U.S. ENVIRONMENTAL PROTECTION AGENCY

SUSTAINABLE WATERSHED FINANCING ROUNDTABLE TRAINING SESSION

Meeting Summary
March 9, 2006

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MEETING SUMMARY

THURSDAY, MARCH 9, 2006

Introductions/Overview of Roundtable

(9:05 am)

Call to Order

Joe Dillon, Acting Designated Federal Official, EPA

Mr. Dillon first explained the role of the Environmental Finance Advisory Board (EFAB) and the Environmental Finance Center Network (EFCN), to which a number of attendees belonged. He noted that decreases in the Federal budget raised important financial issues, so he hoped the meeting would generate innovative opportunities to address funding shortfalls for environmental water goals. He first thanked Mr. Lang Marsh and Mr. Steve Grossman (EFAB project co-chairs) and Mr. Tim Jones (Leader of the Office of Wetlands, Oceans, and Watersheds [OWOW] Sustainable Finance Team) for their efforts on the meeting, as well as Ms. Alecia Crichlow and her staff for organizational support and Ms. Diane Regas, Mr. Jim Hanlon, and Mr. Ben Grumbles for arranging financial support.

Welcome and Charge

Diane Regas, EPA, Office of Wetlands, Oceans, and Watersheds

Ms. Regas welcomed and thanked attendees for participating. Watershed protection is one of the most challenging environmental issues. The wide variety of perspectives of attendees should make discussion productive. EFAB's Non-Point Source workgroup is aiming to produce some reports this summer on how to move forward on watershed finance and to share these ideas with others.

She then reviewed basic facts on the subject: The Clean Water Act (CWA) had made tremendous progress since 1972 in removing billions of tons of pollution, but had a long way to go. Forty percent of assessed rivers and streams and 45 percent of assessed lakes do not meet basic water quality standards. As coastal populations grow, these valuable ecosystems will experience tremendous pressure. It is important to work hard and develop innovative approaches to get action on the ground. The U.S. Environmental Protection Agency (EPA) and other Federal agencies provide much funding. Section 319 grants for nonpoint source pollution are $200 million a year; Safe Drinking Water Act (SDWA) and CWA dollars are an important source, mostly for local drinking and wastewater infrastructure. Other programs include the Farm Bill and smaller programs, such as targeted watershed grants. Despite this funding, the gap is huge and the cost of addressing polluted runoff and achieving ecological watershed goals daunting. Ms. Regas focused on the context of sustainable infrastructure work and possible action in concert with the watershed approach.

OWOW considers three components essential to the approach: (a) hydrological focus, (b) collaboration, and (c) strategic or scientific approach using a geographic framework for rational plans and mechanisms to assess progress and adjust actions. The watershed approach, based on cooperation among all stakeholders, allows efficiency and effectiveness not otherwise available.

Attendees should then think about how to move forward on implementing watershed plans and commitments to achieve CWA and community water quality goals. Financial mechanisms should be realistic (Federal dollars are limited) and based on collaboration among stakeholders. What are models of governance that maximize leveraging at the watershed level? What market-oriented solutions lead to sustainable approaches? What goods and services can be built into markets to achieve sustainable financing of watershed goals? How can one build capacity and sustainability into watershed efforts? She urged participants to maintain the dialogue among all stakeholders; everyone has an interest in doing this well. She then introduced James Hanlon from the EPA Office of Wastewater Management, who made the following comments.

Mr. Hanlon first congratulated EFAB on high EPA attendance at its meeting the previous day, clearly recognition of EFAB's past contributions. For the past few years, his office has had the lead on sustainable infrastructure concepts and delivery. He reviewed EPA's four pillars of sustainable infrastructure, noting they viewed the watershed approach from the perspective of drinking and wastewater utility managers looking for opportunities to both provide critical water services and protect watersheds. He commented that the meeting was important for setting a sustainable basis in terms of financing and tools.

He then noted that for the 12 months ending June 30, 2005, the states had provided more than $230 million in State Revolving Fund (SRF) resources to nonpoint source (NPS) projects; 37 states have decided to use some clean water SRF (CWSRF) dollars for NPS projects. Funds in place total more than $55 billion, and states provide more than $4 billion in financial assistance. Participants should use the watershed approach to help identify capital projects for addressing NPS challenges in watersheds as the pathway for working with state SRF programs on securing capital financing where necessary and appropriate. EPA is often good at developing models, tools, protocols for assessing problems, but falls short in delivery, after the reports are all produced. He urged them also to discuss market penetration and communication.

Overview

Langdon Marsh and *Steve Grossman,* EFAB Project Co-Chairs

Mr. Marsh first thanked Ms. Crichlow for her work on the meeting. The roundtable's objective is to learn and respond to the challenges of financing on a watershed level to support CWA goals and share information on options and opportunities to raise revenue and create markets, or other ways to address water quality attainment goals. On the agenda were (a) examining existing tools, (b) reviewing principles and tools of resource economists (Mr. Boland and Mr. Farley) for ideas on attaining watershed goals through markets and trading, (c) exploring principles and practices of collaboration, including the collaborative governance demanded by the multijurisdictional watersheds, and (d) hearing about on-the-ground experience in innovative watershed financing.

The main point of the roundtable, however, is to engage participants in discussion; the working lunch and time later in the afternoon will provide opportunities for participants to brainstorm ideas, which will be recorded and summarized. The roundtable discussions and ideas will lead to a report to EFAB for adoption at its next meeting in August. Ultimately, the hope is to (a) develop demonstration projects on sustainable financing approaches, (b) help EPA to build tools for watershed managers across the country to put these into practice, and (c) identify questions requiring further research. His group focuses primarily on NPS issues, but some issues have broader implications, for example, aging water infrastructure, so Mr. Marsh asked the group also to think more broadly on the issues raised that day. He then introduced Steve Grossman, who made the following comments.

Mr. Grossman began by noting that, as an environmental banker, he had reviewed some of EPA's best watershed plans at State and Federal levels, as well as some for Ohio. The first thing he looked at was how action plans were to be funded. In his opinion, current efforts put out a lot of free money to create demand for more free money that does not exist. The reason for the day's meeting is to learn from an academic and practical perspective what is possible and needs to be done to create financing at a local level. Collaborative efforts are vital; in the past, the Federal government had undertaken massive community action agencies with no local ties; this just did not work due to local resistance. The challenge, however, is that most local watershed groups are fledgling; they need tools to be part of a serious collaborative effort.

Agenda

Jack Greer, Facilitator

Mr. Greer introduced himself as the day's facilitator. This interactive meeting would begin with presentations followed by question-and-answer periods. It was hoped participants would generate creative and insightful ideas on sustainable watershed financing. He recognized the questions—valuation of ecosystem services, collaborative governance, equity, innovative finance methods through tax base sharing, transfer of development rights, tax increment financing, and integrated services financing—appear intractable. In addition, what are potential financing entities/authorities to implement a watershed-wide approach? What would they cost to run, and would they be worth the administrative cost? After his remarks, Mr. Greer asked all attending to briefly introduce themselves.

Capabilities and Limitations of Existing Financing Tools

George Ames, EPA Office of Water, Clean Water State Revolving Fund Program

Mr. Ames noted that the CWSRF Program and other Federal programs are financing NPS efforts. Watershed financing is a difficult financing issue. Both the CWSRF and DWSRF are well positioned to help, but are they doing all they can? The CWSRF, one of the largest and most flexible water programs that has made low-interest loans for 18 years, has not employed its full potential. The fund has matured, and loan repayment streams are healthy; CWSRF loaned $4.9 billion last year, of which a small portion was for NPS. Reflows, including principal and interest, amounted to $11.6 billion. Annual assistance approaches $5 billion, although it goes up and down, funding most types of watershed programs. In 1989–2005, the fund provided loans totaling $52.7 billion.

Many funding programs support watershed protection: special appropriation act projects, 319 NPS grants, wetland and other EPA grants, Farm Bill programs (such as the Environmental Quality Incentive Program [EQIP]), the Wetlands Reserve Program, and Conservation Reserve Program), state financing programs, private grants, and great water body programs, such as for the Chesapeake Bay, Great Lakes, and Gulf of Mexico. Current watershed funding, however, will not be enough. Existing sources of funding are making great progress, but most agree that they will not enable all aspects of watershed plans for timely implementation. The Great Lakes Strategy alone identified $20 billion in needs.

A number of challenges and limitations affecting watershed financing must be addressed:

- *Planning.* The 208 program worked and did not work for basin planning. He would like to see some kind of report on what can be learned from the 208 program.
- *Demonstrated results.* EPA is linking financial assistance to its beneficial uses through the electronic CWSRF Benefits Reporting Program on anticipated benefits of projects. So far, $53 billion in assistance has recorded $7.2 billion in anticipated results, which is good.
- *Public/political support.* Watershed financing, although ignored in the past, is obviously needed. In Maryland, responding to citizen concerns in specific areas built support.
- *Institutional issues.* He cited political jurisdictions (New Zealand reorganized these to reflect watersheds), lack of regulatory clout (some states regulate modestly and unevenly, and no Federal regulation exists), and incentives, which are better than giving orders.

More strategic finance planning is needed. He cited the "community quilt" approach put forth by the Idaho and Maryland EFCs as well as the Sustainable Infrastructure Initiative. He also recommended a paper by former EFAB chair John Wise entitled "Protecting America's Legacy: Stewardship, Policy, Tools, and Incentives," which covers principles and a broad policy framework and discusses in depth the strategic direction to instill, not only the ethic, but practice of stewardship.

Mr. Ames said his office had been tasked with looking at innovations at the national level in capital formation, raising revenues, etc. He hoped to get ideas from that day's meeting that might accelerate implementation of total maximum daily loads (TMDLs) and so forth.

Mr. Ames then introduced Stephanie von Feck from his office, who described the role of SRFs and the opportunities to use them differently. The CWSRF is probably the agency's largest and most flexible watershed funding tool; EPA is heavily invested in watershed plans, which is part of goal 2.2 of EPA's Strategic Plan (to protect water quality on a watershed basis). Watershed plans are being developed now. Watershed planning and implementation have already been incorporated into a lot of different management as well as funding programs, including the SRF program.

Watershed plans inform State funding priorities. Twenty-nine states have voluntarily enhanced their priority-setting systems to incorporate NPS and estuary projects. Other states have revamped their system to be integrated priority setting systems and use watershed information to inform their priorities. Watershed plans to a large extent drive the SRF investments.

The CWSRF is also exploring very broad authorities provided by Title VI of the CWA. In addition to municipal wastewater infrastructure and urban storm water projects, more than half the states are funding NPS and estuary protection as well.

She cited the example of Washington State's CWSRF, which prioritizes projects based on water quality threats and a project's ability to solve them. Eligible point, nonpoint, and estuary projects are scored together (reserving 20 percent of funding for NPS and estuary projects and 80 percent of funding for wastewater and urban storm water projects).

The CWSRF is the most flexible watershed tool, because it covers so many projects in a watershed. Ninety-six percent (CWA212) of its projects are publicly owned and concern water infrastructure and urban storm water. Four percent are nonpoint source (CWA 319) and estuary (CWA 320) projects (both of which can be public or private) and fund the water quality portion of NPS projects in approved plans. NPS and estuary projects tend to cost less so the percentage does not measure their relative importance. Pointing to two pie charts on the screen, she noted that the CWSRF supports a total of $52.7 billion in watershed protection, of which NPS activities exceed $2 billion. This is good work that is growing.

Ms. von Feck noted several ways to make the CWSRF more flexible in meeting watershed needs. Watershed projects can include new types of NPS projects, authorities can be broadly interpreted, subgroups for eligibility can be created, and an encouraging atmosphere for innovation can be promoted. Specific innovative financing ideas include conduit lending, sponsorship (user fees for NPS), matching with other Federal programs (e.g., combining SRFs with other Federal programs has allowed very successful 319 and EQIP, funds), and state financial management (e.g., very creative arbitrage rebate rules in New York). Many innovations are "bubbling up" from the States, particularly in Ohio.

Other ways to make the CWSRF more flexible in meeting watershed needs include portfolio financing (funding in pieces), a watershed revolving fund, and septic tank management partnerships. There is a large need for portfolio financing that spreads payments in stages, phases, and segments. In septic tank management partnerships, a special district takes over maintenance of decentralized on-site systems so they fail at a lower rate; this could be run by a watershed organization. All these are very new ideas, to which her office is very open, to encourage an atmosphere of innovation.

She then introduced Peter Shanaghan, Office of Ground Water and Drinking Water, which has implementation responsibility for the SDWA. He said that Mr. Ames had done extraordinary work tying the results of programs he funds to the original CWA goal of fishable, swimmable water. In the same way, Mr. Shanaghan's office ties funding of SDWA with its original goals. The drinking water program is not environment, but public health oriented. SDWA was enacted due to source water issues. Reauthorization in 1996 expanded its focus to ensure all steps are taken upstream to protect source drinking water and that utilities are managed well. SDWA's charge shifted from reacting and treating to proactive protection of water quality from its source. DWSRF offers funding for utility investment in infrastructure to meet public health objectives of the SDWA. DWSRF also offers States funds for programs to assist utilities in implementing source water protection, utility management, and operational improvements through substantial set asides of as much as 31 percent of a State's capitalization grant. These can be applied to a variety of activities, including (a) loans to wa-

ter systems for land/conservation easements to protect drinking water sources, (b) implementing voluntary, incentive-based source water protection measures, (c) development of own-source water protection programs to build capacity to implement and oversee these programs.

If watersheds include drinking water utilities, they will become strong advocates for watershed protection. He cited examples in Des Moines, Idaho, where a company that runs a drinking water utility collaborates with agricultural users upstream on controls to lower levels of nitrates in water bodies, and in Illinois, where a drinking water investor-owned utility had a project with the State to trade upstream sediment control to allow discharge of solids downstream that reduces twice as much discharges of solids.

(Break)

Equitable Allocation of Financing Burden Panel
Panelists: *John Boland,* Johns Hopkins University and *Josh Farley,* University of Vermont

Mr. Boland asked why watershed-level financing is such a problem? Watershed-level programs are some of the most straightforward, effective, and efficient means of accomplishing ecosystem protection. But they are also the most complex and challenging means of raising funds needed for ecosystem protection. Many environmental problems are best solved locally. What is good about watershed programs also makes them challenging to finance. Watersheds only rarely match political boundaries; most regulatory and financial institutional arrangements are at the wrong scale or in the wrong place. Watershed pollution sources are diffuse; responsibility for them cannot easily be established. Free riders—nonpayers—cannot be excluded from the benefits. Successful ecosystem protection measures may also conflict with private property rights.

The objectives of a financing strategy include (a) sufficient resources to carry out the program, (b) sustainability (current financing strategy should not jeopardize ability to raise enough funds in the future), (c) efficiency (the financing strategy should promote economic efficiency, (d) equity (equals are treated equally), (e) fairness (financing method should be regarded as fair by most affected persons), (f) politically acceptable (sufficient political support at all levels to assure implementation), and (g) lack of perverse incentives (should not encourage free riding and counterproductive action, inefficient uses of resources, etc.).

He distinguished equity from fairness. By subsidizing certain users, a public utility is being fair, but not equitable to its customers. Fairness is determined by what most people consider to be fair and, therefore, politically acceptable.

Mr. Boland then reviewed several tax sources: taxes, user fees, and voluntary contributions of money, property, and services. A tax is an obligation levied by government that is not reasonably avoidable. A user fee is a payment made in exchange for some service or other thing of value; a user fee can be avoided by not accepting the service. Variations of these are regulatory fees and benefit assessments, which in most cases are really taxes, and user fees that significantly exceed the cost of the service provided—nearly a tax, but not quite. In general, people like user fees, which are perceived as avoidable; fair, because they are tied to services rendered; equitable, because they fall only

on service receivers; and efficient, because properly configured they can provide an appropriate incentive for use of the service.

User fees enjoy these advantages, however, only where the associated service is excludable, that is, there are cost-effective means for excluding nonpayers from using the service. In the absence of excludability, the user fee becomes a voluntary payment, inviting free riders and eliminating many advantages (efficiency, equity, and fairness) of this funding source. This is a challenging problem.

Another issue is distinguishing between sources and instruments. "Financing instrument" refers to the means used to connect monetary sources (the ultimate payers) to sinks (project costs). Financing instruments can reallocate costs and associated risks over space and time; for example, borrowing reallocates costs over time, and broadly based taxes reallocate costs over space. "Financing source" refers to the identity of the ultimate payers of the cost. Identification of financing source and the choice of a financing instrument are related decisions, but not identical. He then outlined some tax options:

- *Broadly based taxes* (e.g., sales and income taxes) are inequitable for watershed problems, because the financing source is different from the beneficiaries, raising resistance and diminishing incentives for efficient use of funds.
- *Ad valorem taxes* (e.g., special watershed taxing district) require benefit measures for equity and fairness, but not all benefits accrue to locals, raising resistance and moderately reducing incentives for efficient use of funds.
- *Benefit assessments* require benefit measures and may correlate well with local benefits, but not all benefits accrue to locals. The process of setting such an assessment is often transparent and improves the incentive for efficiency.
- *Entrance fees/license fees for recreational services* correlate well with benefits, provided they are limited to recreational services. Funding of other benefits is inequitable and may be seen as unfair and create pressure to skew improvements to recreation services.

Voluntary options include:

- *Cash contributions* are usually not sufficient or sustainable as a funding source and may be targeted, restricting the scope of improvements.
- *Property contributions* are usually not sufficient or sustainable as a funding source and also restrict the scope of improvements.
- *In-kind contributions* are not sufficient as a funding source, but may build community support helping sustainability; however, they have limited applicability.

Sustainable financing of watershed improvements must:

- *Be fair and equitable* (e.g., user fees and voluntary contributions)
- *Produce adequate funds* (e.g., taxes)
- *Be politically acceptable* (e.g., user fees and voluntary contributions)
- *Provide incentives for efficient fund use* (sometimes user fees and voluntary contributions)
- *Provide incentives for efficient use of environmental services* (sometimes user fees)
- *Avoid free riders* (taxes and sometimes user fees).

When Mr. Boland concluded his presentation, Mr. John Wise, a EFAB member, asked how to connect benefits of watershed protection both for nature and the general public? Mr. Boland said it was necessary to take a utilitarian approach that focuses only on benefits to humans. Many of the benefits are public goods that are "consumed" collectively. Public goods, by nature, are not excludable, so user fees are not possible; only taxes can be used to gain improvement. If you cannot get taxes, you need the approaches we are discussing today.

Mr. Farley then began his presentation on his insights on equitable financing of watershed projects. What is equitable? Approaches include beneficiary pays, polluter pays, those who can afford pay, and government pays for public goods, but fairness in these approaches is difficult to determine. His talk would explore other ways to pay for public goods than through government.

Environmental services often have a wide geographic distribution from local to global. Determining who benefits according to receipts is very complicated. One example of beneficiaries paying is the 9 million paying customers of the New York Water Utility. Another is payments by the Costa Rican government of $70 a year per hectare to certain farmers to protect upstream forests or to allow forests to regrow. In Colombia, the Colombia-Cauca irrigation cooperative pays upstream landowners to preserve the watershed.

How much should beneficiaries pay? On the supply side, they should pay as much as they need to continue supply of those services or the lower limit of upstream landowners' opportunity costs. On the demand side, the most that beneficiaries are willing to pay is the upper limit of what the benefits are worth to them. Nature provides services regardless of income; yet, economists try to decide the value of ecosystem services only in terms of income. One could base it on a democratic principle of one person, one vote, but most economists use a plutocratic approach of one dollar, one vote.

The spatial distribution of impacts on watersheds is also broad: they may come from afar (e.g., mercury and acid rain emissions) or from local or regional sources (e.g., phosphorous and nitrogen emissions or deforestation). Direct damage may be caused by such activities as straightening or channelization of water bodies or direct point source emissions. It is difficult, therefore, to implement the "polluter pays" solution. A first step might be to get rid of perverse subsidies—such as massive subsidies for agriculture and logging in national forests and royalties on fossil fuel extraction—but it is not going to happen very soon.

One example of the polluter pays model is "cap and trade:" giving polluters permits to pollute, which they can trade. On the supply side, price is determined by supply and, therefore, by democratic processes. The equitability of "cap and trade" raises issues of the equity of revoking property rights and/or privileges. It is easier to regulate waste absorption capacity, but it is also harder to monitor.

Markets require excludability, and prices require feedback loops. Most ecosystem services, however, are inherently nonexcludable, making direct markets impossible, and have no feedback loops, making pricing difficult. What is the technical term for a system with no feedback loops, Mr. Farley asked? "Stupid," he said.

Some ecosystems services (e.g., recreation; waste absorption, for which there are an abundance of cap and trade emission schemes; and structural elements of ecosystems, such as water use rights and tradable development permits) can be made excludable. It is easier to make unowned waste absorption capacity excludable than to revoke/change existing property.

The less excludable a resource, the more transaction costs and free riding occur. The more transaction costs, the greater is the efficiency of government intervention. Examples in which natural resources have been made excludable are all cap and trade schemes (e.g., carbon dioxide markets in the United States and Europe) and charging for recreational use of a resource (e.g., flood control; water quality for nonconsumptive uses; recreation, although congestion can occur; and most ecosystem services, except waste absorption capacity). Knowledge is a "nonrival" resource, because it cannot be used up. In these cases, the marginal cost of an additional user and the efficient price are both zero.

Mr. Farley summarized his points on excludability of rival and nonrival resources in a chart summarized as follows:

- *Excludable rival resources* include market goods (e.g., irrigation and drinking water, waste absorption capacity of forests and lands) and constitute a natural area for nongovernmental financing.
- *Nonexcludable rival resources* include open access regimes (tragedy of the commons), such as waste absorption capacity (requires governmental regulations to create markets by making the resource excludable).
- *Excludable nonrival resources* include recreation, patented information, for example, on pollution control technology (requires government financing).
- *Nonexcludable nonrival resources* include pure public goods, such as information, most ecosystem services (flood control, clean water for nonconsumptive uses) and require government financing.

Mr. Boland and Mr. Farley then responded to questions and comments from participants. They were first asked if they had ever had input into new laws and regulations on the correct definition of taxes and fees. Neither had had the opportunity to get in at the ground level on correctly defining these terms, but as this is a political issue, it is not surprising that legislators do not call on them. The tendency is to call taxes charges and fees for political reasons, because they are then easier to impose. The group discussed the merits of correct or incorrect labeling of taxes and fees. Perhaps what matters is to do what works? The public is usually more willing to accept user fees, if users will actually get what is paid for, because taxes are perceived as going into a "black hole" of government spending. User fees, however, can provide disincentives, for example, encouraging illegal dumping to avoid payments.

Mr. Boland said he is working with Mr. Marsh on sustainability—delivering resources to future generations. The challenge in business is to create a "forward market" for intergenerational services. In addition, there are designs with zero cost, for example, facing a school to the south to capture solar heat. Mr. Farley noted that intergenerational financing is difficult. How much will future generations pay for long-term debts incurred today? In addition, all we know about what future generations will want is what *we* want now. All we can do is rule out the worst and look at the best possibilities. The

only way future generations will pay is through debt financing, which is perfectly reasonable, when benefits occur over multiple generations.

Mr. Farley pointed out that cap and trade situations require implementing BMPs that are predicted to result in two times the amount of the point source reduction. The literature usually advises breaking ecosystem services down into neat commoditized units, but controlling an NPS usually has much broader ecosystem benefits. A better approach, if you are going to have a differential between point and nonpoint source, is to look at the total benefits. There should be extra, not fewer incentives for riparian reforestation.

Mr. Ames added that, where the SRF makes a loan to a municipality that has done a thorough analysis, it would be far cheaper to negotiate with land owners to use best management practices upstream. They could off-lend to those owners, which is, presumably, more cost-effective than upgrading the facility. This kind of thing is possible through the SRF, but has rarely been done to date.

A variation on that is that an SRF loan can be turned into a grant, as long as the borrower is eligible, and the monies used for what it would otherwise have been eligible for loans. If the community had some kind of lending or credit issue or was not able to get involved in administering the loan, as long as they agreed to pay back the loan, a state agency could take that money and distribute it as loans or grants to upstream users. The regulatory agency would have to determine that an NPS effort would more than satisfy what the point source would otherwise have to do.

Mr. Nees pointed out that addressing nonpoint source, in addition to what is already being done for point sources, is going to raise a significant capacity issue in the SRF Program. He asked if EPA is concerned that addressing nonpoint sources will mean pulling away from some of point source infrastructure needs, and how that can be done? Mr. Ames noted that it is the states that decide what gets funded by the SRFs. He was not so sure that the SRFs were such a big player in overall funding of infrastructure and nowhere near the primary funder. Sources include private partnerships, transfers and subsidies, taxes and fees, but pay-as-you-go is also a significant source of capital financing.

Mr. Paquet noted that some of the largest cities in the country are facing enormous wet-weather flow issues. This will crowd out investment and drinking water, because drinking water and wastewater, from a community's perspective, is a zero sum game. He was surprised the debate on financing for clean water has not separated out the wet-weather issue more clearly. This is rather disingenuous from a policy perspective, because construction grants and CWSRF have dealt with municipal wastewater. This new wet-weather flow issue is huge, yet, is getting muddled together.

David Rankin from the Great Lakes Protection Fund, said this is an artifact of the program, the environment. In addition, from the river's or lake's perspective, wet-weather issues do not go away when it stops raining. Teasing those out from a larger perspective does not make a great of sense.

Mr. Paquet thought that, at least in drinking water and wastewater, solutions to these problems will probably come from the traditional facilities through a combination of existing programs and a reasonable increase in user rates above the rate of inflation. It is a lot more difficult to figure out how to finance the enormous wet-weather flow needs, when you cannot clearly identify customer or users,

as you can for a wastewater treatment plant or drinking water. He suggested thinking through how to get at these problems.

Mr. Farley then responded to a question by Mr. Marsh that, if something is nonexcludable, can you put a value on those benefits and create some kind of mechanism to pay for them that is fair and equitable. Yes, ecosystem services themselves are often perfectly nonexcludable and cannot be made excludable. But, the elements of ecosystem structure that create those services are rival and excludable, which allows the possibility for creating those mechanisms. Many of the benefits are easy to measure. For example, if one deforests a watershed, new infrastructure costs (e.g., stormwater management) will be phenomenal. It is easy to estimate a huge tax to create that stormwater control. Ecosystems tend to provide many services cost-effectively; there is no constant flow of new money going in.

A basic insight in economics is that the more of something you have, the less an additional unit is worth. Our per capita gross national product (GNP) has more than doubled in 30 years; yet, we are losing more and more watershed services. At this point, a few more private goods may not be worth as much; whereas the marginal value of the ecosystem services we are losing may actually have gone up. So, we are slashing taxes to have more private consumption of things we already have plenty of, which means we have less and less of these ecosystem services that are essential for well-being. He thought national priorities had become twisted in this respect.

Working Lunch

The group then broke for a working lunch in which attendees continued to discuss issues raised at separate tables. Participants were encouraged to take notes on ideas generated for presentation to the entire group later in the day.

Innovative Governance and Financing Structures Panel
Panelists:
Greg Wolf, National Policy Consensus Center, Portland State University
Charles Evans, Maryland Department of Natural Resources
Bob Summers, Maryland Department of the Environment
Dan Nees, University of Maryland Environmental Finance Center
Karl Morgenstern, Eugene Water and Electricity Board
Jeff Edelstein, Casco/Saco Bay–Interlocal Stormwater Working Group
James White, Cuyahoga River Remedial Action Plan

Collaborative Governance
Greg Wolf

Mr. Wolf said he would define collaborative governance; explain its purposes, providing an example from the Lower Columbia River; and provide its implications for sustainable watershed finance. Collaborative governance attempts to solve problems at regional and community levels, such as a watershed, by multiple governmental bodies and/or levels (Federal, state, county, city, etc.) and nongov-

ernmental entities and citizens. A collaborative governance network consists of a sponsor (leader, agency, community group, business, etc.); a convener (e.g., governor, legislator, mayor, civic leader, etc.); and a neutral forum (e.g., university, civic organization, etc.). Through collaborative governance, *sponsors* identify and raise an issue or opportunity and assess which sectors should participate. *Leaders* convene all stakeholders, who adopt the collaborative governance system as a working framework for action. *Conveners and participant*s frame or reframe the issue for further deliberation. The *neutral forum* designs and conducts a quality process for participants to negotiate their interests and integrate resources. A written agreement among all parties establishes accountability and spells out individual and collective actions.

This process is based on transparency and accountability, equity and inclusiveness, effectiveness and efficiency, responsiveness, forum neutrality, and consensus processes. Not following these principles could derail the process later. At the regional level, this system creates and determines the objectives, policies, and kinds of investments needed to solve the problem across jurisdictional and other lines. At the community level, public, private, nonprofit, and citizen groups leverage resources and implement the agreed actions as community-based projects.

Mr. Wolf then described the example of the Lower Columbia Solutions Group. It was convened by the governors of Oregon and Washington and the director of the Council on Environmental Quality to make a collaborative decision on sustainable dredge material disposal in the lower Columbia River area, a source of contention between environmental and industry groups in the two states. The effort led to high-level regional agreements that produced a charter and collaborative governance system to address the issue. This classic regional problem and opportunity needed a charter to carry forward decisions for implementation by multiple jurisdictions and partners. Although politically challenging, adoption and implementation of new financing methods are more likely with a consensus-based charter.

Maryland's Bay Restoration Fund

Dan Nees, Bob Summers, and *Charles Evans*

Mr. Nees, Mr. Summers, and Mr. Evans described development of Maryland's "flush fee" as an innovative approach to funding the State's Chesapeake Bay restoration fund. A 2000 agreement among the states of Pennsylvania, Maryland, and Virginia and the District of Columbia and later New York, Delaware, and West Virginia was the original impetus; each state had agreed to cap load allocations for nitrogen and phosphorus at certain levels. In Maryland, however, it had not been possible to get a line item in the State's budget for wastewater treatment plants, so an alternate source of funding was needed.

Funding had to come directly and indirectly from those who contributed to the problem and those who loved and benefited from the Bay. An innovative and complicated "flush fee" system was developed in which Maryland households were charged a $2.50/month charge on their sewer bills and commercial and industrial users were charged per equivalent dwelling unit based on wastewater flow. Users of septic systems, holding tanks, or other on-site sewage disposal systems paid $30/year, part of which covered planting of cover crops and upgrades to failing septic systems, providing direct benefits to rural areas. Funded in this way, the Bay Restoration Fund would allow Maryland to

achieve more than one-third of the necessary additional nutrient reductions by upgrading wastewater treatment plans with enhanced nutrient removal and on-site sewage disposal systems within 1,000 feet of tidal areas and planting cover crops on agricultural land.

The scene, however, was politically charged: a Republican governor and a Democratic legislature. The challenge was to raise funds by appealing to conservation groups, which could block the effort. Acceptance of this system, however, would require a great deal of political will, both in Annapolis and among citizens. Once environmental groups were on board, citizens and the legislature followed. It was not an easy sell to the Governor, who saw it as just another tax, but he did later agree, eventually elevating it above partisan politics. Nongovernmental organizations later got involved in promoting the tax for the State Department of Natural Resources.

A key element in eventual acceptance of the "flush fee" was the large percentage of citizens willing to pay for perceived services and benefits. Political acceptability was also gained because the tax was simple, connected directly to benefits, involved a broad base for collection, and was embraced by the environmental community, which communicated the viability of the program to the public.

The Maryland flush fee is unique, because it was based on a cooperative, multi-state scientific evaluation of the water quality benefit and nutrient reduction requirements for the Bay. The enabling legislation received broad, bi-partisan support; all nutrient-rich wastewater generators are paying the fee, including homeowners; and it includes for the first time a fee paid by owners of on-site sewage disposal systems. A key byproduct of the process was collaboration created among all State agencies on drafts and to get the Governor's approval.

The other states who signed the 2000 agreement are not setting up similar fees, because it appeared politically impossible. These states view Maryland's "flush fee" as a tax they are reluctant to impose and are focusing on existing programs to reach their agreed goals.

Thoughts on Sustainable Watershed Finance

Karl Morgenstern

Mr. Morgenstern began by describing the watershed of Oregon's McKenzie River, which runs from 10,000 feet above sea level in Forest Service–Bureau of Land Management lands and commercial forests through agricultural valleys to urban areas with intakes for drinking water at 400 feet above sea level. The watershed's Source Water Protection Program aims to measure the balance between watershed health and human use over time and implement actions that maintain a healthy balance for production of exceptional water quality.

Risks to water quality are the same as elsewhere, among them, stormwater outfalls, urbanized contamination, hazardous material transportation, commercial and industry facilities, road vegetation management, and agricultural activities. The Source Water Protection Program involves comprehensive monitoring, disaster preparedness and response, point and nonpoint source evaluation and mitigation, education and research assistance, land acquisition, watershed land-use tracking and management, and public outreach and information sharing. The program is being implemented by reaching out to agencies, stakeholders, and academia to solicit feedback, identify opportunities, and de-

velop long-term relationships. The program is conducting a detailed threat assessment using geographic information systems (GIS) to manage and analyze data; focusing on the highest potential threats or hotspots; and developing a watershed system with partners that evaluate threats and establishes a long-term mechanism to address these threats.

Mr. Morgenstern then described the contributions of agricultural and forest activities, especially pesticides, and septic systems to water quality degradation in the watershed. He also reviewed current watershed financing. The Eugene Water and Electric Board (EWEB) increased water rates in 2001, raising $400,000 a year for the Source Water Protection Program. EWEB funds were used to leverage partner contributions and grant funding for specific projects. The McKenzie Watershed Council (MWC) relies on partner contributions, State lottery funds, Bonneville Power Administration, and EWEB funds for basic operations and grant funds for projects. Nonpoint source project funding comes from EWEB (45 percent), the Corp of Engineers (20 percent), 319 grants (20 percent), and partners (15 percent).

He noted that watershed financing should be based on three tiers (national, regional market based, and watershed based) of funding for supporting watershed governance and implementing watershed improvement plans. Initial efforts should be focused on municipal drinking watersheds:

- *National.* In the long term, levy a small fee on pesticide and pharmaceutical products could fund a national watershed fund. In the short term, provide SRF grants to all public municipal systems or earmark a larger portion of Section 319 funds for grants for source protection projects.
- *Regional.* Develop marketplaces that allow regional demands to be met by local and regional production or trading of resource credits (looking at food, materials, water, ecological, and energy). Raise sustainable funding through transaction fees.
- *Watershed.* Derive funding primarily from watershed partners and stakeholders making up the watershed governance structure (usually projects specific) through partnership contributions, grant funds, and funds associated with state or Federal projects.

EWEB's bases its market-based approach on regional agricultural buyers and processors, where demand exceeds supply. It has established a system that provides growers easy access to regional markets (increasing efficiency) and support to transition to meet demands. It seeks to change behaviors through markets to reduce chemical use and protect drinking water.

Design, development, and implementation of the McKenzie Agriculture and Water Management System (MAWMS) will cost $550,000 for three years. USDA is currently considering a grant proposal for $347,000, and EWEB would make up the remaining funds. Once implemented, MAWMS will grow to include the entire Willamette Basin.

Watershed governance should reflect the beneficial uses of the watershed and grow existing local entities to accept watershed governance role, which should be to coordinate and allocate resources to support priorities for watershed improvement. There is great potential for McKenzie watershed governance because MWC represents a large cross-section of stakeholders, is a 501C(3) nonprofit, plays a coordinating role and forum for resolving conflicts, and manages or leads some watershed projects as well as member entities. MWC needs adequate resources and support to grow into a primary watershed governance role.

In conclusion, Mr. Morgenstern reiterated the importance of a stable national source of watershed funding and sharing of watershed governance experience across the nation to tap into and leverage resources by public utilities.

Asked for more detail on water trading aspects of the McKenzie water agency, Mr. Morgenstern said they were developing four marketplaces as part of MAWMS: water, restoration or ecological, and temperature (driven by TMDLs). For restoration, priority areas are identified in the watershed and restoration nearly fully funded for growers in that area. For water and temperature marketplaces, a grower who puts in a more efficient irrigation system can reap benefits by trading their water right to someone else or by leasing it or, if they need more water, by grabbing someone else's water right in exchange for something else. The same goes for temperature. The Metro Wastewater Treatment Plan are looking at trading credits with farmers to develop riparians and lower temperature in exchange for their discharge.

The Casco/Saco Bay Interlocal Stormwater Working Group

Jeff Edelstein

Mr. Edelstein described the Casco/Saco Bay Interlocal Stormwater Working Group as a regional intermunicipal collaborative that has grown from six to 14 communities, encompassing 250,000 Maine residents. Its focus is to jointly implement on stormwater management plan, municipal ordinances, public education programs and materials, training, mapping, operating procedures, and inspection programs. The group's efforts include monthly meetings of one to three representatives from each community, subcommittees for ordinance development, funding initiatives, regulatory issues, and technical topics; as well as workshops and training. Decision making is based on consensus, and regional activities are funded through a 1/13 split. The group naturally formed itself by bringing people together and letting them define the region. The region has a clearly defined center and fuzzy edges.

The original six communities explored three potential storm water issues: Federal Emergency Management Agency Hazard Mitigation, National Flood Insurance Program Flood Plain Management, and National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Regulations. By October 2002, 11 Casco Bay communities had signed a letter of agreement to fund development of a regional five-year NPDES Phase II Stormwater Management Work Plan. To date, the group has produced a standard operating procedures manual, storm water training programs, common municipal storm water ordinances, GIS intern mapping program, education and outreach through schools and the media, a storm water user fee initiative, a network with Maine Department of Environmental Protection, municipal peers, and regional partners, and grant writing and legislative activities.

He then listed factors in the success of the working group: (a) base the effort on a problem that determines the approach, (b) formalize only as much as needed or tolerable, (c) use neutral facilitation with technical expertise, (d) have seed funding in place from the start, and (e) involve appropriate municipal representatives and regulatory agencies. Their collaborative approach has now spread to three urban clusters in Maine. Mr. Edelstein concluded by describing the group's formula for success: good information plus "safe" and structured space for deliberation plus support through seed funding, convener, process management, and research equals successful coordination.

The Cuyahoga Plan for Financing Sustainable Watershed Stewardship
James White

Mr. White first provided background on the 112-mile-long Cuyahoga River, which drains 812 square miles into Lake Erie through six counties, including 91 local governments. The river is also the terminus of the Ohio and Erie Canal. Industry in the region consists primarily of shipping and steel and other industrial manufacturing. The population in the region has maintained its size at 1.2 million, but is dispersing, tripling impervious surfaces since 1970. This has created a sprawl-fueled local economy, similar to other Great Lakes cities, with great geocomplexity.

The Cuyahoga River is often known for catching fire in 1969, due to its chemical pollution. Creation of EPA in 1970 and passage of the Clean Water Act in 1972 eventually led to cleanup of the river. In 1998, the President awarded the river American Heritage River (AHR) status, one of 14 in the country. In 2005, the Great Lakes Regional Collaborative (GLRC) reaffirmed the importance of areas of concern and remedial action plans (RAPs).

Key themes of the Cuyahoga RAP/AHR include: (a) rediscover, respect, and restore Ohio's AHR, (b) investing in healthy streams sustains healthy communities (links prosperity, sustainability, and asset management), and (c) Cuyahoga/Lake Erie Environmental Restoration Technology Enterprise Center, a Federal/community-based partnership to develop new products in river restoration.

Mr. White then reviewed a number of sustainability concepts, concluding that the essence of sustainability is conserving and growing assets and recognizing human and natural capital on the balance sheet; problem solving relies on the strength of one's assets.

Watershed stewardship goals include protecting and restoring vital stream components, eliminating and preventing system stressors, attenuating stormwater runoff, developing integrated erosion/sediment management systems, developing a watershed-friendly community culture, informing and improving individual behavior, and identifying measurable expectations and outcomes. Tools to reach these goals include many current approaches in watershed management (e.g., watershed management plans; NPDES; NPS source flow attenuation; stream feature preservation and restoration; and community outreach, education, and economic development).

He then reviewed how to measure current capabilities and gaps in core skills, funding, leverage capability, adaptability, and monitoring. A variety of partners from local to Federal are possible for collaborative watershed stewardship. He then described how the GLRC is handling long-term funding. Its plan seeks an initial $20 billion of Federal support. Many, if not most of the plan's recommendations require on-the-ground local sponsors for money and project leadership. Federal support may not continue in the long term, so a responsible plan for developing and nurturing sustainable local financial capability for implementing GLRC's remedial goals is important. Mr. White proposed that GLRC and other nationally supported watershed strategies call for mandatory or highly incentivized, sequential formation of watershed-based stewardship organizations (e.g., watershed conservancy districts) with authority and capabilities to raise funds, provide equitable regional benefits, a watershed basis, and nonregulatory structure with an incentive-based sliding scale for Federal/local matching

ratios to increase motivation to create a local conservancy district. Fund-raising authority would be based on a standard drainage unit for single-family households and multiples thereof. He termed it the "pizza equivalency," that is, households would pay the equivalent of a pizza for the family every quarter. This could raise as much as $20 billion in 20 years.

This model would organize community assets to:

- Put a substantial dent in GLRC funding requirements
- Fill gaps and unmet needs in local watershed stewardship capabilities
- Reduce reliance on shrinking Federal resources
- Achieve watershed goals
- Provide a model for a national strategy for watershed management.

(Break)

Plenary Discussion and Public Comment

After participants returned from a break, Mr. Greer asked the group to think about how to make the information generated that day useful for an EPA report that would lead to action. Mr. Marsh also gave his e-mail address so that participants could contact him directly with any ideas that occurred to them after the meeting. The group had heard about a number of possible incentives, models, and negative barriers. He asked the group to report on their discussions with each other at lunch.

Mr. Wise reported on his table's "robust" discussion. First, it is important to correlate who pays with who benefits and how much. This should be enhanced with communication on the issues in order to reach more consensus and have more transparency. Second, a regulatory framework using drivers of any kind necessary, but not just incentives, must drive the process. Third, the many subsidies already in the system (especially through the Farm Bill) should shift from providing bad to good incentives. Mr. Greer agreed, but asked why does this not happen. Mr. Paquet said farmers are now being given incentives to conduct experiments in conservation on their lands.

Mr. Farley noted that John Graham, hired by President Bush to run the Office of Management and Budget and distinctly anti-environmental in views, did a cost-benefit analysis of Federal environmental measures and, to his surprise, discovered a 500 percent rate of return, so it is very important to invest in natural assets. Mr. Summers added that it is important to do a better job in valuing ecosystem services. In lobbying for Maryland's "flush fee," estimated values helped. Farmers who may lose subsidies need to hear about the value gained from conservation measures. Mr. Greer cited an estimate of $33 trillion for all the ecosystem services provided by natural systems on Earth, but he wondered if such numbers were convincing to the public, as they are so large. The group discussed the importance of both dollar figures and normative values in convincing different people of the value of ecosystem services.

Mr. Greer raised the issue of addressing the geographic differences in benefits from watersheds. The group discussed recreation opportunities as benefits for urban residents, and crisis situations (i.e., real or potential damage to the resource, property loss, and death) in spurring support. They summa-

rized the drivers as regulation, damage and loss (costs), people simply caring about the resource, and economic (what they will get back). Mr. Nees noted his discomfort with economic arguments, because, for example, all realtors care about is a pretty "blue and green" image to sell houses. In the end, it is simply difficult to articulate the return on an investment of $2 billion on a watershed. He noted that Los Angeles had solved its stormwater problem by directly connecting the solution with the publicly popular issue of beach health.

Mr. Elder then raised the issue of using CWSRF funds—the largest funding source for States—for watersheds. It is important to look at how big funding sources could be used better and to have at least some kind of regulatory framework for a funding mechanism. Having rules followed and educating consumers are key. Mr. Edelstein suggested that the CWSRFs require a percentage of dollars for construction go into collaborative governance watershed approaches. If a district wants CWSRF funding, 5 percent should go to identifying an existing or new neutral watershed partner to develop long-term watershed stewardship and collaborative governance that brings people together on the issue. Mr. Smith reminded the group that SRF dollars, however, are not free money, but rather loans.

One regulatory approach to NPS, Ms. Regas noted, was requiring implementation of TMDL watershed plans over time. Also, a technical baseline for NPS would set an expected level of practice that could also be exceeded. Mr. Weitman said that regulatory approaches to NPS occur at the state and local levels, as well as Federal. Some communities apply local and Federal simultaneously; but it is important that it happen at the local level.

Mr. Farley noted that valuation of ecosystem services can be a powerful, but sometimes, problematic tool. The economic valuation of salmon, for instance, may not be high, yet the natural resources that support the salmon industry are of great ecosystem value.

The group then discussed the impact of watershed groups and watershed plans on waste treatment facilities, including large ones. Mr. Greer asked attendees to provide examples. He described efforts for the Corsica River off the Chester River in Maryland. This effort, even though small, has been cited as a model in addressing waste treatment along with agricultural, urban, and suburban stormwater runoff. Mr. Summers mentioned some Maryland environmental groups concerned about potential of sewage treatment plan permits increasing loads; the facility concerned agreed as part of the permit requirement to implement NPS controls within that watershed. This kind of thing will probably be more frequent in the future. Mr. Greer reiterated that set asides under the DWSRF can be used for technical assistance; this could be allowed under the CWSRF.

Mr. Paquet said that in the case of Puget Sound and the Columbia River, the real regulatory driver for watershed action was the Endangered Species Act, not CWA or SDWA standards. Mr. Patton cautioned that not involving all players in a watershed will not solve all the questions needing answers. Watershed efforts are not necessarily a zero-sum game; transformed thresholds may come out of watershed services for free. He also challenged the idea that future generations cannot participate as players with those who are imposing huge costs on the future now. Doing life cycle assessment, ensuring the presence of all stakeholders, and creating a basis on which to bid intergenerational services using third-party transparent standards can lead to local security in clean water, employment development, and all sorts of values that politicians love to talk about. He concluded by emphasizing that one should not assume it is a zero-sum game and one should bring in the future as a partner.

Mr. Greer then asked those present who work on the ground for their input on how to translate the many ideas raised by the group in the real world. Mr. Summers responded that ecosystem valuation needs fixing in order to work. To get broad support for watershed projects, one must communicate their true value to the public. His program in Maryland keeps getting cut and cannot enforce regulations that are on the book *now,* much less new ones. It is key for state legislatures to understand the actual value of ecosystems. Mr. Edelstein suggested convening local, State, and Federal officials for a couple days to understand ecosystem valuation and to give feedback on tools and foster acceptance of such tools. Mr. Merrill noted that such a meeting should be structured to show local governments what hardship they will experience, if they do not act, because fear of loss is a bigger motivator than the possibility of gain.

Responding to a concern that collaborative governance just adding yet another level of bureaucracy, Mr. Jones said that watershed groups actually streamline bureaucracy by getting the different levels of government to coordinate more efficiently. Mr. Greer agreed that such groups allow people to coalesce, leaders to rise, and synergies to emerge. "One size does not fit all," Mr. Summers added. Watershed advocates need to coordinate what already exists, not add a new layer.

Mr. Wise emphasized the importance of changing the metrics uses in discussing watershed financing. Citing gaps of "zillions of dollars" just makes people freeze. Maryland citizens understood and were persuaded by the metric of paying only $30 a year. Mr. Summers also emphasized the importance of considering long-term costs. What is the plan for watershed stewardship in 20 years? In addition, watershed stewardship can be equated to other regional collaborations on public transportation, libraries, and parks. Mr. Boland noted that politicians are usually much more interested in the results of voter surveys than they are by results from studies measuring the benefits of nonmarket goods. Mr. Merrill noted that forecasting impacts of sprawl per capita may have less impact on local and state government officials, because they are too far in the future. Tying an existing situation to retrospective decisions based on real figures may be more effective, that is, a decision a number or years ago resulted in today's problems; how could we act differently today?

Wrap-Up
Langdon Marsh, EFAB, and *Joe Dillon,* Acting Designated Federal Official, EPA

Mr. Marsh began the wrap-up by thanking the group for their participation and contributions to the discussion. Many of the questions he had brought to the meeting had been answered or at least had raised new ones. He was encouraged by the positive responses to major questions and points:

- Does the SRF, including both the CWSRF and DWSRF, have more flexibility than people have thought? The answer was yes.
- Are there ways to feed the value of ecosystem services into prices? Yes, although more research is necessary.
- Is thoughtful design of upfront collaborative governance systems useful in setting up parameters from the start and getting agreement on necessary steps, whether a particular financing scheme or integration of a financing design for the entire watershed? The group had agreed in general.

- The group confirmed the importance of paying great attention to political considerations—not R&D—for passage of watershed approaches by local and state governments.
- Measurements can be used to influence politics, often in the wrong direction, pointing to the need to be very careful on this.
- Should intergenerational services be factored in? Yes, but more thought and research are needed.
- Are there markets that can be tapped to start alleviating watershed problems? Mr. Morgenstern's presentation made a strong case that actions can be taken now to build capacity toward broader market approaches.
- There was less discussion on implementing structures, that is, on what entity to use to carry agreed-on financing forward. The decisions appear specific to each watershed and any collaborative governance effort involved.
- Equity and fairness needs a lot attention. Mr. Evans underscored the practical necessity of this, which is quite achievable with an appropriate process upfront.
- A little amount of funding can go a long way, particularly when it is a little amount per household—the "pizza equivalent"—but how one can get the political agreement to legislate is still an issue.

He concluded by saying that the group had asked the right set of questions and had raised a great number of new ideas worthy pursuing. He planned to call some of the participants to follow up on some of the questions and will send drafts of recommendations to participants to get feedback on making them more robust. He then thanked everyone, particularly Mr. Greer for his facilitation of the meeting.

Adjournment at 4:45 p.m.