to the need and this is slowing down over-spending.
- Small rural states are laboring under regulations and they cannot afford the work.

Mr. Shafer responded to several of the questions, but left it up to the Board to see how a trust fund could help communities. Milwaukee's 20-year plan was approved by the federal and state governments. It is based on regulatory issues and population needs. SRF has to be a part of the plan. Utilities need to have some program in which trust funds could go directly into the SRF.

Kelly Downard added that in Louisville they have a 20-year plan that includes low income assistance. Funds should be directed at places that need it, not for everyone. However, a basic principle is that you spend what you have, not what you need. Saying you can't pay for something, reduced the need.

EPA Office of Water Issues

Michael Dean, Associate Assistant Administrator, Office of Water, EPA, said that EPA management is concerned about trust funds and grants which are subsidies that are over-used. He noted the strong relationship between the Board and the Office of Water. The Board's reports on SRFs Leveraging, Private-Public Partnerships, and Affordability were noted as important Board achievements. EPA believes that people should be willing to pay for what it costs to protect and deliver clean water, and should play a role in sustainable infrastructure financing.

As far as new projects are concerned, *Mr. Dean* urged them to look critically at programs and find things that EPA needs to know about financing. Two items are coming up between now and the March EFAB meeting. The first item is the Office of Research and Development is working on a 3-5 year, ecosystems services evaluation plan that should be completed in February 2009. The second item is related to a climate change initiative on underground injection. The Water Office has proposed a rule for long-term carbon dioxide sequestration program as part of greenhouse gas reduction and a new class of underground Class 6 wells. There are long-term technical, safety, and financial issues for possible underground water contamination and for release to surface water. Financial assurance would be needed for capping wells that have been injected. The offices of Ground Water and Drinking Water are aware of the work EFAB has done on financial assurance for Brownfield sites and wants EFAB to be involved. Some parts of the proposed legislation are under RCRA.

EPA would like to assure EFAB's assistance in long-term financial stewardship and assurance. The agency is asking EFAB to take up the following issues:

- Make recommendations on long-term financial stewardship of Class 6 geologic sequestration wells related to key provisions of post-site closure stewardship, appropriate liability stewardship mode—both indemnification and non-indemnification approaches and methodology—and key factors in assessing the costs of stewardship.
- Supply recommendations for guidance for use with state and regional implementers of Class 6 well programs, review state and federal underground financial assurance regulations and guidance, and recommend changes for a new class of geologic sequestration wells.
- Assess key differences in needs when designing Safe Drinking Water Act and RCRA financial assurance models. RCRA staff is now evaluating existing Underground Injection Control (UIC) financial assurance programs. Make recommendations on designing the underground injection financial assurance program taking the uniqueness of the UIC program into account. Alternatively, confirm whether the RCRA model appropriately conveys use by the current UIC program.

EFAB priorities include water issues in the context of climate change. EPA's Office of Water released its proposed climate strategy on adaptation issues. Some of the issues in the Climate Strategy are not aligned with the Safe Drinking Water and Clean Water Acts. Green

infrastructure financing is difficult and revenue sources are uncertain. Leaky pipes lose 5-10% of water, which is an issue because the costs to produce the water are not recovered. Any models that would make this easier to fix would be important.

Finally, re-use of water is important and financial models for water conservation metering are needed. When you reduce water loss, you reduce energy. About 3% of the nation's energy is used to produce, treat, and convey water. EFAB can come up with creative solutions to these problems. Payment structures for water use are now beginning to reflect the value of it, not just the amount of use. More variable payment structures are needed to reflect water value. For example, bottled water is charging the full cost. If re-used water treatment has a value, then the consumer needs price signals to determine its value.

Questions and Comments

Langdon Marsh was concerned about EFAB's work on affordability and whether it should continue and look at communities with affordability problems that might need grants and could use education on affordability. *Mr. Dean* agreed that there is a role for grants to communities that cannot pursue viable water and wastewater programs without grants. Programs should be targeted toward the greatest need. *Rachael Deming* thought that the work EFAB did on affordability could be transferred to climate change issues. *Peter Meyer* thought there was a problem in extracting from RCRA because of the large financial responsibility in the event of failure.

In looking at ecological damage, *Lindene Patton*, noted that the issues are interdependent and regulations presume that there is an economic substitute in damage calculations, which may not be true due to over-population. For example, natural resource damage is calculated on replacing something in-kind or paying a penalty, which assumes there is a compensatory valuation or an economic substitute, which may not be true. Water is a case in point because it has distribution costs that are unique. *Ms. Patton* suggested that when Board vacancies are filled, or changes are made, skills would be needed in economics and damage calculations.

Another issue brought forward by *Mr. Dean* and several members was the loss of water due to leaky pipes. *Ms. Patton* said that some European communities have systems in place that require replacement and there is true value in fixing leaky pipes. *Mr. Dean* suggested that water lost before it reaches the home is a problem for utilities and some states require an audit of the system by local utilities. *Peter Meyer* related water leakage to energy and air implications and green infrastructure. *Terry Agriss* added that private businesses are putting together a program to address this. Business could set a price and take their pay out of the savings. Technology can be mixed with financing ideas.

John Boland said that unaccounted for water has three parts: metered use, leaks, and meter mis-registration. The amount of leakage may not be knowable. Metered maintenance is important to utilities, more than to governments.

Mr. Dean responded that AWWA is aware of this non-revenue water and has done some small studies. Related utilities probably have some idea of lost water. *Don Correll* said that in New Jersey there was 75% leakage in some pipes. On the regulated side, there are PUCs that enforce this in some cities. The rule of thumb is when leakage goes above 15% the problem is investigated.

Jennifer Hernandez said performance enhancement could be measured in terms of water and energy saved. Clients have bought new meters because they are more efficient. Weather-sensitive devices could be installed on agricultural fields. Leaky pipes could be identified easily and costs determined. Environmentally-conscious dairies might be interested, which would be outside government and quite measurable. The Agency needs to determine the metrics of saved water and the costs of fixing the problem.

David Miller added that in world development, water systems are the most vulnerable when it leaves the public right of way and goes into houses. It is up to local municipalities to inspect those connections.

Mr. Dean concluded by alerting members to two films coming to PBS stations in October: *Liquid Assets* on aging infrastructure, and *Running Dry* regarding water management issues in the Southwest. People need to understand better water management issues. Board members clapped in appreciation, after *DFO Meiburg* thanked *Mr. Dean* for his support over the years.

Environmental Finance Center (EFC) Network Update

Jeff Hughes, President, EFC Network and Director, EFC @ University of North Carolina, provided an update on the EFC Network and focused on four projects. The EFCs have become more diversified, focused on multimedia approaches, and rely more on partnerships, such as state agencies and universities. Relationships have been developed with professional and national associations, such as the Clean Building and the Council of Infrastructure Finance Authority (CIFA). A number of EFCs have promoted innovative financing. Using visual aids, *Mr. Hughes* reviewed four areas: air, land, water, and the atmosphere. EFC Directors who provided updates were *Lauren Heberle, University of Louisville*; *Joanne Throw, University of Maryland*; *William Jarocki, Boise State University*; and *Sam Merrill, University of Southern Maine*.

Lauren Heberle, Director, EFC @ University of Louisville, reported that they serve states in Region 4 and produce practice guides, policy reports, serve on task forces, and run workshops on issues related to sustainability. The EFC produced 21 guides on land use revitalization and cleanup, environmental insurance, construction debris recycling, green construction incentives, and energy efficiency financing, which were meant for local and state officials and the private and non-profit sectors.

Ms. Heberle described three initiatives to assist communities in climate change, air quality, and land use. The EFC is working with Metro Louisville to develop a community-based, action transportation plan in cooperation with the green city partnership to reduce emissions. The task

force is open to the public, so a wider range of expertise is available. The Metro Air Pollution Control District is involved and an anti-idling regulation has three task forces including business, health experts, environmentalists, and advocates. There needs to be community buy-in, so the program will be accepted and implemented.

Another initiative is the development of a land-based community survey to help them make environmentally-informed decisions about land use related to land development. The EFC assists mid-size and small communities to think about air quality and climate change. Policy solutions and financial incentives are developed that work in specific localities. Innovative solutions need to be specific to cultural and political contexts. Innovative finance structures are needed to reduce greenhouse gas emissions and resource consumption and to respond to climate change.

Joanne Throw, Director, EFC @ University of Maryland, provided a brochure on a graduate certification program launching in the fall of 2008. In Maryland, there was a conflict between environmentalists and the agricultural community regarding the use of poultry manure and pollution of the Chesapeake Bay. The EFC formed an agricultural collaborative with farmers, environmental groups, businesses, and state agencies. An Agricultural Trader organization was created and put on-line to inform people of all the farm resources. Similar to Craig's List, she developed a buy, sell, and trade for manure. About 90 farms are registered and they communicate and trade with each other for different resources.

Food items are separated from non-food items in a Food Traders on-line trading system. There is also a category for charity, so the Maryland Food Bank is included. The Maryland Restaurant Association sent out messages to its 2600 members. The City of Baltimore has purchased 60% of locally grown produce. Using locally grown produce keeps trucks off the road and reduces emissions.

William Jarocki, Director, EFC @ Boise State University, discussed a new tool described in: *Training on Demand*. The tool was developed in conjunction with the University of Maryland, Cleveland State University, and Boise State University. The dashboard system was developed in response to demand from very small communities to help them obtain better information on sustainable water infrastructure. The system will run on the World Wide Web. Data will be loaded and communities can get immediate output of financial information based on different models, such as capitalization and leak prevention.

The final prototype would be available very soon. The gauges used are affordable for residential use, a measured system investment, and a total budget. *Mr. Jarocki* explained the details of the dashboard system. As the user changes the income, the pie charts change, so the decision-maker can see what happens if they change the rates on the revenue page. The expense page shows operation, maintenance and administrative costs, and capital expenses. The forecast tab allows users to change the customer base over time and the changes are reflected in charts. This is a water model, and they will soon have a sewer model.

Mr. Jarocki then explained an operational dashboard that city councils can use if they want to know if they have enough water for a new development. The chart shows consumption by groups over time and excess capacity. A strategic tab shows major sources of capital, facilities, storage, treatment, etc. EPA has a system and the goal is to have their data file automatically loaded in the Dashboard system. The three dashboards together will show the risk associated with actions, the current value of capital, replacement costs over a period of years, cost indices and changing 10 years of history on construction and material costs. Several states are using the model and public works agencies are using it for rate changes. In Georgia, there was a 95% response rate.

Sam Merrill, Director, EFC @ University of Southern Maine, is working on climate change issues, starting with the Regional Greenhouse Gas Initiative (REGI) for the State of Maine. The focus is on how to use \$30 million dollars in auction credits. Communities need to develop funding sources for sea-level rises. A report of the Union of Concerned Scientists showed the Carolinas and Florida being overflowed by storm surges. For the city of Boston, the EFC created four financial models showing the costs over 30 years if they do nothing about storm surges.

The EFC is also working with small coastal communities using the SLOSH model, which is a tool of polygons that shows what a Category 2-5 hurricane would do, and how many businesses are at risk from an increased storm surge. The tool will be used to educate people in New England with infrastructures at sea level. The focus is on local financial adaptation to climate change, such as installation of regeneration capacity, solar on rooftops, wind turbines, etc. Climate change requires a mind shift through consensus projects.

Questions and Comments

In response to several questions, *Mr. Jarocki* and others responded that:

- The model was shown on an ICMA webcast, and will be shown to CIFA and EPA.
- Oklahoma is sending out teams to small communities to train them on the use of the tool, so they can compare their financing with other communities.
- Some small communities don't have asset data.
- The program is free to users and the front-end costs of development have been covered by grants from EPA and on-going costs are covered by grants and university support.
- The USDA, the RCAP, and the World Waters Association should be using the same template.
- Consulting firms that want to download the data are charged \$50.00.

Update/Next Steps of OECA's National Financial Assurance Policy

DFO Meiburg introduced *Marcia Mulkey, Acting Director, EPA, Office of Site Remediation Enforcement, OECA*, who is responsible for the enforcement aspects of EPA's Superfund and other site remediation programs. She was the Director of the National Enforcement Training Institute, which was established by the Pollution Prosecution Act to provide education and

training services for the National Environmental Enforcement and Compliance Program. Much of the data the Board has on financial assurance has come from the OECA office.

Marcia Mulkey praised the Board for its valued comments to the EPA. The Office of Site Remediation has responsibility for the Superfund and RCRA and oil pollution response enforcement. She provided an overview of the Board's work that is making a difference, such as the 2006 recommendations on financial risk and corporate guarantee and the on-going cost estimation investigation. *Granta Nakayama, Assistant Administrator, Office of Enforcement and Compliance Assurance*, asked her to respond to two questions from the Board. The first is about the percentage of use of various financial instruments; and the second was regarding the cross-connection between financial insurance and bankruptcy. *Ms. Mulkey* would first discuss OECA's financial assurance national priorities and then look forward to the future.

The first phase of our financial assurance enforcement priority is focused on building EPA and state competency through capacity building. The capacity gap is important to states. OECA is inspecting site-specific CERCLA/RCRA, closure/post-closure and RCRA corrective action targeted universe files to understand the nature of the compliance picture.

The second phase is implementing jobs and focusing on non-compliers. The 2010 long-term goals are focused on RCRA closure and post-closure programs and aiming for 50% compliance. The RCRA universe includes facilities that require cleanup that we hope to achieve by 2020. We are going to expand to the Carbon Dioxide (CO₂) Underground Injection Control (UIC) and RCRA Subtitle I underground storage tank programs. As we look at facilities base program and corrective action, we will also look at those aspects of the same facilities.

Ms. Mulkey then used a series of slides to depict the present state of enforcement. Key elements included the following:

- In 221 CERCLA settlements, there were 51 violations, some of which did not require financial assurance, but non-compliers in violation amounts to \$376 million.
- In the RCRA universe, OECA has looked at 1500 files and found violations that would require significant enforcement, but it is difficult to validate statistically the non-compliance rates.
- The handout on file reviews does not cover all the non-compliers and is not a statistical sample, but is targeted at the most important.
- In the base program, about 38% are using financial assurance and corporate guarantees, but this represents 55% of the total costs, because the percentage of dollars is greater for the larger cleanups.
- The corrective action universe shows that the dollars per site are higher because of expensive cleanups. There are not definitive regulations governing the financial assurance in the corrective action universe as there are in the base Subtitle C area.
- A full 70% of the dollar amount is covered by the two mechanisms of financial assurance and corporate guarantee.
- Cost estimation is more difficult, because there is more corrective action required than in the post-closure program. CERCLA could inform cost estimation of corrective action.

- Market conditions change and affect cost estimation. This data is not longitudinal.
- The content of the settlements is being improved to depict the financial mechanisms used.
- CERCLA enforcement instruments are judicial and administrative and the regions are being given the tools they need to improve.
- Publicizing settlements is used as a stimulus to obtain voluntary enforcement.
- The next steps are to continue working on the special cases and to improve the overall performance of industry in the cleanup universe.

One of the major problems is keeping in tune with financial developments such as bankruptcies. New legislation or rule-making might be needed to look at the risk indicators sooner. EFAB's expertise is needed to ascertain what tools are needed, such as consent decrees and permit decrees.

EFAB's charge on financial assurance focuses on four items; the financial test and the corporate guarantee which have been completed; and commercial insurance and cost estimation which are underway. Cost estimation is problematic for CERCLA sites and for sites that are not required to have financial assurance, the solution has not been determined, but law-making is fundamental.

Three agency activities that go beyond enforcement are:

1. Evaluation of the financial test by OSW in January 2009 in the context of the RCRA program. Options under consideration include targeted rule-making, a ratings requirement, or financial test criteria as in Subtitle D.
2. The OECA rule on sequestration, which is based on EFAB's work, and was published in the Federal Register on July 25, 2008.
3. On-going litigation attempts to have the agency do rule-making under CERCLA. The Sierra Club filed a mandatory duty suit against the agency in the District Court in the 9th Circuit. A negotiated timetable for the agency is a likely outcome.

A new area is the UIC on carbon sequestration, which would be the main action instead of RCRA or CERCLA. This is almost as challenging as nuclear waste disposal, because it could require a long-term financial assurance of a 100-year horizon or more. An analysis of financial assurance for even 30 years might not be valid now. The providers of financial insurance and the providers of cleanup have a long-term responsibility. The responsibility could run with the land, rather than the current operator or owner.

In response to a question about whether the corporate test would be Test 1 or 2, *Ms. Mulkey* said the data had not been collected in that way. *Mary Francoeur* said that some states don't allow for the use of the financial test, and wanted to know whether this affected the data collection. *Ms. Mulkey* responded that some of the file reviews were done by states, but she did not think there was any large bias in the data even though it was not random or stratified. One problem is that enforcement officers are nervous about revealing the findings of investigations; however, the data is aggregated which protects the sites.

Rachael Deming asked whether they were gathering statistics on the results of enforcement efforts to collect financial assurance; whether they were having difficulties with different instruments; and what happens to the proceeds. *Ms. Mulkey* and a staff member responded that they deal with the liable party and it is their problem to collect from the insurer or the guarantor. The letter of credit has not been a problem. In one case in Region 5, the company filed for bankruptcy, but they were able to get a letter of credit. In another case, they worked out a payment schedule. In Chapter 11, we would have an administrative expense, because we preserve the integrity of the settlement. In cost recovery the money can be put into a site-specific account for future work. In the Libby settlement, it was a combination of past costs and a liquidation of their future obligations. The \$250 million will be used at the Libby site to clean it up. If there is no future work, the money is returned to the Superfund Trust Fund.

Jennifer Hernandez brought forth a problem with financial assurance in re-use and redevelopment of RCRA sites in terms of the type of financing. Under RCRA regulations, the facility owner-operator is the responsible party but in redevelopment, different types of financing are needed that have foreclosure rights. Property owners will change over time. There are robust tools in both the real estate sector and the regulatory sector. The main problem is leaving financial assurance in the remedy document rather than in the institutional post-control, post-remedy document, which is more flexible in terms of financial assurance. The line between the tail end of the remedy and the beginning of IC redevelopment is not well-defined. Different types of income maintenance could be a remedy or an IC. What is a remedy and what is not needs to be determined.

Ms. Mulkey said she was not aware of any rigid requirement.

Ms. Hernandez added that in terms of financial assurance tools in the IC world, there are two regulatory models that are robust examples that EPA could review:

1. The Fish and Wildlife Services Long-Term Maintenance Habitat Obligations, related to habitat management plans that require a 50-year financial assurance plan.
2. The storm water management plan that requires self-financing with perpetuity to meet the financial responsibility for storm water systems as water leaves the property boundary.

In California, some special assessment districts finance through a tax assessment of the property owners, which is similar to a condo association, except it is public agency enforcement and taxation. The states know how to do standard rules against perpetuity, regulate property transactions, record covenants against property, and impose financial burdens.

EFAB Workgroups Report Outs

Financial Assurance - Cost Estimation

Kelly Downard, Co-Chair, said the workgroup needed to continue to try to improve data collection and follow up and to improve data on success and failure in cost estimation.

Bob Stewart, Region 4, said that in Region 4, they looked at all eight states and gathered and analyzed data on financial assurance and data on closure and post-closure plans and cost estimates. Over the years, cost estimates were found to be on the low side. Cost estimates ranged from \$25,000 to \$60 million. The Region also looked at enforcement cases that were late for several years. In general, the cost estimates increased. In one case, the estimate increased from \$600,000 to \$2.2 million. Over time, the Region wants to collaborate with the states because they review cost estimates.

Mr. Downard reported that the outcome of yesterday's meeting was that they did not agree. The discussion issues in the paper (*Handout*) included:

- How to make the cost estimate accurate. The goal is 95% accurate. Counting the cost estimates is not as important as counting the dollars.
- Cost estimates on closure and post-closure are more accurate because there is more knowledge about the cost of activities, it is better regulated, and not as flexible.
- On corrective action, there are more variations. One idea was a "SWAT" team of 5-10 experts to determine the cost estimate. The SWAT team would include experts from EPA, states, and industry. Experiences could be shared and the group would operate as a consultant and educator, not a regulator. A threshold would be needed to limit the states from coming to the group with everything
- Timing is an important factor, because things change continually. A five-year review is not enough. The implementer and the regulator need to find out what has changed.
- The workgroup needs to talk to state representatives to find out what they think. A workshop is needed to gain some answers followed by a report. The workshop could have three parts:
 - (1) A technical process of cost estimation with EPA staff, state staff and people from industry to discuss about pitfalls, bottle necks, and the cost estimate numbers.
 - (2) An administrative process to form a SWAT team in terms of how to do it, who to involve, what threshold to set, how to manage it, and how is it paid for.
 - (3) Under risk management, we need to know that the 5% inaccurate estimates are not the biggest ones.

Mr. Downard concluded by stating that the workgroup did not have an agreement, but they know what direction to take. The workgroup is not through, because several issues have not been approached.

Questions and Comments

Ms. Deming suggested looking at an OSHA consulting group or the National Remedy Review Board, which is on top of the major Superfund decisions. The Board has a representative from each of the 9 regions and special expertise on risk assessment. They convene to review for consistency and other alternatives. Companies have to account for changes in prices on their balance sheets, but this does not always get into a consent decree. Cost re-evaluation happens on a rolling basis and is revised upward, if needed.

In response to a query about the doubling of cost estimates, *Mr. Downard* said that was primarily for post-closure sites. In one corrective action case, the cost went from \$7 million to \$11 and ½ million dollars.

Another comment was on the legal advice for the “SWAT” team, because when you have agency officials there will be legal problems and the responsibility for accuracy needs to be determined. There is some risk for all participants.

DFO Meiburg added that the leadership should come from persons with a financial background who are not biased by involvement.

Financial Assurance – Commercial Insurance

Justin Wilson, Co-Chair, reported that in June 2008, the committee held a workshop that provided them with areas of agreement including:

- Insurance is a valuable tool for financial assurance.
- If we make changes, we need to think about the consequences.
- Proof of financial responsibility is needed for the insurer. Exact language is needed on how to do that.
- The idea of a mandatory policy requiring specific language was considered a negative idea.

The workgroup is not finished yet, because there are unanswered questions. Most of these arise from the characteristic of insurance being a contract between the insurance company and the regulatory community, which is a different relationship than most financial assurance programs. A fundamental issue of what their obligations might be needs to be addressed.

The current plan is to circulate drafts, have conference calls, and one face-to-face meeting. The main issue is that many of the parties, including the regulatory agencies, is the belief that insurance for financial assurance is a guarantee. Others contend that insurance is not a guarantee and is contrary to the whole idea of insurance.

DFO Meiburg stated that because of the unresolved issues the workgroup would need to continue with these complex issues. While the Board is not the legal counsel for the EPA, characterizing the issue is valuable to the Agency.

Development of the Strategic Action Agenda

DFO Meiburg opened the session by stating that two new proposals had been submitted for the 2009 Strategic Action Plan for the Board.

Michael Curley proposed a follow on of the report that called for the creation of state air finance authorities. There are two parts to this proposal. The first is to identify state incentives to assist in financing of air pollution reduction projects. Three incentives are state tax credits, issuance of special district bonds, and issuance of assessment bonds. A tax credit does not need to be a blanket credit and can be limited by size and eligibility. Specific subsidies are preferred over general subsidies, because limits can be made on individuals, such as income level or a time limit.

Second, is the issuance of special district bonds, which are used for roads, sewers, and sidewalks. This type of bond could be issued for air pollution reduction. For example, bonds could be issued for the replacement of diesel vehicles on farms and roads. Dry cleaners could change to organic dry cleaning products. The principle problem in dealing with small sources of pollution is their access to credit, which is limited in time and has high interest rates, so a three-year pay back at 18% is not feasible, but the state could issue loans paid back over 10 years at 5% interest.

The other project idea is an assessment bond being pioneered by the City of Berkeley, which is pioneering to reduce air pollution by providing solar panels to individual homes. The panels are purchased by the state and then they issue a bond for the service life. This is paid for by a tax assessment against the property of the home owner receiving the solar panels. Only those who benefit will pay for the bond. *Ms. Patton's* company has a list of energy-saving environmental improvement applications, some of which could be funded with assessment bonds. Another idea was to issue tax-exempt bonds for truckers, but this proved to be difficult, so the bonds would be taxable.

Questions and Comments

John Boland thought this would be a public good like a hospital or school. A private school can issue tax-exempt bonds, so why couldn't clean air and clean water companies do the same?

Michael Dean thought that companies like DOW Chemical should not be able to use tax money, but should put the cost of pollution abatement into the price of the chemicals.

Ms. Hernandez reported that new legislation in California, called 8B-811, has expanded the Berkeley tax assessment idea and allows any city or county to offer the program. It is set up at a

consumer level for small businesses and homes and includes a broad list of sustainable technologies, not just solar. She co-sponsored the bill and is on a legislative workgroup.

Keith Hinds added that in New Mexico, if you buy a low-flow toilet, you get a rebate on your water bill. A solar panel on the roof might be able to receive a rebate on the electric bill.

DFO Meiburg announced that after hearing the report from *George Butcher* on the leveraging report, they would discuss the new projects further.

Leveraging the SRFs Report

George Butcher stated that the Leveraging Report on SRFs was completed, and he received a hand of applause from the Board. The workgroup has agreed unanimously. *Ms. Agriss* will make the edits and circulate the edited report. In the report, the board identified an area of further study to see whether the change in investment of SRF equity would be beneficial. The workgroup will undertake this investigation.

Both *Greg Swartz* and *Karen Massey* observed that many states do not invest their funds efficiently even in relation to existing, allowed investments. *Mr. Butcher* identified other areas of further work: (1) The estimate of 1 and ½ percent as a potential benefit is quite conservative; (2) the benefits and risks of an endowment-like approach; and (3) the regulatory issues and impediments to new approaches, such as debt issuance.

Questions and Comments

Peter Meyer asked if they were looking at investments by individual states or would several states pool their resources. *Mr. Butcher* responded that both could be done. States have pension funds that could be managed individually, but smaller states could take advantage of the larger SRFs.

Ms. Deming suggested that the workgroup look at ratings agencies which have standards for the rating process, because to deviate from the standards might be risky. *Mr. Butcher* said that would be a constraint that needs to be considered. The new approaches would only be applied to one-half the funds.

Don Correll said there is bond money and non-bond money and the workgroup needs to sort out where the rating issues arise vs. the bond issues with respect to investments.

A question was raised about the amounts of funds involved. The report states that a significant portion of the \$38 billion could be set aside and not recycled into a lending capacity. This would depend on the structures and how they change over time. Another member said the time frame is important in achieving more than the treasury yield. Another member thought that this approach has about five different potential audiences and could be a powerful tool.

Mr. Butcher responded that this was more like an endowment than a pension fund, because it is in perpetuity and follows the perpetuity rule; however there is an expectation of a higher return.

Strategic Action Agenda for New Projects

DFO Meiburg reviewed the Criteria for EFAB Projects listed on a handout. Mainly, the project should fit into EPA's goal; have a client; be within the Board's capability; be completed in one year; have specific recommendations; have strong Board support; and have an opportunity for partnering with the EFCN. *DFO Meiburg* thought it was unlikely that new projects could be started now. Some projects cannot be completed in one year. Board support is tested by whether members sign up for the workgroup. Financial assurance is one project that is unique to EFAB.

Two projects that are on-going are Commercial Insurance and Cost Estimation. In two others EFAB has had significant milestones: SRF Leveraging and Public-Private Partnerships. *Mr. Dean* has urged EFAB to continue making effort with EPA on these recommendations. Several new projects were those of *Michael Curley's* and *George Butcher's* ideas for further work by the Leveraging workgroup, but it could be a different project. The third one was related to the discussion of carbon dioxide injection and financial assurance, but this is a new area and raises new issues. It is not financial assurance under RCRA, but it is a significant issue, which the Board should take on.

Next, there is the Clean Water Trust Fund on which the agency has no position. If legislation should be developed, the way it could operate efficiently and effectively might be an issue for the Board. The Board does not take political positions, but the Board could assist the agency in how the funds could be used most effectively, similar to how SRF funds were studied.

A new proposal from *Bob Hall, Office of Solid Waste*, is related to an Agency report on the analysis of financial assurance as provided by independent third parties and captive insurance companies for municipal solid waste landfills. The Office of Solid Waste would like EFAB to review a draft report prepared in response to a 1991 appropriations bill. *Mr. Hall* thought EFAB could provide expert insight before it goes through the final agency review and administrative review processes. This would be a short-term project.

Board members raised questions about Municipal Solid Waste related to post-tax revenue for achieving financial assurance and how many municipalities use third party insurance. *Mr. Hall* replied that there are regulations that allow a state to use a tax mechanism that meets specific criteria, and not many municipalities use third party insurance. A board member responded that municipalities use escrows and set aside a portion of their rates to fund closures and post-closure responsibilities. Another member said the report is dealing with the use of owners and operators of municipal solid waste landfills and it might be privately owned waste. *DFO Meiburg* added that some cities used firms that used captive insurance companies for solid waste landfills.

DFO Meiburg listed several ideas for projects as follows:

- The issue of long-term financial assurance beyond 30 years that would tax property rather than the operator
- Obsolete technologies, related to climate change, some of which would have to be retired
- The financing of grey water projects, which will receive more emphasis and have to be financed
- Creation of climate-change recompense in property taxes.
- Financing for ecosystem services—looking at different options for wetlands preservation and how to manage storm water run-off.

For the next hour, Board members voiced their opinion on the various topics on the list and other ideas brought up during the two-day meeting. These topics included review of a report on municipal solid waste and financial assurance, water shortages, carbon dioxide sequestration, evaluation of EFAB recommendations, international financing systems, leaky pipes infrastructure, a Clean Water Trust Fund, land-based financial assurance, innovative financing, grey water financing, and ecosystem services. On-going workgroup topics were SRF investment options, commercial insurance, cost estimation, and innovative financing tools.

Review of a Report on Municipal Solid Waste and Financial Assurance

Members' comments and concerns included the following:

- Municipal landfills have to have closure and post-closure financial assurance.
- Federal regulations are in place for municipal landfills.
- A separate workgroup could be set up to review this or it could be a subgroup of Financial Assurance.
- EFAB is the administrator's advisory board and his delegates have asked for our advice.
- EFAB should respond with a small group that has expertise in this area, but it cannot be done in two months.
- A subset of the Board could make comments back to the Board.
- The Board does not have to take a position on the report, but could provide technical insight and questions to look at.

Water Shortage

Board comments included the following:

- New technologies need to be reviewed and new rules promulgated. New technologies, such as ethanol, could be merely a trade-off for other energy sources.
- One member offered to give a high-level overview of the new technologies.
- Water conservation is a major future issue and EPA has some purview.

- EFAB could look at the financial mechanisms to manage water scarcity, but the first barriers are legal, not financial.
- Water scarcity is not clearly within EPA's purview. States would say it is their issue.
- Water shortage may or may not lead to water failure, which depends on management and infrastructure and this is within the Agency's purview.
- The differences between the East and the West need to be understood.
- The concern that we are stepping on the toes of other agencies to look at water shortages is also true of climate change.
- Water supply falls outside the range of EPA and is a property rights issue.
- Water supply should be looked at from the standpoint of issues about expenditures and financing of mechanisms that collect stormwater, wastewater, and run-off which is within EPA's purview.
- Programs that collecting rainwater, such as in Bermuda, and re-induction programs in Riverside, California, keeps water locally and would have energy and air pollution benefits.
- Re-injection and the use of grey water are related to standards, not financing, but if financing tools were available, projects might move forward

Ms. Patton said that decisions will be made about centralized treatment, leveraging and financing local re-injection or finding alternatives that don't have long-term impacts on climate. It is important to think about centralized treatment because if you don't re-inject, then you don't recharge and it is a water supply issue. Water shortages could increase if wastewater is not re-charged into the system.

Members seemed to agree that water supply shortages should be a subject for a briefing at EFAB's meeting in March in Washington, DC.

Carbon Dioxide Underground Sequestration and Financial Assurance

Members brought up the following issues:

- The problems are between the states and the federal government as to who would set the rules.
- The oil industry thought the states should take over financial assurance in Oklahoma.
- Eminent domain and mineral owners' interest are other complex issues.
- Carbon Sequestration involves more than UIC technology.
- EFAB could start out narrowly.
- Underground sequestration seems like a short-term solution.
- If EFAB gets involved, the issues need to be defined broadly.
- Risk-sharing would be required, because the polluter could not be made wholly responsible for something that happens 50 years later.
- EFAB could provide advice on the financial consequences, but not on the geological mechanism.

- There is a lot of information on CO₂ and CS, which would have to be reviewed. We would need an overview first and then look at the economics, the solutions, and the risks.
- Decisions will be made regarding centralized treatment or whether to leverage and finance local injection or alternatives that don't have long-term impacts.

Evaluation of EFAB Recommendations

A board member thought that EFAB should ask EPA what has happened to all of the recommendations, as a self-regulation mechanism, and to review whether some recommendations ought to be revised. *DFO Meiburg* said this was done in the past, but this can be updated. This might be a task for the new administration.

International Financial Systems

Ms. Agriss brought up the four scenarios from yesterday's presentation and one them was the benefit of global coordination and cooperation on financing. EFAB could look at what kinds of innovative financial programs are going on internationally and suggest some technology transfer; however, we seem to have quite a few workgroups.

Leaky Pipes Infrastructure Financing

Several members supported the issue of leaky pipes in terms of infrastructure, but not from the standpoint of water shortages, which may be the purview of the Army Corps of Engineers. There are some international models that don't follow the U.S. model. Leaky pipes are a huge bang for the buck. *Ms. Francoeur* strongly favored the study of leaky pipes as a very significant issue for systems that would have a material impact on U.S. When she does credit analyses, agencies are asked where their water leaks are and what their collection rates are.

Clean Water Trust Fund

The Clean Water Trust Fund is a difficult issue because it would have to be better defined. A broader charge to discuss the pros and cons of the concept would be more relevant, and in that context, discuss loans and grants. *John Boland* stated that there is an obscure provision in the original Water Pollution Control Act of 1972 that requires an agency to submit a report on the viability of a trust fund for the construction grant program. The report said that the Trust Fund was not a good idea, but a revolving loan fund was a great idea. The report was not accepted by EPA and has disappeared, but as one of the authors of the report, he would be concerned about getting into the Trust Fund issue. *Ms. Francoeur* thought it would be difficult to come to any consensus on the Trust Fund because of different perspectives. *Andrew Sawyers* agreed that it would be difficult, but it ought to be kept open. Under no circumstance should \$8 million be given for grants as that would put SRF out of business. *Ms. Agriss* agreed that some issues under the Trust Fund might be relevant to EFAB, even to say that they do not endorse. If more funds could be put into SRF and less into grants, then EFAB's comments would have some relevance.

Land-Based Financial Assurance

The long-term financial assurance vs. the remedy-based for RCRA sites is one issue. The land-based financial assurance is broader than CERCLA and RCRA. It is a different financial mechanism for environmental enhancement. The two ideas are very complementary. It is the next generation for financial assurance for sites and the RCRA proposal is more EFAB's type of project. The purview of financial assurance can be broadened.

At this point, *DFO Meiburg* summarized the discussion in the following ways:

- A lot of interest was expressed in carbon dioxide sequestration and the potential for financial assurance.
- Interest in the Trust Fund appears to be minimal.
- A small group could work on financial assurance.
- A briefing is needed on long-term financing for grey water and retrofits.
- Ecosystem services could include some combination of *Michael Curley's* and *Langdon Marsh's* work.
- EPA should be asked to evaluate their responses to EFAB's recommendations.
- International grants have some support, but no project has been identified.
- A briefing on water shortage at the EFAB March meeting is indicated.
- A study of leaky pipes and long-term financing has support.
- Carbon dioxide sequestration and financial assurance needs more discussion.
- The present workgroups of SRF Leveraging, Innovative Financing, and Financial Assurance with the subgroups of Commercial Insurance and Cost Estimation should continue.

Discussion ensued as to the various issues and their distribution under the present workgroups. The financial risk mechanisms would be similar, but CO2 sequestration and water supply re-injection issues have both narrow and broad issues. The fundamentals are the same, but the applications would be different. The project could start broadly with the long-term financial assurance and then be split into two subgroups. A member of the Financial Assurance workgroup said they had decided to defer consideration of 30-year, long-term financial assurance until the cost estimation or commercial insurance subgroup was completed.

DFO Meiburg added that for CO2 underground injection; there is a proposed set of regulations that could be used to structure the issue. A member commented that the regulatory framework would exclude the development of risk management options. The issue looks forward compared to RCRA that looks backward, so general principles could be developed and then bring them to bear on the UIC. The issue is similar to radiation issues and it would be good to look toward perpetuity beyond our lifetimes.

At this point, *DFO Meiburg* asked members to indicate by a show of hands their interest in several workgroups. The voluntary assignments were as follows:

Innovative Financing: *Jim Gebhardt, Lindene Patton, Terry Agriss, Michael Curley, Co-Chair, Andrew Sawyers, Greg Swartz, Karen Massey, George Butcher, Jennifer Hernandez, Peter Meyer, Sarah Diefendorf and Langdon March Co-Chair.*

Carbon Dioxide Sequestration (UIC) and Financial Assurance: *Lindene Patton, Steve Thompson, Sarah Diefendorf, Rachel Deming, Justin Wilson, Mary Francoeur, Jim Barnes, and Cheri Rice (volunteered by Sue Briggum.) Chair not selected.*

Leaky Pipes Infrastructure: *Kelly Downard, Don Correll, Jim Gebhardt, Greg Mason, Bill Jarocki, Lauren Heberle, Scott Haskins, Rachel Deming, Justin Wilson, John Boland, Mary Francoeur, Keith Hinds, Greg Mason, Dave Miller, Greg Swartz, Langdon Marsh, and Terry Agriss, Chair.*

SRF Investment Options: *George Butcher, Chair, Keith Hinds, Jim Gebhardt, Andrew Sawyers, Karen Massey, Greg Swartz, Greg Mason, and Terry Agriss.*

DFO Meiburg stated that there were enough volunteers to support the four workgroups and then asked for volunteers to chair the workgroups. *Jim Tozzi* was volunteered for the Leaky Pipes Infrastructure group, but *Terry Agriss* offered if he could not do it. *George Butcher* would chair the investment options group.

Public Comments

Paul Lusty of Lusty Structures, Los Altos, California, indicated a concern about the policy issue of shifting financial responsibility from the private parties to insurance vehicles and a public shift from the responsible parties to the government or the general public. He suggested this trend should be explored further.

Dave Miller, Department of Agriculture, talked about the impact of the 2008 Farm Bill, passed on May 22, 2008, that would impact on world development. Section 6029 proposed funding of backlog projects and \$120 million was appropriated in the farm bill to address backlog projects. Section 6011 talks about a restructuring of interest rate methodology. Prior to May 22, the poverty rate was 4 ½ percent and the market rate changed every three months based on the treasury bonds buyers index, and there was an intermediate rate. The Farm Bill now sets the market rate the same way, but the poverty rate would be 60% of the market rate, and the intermediate rate would be 80% of the market rate and change every quarter. The term is 40 years and this has an impact on buying of properties. The grant is being used to subsidize the rates, but there will be more project volume.

Under Section 6002, the SEARCH grant provides special evaluation assistance for the rural communities with population areas less than 2500, and it is a 100% grant program. Up to 4% of

state grants could be used for this program for preliminary engineering, asset management, and strategic planning.

Mr. Miller suggested that the area of affordability, sustainability, and underwriting ought to be re-visited by the Board. Metering and unaccounted lost water are addressed in USDA's engineering studies for loans. On the wastewater side, some of the leakage is into sewer treatment collection pipes, so water leakage adds to costs.

Wrap Up and Next Meeting Date

DFO Meiburg said that for new members on the Board, skills were needed in accounting for Public-Private Partnerships, and someone from electric utilities to help with carbon sequestration and clean air issues. A member said that some projects don't fit into one of the silos, like air or water, but there might be a great project dealing with Combined Sewer Overflow (CSO) issues. *DFO Meiburg* thought those projects might be eligible for SRFs.

DFO Meiburg brought up the issue of people on federal advisory boards who should only serve a six-year term. He prefers a mixture of long-term and new members to retain institutional memory and get new skills and insights. He thanked the new members for their contributions and the long-term members for their experience and insights.

Jim Barnes, Chair, thought that the four years he has been on the Board was a very productive period and EPA senior managers and the Board have worked together very well. Of all the advisory boards, EFAB is outstanding and was so designated by the Agency.

The next meeting date is March 15-16, 2009, in Washington, DC.

Adjournment: The meeting was adjourned at **5:00 p.m.**

Appendix

EFAB Members Present:

James Barnes, Chair, Professor of Public and Environmental Affairs, Indiana State University, Bloomington, IN
Terry Agriss, President, TAgriss Advisory Services, New York, NY
John Boland, Professor Emeritus, The Johns Hopkins University, Baltimore, MD
George Butcher, Environmental Finance Consultant, New York, NY
Donald Correll, President and CEO, American Water, Voorhees, NJ
Michael Curley, Executive Director, The International Center for Environmental Finance, Towson, MD
Rachel E. Deming, Partner, Scarola Ellis LP, New York, NY
Kelly Downard, Chairman, Louisville Metro City Council, Louisville, KY
Mary Francoeur, Managing Director, Assured Guaranty Corp. New York, NY.
James Gebhardt, Chief Financial Officer, NY State Environmental Facilities Corp., Albany, NY
Jennifer Hernandez, Partner/Co-Chair, National Environmental Team, Holland and Knight, LLP, San Francisco, CA
Keith Hinds, Financial Advisory, Merrill Lynch, Albuquerque, NM
Langdon Marsh, Fellow, National Policy Consensus Center, Portland State University, Portland, OR
Gregory Mason, Assistant Executive Director, Georgia Environmental Facilities Authority, Atlanta, GA
Karen Massey, Deputy Director, Missouri Environmental Improvement and Energy Resource Authority, Jefferson City, MO
Lindene E. Patton, Senior Vice President and Counsel, Zurich North America, Great Falls, Virginia
Dr. Andrew Sawyers, Program Administrator, Maryland Water Quality, Financing Administration, MD Department of the Environment, Baltimore, MD
Steve Thompson, Executive Director, Oklahoma Dept. of Environmental Quality, Oklahoma City, OK
Greg Swartz, Vice President, Piper Jaffray & Co., Phoenix, AZ
Dr. Jim J. Tozzi, Director, Multinational Business Services, Inc., Washington , DC
Justin P. Wilson, Partner, Waller Landsden, Nashville. TN

EFCN Directors:

Sarah Diefendorf, Director, EFC, Dominican University, San Francisco, CA
Lauren Heberle, Director, EFC, University of Louisville, Louisville, KY
Jeff Hughes, Director, EFC, University of North Carolina, Chapel Hill, NC
William Jarocki, Director, EFC, Boise State University, Boise ID
Kevin O'Brien, Director, EFC, Cleveland State University, Cleveland, OH
Sam B. Merrill, Director, EFC, University of Southern Maine, Portland, ME
Sara Pesek, Assistant Director, EFC, Syracuse University

Joanne Throwe, Assistant Director, EFC, University of Maryland

EPA/EFAB Staff and Management

Stanley Meiburg, EFAB Designated Federal Official (DFO), National EPA Liaison, Centers for Disease Control and Prevention, National Center for Environmental Health/Agency for Toxic Substances and Disease Registry Atlanta, GA

Vanessa Bowie, Director, Environmental Finance Staff, Washington, DC

Staff Analysts: Alecia Crichlow, Susan Emerson, Pamela Scott, Timothy McProuty

Expert Witnesses:

Peter B. Meyer, Director, EFC, University of Louisville, KY

David A. Miller, USDA, Rural Development

EPA: Amanda Aldridge, Office of Air and Radiation; Michael Dean, Office of Water; Joe Dillon, OCFO/OETI; Jordan Dorfman, Office of Water; Robert Hall, Office of Solid Waste; Chuck Kent, Office of Policy, Economics, and Innovation; Bruce Kulpan, Office of Enforcement and Compliance Assurance; Bob Maxey, Office of Solid Waste; Marcia Mulkey, Office of Enforcement and Compliance Assurance; Len Pardee, Region 6; Dale Ruhter, Office of Solid Waste, Bob Stewart, Region 4; and Nena Shaw, Office of Enforcement and Compliance Assurance.

Other Guests:

Sue Briggum, Waste Management, Inc.

Julia Giddy, University of Michigan

Meghan Hemenway, EFC Boise State University

Bob Kerr, Pure Strategies

Shellie C. McClary, Oklahoma Dept. of Environmental Quality

Paul Lusty, Lusty Structures, Los Altos, CA

AGENDA

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Environmental Protection in 2020

Scenarios & Simulations

Bob Kerr
Pure Strategies

Why 2020?

- In 2020, EPA turns 50
 - What challenges could government face in protecting environment a dozen years from now?
 - What can EPA do to better anticipate potential challenges?
 - To develop sufficiently flexible, adaptive institution?
 - To develop robust approaches applicable to a wide range of possible future conditions
- Most planning shorter-term, but emerging problems complex, long-term

Why Scenarios?

- Pose a range of plausible but different futures
 - Based on alternative extrapolations/projections of possibilities from current situations/data
 - NOT predictions
- Stimulate strategic thinking about longer-term problems
- Help people think about/see world more broadly

Purpose of Simulations

- Simulations place people in the ‘future’ – the hypothetical world of a scenario
 - The ‘present’ for the simulation is the world of the scenario (2020)
 - Conversations from the perspective of the ‘past’ (2008) strictly prohibited
- Engage participants actively in thinking about prospective challenges we may face by 2020
 - Brainstorm potential robust solutions
 - Create opportunity to address future needs outside context of own current positions/responsibilities
 - Facilitate new perspectives so (post-simulation) look at current events more broadly

Workshops/Participants

- 3 workshops
 - EPA staff (December 2007)
 - Innovations Symposium: state environmental agency staff & some EPA staff (January 2008)
 - Environmental Summit: businessmen, state agency staff & a few EPA staff (May 2008)
- Participants immersed for ½ day in 4 alternative/hypothetical worlds in year 2020

Workshops/Participants (con.)

- All participants posed as experts to post-election 2020 Presidential Advisory Commission on environment
 - Needed bold solutions to recommend to President-elect
 - Nothing out of bounds
- Group divided – assigned to 4 different ‘worlds’ (scenarios)
- Each scenario group developed recommendations
- At end, groups compared recommendations, looked for ‘robust’ recommendations applicable to 3 or 4 scenarios

4 Scenarios

- Market World
- Open World
- Asian World
- Security world

Market World

- Economy
 - Decade of extraordinarily rapid growth
 - Efficient capital markets, flexible labor markets
 - Increased wealth, but growing rich/poor gap
 - U.S. thrives in intensely competitive markets
- Continued minor terrorism; not major focus
- Government
 - Markets dominant force
 - Some states more aggressive regulators than EPA/feds

Market World: Environment

- Atmospheric concentration of CO₂ has just passed old IPCC tipping point of 450ppm
- Decline of ocean fisheries
- Severe water shortages for agriculture, drinking
- Desertification
- Severe environmental/economic impacts of unconstrained growth -> fall of China's government
- Markets focused on visible/profitable environmental issues, not 'beneath the radar problems (e.g. ecosystem services)

Open World

- Economy
 - Rapid worldwide growth & U.S. competitive
 - Major success in alleviating poverty, with explosive demand for increased goods, services
 - Dynamic high-tech innovation in efficient, environmentally-superior technologies
- Security – Terrorism diminished, limited concern
- Government – Unprecedented collaboration
 - Between government, business, NGOs to tackle national & international challenges
 - Between governments

Open World: Environment

- High level cooperation in problem-solving, technological progress, but growth faster
- Problems created by success
 - Increased food demands/shortages
 - Water scarcity
 - Energy demand -> climate change
- We're doing the right things, but...

Asian World

- Economy

- Asian (especially Chinese) economy has raced ahead; leading in technological innovation
- U.S. less competitive – little investment in R&D, education, basic science
- Severe U.S. budget constraints

- Security – rise of the rest reduces terrorism

- Government

- Internationally, strong competitors; while U.S. still strong militarily, needs to take more collaborative role
- Domestically, weakened investment in infrastructure, science, education

Asian World: Environment

- China's continuing massive growth, air & water pollution spurring investments in innovative environmentally-superior technologies
- EPA/state agency roles limited by budget to enforcing traditional regulation
- U.S. facing challenge of promoting resurgence of technology innovation & education – looking to build on research capabilities of private universities.
- U.S. also faces challenge of being “second banana”

Security World

- Economy

- Global slowdown, increased poverty
- Terrorism damages infrastructure, leads to escalating energy, food prices
- Restricted trade & travel; reduced immigration to U.S.

- Security – major increase in terror in U.S. & worldwide after 2010, slowing by 2020

- Government

- Low trust in government
- Security investments crowd out other expenditures
- EPA valued for emergency response
- Increased international anti-terrorism collaboration

Security World: Environment

- Environment low priority; problems ignored
- Economic contraction reduces some impacts, but climate change, water scarcity still increasing
- EPA/state agency roles limited by budget to traditional enforcement – but even implementation of this role is erratic

Robust Strategies

- “Apollo Project” for environmentally-advanced technologies & economic/technological revitalization
- A “new start” in environmental legislation
- Market-based regulatory incentives to address market failures

Robust Strategies - 2

- Collaborative international approaches to environmental challenges
- Government/business/NGO collaboration to promote/develop breakthrough network leadership strategies
 - Conditions changing far more rapidly than governmental (or international) institutions can adapt
- Education/support for changes in consumer behavior

Robust Strategies - 3

- Integrate environmental education into all grade levels, university programs & professional training
- Government program to develop new tools, make use of new technologies, environmental threats
- Collaborative international programs to address poverty/gaps in wealth as critical component of addressing environmental challenges

Unique Ideas

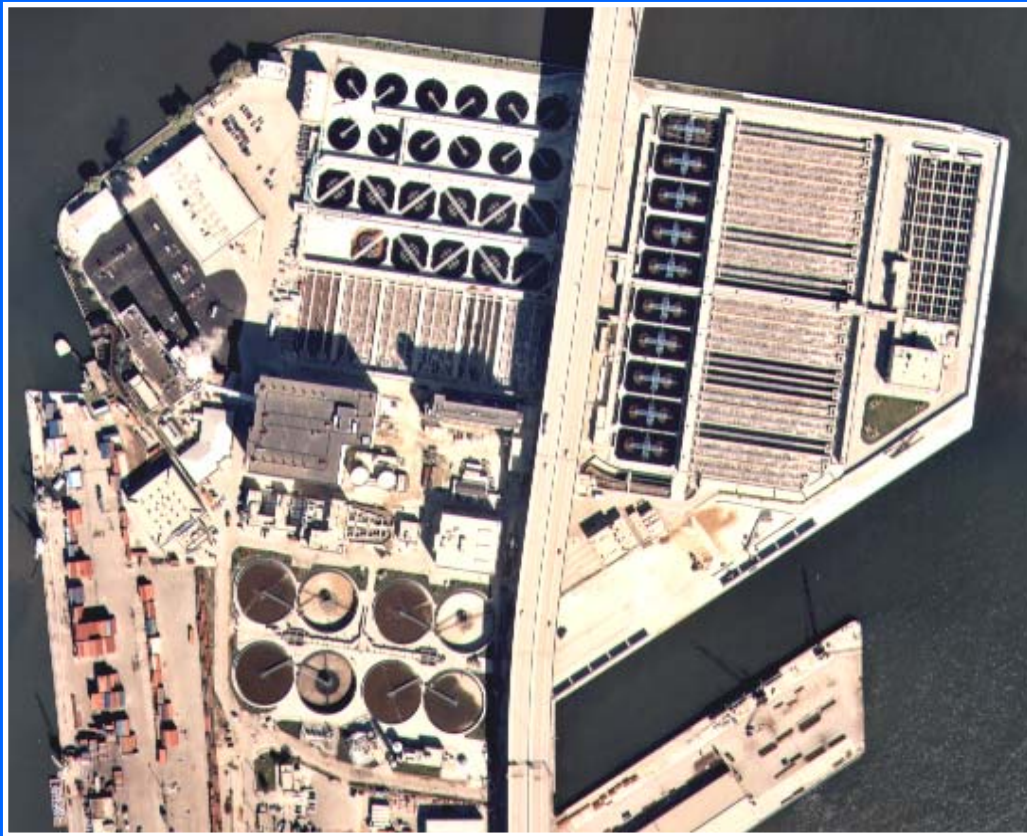
- Examples of ideas that emerged from just 1 or 2 scenario groups
 - Early warning problem identification
 - Sustainable relocation planning
 - Eco-Corps
 - Sustainable relocation planning
 - Comprehensive national environmental offset program
 - Environmental WTO
 - Use of advanced technologies to engage citizens in goals/decisions

Participant Responses

- Overwhelmingly positive/enthusiastic
 - Credible portraits of potential futures
 - Able to tackle problems outside of context of own concerns/positions
 - Brainstorming -> creative problem solving
 - Valuable approach to strategy/goals for their own organizations
- Single most common recommendation: workshops should be longer

Outcomes for EPA

- Focus on an array of potential longer-term challenges
- Engage audiences from diverse backgrounds in identifying potential robust long-term strategies
- Raise issues important to institutional development for coping with future challenges (e.g., staffing, organization, resources)
- Develop tool for engaging wider array of audiences in collaborative strategic thinking

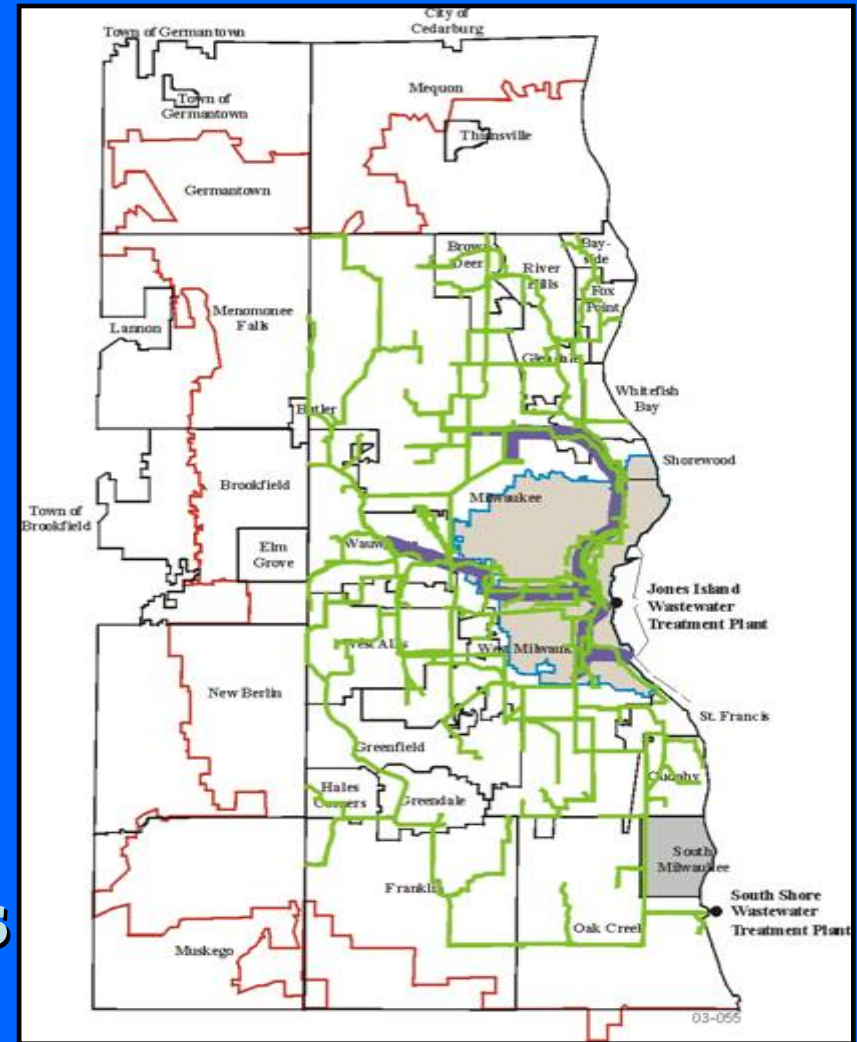


The Nation's Clean Water Utilities Financial Future

EPA Environmental Finance Board 2009 Planning Meeting
San Francisco, August 4-5, 2008

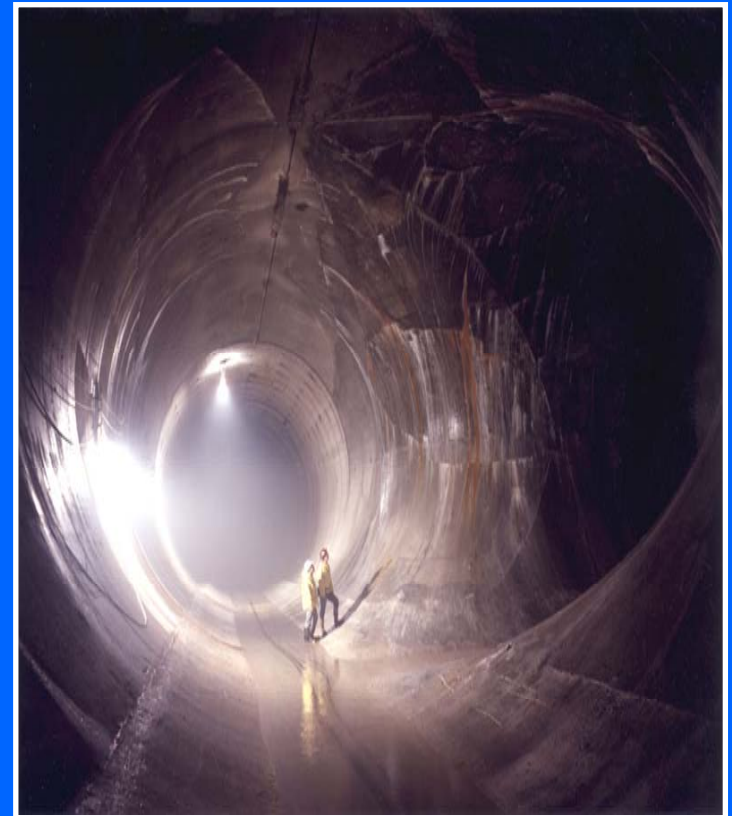
The Milwaukee Metropolitan Sewerage District

- A regional agency
- Provides wastewater treatment and flood management
- Serves 1.1 million customers in 28 communities
- Covers 411 square miles



Milwaukee's Investment in Cleaner Water

- 1980's through 1994
 - \$3 Billion Capital Investment
 - Approximately 45% Construction Grant Program
 - Approximately 55% Clean Water Fund Loans(SRF). This debt will be paid off in 2017.



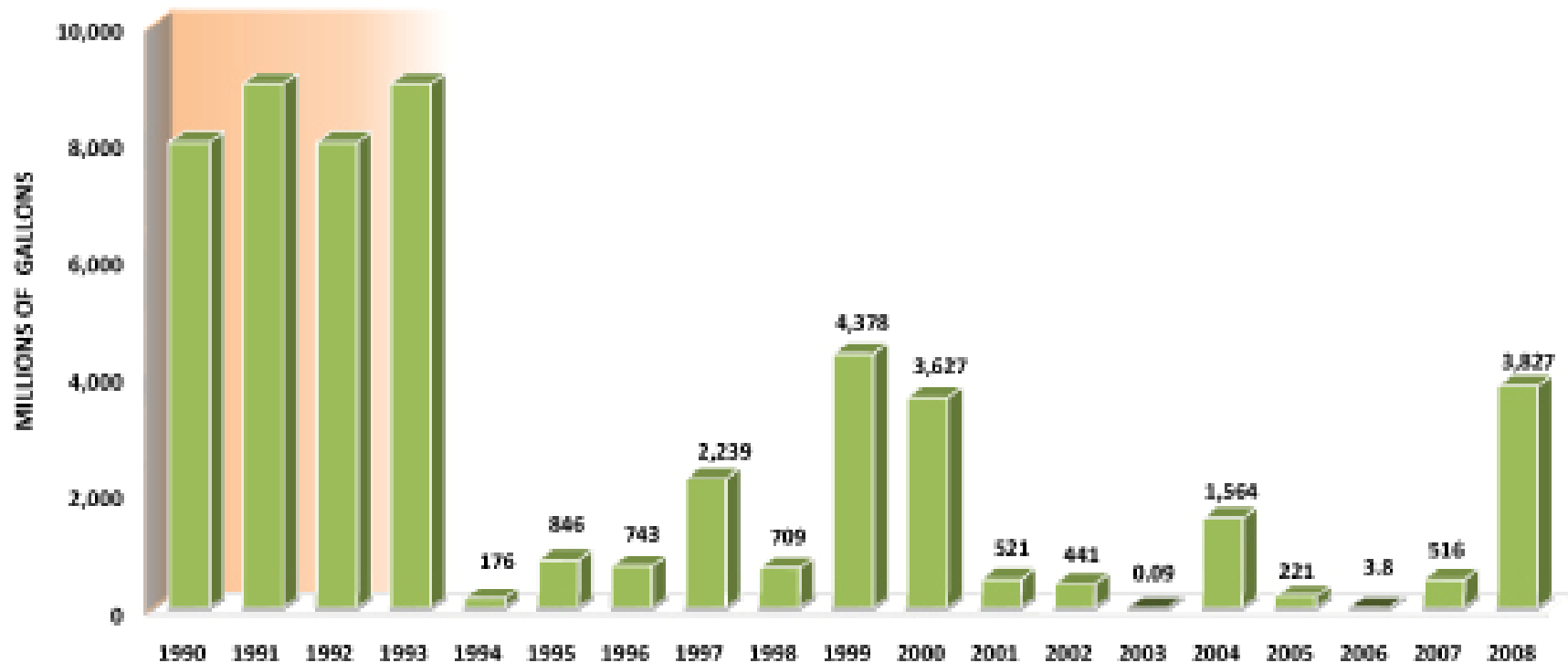
Milwaukee's Investment in Cleaner Water

- 1994 through 2010
 - Water Pollution Abatement Program (WPAP)
 - \$1 Billion Capital Investment
 - Entirely financed through cash financing, bonds and SRF. These expenditures overlap the WPAP debt payments.



What has been the Impact on the Environment?

MMSD OVERFLOW VOLUMES

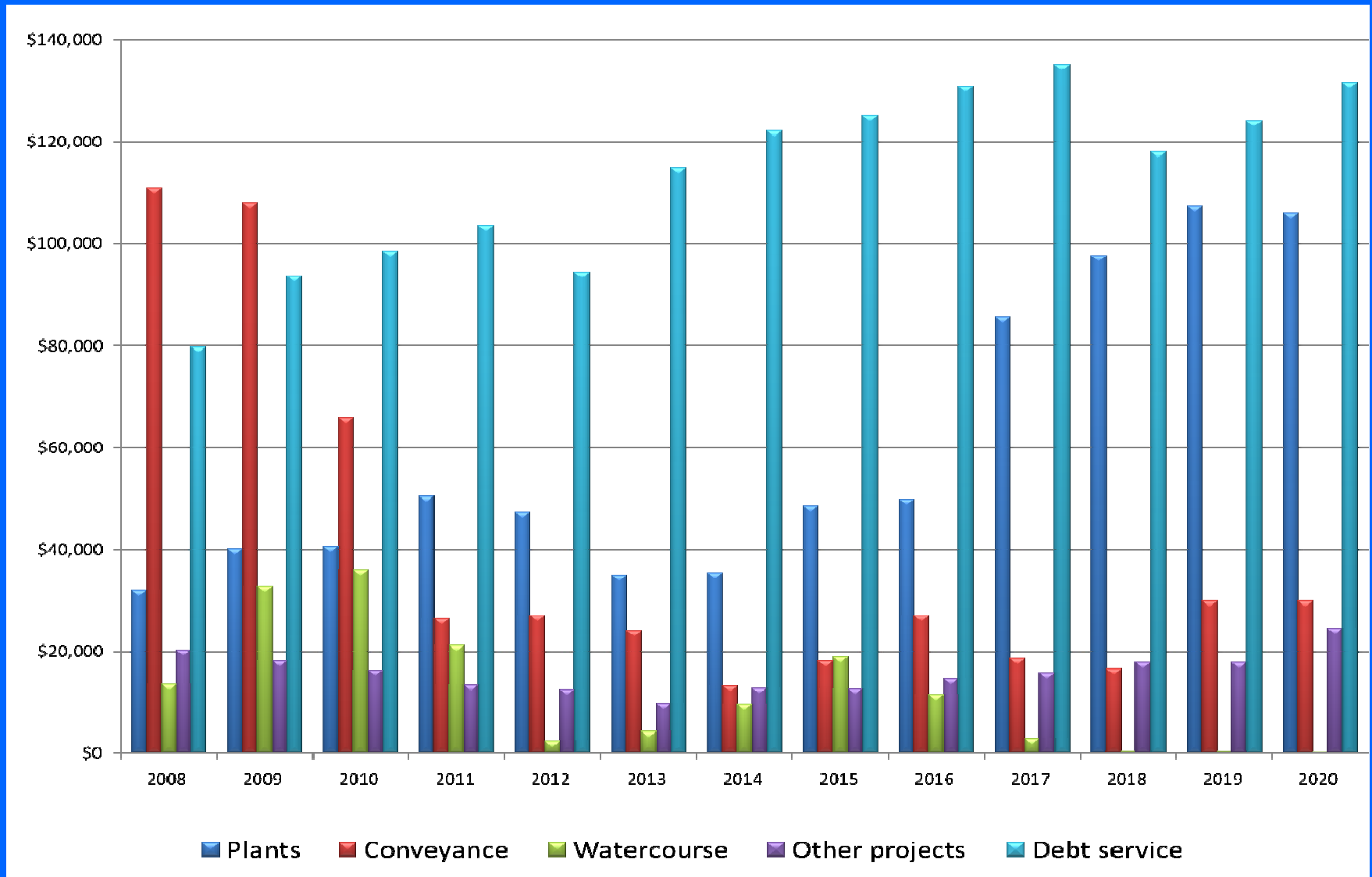


Milwaukee's Investment in Cleaner Water

- 2010 through 2020
 - As much as \$1.6 Billion in additional Capital Investments planned

How will Milwaukee pay for this ???

Milwaukee's Financial Plan



Where is the Rest of the Nation?

- Milwaukee's journey is being replicated in other areas throughout the United States
- The National Clean Water Construction needs range from \$350 billion (EPA) to \$550 billion (WINow 2000) and are growing.

How will this Nation pay for this ???

And...

- Clean Water Utilities face new challenges:
 - Nutrient Removal
 - Pharmaceuticals
 - Climate Change
 - More to come...



We need Sustainable, National Funding

- 84% of Americans would support federal legislation that would create a long-term, sustainable and reliable source of federal funding for clean and safe water. *Luntz Research*

Municipal Bonds

- Local public debt – secure private investment
- Has been and will be principal financial tool
- Suffering from the turmoil in the private equity/housing sectors
- SRF now authorized to provide bond insurance/guarantees
- How can NCWTF strengthen municipal bonds?

Partnerships will be Critical to Success

- Private Investors invest in municipal bonds which provide a good investment because they are backed by “full faith and credit,” paid by a stable revenue stream, and enjoy a federal tax deduction. We need to look ahead to ways to stabilize and strengthen the use of municipal bonds
- Local governments will continue to bear most of the burden for clean water
 - Clean Water utilities are becoming more efficient through asset management
 - NACWA index reports recent rate increases of 6% annually above inflation
- State governments provide “full faith and credit” for local debt and some funding
- Federal government historically has provided grant funding and currently utilizes the SRF loan program as a helpful supplement but will not replace municipal bonds

A National Clean Water Trust Fund

- All Americans benefit from clean water, so a national revenue source is required
- \$11 billion annually for clean water utilities (drinking water needs would double this)
 - Approximately \$8 billion annually for matching grants
 - \$2 billion for SRF loans, insurance, guarantees
 - Balance in research-development-demonstrations;
- States would administer this funding and would be authorized to levy an increment of the funding

A National Clean Water Trust Fund

- Grant funding, financed by new national revenue, is a *real-money* commitment to the national commitment to clean water
- \$500 million would be targeted for advanced research and development in wastewater treatment technologies for:
 - new aquatic pollutants
 - human health-critical pollutants
 - energy efficiency and advanced renewable energy delivery
 - climate change
- And provide sustainable funding for EPA's
 - Section 106 State Management Grants
 - Water Quality Management Planning Sec. 303(e) and 208
 - Section 319 Nonpoint source program
 - Section 320 National Estuary Program
 - Clean Lakes Program

A National Clean Water Trust Fund

- Potential revenue sources include:
 - Flushable products (toilet paper, etc.)
 - Container fee on bottled beverages
 - Industrial discharge penalties
 - Corporate environmental income tax
 - Tax on agricultural chemicals
- Revenue would be distributed as grants and loans to the states using the Clean Water and Drinking SRF formula

Why a National Clean Water Trust Fund?

- Infrastructure and infrastructure networks are national priorities for jobs and economic development
- When renewed by Congress, national trust funds have a long-history of stable and predictable sources of funding
- Investments are a national priority and well matched to the unique financing position of national trust funds
- Sustainable national trust funds can enhance and encourage local revenue raising actions

How can EPA's Environmental Finance Board help?

- EFAB could assist the National Clean Water Trust Fund discussion by focusing on how the trust fund can work to support the use of municipal bonds and to avoid future problems for local government issuers



MMSO



Preserving The Environment •
Improving Water Quality

Update on OECA Financial Assurance National Priority

Marcia E. Mulkey
Acting Director
Office of Site Remediation Enforcement

Priority Update - First Phase

- First phase of priority focused on two key areas:
 - Increasing EPA and state core competency through capacity building; and
 - Conducting Preliminary Financial Assessments on CERCLA, RCRA closure/post-closure and RCRA corrective action targeted universes.

Priority Update – Second Phase

- Second phase focuses on compliance.
- 2010 Goals:
 - 50% of the RCRA Closure/Post-Closure universe in compliance or on the path to compliance; and
 - 50% of the RCRA Corrective Action 2020 universe in compliance or on a path to compliance.
- Expand to include UIC and RCRA Subtitle I Underground Storage Tank programs.

Understanding National Compliance Trends - CERCLA

- In FY06/07 the Regions reviewed 221 CERCLA settlements and determined that 51 settlements (23%) were not in compliance.
- Regions are currently working to bring these CERCLA settlements into compliance
- Total value of settlements approximately \$376 million.

Understanding National Compliance Trends - RCRA

- EPA has conducted over 1500 RCRA Preliminary File Assessments.
 - Some violations uncovered are minor.
 - Some violations are more egregious and will result in enforcement; some will have Federal involvement.
- EPA will work with states and EPA Regions to better understand national compliance trends.

Use of Financial Mechanisms RCRA Subtitle C Closure/Post-Closure

RCRA Subtitle C Closure/Post-Closure		
Financial Instrument	Number of Instruments	Value of FA Instruments in aggregate
Financial Test	288	\$895,730,824
Corporate Guarantee	225	\$1,211,665,497
Letter of Credit	435	\$810,064,813
Trust Fund	170	\$146,768,607
Insurance	125	\$659,183,074
Surety Bond	87	\$102,024,989
Total	1330	\$3,825,437,803

These numbers are preliminary and are subject to change.

Use of Financial Mechanisms RCRA Subtitle C Closure/Post-Closure

RCRA Subtitle C Closure/Post Closure		
Financial Instrument	Number of Instruments	Value of FA Instruments in Aggregate
Financial Test and Corporate Guarantee	38%	\$2,107,396,321 or 55% of total

These numbers are preliminary and are subject to change.

Use of Financial Mechanisms RCRA Corrective Action

RCRA Corrective Action		
Financial Instrument	Number of Instruments	Value of FA Instruments in aggregate
Financial Test	66	\$560,986,226
Corporate Guarantee	62	\$261,413,506
Letter of Credit	71	\$171,482,450
Trust Fund	26	\$11,083,665
Insurance	26	\$161,381,170
Surety Bond	8	\$2,612,700
Total	257	\$1,168,959,717

These numbers are preliminary and are subject to change.

Use of Financial Mechanisms RCRA Corrective Action

RCRA Corrective Action		
Financial Instrument	Number of Instruments	Value of FA Instruments in Aggregate
Financial Test and Corporate Guarantee	50%	\$822,399,732 or 70%

These numbers are preliminary and are subject to change.

Key Messages Regarding Data

- Financial Test and Corporate Guarantee are extremely important mechanisms.
- Cost estimate is central to success of the financial assurance program.
- Market conditions can affect cost and/or use of any one particular mechanism.

Capacity Building – CERCLA Enforcement Tools

- OSRE has developed enforcement tools and training to help EPA Regions ensure adequate financial assurance is in place in all future CERCLA settlements.
- We have tightened our model RD/RA consent decree language for financial assurance, and developed a tool box of sample documents.

Overall Key Messages

- EPA is exploring ways to collaborate with the states to develop enforcement cases.
- EPA is looking at ways in which we can be more aware of developing financial news and more adaptive in our response.
- EPA is working to improve future compliance with the financial assurance requirement.

National Priority Next Steps

- EPA will continue to collect financial assurance information and follow-up from the file reviews completed in the first phase.
- Explore opportunities to address issues identified in file reviews.
