



Center for Strategic and International Studies • Sandia National Laboratories
Workshop One: United States Policy Innovation
February 8-9, 2005

**CENTER FOR STRATEGIC
AND INTERNATIONAL STUDIES
GLOBAL STRATEGY INSTITUTE
AND
SANDIA NATIONAL LABORATORIES**

CSIS-SNL GLOBAL WATER FUTURES WORKSHOP

**DAY ONE, FEBRUARY 8, 2005
1:20 PM – 5:00 PM**

SPEAKERS:

**INTEGRATED WATER RESOURCE MANAGEMENT:
JEROME DELLI PRISCOLLI, US ARMY CORPS OF ENGINEERS**

**GOVERNANCE:
JACOB SCHERR, NATIONAL RESOURCE DEFENSE COUNCIL**

**CAPACITY BUILDING:
JANICE BEECHER, MICHIGAN STATE UNIVERSITY**

**FINANCIAL RESOURCES:
GORDON BINDER, AQUA PARTNERS INTERNATIONAL**

*Transcript by:
Federal News Service
Washington, D.C.*

PETER DAVIES: Good afternoon. I'd like to ask everyone to take their seats please so we can start the afternoon session. Before we begin this afternoon's session I have a small piece of housekeeping here. One of the things that we want to let you know is that shown on the screen here there will be a Capitol Hill briefing and luncheon on Thursday, and the focus of that briefing is "Meeting our Water Needs: Domestic and International Opportunities." And this briefing is sponsored by Senators Domenici and Byron Dorgan, and it has been arranged that the participants in this conference are invited to come to that briefing if they would like to come.

The key thing, if you'd like to do that, is to RSVP by the end of the day today to either the telephone number at the bottom of that screen or to the email address at the bottom of that screen. We will have a first-come, first-served attendance until the capacity is full. There will be three speakers. Erik Peterson will be presenting some of the conclusions from today and tomorrow. Andrew Richardson, the president of the American Waterworks Association, will be speaking, and Chris Godlove, who is the project manager of the Watergy project, will also be speaking.

So we wanted to get that information. This is in the Dirksen Senate Office Building in Room 106, and we'll have this information up here on the front table if you don't manage to get it off that screen in the next moment or so.

Before we go into the specific topics, I'd like to come back to our topic for this afternoon. This morning we had a great set of presentations and discussion around the question of why – why it is global water is an issue, why it is we should or could engage. This afternoon we want to focus on the what dimensions of the questions. We certainly got into a little bit of the "what" this morning but we're going to drive deeper into that topic this afternoon. And relative to "what," we want to understand what the solution space is: what can be done, where will we have the most impact, what are the highest priorities? Clearly we are in a time of finite resources and so understanding not only what but what impact and how to prioritize those impacts is an important dimension.

We have four speakers this afternoon and we will work through – the order will be as is presented in the agenda. And so we're going to look at the topics of integrated water resource management, at governance, at capacity building, and at the financial resources.

So without further ado I'd like to start with our first speaker. Jerry Delli Priscolli is the editor in chief of Water Policy, which is a peer-reviewed journal of the World Water Council. He has been the co-chair for the director general UNESCO's World Commission on Ethics and Fresh Water Management. He serves on the board of directors for the World Water Council and the World Council representative to the Vatican on water, and he has served for 30 years as a social scientist working within the Army Corps of Engineers on this topic. And he brings, therefore, a broad range of perspectives, and today he's going to focus on integrated water resource management.

Jerry?

JEROME DELLI PRISOLLI: Okay, thank you. Thank you all. I'm very pleased to be here. It was a little bit of vagueness about how to approach, and I just saw the signs saying "integrated water management," so what I would like to do in the 10 minutes – 15 minutes or so is to present 10 areas that I think we could deal with the "whats" in. I hope they are helpful.

Before doing that, there's a few points I would like to make that help us engage a little bit more in the "whys." We heard about the gloomy arithmetic; we don't have to go over that. However, we may not think enough about not just access to water but water in

Some of the Gloomy Arithmetic of Water

- 1.4 billion people lack safe water
- 80% of diseases carried by water: 1 child every 8 seconds killed and 5-7 million people annually: \$125 billion in workday losses/yr.
- 50% of people lack adequate sanitation
- 20% of freshwater species near extinction
- 76% live in water stressed areas (less than 1000cm): most in politically unstable regions
- Losing irrigated land by 30% in 2025 and 50% by 2050
- 50% of people will depend on world markets for food
- Asia: Over two thirds of population live in areas where 80% of rainfall occurs in 20% of the year

disasters. When we look at disasters in the world, we find that floods are 58 percent of the deaths floods account for, one-third of the economic losses. And what's really important is that less than 10 percent of those who suffer economic losses from floods are ever insured. In other words, it's hopeless for them.

We didn't talk too much about the issues of privatization in the poor and they'll raise it up because it's behind all of these debates. However, it is still quite mixed. We don't have that many cases in the poorest of the poor in the private sector. Most of it is

what we may call the middle-income countries that are a little bit below that, and it's generally with a few international companies. And we do know that the poor pay a much higher percentage of their income for water – in fact, so high that we wouldn't stand for it in this country.

Floods and Disasters (1988-1997)

- **25% of world live in high risk of drought and floods: Average annual losses now over \$40 billion**
- **Average Annual victims from 19 to 131 million**
- **Economic losses 10 times more then 1960s**



When we look at floods and disasters, 25 percent of the world live in areas of high risk for droughts and floods, and these annual losses are growing. The economic losses are 10 times what they were in the 1960s.

We didn't talk too much about hydropower.

Only at this end of the table did we start discussing it. And Claudia brought it up in terms of the potentials. But there's 2 billion people who lack electricity, and electricity demand is growing. Cheap or inexpensive electricity, if you don't remember, is the keys that

opened up the doors for regional development across this nation and across much of the world.

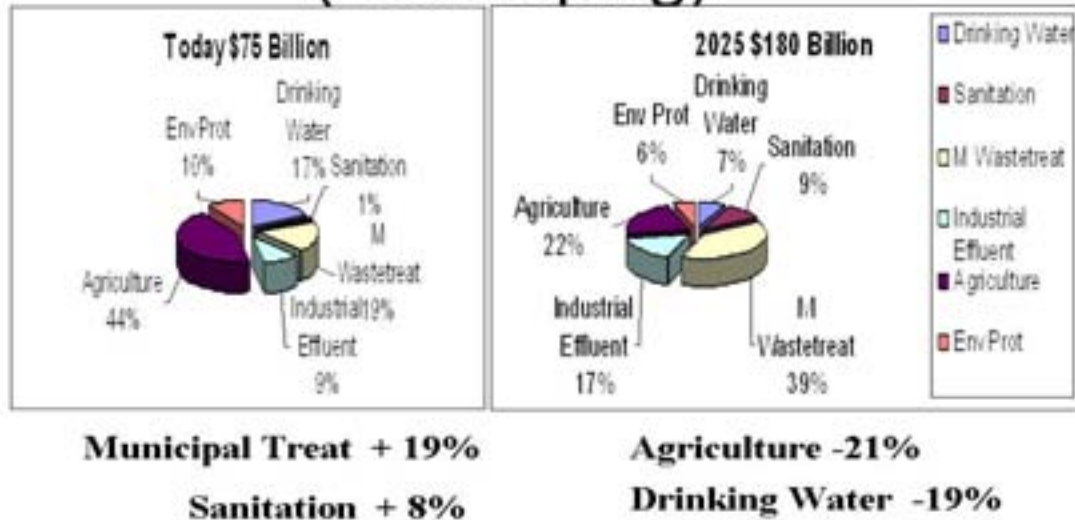
Hydropower

- **2 Billion People lack Electricity and electricity Demand is growing**
- **Cheap Electricity a traditional key to economic development**
- **Hydro Potential Used:**
 - OECD countries 70%,
 - Africa 6%,
 - Asia 20%,
 - LA 35%

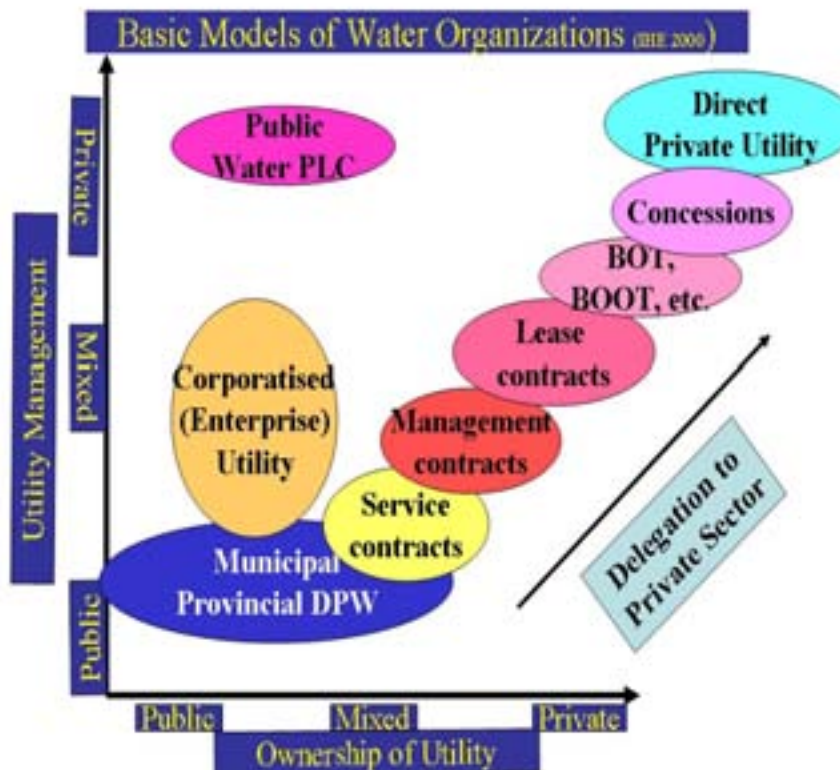


Let's look at this picture of water distribution of services, the costs of services, and where the money is coming from. This is for the developing world. The absolute

Changing Distribution of Costs of Water Services (Developing)



numbers – don't get wrapped up with them, but think of the trends here. We see today that the 75 billion (dollars) investment and what people are saying is the 180 billion that's needed. What this represents is an increase in probably 20 percent – 19 to 20 percent in municipal treatment, an increase in sanitation, a rather large decrease in agricultural expenditure, and some decrease in drinking water.



If we look at what people are talking about, it's the sources of funds for investment that are being bantered about at this point, and we read the literature. What it tends to say is that we will see in-country private investment go up by 20 percent, international private by 22, in-country public by 36. This is not absolute figures; this is in terms of the relative number if you were to invest the 180

billion – and bilaterals and multilaterals down. That, from the political science point of view, is the recipe for social upheaval.

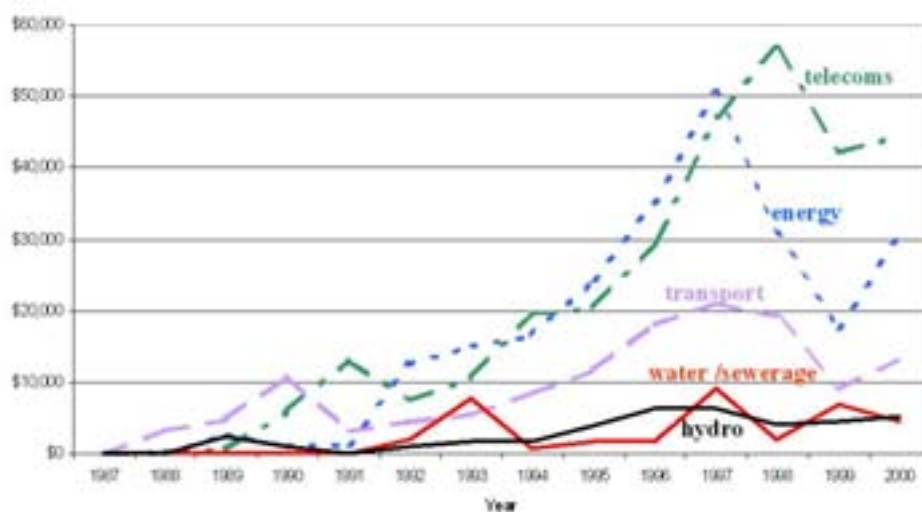
We see a changing distribution of costs for water, what it's going to be used for, and what are the sources. Water historically has meant agriculture. We have built up irrigation. These are the powerful departments in the developing world around water. We see them become the big losers; others become the winners, and then we see the sources that people are talking about as a larger proportion of the private sector. If in fact we're going to carry that scenario, we better be prepared for what may happen in terms of social unrest.

There are actually, in the world, many different models of private/public partnerships. I won't go through all of these, but essentially this matrix shows on the left that you can think of utilities as being managed – and they could be managed privately or publicly. You could also think of utilities as being owned private and publicly. So the one case we have in the world of privately managed and privately owned, of course, is the cases that we saw in Britain. But most of the world is far, far different from that and they're somewhere in between, and these series of circles along that line are what's called the French model, which is essentially many models of concession and leasing.

So when we start talking about this we need to understand that there are lots of linkages of private and public, and it isn't just a regulatory authority and the utility that may be privately owned; it's lots of other gray areas in between.

There is some debate about whether water utilities are the same as other utilities when we're forming strategies. I think they're different. This comes from the World Bank and Claudia's colleagues.

Private Investment in Infrastructure, 1987 - 2000



Source: World Bank PPI database

Look at the investments for hydropower, water and sewage. They're very different than the kinds of private investment flows and infrastructure up to the year 2000.

Infrastructure matters. We've heard a little bit about it today from the Bank and



Infrastructure Matters

- **Strong correlations between public capital investment and movements in private sector productivity**
- **Ratio of non-structural/behavioral measures to structural measures matters:**
 - **If too high - extreme events can crack social system as leaders have no tools to respond**
 - **If too low - ecological costs are too high**

others. I want to add two points to it. There are strong correlations between public capital investments and movements in the private sector of productivity. This is another way of saying, there is some initial public investment, significant investment, to set the terms by which people can be entrepreneurs. They don't have to fear the flood. They don't have to fear the drought. They don't have to fear the access to water. Their lives have these things in their delivery as certainties; therefore they

can be entrepreneurs, therefore they can generate money and so forth.

In this debate between non-structural or behavioral measures – the structural measures or storage measures – this is a debate that we in the West have, quite frankly, fostered on the world and there are some good reasons for it. We may have overbuilt here; we don't know. But if that ratio is too high, extreme events could crack the social systems. In other words, if in fact our main line of reaction to extreme events is to change people's behavior from authoritarian – we will change it at gunpoint – we could crack the social systems.

One of the reasons for engineering – in structural engineering – throughout history I've spent quite a bit of time with archeologists and others in research on this matter – one of the real reasons is that decision makers need to turn to their water engineers when something happens and say, do something, and that usually means, do something with some structures. On the other hand, if it's too low we'll screw up the ecology. We won't have a water system. We won't have the basic natural services necessary to support ourselves, and we need to start thinking about how these things interact.

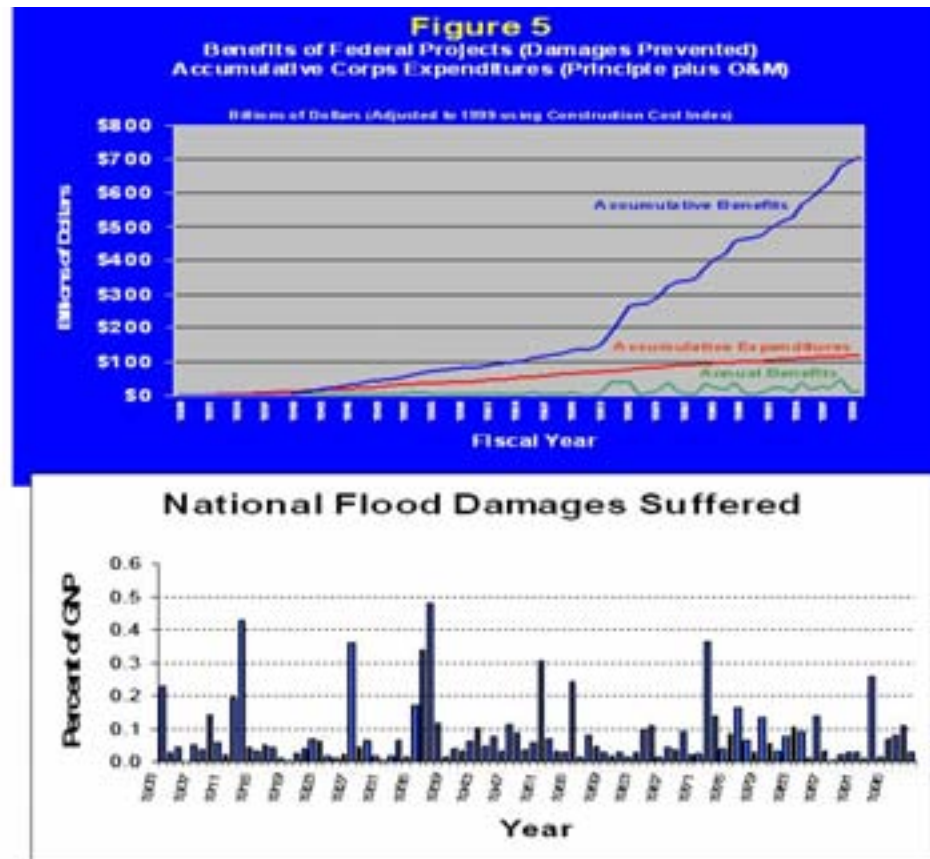
Rainfall affects growth: the case of Mozambique's yr 2000 floods

	Actual		Projection			
	1998	1999	Before the Floods		After the Floods	
			2000	2001	2000	2001
Real GDP (ann. Growth rate)	12.0	9.0	7.0	7.2	5.4	7.9
Inflation (ann. average, %)	0.6	2.0	6.6	5.0	9.5	5.0
External current account:						
Before grants	-20.5	-31.7	-23.0	-15.7	-31.5	-18.4
After grants	-12.4	-21.5	-16.3	-9.1	-19.7	-11.0
Fiscal Balance:						
Before grants	-10.7	-12.1	-12.1	-10.7	-16.0	-11.5
After grants	-2.4	-1.2	-5.2	-4.4	-7.0	-5.1
Memorandum:						
GDP (Mt billion)	46,134	52,913	60,177	67,790	61,471	69,673

Source: Staff estimates, IMF and Government of Mozambique

We saw these statistics about Mozambique and rainfall and the rest. The point I want to bring out about this in terms of the “why” is that if in fact variability is accounting between 25 to 30 percent of GDP, and it's a variability that comes – we can't predict it. Even if we could predict it in these countries – I mean, we can but the countries can't predict it,

they can't deal with it, they don't know how to react to it. So if 30 percent of the variability of the GDP is in this category of unmanageability, how can you expect the country to do anything called development, even if GDP is an imperfect figure – whatever figure you want to use.



Now, if you looked in our own country at flood damages – and I’m bringing floods up again because one of the reasons we built structures in this country and started a lot of the economic development in the regions had to do with freeing people from the fear and anxieties around flooding. Yes, flood damage has continued to go up and there had been massive investments for a hundred years – almost a hundred years – federal and state investments. However, damages as a percentage of the GDP do not go up. And what this means is that in fact the economic and social activity is being carried out even under the periods of stress presented by such disasters. This is important. The real issue isn’t the ultimate – necessarily the ultimate amount. It is whether or not we can carry out the social activity and not crack the social fabrics during such periods of stress because we have put in place the management systems to deal with this.

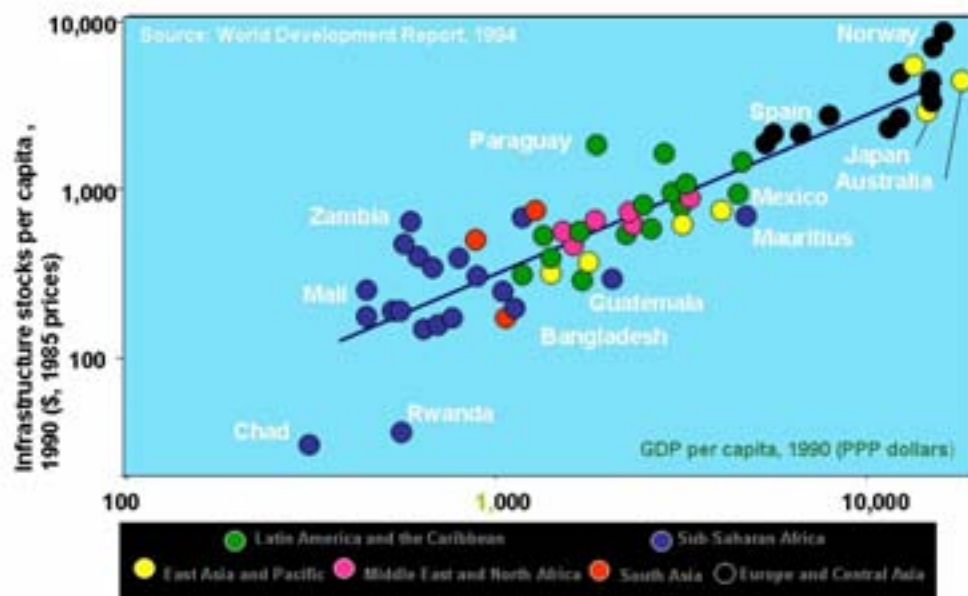
This is from World Watch, so it’s not just the Corps of Engineers talking about this, where you can see the economic losses and loss as a percentage of GDP. Well, the richest nations, the losses are kind of – you can see that they are – we have large GDPs; it doesn’t matter. But take a look at the poorest nations. The losses as a percentage of GDP due to the disasters is very, very high. This is a serious problem if we’re concerned about the issue of whether or not people can grow, even in their own ways, in their own designs, and can be liberated from the fears and anxieties that keep them from being entrepreneurs.

A word about the U.S. context, because we want to talk about U.S. policy. First of all, the USGS tells us that water use in the United States per capita is going down. It’s

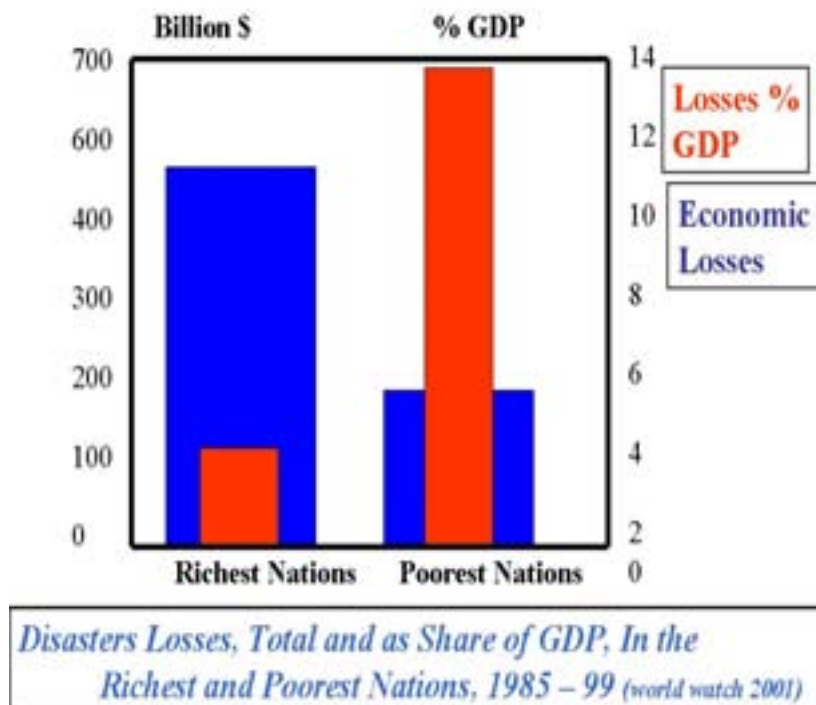
gone down in a period of economic growth and population growth, something that people forget. Now, in order to do this of course we have spent a huge amount of money in the United States. In fact, we don't even know the number of dollars invested when you look at state, local, federal and everybody. And on top of that we have an enormous regulatory structure. The history of the dollars – I tried to throw some numbers up here.

The Infrastructure Gap

**As a country's income grows, the amount of infrastructure increases
OR
as the amount of infrastructure increases, the country's income grows?**



They're just enormous so we don't have to go through them, except let me leave you with one thought. The environmental communities tell us that even with this huge trillions of investment, we still are not meeting what we need to meet to meet environmental goals. We need about \$23 billion a year more. There are 100 countries without adequate sanitation that have annual budgets of less than \$23 billion and they have no investment in that infrastructure that in effect allows the management of the variabilities.



What do we want to talk about? My colleague Dr. Stakhiv was here. This is one of his slides. He loves to discuss this in terms of integrated management. It's an analytical, perhaps a complicated slide, but the kind of dialogue we want to have, and we do sometimes have in this country, is that we want to look at trade-offs. For example, the thing

called NED plan, well, if we did that we would gain all of these benefits that you could see, but of course we would have these negative effects in the environment, which is EQ, on the left. On the other hand, with a slight decrease, which became our recommended plan, we could still capture a lot of these economic benefits, and in fact contribute to the environment. But if, in fact, all we wanted to do was contribute to the environment, we would probably have little to no economic development.

Now, I didn't give you the specifics of where this plan is and so forth, but it's something that came – it's something in our own country. What I want to leave you with is ultimately we talk about integrated management. This is the kind of debate we would like to have, and we would like to have it – if you remember the case that the World Bank presented, which was the distribution systems were in place but they had drought and floods and they couldn't do anything because they couldn't deal with the upstream and they couldn't deal with the river. This is the debate about how you deal with the river which you put in place.

Our own aid in water – and I'm sorry, Richard and others, because you didn't present what we're really doing. So just a couple of quick graphs, and you can correct me if we're wrong. But essentially, when we look at what we're doing in the United States, most of it, of course, is in the Middle East and a lot of it is around really the distribution level, or the sanitation and supply treatment, not much, if anything really, in terms of what we would call planning. We have some in food security and some in disasters.

So those are some things to hopefully set more of a broader base for discussion of what we should do.

1. Start Building a New Ideological and Ethical Consensus on water

- Focus on the common ground of engineering means and environmental ends.
- Beyond equilibrium, status quo and preservation notions of ecology to:
- Designing and Choosing desired future Ecologies



Let's look at 10 areas of what we should do. First and foremost, I think we need to start building an ideological, ethical consensus. We have to find a common ground between engineering means and environmental ends. We should stop talking about environmental preservation in the status quo. What we're all doing is essentially co-designing our

ecology. My organization probably spends more money than almost any other organization in the world on what we call environmental restoration, and it's not restoration. It's a public dialogue about what we want to design that ecology to look like and can we have adaptive feedback mechanisms to look at it? That's what happening in the Everglades; that's what's going to happen in coastal Louisiana. And these are projects in the mega-mega billions.

So before we start prescribing to others – and this came up today – we should start understanding a little bit of our own history. First of all, we should go beyond reaction and reconstruction and mitigation to the avoidance of damages. We think about the

2. Understand our own history of water before we prescribe to others

- Beyond Reaction, reconstruction, Mitigation *TO* avoidance of damages: (e.g. 2% relief funds-prevention)
- Beyond Regulations to Public Planning and Technical Assistance
- Invigorate the notions of multi purpose uses and planning - use AID as leverage for this
- Beyond Water as a Utility - Look at Water and Regional-Macro Economic Development and Nation Building in the U.S. (e.g. Columbia, Ohio, TVA, Miss., Missouri, others)
- Why do we proscribe Inter Ministerial coordination but do little here – Lessons:
 - Federalism- separation of powers
 - High political – technical interaction


tsunami that occurred. It's wonderful that we react. I was in several countries in Africa. I've listened to our ambassadors tell us how well we spent the \$300 million in reaction to floods, and we did spend it well and accountable and so forth and so on. But I always ask the same question: what did we spend in prevention out of that \$300 million? Zero. What do we do in planning? Zero. What's going to happen next time? Another \$400 million possibly.

So we should start thinking of things like, for example, when we start contributing money to disasters we ought to put 1 or 2 percent to some kind of relief funds that are

for prevention in those countries, so we get the countries starting to do what they're doing on the Nile: producing money where they're talking about distributing benefits and preventing what could happen next.

3. Reformat Messages and Conflicting Perceptions we are sending, e.g.

- Keep water resources condition "natural" - Structures are bad
- Control population but reduce poverty
- Privatization is the solution
- External funding as the solution to reducing the revenue GAP



We need to go beyond just regulations to the notions of public planning and technical assistance. We need to invigorate these notions of multiple purpose uses and use our aid as a leverage. Our aid is not going to build, alone, multipurpose projects, but it could do a lot to contribute to leverage of people thinking about how you deal with the multiple purposes of water upstream.

We need to go beyond looking at water as a utility. We need to

look at it in its regional and macro-economic development and nation-building efforts. When you look at 200 histories of the United States, of this continent, I would contend that the subsidies and the investments in water, the story they tell is really a story about nation-building and keeping regions together. This is what's happened on the Columbia, the Ohio, the TVA, the Mississippi, the Missouri. There's a lot of warts. There are a lot of things we do differently. But the overall picture of keeping a nation together, of generating enough regional development is there, and it's very clear and it's a great success. And let me tell you, most of the rest of the poor world understands it, the ones that at least have come and spent some time thinking about water.

Why do we prescribe, for example, inter-ministerial coordination and we do little here? Well, what we know, we need to have better coordination. It would be nice if we had water policy and so forth, but we should think of our own system. We talked about a tradition of states' rights. It's more than a tradition; it's the law. We start with state ownership, but we're not the only ones. Many federal countries – go work in China for a while and talk about the provinces' influence. Go work in Brazil for a while or other places where there is federal and provincial authorities. We perhaps ought to start thinking about strategies where we link what we've done with eight or nine other major countries that have what we would call federal assistance. They may have a different name, but multiple sovereignties dealing with different types of river basins.

But despite all of this we have a high interaction between the political and technical, which is what we're trying to achieve. It's very messy for those of us in the water field, so we need to start thinking about this linkage to the political culture again in water. We need to reformat the messages and conflicting perceptions we're sending. This is number three. Here are some examples. We say to people, keep the water resource conditions natural. The structures are bad. On the other hand we say, control population but reduce poverty, but we also say privatization is a solution. External funding is a solution to reduce revenue gaps, and we could go on. These are conflicting messages. We need to start thinking about what kind of messages we want to put out there.

4. Be Clear that Water Infrastructure is Necessary to Eliminate Poverty

- **Yes - Build infrastructure**
- **No - not exactly as we did it**
- **Include lessons learned on costs: design mitigation and ecology into infrastructure**
- **Keep water/MDGs visible – use UN decade *Water for Life* and other means to monitor progress.**

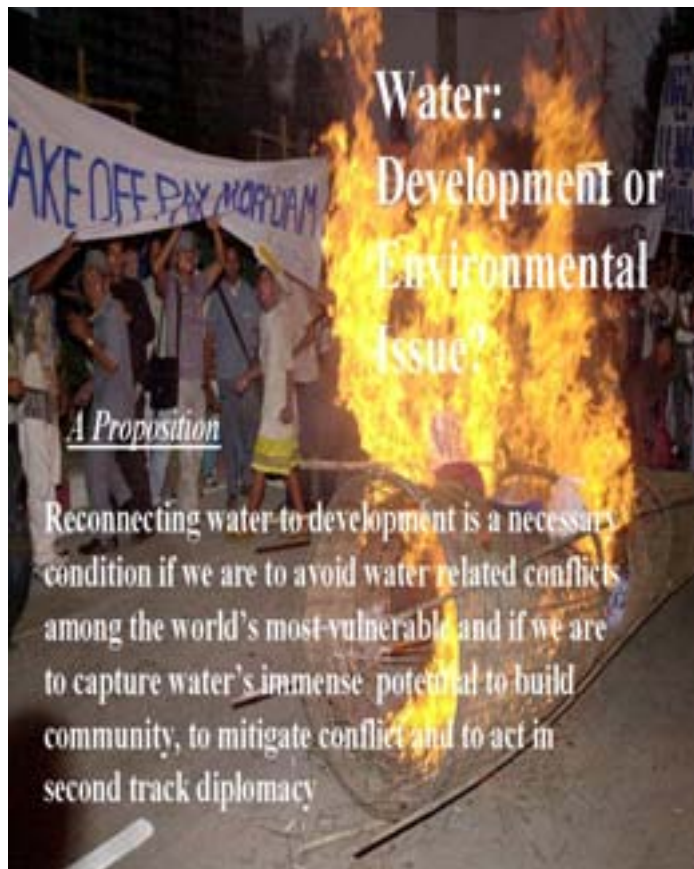
Four, we need to be clear that water infrastructure is necessary to eliminate poverty. Yes, we do need to build infrastructure. No, we don't need to do it exactly the way we did it before. We should be including the lessons we've learned and costs, particularly about ecology, in designing these into infrastructure design.

We keep water MDGs and the rest visible, perhaps use the U.N. decade, *Water for Life*, as a means to monitor this, because after all, the U.N., as a whole, has passed this and it will be in place for 10 years and they need something to do. Reconnect water as a vital tool for economic and social development. So we need to go beyond it as a human right or as an ecological good.

5. Reconnect water as the vital tool for economic and social development – go beyond water as human right, as an ecological good, etc.

- Investigate the minimum platform of water resources infrastructure & institutions to achieve water security..
- Governance structures, potential infrastructure costs, financing options, consequences of inaction.....
- Transboundary opportunities and actions...
- Promote the importance of achieving essential water security for sustained economic growth and poverty eradication

What I'd like to say here is that the governance structures and the potential infrastructure cost financing options and the consequences of inaction are very, very important. Primarily, we need to think of this as the joint creation of benefits versus fighting over the flows. And we



need to investigate and take up the Bank's challenge about water investment and a minimum platform of investment. In fact, that's more than the challenge because I would say that when you look at our own history in the U.S., we kind of even wrote that up. In other words, there's a lot of information and data in our history that would support that hypothesis.

But I would go one step further with our proposition for water development. Reconnecting water to development is a necessary condition if we are to avoid water-related conflicts among the world's most vulnerable and if we're to capture water's

immense potential to build community, to mitigate the conflict, and to act as second-track diplomacy.

7. More Focus on Public Agencies

- Engage our Public Agencies more directly in our US water aid –in design and review etc.
- More focus on public agencies reform and capacity building
- Establish direct public to public: agencies to agencies - relationships
 - Technical and Decisions makers

Seven, we need to focus more on the public agencies. I know we're here at the sponsorship of the private sector. This is not anti-private sector. I applaud, really applaud, this effort of trying to look at technology. For years we've been trying to get technology into this debate. We debate it as if there is none. However, we need to be very, very clear that much of this early infrastructure, because of the way financial markets work – this discount rates are too high, the payoff rates are too long – it's extremely difficult to get financing flowing into large-scale infrastructure that's intense construction. If it's not done right,

yes, we could just do lots of construction and never finish it. I know that. But there is a major public effort involved, and that's just the financing issue. But when you start


looking at rights issues and cross-boundary issues and cross-jurisdictional, the public notion comes out again.

So we need to focus more in the public agencies on how we reform in their capacity building. We need to – from the foreign policy perspective of the United States, we need to establish more direct public-to-public, or agency-to-agency relationships in other parts of the world with other agencies. We need to start focusing on this.


I know many people in this room have tried with the interagency committees and groups, and I've been part of them for many years, and this is not a blanket criticism but it's an appeal, a very strong appeal. After spending a good deal of my life running around the world in many of these agencies, trying to work with them, we need to directly link some of that relationship, and it doesn't have to be the federal government. It could be the water department in California, with others, or the water department in Michigan and so forth.

8. More Connection of Water and Governance

- Understand water as humanity's learning ground for building community and as forming society
 - *Connect Democracy and Institutional Capacity building to water AID programs*
 - Provides meaning to the civil in civil society and building the democratic civic culture
 - *Facilitating partnerships and dialogue among professionals and civil society*
- Old diplomacy inadequate
 - Need multilateralism, donor coordination, water alliances and networks (e.g. GWP)



TRIBUNAL DE LAS AGUAS (VALENCIA, SPAIN)



Dutch Water Boards

Eight, we need to draw the connection between water and governance more clearly. Water governance doesn't tell us a lot. Water and governance may tell us a lot more. I think we should connect democracy and institution capacity building into water aid programs. I think the way we do water, being transparent, accountable and participatory, will do more as a learning ground for building the habits and experience of democracy. In other words, the political culture of democracy, not the organizational aspect – the political culture, because people will do it. They'll participate because

it means something. And after they do it and after they understand it means something, they have then started to build that very basic experiential dimension and learning that's so important to them, and water is a natural force, but I'll tell you, I have a lot of trouble talking about connecting the aid programs on democracy and institution building and water that just don't meet.

Water provides meaning to the civil society and building that democratic culture. And as we said earlier today, we do need more multilateralism and especially with all these different networks that are developing, like the Global Partnership and the World Council and the other partnerships.

9. Beyond Water to Financial and others

- Water People are not going to solve this water crises
 - Water not being prioritized within countries
 - There is increased awareness of costs and problems but demand for infrastructure is low
 - Will not be solved by external money – it means internal reforms
 - Need to look to finance ministers and macro economic and social development picture and water

Nine, we need to move beyond the financial to other areas. The water people – and I am criticizing myself in a sense here – the water people are not going to solve this. We've talked a lot about it, we've defined it, we've said a lot about different things in the water crisis, but water is still not being prioritized in many countries. There's an increased awareness of the cost and the problems but there's a low demand for all sorts of infrastructure. So it's not going to be solved either by external money. Almost everywhere in the world where we've had development and had water infrastructure, it's come from within the countries. So we have to think of the external aid a little differently. It isn't going to solve the problems.

So we need to look to the finance ministers, the macro-economics, the development pictures. And our own case and our own history, the big development projects occurred not because the water people said it was a good water policy, not because the water people raised it, but because they understood and were asked how it is that you can help people move out of poverty, desperation, and do things by using the water.

10. Water Decisions = Ethical Decisions

- Water debates mirror debates of social ethics
 - water as a common good
 - water and human dignity
 - water as facilitator of well being
 - rights and responsibilities to access
 - water and social justice
 - wealth generation roles of water
- Water as symbol of reconciliation, healing, regeneration




Finally, water decisions clearly are ethical decisions, and the water debates themselves mirror the debates of social ethics. And when you look at most of the debates in social ethics, you'll see several dimensions but these always crop up: water is a common

good, the notion of human dignity and water are clearly linked, water is a facilitator of well-being, the rights and responsibilities to access, water and social justice, and the wealth generation roles. It's no mistake that every faith-based – mainstream faith-based religion we know about has used water and uses water as a symbol of reconciliation, healing and regeneration.

So let me conclude with a note on this. There's an ancient Chinese character

Water management (and water reform) is ALWAYS political.....

Ancient Chinese Characters describing water management



river + dike = Political order

describing water management, and it has two pieces. The first is a character for river, which you see; second a character for dike or a levy. And you would think if you put those two figures together and had one word that that word would be something like water management or good water policy, right? It means political order.

Thank you.

MR. DAVIES: Thank you very much. (Applause.)

Okay, following the format that we used this morning we're going to have all of our speakers share their thoughts before we go into discussion. So the second speaker will be Jacob Scherr. Jacob comes to us from the Natural Resources Defense Council where he is a senior attorney and where he has worked since 1976. He is the director of NRDC's international program and a coordinator for the NRDC BioGems initiative. He founded the Earthwatch Summit in 1992 to monitor national implementation of the commitments to sustainable development that were made at the 1992 Earth Summit with a particular interest to those related to water. And Jacob is going to comment on governance and related issues.

JACOB SCHERR: Thank you very much, and I really do enjoy the opportunity to be here. For those of you that have looked at my background you'll see that I've, over the course of my career at NRDC, have worked on an extraordinarily broad range of issues, and I think over time if I've become sort of an expert on anything it's really the question of sort of political will. So in some ways my talk segues very well with the last speaker because what I'm going to be talking about is the question of how do we translate international commitments to providing particularly safe drinking water into concrete results on the ground? And what I submit is that we need to start talking about these issues and thinking about these issues in a new way. So let me begin.

I won't go over this again. We've already, this morning and again in the last speaker, talked about the importance of providing clean drinking water, the costs that we're paying as a global society. We recognize also that water can be a tremendous source of conflict when there's scarcity, and as has been mentioned, there has been a lot of debate in public arenas on the issue of privatization.

It's not as though these are new issues. I think it's important to recognize that we've been discussing, debating, creating international norms on water issue for almost three decades now. We had an entire decade in the '80s devoted to international drinking water supply and sanitation. It's been the subject of a number of international conferences. It's been an important element of other conferences that dealt with population development and sustainable development. So this is an issue that has been amply vetted at the international level.

It became quite clear, though, I think, to many of us that have worked in the international arena, by the mid-1990s that the international conferences were not resulting in the kinds of real changes at the national level – I think this was a cartoon that appeared at the Rio plus five meeting where a lot of people got the sense that we had gotten into this pattern where national leaders would go to international summits, sign treaties, agree to action plans, make grand pronouncements and then four or five years you'd look and not much had happened.

And today I think this group in particular would be concerned with the Millennium Development Goal number seven, Target number 10. I've seen a lot of iterations of this but as a global community in 2000 we set a goal of having, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation, and I would submit that unless there's some sort of fundamental change in the way we think about these problems and approach these problems, we're not really going to make a dent in solving this problem and meeting this target.

This is a chart that was pulled together by the WHO and UNICEF Joint Monitoring Program for water supply and sanitation, and I think it's interesting; I tried to get more historical information, see if we could go back to 1980, and wasn't able to do that, but I think what's significant here is two things. One is that if you look at the total, the final column, that while we brought improved water supply to about a billion more people, the population has grown. So the reality is today, 12 years after 1990, we're still

a billion people short in terms of people that have access to, in this case, improved water supply.

And the other interesting point is that the terminology seems to have been shifting. For many years we talked about providing people access to safe drinking water and now it's become sort of improved water. And so I think that it's significant that perhaps our goal in this particular area has declined and the whole goal is to provide some sort of water infrastructure without really looking at the purity of the water that's being provided.

What's really critical is that in some ways it's really important that we stop talking about these issues as global issues and really recognize that we're not going to meet the Millennium Development Goal unless there are action in these 16 countries. If you accept the 1.1 billion figure, 326 million of those people live in China; 168 million live in India; 55 million live in Ethiopia; 47.8 million live in Indonesia and so forth and so on. What we've chosen here are just the countries for which we were able, based on current statistics, to determine that at least 10 million people in those societies didn't have access to safe drinking water.

So while we talk about it as a global problem, the reality is that it really is a shared national problem, and I would submit that the key obstacle – the most important obstacle to really making progress on this issue, is the lack of political will. The principal problem is not the absence of international commitments, it's not an absence of technology or methodology or an absence of money. And if you look at these pictures here I think this is interesting. These were photos that were taken during the visit by that odd couple Paul O'Neill and the rock star Bono to Africa in the spring of 2002, and I think that was kind of – it was an important trip for a number of reasons. One, I think it sort of represented the recent high-water mark of media attention to water issues in developing countries in the United States, and perhaps the high-water mark of this administration's concern about global water issues.

And I think for those of you that followed the trip closely, I think it was really quite interesting because Paul O'Neill went over there as a businessman, and then when he was in Uganda he was told that X number of people didn't have access to safe drinking water and that if we drilled bore holes that we could provide water for, say, up to 300 people each. And he did a very quick calculation and he said, okay, if we drill 1,000 bore holes it'll cost us \$25 million and everybody will have safe drinking water. Well, it was interesting because during the course of that trip you realize that it was more than just the money; it was more than just the technology, that there were serious social issues, cultural issues, and political issues that had to be overcome.

Unfortunately, the idea of taking Uganda and turning it into a model where you can take \$25 million and provide safe drinking water for everyone in this African nation never really got anywhere. And in part, according to some of the reports, the problem was a political one here where there was a concern in the United States that, wow, if this project actually worked then all of a sudden everybody in the world would be lining up

for American money, or there was a concern that if the United States actually said, we're going to try and do this, that we would fail and that we would be embarrassed.

Let me point out that I'm not the only one who talks about the importance of political will or the lack of political will as a barrier to moving forward in this area. Here are just some few selected quotes – for example, one from the Global Water Partnership: “If the political will is present, water policy can be transformed, but getting into a position of political influence is not easy.” I guess anyone who's run for president of our country probably wouldn't disagree with that.

Let me point out, though – and it's the last one. This is a quote from the Christian Science Monitor, because this is sort of looking at the country of South Africa, and from an article that was written during the Earth Summit: “South Africa is one country that seems to be well on its way in providing safe drinking water to its citizens.” Apparently there was a decision after assumption of the government of Nelson Mandela that this was going to be a priority to provide safe drinking water for all, and as of 2002, more than 10 million people had been provided with clean water and the prediction was that by 2008 all of South Africa's 43 million citizens will have access. And a lot of commentators looked at the situation in South Africa and they saw that what made it work was a combination of political will, financial resources, and good management. And I would submit that you have to have the political will first and then the others, I think, will follow.

Let me say that I've noticed – I've been involved and engaged in international summitry for many years, and I think what's significant was that Johannesburg was a real turning point in international summitry. It was a real turning point in the way the international community deals with these issues. I referred to it as the “down-to-Earth” summit. For those of us that are interested in water issues I think there was a lot of enthusiasm for Johannesburg because there was such a high emphasis placed on water and its relationship to development. It was high on the agenda then. I think I was disappointed – I think many others – over the fact that while a lot of the official documentation talked about the water issue, when you actually looked at what the national leaders said – each national leader was given his five minutes or her five minutes to go in front of an international audience and talk about their priorities – not a single one of the developing countries leaders mentioned water as a priority, which I think is very, very disappointing.

What was really encouraging about the Johannesburg summit was the development of this concept of partnerships and initiatives. Historically international conferences have focused on developing treaties and agendas that are agreed to by everyone and for the first time the United Nations recognized the important role of these summits is to encourage individual actors to agree to take concrete projects underway and to move forward.

I just want to say a few words about these partnerships and initiatives. For a lot of people it's still kind of a new concept but I think, as I indicated – I mean, you know, the

traditional sort of one-size-fits-all approach really doesn't work. I mean, if you look back at the history over the last 20 years, we now have 192 countries that sit at the table with one another. It's almost impossible to get them to agree to anything very specific. Quite often people talk about a problem being solved by a treaty or a plan but the reality is that treaties and plans are not self-executing. A lot of us like to see legally binding commitments and treaties but the reality has been that governments generally have failed to hold one another accountable for even our legally binding commitments.

And then, finally, I think we have to remember that the real driver for action and accountability is civil society, which is citizen organizations, businesses, and communities.

In Johannesburg there were about two-dozen water partnerships and initiatives that were announced. You're going to be discussing, I think, some of these more tomorrow but I just wanted to make one or two comments about them. As a practical matter, the focus on partnerships and initiatives came very late in the preparatory process with Johannesburg, so there was somewhat of a rush and a lot of pressure on government agencies to come up with new ideas. The United States announced a major Water for the Poor initiative, which involved a \$970 million U.S. expenditure over a three-year period. There were many people that saw this really as sort of just a repackaging of a lot of work that AID already had underway, but I would submit that within that sprawling group of projects that there are some interesting new projects that underway, such as one involving the creation of a point of view system for providing people safe water, and then also the U.S. governments got interested in how you provide innovative financing for the use of revolving funds for initial supplies in India.

This focus on partnerships which began in Johannesburg continued through the World Water Forum in 2004 in Japan. At that point – at that meeting, over a hundred new commitments at the international, regional and national level were made, and what I thought was also very interesting is that the World Water Council put out a document that identified some 3,000 actions – actual efforts being undertaken throughout the world to address these problems – sort of a new paradigm, a new way of thinking about how we're going to solve this problem.

So this, I guess, is the \$64,000 question: how do you actually generate more political will? Well, there are a few ideas. I think partly we have to think about trying to develop some new international fora where we ask international leaders to come and not just make sort of vague commitments but to really talk about what their real needs are in order to provide safe drinking water for all and to try and engage in hopefully an open and constructive dialogue about what those barriers are and how there can be support from outside to overcome them.

I think we also have to start also by setting more realistic objectives. I'm not suggesting in any way that we scrap the Millennium Development Goals, but I think that what I would propose is that we start using more of a bottom-up approach, that we go to all – for example, we might start with each one of the 16 key countries in this problem

and say, what's realistic over the next 10 years in your contribution to meeting the Millennium Development Goals? I think that the whole trend towards partnerships and initiatives is extraordinarily important, but we need to create mechanisms so that we can actually monitor their progress and make sure that the commitments that were made by the parties to these partnerships and initiatives are in fact followed through.

We need to figure out ways to generate better and different sorts of data. I know that WHO and UNICEF are working at looking at these issues on a global scale, but I think what's interesting is it's very difficult to find information about policy changes that are going on in various countries, which are critical if we're going to actually move forward in achieving this goal.

What should the U.S. government do in an effort to stimulate more political will? I think it would be critical for the U.S. government to actually engage in dialogues with other countries and to encourage them to give a higher priority to water. And these would hopefully be diplomatic dialogues at the highest level.

And I think it's really important, then, in terms of our own water partnerships and initiatives we make them models of transparency and accountability. And I would say, and I would encourage all of you to take a look at the USAID website. There has been the creation of a website and the beginning of an effort to track this and many other presidential initiatives to actually create some indicators for success and measure progress. For example, AID, in FY'03, claimed that as the result of a Water for the Poor initiative that they had provided water to 19 million people, but what was not apparent from that website or the data that we've gotten is a real understanding about how that number has been generated. FY'04, AID has now put forward a series of indicators of success but there has been no real reporting on their progress.

And let me begin with some final talk about some next steps, and I'll just talk about both of these ideas briefly. One is the Earth Legacy Campaign and the other is World Environment Day 2000. The Earth Legacy Campaign is a call that was issued last June by a group of distinguished foreign policy and environmental experts calling for the creation of an independent bipartisan national commission on global environmental securities. It is quite clear that we were not going to make progress on a whole range of global environmental issues, including water, oceans, toxics, global warming, unless we develop a new political consensus around the science on these issues, and at the same time begin to communicate to the American public that in fact these global environmental trends do make a huge difference for the American citizen in terms of our economy and security and well being. And then finally, I think we need a real strong platform for how the United States can provide real leadership on the global water and other issues.

On a totally different level – and this I think is an exciting development – this year, June 2005, World Environment Day is going to be celebrated for the first time in North America. San Francisco will be the host city. For those of you that don't know what World Environment Day – it's sort of the rest of the world's Earth Day. It's an official U.N. day. And I think what's really interesting about this year is that Mayor

Gavin Newsom of San Francisco has invited 200 of the mayors of the largest and most progressive cities on the planet to come to San Francisco for a celebration of Earth Day and sign a series of urban environmental accords. And I would suggest you may want to take a look at them up on the website. It's www.wed2005.org.

The Urban Environmental Accords, there are only 21 action items. Three of them deal with water. And the goal is to try and get these mayors, who are very important people when it comes to a lot of the issues that we're concerned about, to make commitments to these very specific areas, and then over the next seven years to track their implementation. It's a new sort of diplomacy which I think has some very interesting potential for making progress. As I understand now there have been about 35 mayors who have already accepted, including the mayor of Jakarta, mayors of seven major cities in China, the mayor of – (inaudible). So that's something. We're at a point now where they'll still working on refining these Urban Environmental Accords, and I'm sure that the organizers would welcome your input and involvement.

In closing, let me end with the observation – you know, I find quite often that people, particularly in Washington, D.C., like to make problems seem really simple, which is probably the reason why I'm still at NRDC and not holding political office and working in the administration, and I think that in some ways, simplifying things is useful, but I think what the reality is that we're moving to a world which the traditional model is what I call sort of the League of Nations sort of model, kind of a model of the world where the only players are nation states and where at one time you could get everybody of any power and consequence in a room about this size and they'd sign a treaty and the problem would be solved. The world today is much different. It's a global world. It's a world of the Internet, and I think the challenge for all of us is how do we think about that world, how do we harness that energy to bring about the kinds of global scale changes and improvements that we all endeavor for?

Thank you very, very much.

MR. DAVIES: Thank you. (Applause.)

All right, our third speaker this afternoon is Jan Beecher. Jan is going to talk about capacity building. Jan comes to us from Michigan State University where she is the director of the Institute of Public Utilities. She is formerly principal of Beecher Policy Research, Inc., an independent consulting firm with a mission of conducting high-quality policy research for public and private sectors. Her areas of expertise include regulatory theory, institutions, policy, and comparative utility industry analysis, and her current research interests span many different areas. I will highlight the role of regulation in privatization, socioeconomic impacts, equity and affordability, and integrated research planning.

JAN BEECHER: Thank you very much, and I am honored to be here and to be part of this wonderful panel. I hope I can do the topic justice.

In the interest of full disclosure and maybe a bit of commercialization, I will tell you a little bit about the institute because it may not be familiar to a lot of you. We've had our home at MSU since 1965, and what we essentially do is provide educational support to utility regulators, the people who set telecom and electricity, natural gas and water rates. And I think it's already been slightly alluded to, water is not heavily regulated from an economic standpoint, and yet that's going to be the focus of my talk.

We have a mission that we like to repeat often and that is that our goal is to support informed, effective and efficient regulation, and that means we try to be helpful and responsive to all comers, and that includes folks who favor deregulation, folks who favor alternative forms of regulation and so on. We're there to support. And that includes not only our domestic regulators but our international regulators. We estimate we've actually trained about 10,000 regulators since our establishment, and increasingly that includes an international audience. Just since I've been there, for three years, we've welcomed folks from Afghanistan, Pakistan, Israel, Turkey, Nigeria, Korea, Malaysia, Croatia, Brazil, Argentina, and that's just what I can remember off the top of my head.

I would not – I don't want to suggest here that regulation is a panacea. It may sound like that. My talk is actually meant to be more descriptive than prescriptive, even though I think there was sort of a prescriptive assignment here. I'm really here mainly just to talk about how regulation works and what I think it might have to offer to this discussion. But again, keeping in mind I'm not advocating, in any kind of sense, that utilities or regulated utilities or regulation are the only answers here; it's just part of this big puzzle we're all working on.

I would say, in response, I think, to the previous two speakers, they did set me up pretty well because I actually do think regulation – economic regulation, it is responsive both to the ethical challenges that were first mentioned – accountability, transparency, and so on – and certainly to the problem of political will. One of the reasons we established regulation – and this is kind of random and not consistent with the order of my talk, if it has any order; that's a presumption – but the whole idea of regulation was really to supplant political processes and judicial processes to some degree as well – you know, the idea that it is very hard for politicians – and I'm a political scientist too; I like politicians. Politics is a wonderful thing. You know, one person's political barrier is somebody else's due process. So politics isn't such a bad thing. But on occasion we need public policy to move forward and we may need forums and methods for developing public policy that are a little less political – not apolitical but less political perhaps.

So I think regulation – that is one of the things I'll mention as a possible benefit of regulation. So I'm going to talk about capacity development with first a little bit of a nod to EPA and Congress and the Safe Drinking Water Act because they really, I think, forwarded this concept of capacity development for utilities themselves, technical, managerial and financial. And I think that's been actually a pretty powerful addition to our policy rhetoric in this area. And we need to pay attention to capacity of our systems, and again, I think public policy and regulation can help improve that capacity.

On the governmental or the institutional side, I like to think of regulation playing a role in, again, sort of the broader policy functions – not the only. Certainly there are distributive and re-distributive policies, and those have been alluded to here as well, things like assistance, grantsmanship and so on. But I'm, again, focused on regulation, and regulation itself can be subdivided into the quality, quantity and price areas. That makes it – it makes it hard sometimes to talk about the U.S. system of regulating water, especially with global colleagues, because we are so fragmented. You know, the industry is fragmented and our regulatory system is really rather fragmented, and this is the way I sometimes talk about it is in terms of regulatory federalism and the various roles at the various levels.

And this of course is an oversimplification but you can see – you know, we kind of think in the middle, of the states as having primacy in all three areas – quality, quantity and price, but certainly there is a significant local role, especially when it comes to municipal ownership. Again, I'll be talking about economic regulation, meaning the public utility commissions or public service commissions of the states. They regulate mostly private systems. My talk could possibly be misconstrued to think that there's a lot more regulation of water than there really is. The commissions in this country probably only touched about 15 to 20 percent of the systems. Most of those are private or investor-owned companies, corporations, but a significant portion are municipalities. About a dozen states have authority for non-private systems, and I actually have come to the conclusion after mucking around this field for many years, that more broader application, more uniform application of regulation to even municipal or government-owned systems isn't such a bad idea.

Why do the states regulate utilities in general? Basically it's market failure. You know, it's funny; when you work in regulation people think you don't like markets. There's people here from Coke and Procter & Gamble, right? I don't know who you are; I hope to meet you. We like markets. We like markets just fine. In fact, we really like markets. We like markets to work. What regulators are sensitive about is market failure. And there's market failures of all kinds. The one we focus on is monopoly – monopoly power. When there's only just one game in town, one provider, we worry about abuses of prices and services and so on. So in the presence of that market failure – and this is, again, what we're sensitive about – the capacity of the state to regulate is vital, and that's really across the board. We've very busy these days in the wake of Enron and WorldCom and these disasters sorting out what's at fault and who's at fault and were our regulatory mechanisms adequate and so on? So we've got a lot of work to do. And so we share a lot in common across our colleagues across the world who struggle with these issues regardless of the stage of development.

I won't go into this too much in the interest of time and discussion, but as I first started working on this talk I was thinking about this issue of what type of good is water, and I think it's come up here again. I think one of the reasons we struggle with the topic of water is because it has some of these characteristics of different types of goods, so going back to Econ 101 or public policy analysis class, if you took that, you know, you

remember that there's public goods and there's private goods, but then there are sort of these other, more difficult goods to get your arms around, sort of the free goods. And then in the lower corner the marketable or toll goods, and that's kind of what a utility is. It's something that's really provided to multiple users and there's opportunities – it's hard to subdivide it but it can be – we can charge separately for it.

Types of market failure: again, we'll emphasize mostly – in the utility field we emphasize mostly the problem of monopoly, but if you step back there's actually a very – (audio break, tape change) – poorly defined property rights, and it's a good legal question that still needs a lot of attention.

Both negative and positive externalities that occur with economic activities: failure to protect the commons (?) – I think we've heard a lot about that today – failure to provide the right amount of a good or a service; in other words, enough to keep people healthy and alive and have a decent quality of life. The unintended or undesirable impacts: inherent limits to competition.

So that's kind of a broad topology. What economic regulation does is sort of step in as a proxy or a surrogate for competition. This is a little bit out of order; I'm going to actually come back to that in a second.

The characteristics of a traditional utility monopoly – again, this problem of market failure – and I won't go into a lot of the details because I've got a long laundry list here, but in the traditions of utility regulation, which is now 100-plus years old, there's a lot of good rhetoric associated with this field. One of the terms we use a lot is that it's affected with the public interest by virtue of providing an essential service. And what's fun for me, being first a regulation person then a water person and now back to being a regulation person is that understanding water I think really brings this home, at least for me, in understanding utilities and what these words actually mean, because we know water is indeed so essential. You know, there are substitutes in the way we deliver it, but, as Sandra said, there is no substitute for water itself.

We do know it plays this integral role in our national and local economies and economic development. That's already been recognized here, but we're not always really good about somehow incorporating that into public policy. Utilities usually have an obligation to serve significant-scale economies. Again, that's the utility perspective that doesn't – I don't mean to contradict the small-scale technologies. I think those are important too. When we talk about building utility structures, infrastructures, there are significant-scale economies, fixed assets, very high capital intensity, which is, you know, a fancy way of saying you got to put five or six dollars of investment in the ground to get a dollar of revenue, at least based on economics in this country.

Investment tends to be very large and lumpy. There is vertical integration of functions. Now, we've played around with this of course in the electricity sector, depending on which state you're from. You've experienced this one way or the other

perhaps. But traditionally we'd see that vertical integration and with water utilities, those systems of organization generally still hold as pretty effective, pretty economical.

We tend to sanction a single provider because we don't want to have two pipes to the house, two wires to the house and so on. Now, in some sectors – telecom is a good example with wireless and now even alternative provision of broadband service. Customers may have some choices but there are still problems of oligopoly and service issues, but at least there are some choices. And again, there's a sense of maybe a little bit – while essential, there is a little bit of room for discretion and even variation in the quality of service, that the market will tolerate that because, with the exception of 911 and other emergency services, there's a certain acceptance that it's maybe a little less essential of a service, at least just slightly.

Reliability is important, constraints on supplies and so on – many of the characteristics actually that have been talked about here from a more of a resource perspective. From an economic perspective, you're serving these captive or core customers who have no choice in relatively price-inelastic demand. And whether that's measured in terms of a price, a bill – a water bill – or measured in terms of spending your entire day, especially the young women and so on, transporting water, it's because it's that essential so they're willing to pay that price every single day to get that water – no practical substitutes and so on.

A little competition: franchises, rights of way. A monopoly may be large and small. It may or may not seem obvious, but I remind people of that because we do have 50,000 water systems in this country but each one of them is a monopoly. You don't have to be big. If you're the only choice that your customer has – which is no choice; you're the only provider – you're still a monopoly; you have monopoly power over that customer. So that's why, again, we would argue that there may be a need for regulation.

A monopoly could be publicly or privately owned, and I'll hit this point a couple of times because I have really come to the conclusion that a case can be made – and I'm not going to bang the table about it, but the case can be made that even if you're a publicly owned monopoly there might be a rationale for some level of economic regulatory oversight. And again, we regulate to prevent abuse of market power.

Now, the – I had it in the previous slide, I won't go back to it, but regulation serves as sort of a substitute for the marketplace, and it substitutes either for ownership or the market, and in some cases we've got these hybrid examples of publicly owned systems that are subject to some form of the regulation, or in some cases publicly owned systems that argue they don't need to be regulated. So I'll come back to that.

But looking across the sectors, again, water is kind of arguably the most monopolistic due to market failures. And again, I don't mean that in any pejorative sense, I just mean in the sense of those basic economic characteristics, where telecom is today less monopolistic although they're merging back to one big phone company pretty quickly. (Chuckles.)

Twelve things about water – and this actually grew out of research I did a few years ago with support from the NAWC on how water compares to the other industries, and this is just a very quick summary but, again, it's highly essential, the quality, safety and health dimensions. These all distinguish water from telecom or energy. Technical and resource constraints: it's finite, it's heavy, it's transient in time and space. That's one of my favorite quotes about water that I stole from somebody that I can't even remember now. But it's just not always where we need it when we need it, as, again, has been highlighted.

Tremendous scale and scope economies, capital intensity, a unique cost profile. This is a very transmission and distribution oriented system, very highly energy dependent. The last number I heard was that water in wastewater systems in this country is up to 3 percent of the nation's energy – electricity, and that's pretty significant as far as impact on that industry.

Certain demand patterns, relatively flat – you know, very global population driven. Certainly that's been mentioned. But in terms of household needs and aggregate – even certain aggregate patterns here, you know, pretty flat. So for water utilities they've actually got rising – in the U.S. rising costs and relatively flat demand over which to spread those costs.

Somewhat unique pricing and underpricing practices, fragmented industry structures, limits to networks and competition in a complex regulatory environment. Those are some of the things I highlight, and I've got additional work on this if anybody's interested.

Again, we've heard about water's essential nature, related here not only to the provision of wastewater services but also fire protection. I don't hear about that as much in the global context, but in the U.S., water systems were built to put out fires in a lot of cities, and that had a lot to do with the way we designed them and operated them.

Market failure in water. In particular, again, very monopolistic, and that still seems to be pretty much the future of water. I don't think we see a lot of opportunities. Now, yes, there are – for those of you who were thinking, oh, there's competition here and there. You know, yes, I would agree with that, that there are examples of contestability or even mild forms of competition that could be cited in the water sector. The U.K. has a competition act for the water sector. But for the most part it's a generally – it's a monopolistic industry and has characteristics of market failure that would lead to – that would logically lead to regulation.

And there, kind of going back to that market failure list I had before, there's just some examples from the water sector. Some are very obvious. The externalities one I think is one that's been a big focus here, both the negative externality, the problem of pollution, for example, or positive externality is the extended public health benefits that you get by providing safe water.

I just threw this in. You know, I wasn't sure where to put it or where to say it but it's kind of been on my mind because I followed pretty closely the privatization debate the last few years and there's been just a strong and really deeply felt debate about whether water is a right or a commodity, and I think ultimately the answer has to be both. I mean, I think we have to just kind of figure out a way to get beyond this. And Mr. Cotruvo made a very good point earlier that if you make it a right, do you take away the economic incentives to pay for it or recognize its value? I think that's a very valid point, but at the same time, at some level we're going to have to figure this one out. We're going to have to figure out a way to lay a foundation that will allow involvement in the water sector that recognizes both the rights dimension and the commodity dimension of water. I think those are both very legitimate perspectives, and they're not irreconcilable. I just think – you know, there are smart people in this room who can, I think, work on this issue.

To just kind of give a quick overview of the regulator paradigm to see if I can persuade you to think about it I guess a little bit more and whether you think it might be applicable and give me your thoughts. Regulation, again, has some of these basic characteristics, and we – in our programs we talk a lot about these things from not just an economics perspective but from the legal perspective, from accounting and finance perspectives. It's a very interdisciplinary area. That's what makes it so much fun in a lot of ways. So regulation sort of is there to advance the public interest and protect both the consumer and the investor, and this is where maybe this finally gets to one of the questions of the day, which was alluded to, which is the investment side of it. And I think one of the values of regulation was – historically and even still today – is balancing the interest of the investor, and that could be a public sector investor or private sector investor, or some combination of both, including financial backers and so on, balancing those interests with those of the captive ratepayer, and the captive ratepayer also might be broadly defined to include governments as well as the actual ratepayers of utility bills.

So regulation does this balancing act. In fact, you know, the regulators in this country use the scales of justice as their symbol, and they actually like to say, you know, if they're doing their job well, nobody's completely happy. So, again, that goes to the political will problem. I mean, they do have to constantly sort of negotiate those, and it's not easy and it's not simple and I wouldn't actually say it was not political either.

So regulation sort of provides the protection that ratepayers need and the stability that infrastructure investor needs. I think somebody earlier today mentioned risk – you know, the problem of risk and the need for risk reduction. Again, these are long-life assets, much more so – longer life and highly capital intensive, more so than the other sectors, more so than even electric facilities and so on. So you're talking about paying for them, supporting them over generations of customers.

The model – sometimes I, when we're really short on time, just kind of throw out the five P's: the public interest, the prudent investment test, the regulation of process, the regulation of prices, the regulation of performance. Now, all of this sounds very heavy-

handed, and actually I think in the current iterations of regulation it's become a much more flexible and adaptable model, and I think that's actually particularly true for water. And again, I won't go through all these laundry lists, but their regulation does embody a number of very strong, well-defined values that I think are pertinent to the debate that you're engaged in. How are we going to ensure service? How are we going to ensure investment? What standards do we use to help evaluate that investment to ensure that it's prudent? And there are gobs of case law and economic analysis of these kinds of issues, tons of work on sort of the standards by which we evaluate utility performance in the regulatory context and the way we look at rates and that rates should be just and reasonable and so on.

So I just would offer up the regulatory paradigm as a possible resource to explore for addressing some of these concerns. Regulators traditionally – and keeping in mind, again, the system of 100 years started with railroads and then grain elevators and eventually utilities and very much played a role in this country's development of the infrastructure and the pricing support for that infrastructure and to this day is a relatively successful model – imperfect but has achieved a lot. In fact, I recently saw an article, I think by Consumer Reports, that showed decline in prices throughout out history. You know, we all think we need a deregulation to simulate further price reductions. In fact, regulators throughout the long-term history in the U.S. did a pretty good job in helping consumers reap the benefits of price reductions and efficiency gains into the utilities.

So what do regulators do? Well, most people think of them as setting rates. I like to also remind ourselves from time to time that they do a lot of other stuff too. They control market entry and exit; in other words, certifying an operator as being fit to serve, certifying additions to the system, imposing a uniform system of accounting. It sounds very boring but it's probably one of the most essential building blocks – that and property rights – that we have in utility regulation – simply encouraging proper accounting, because unless you do proper accounting you can't do anything in terms of cost base analysis or rates or anything like that.

Regulators also look at the structure of the industry. They do financial and managerial audits and specify the terms of service. Resolve consumer complaints – critically important, especially today with these complex markets, having a forum for consumers to go, other than the courts, which is expensive and time consuming, regulation could provide a potential forum for the consumer to go resolve that complaint much more efficiently, and that's in the interest of both the consumer and the utility provider.

Today our regulators are doing all kinds of new functions for some reason and they are taking advantage of new techniques like dispute resolution and so on, providing more information to consumers, protecting consumer rights. I think the regulators recently adopted sort of a consumer bill of rights.

Promoting universal service. Again, we have a universal service policy in telecom, sort of. It's very controversial and – anybody who has a cell phone notices the

universal service charge on their bill, right? It's a significant charge. That raises money for rural broadband service and other telecom services in this country. But regulators today are very busy monitoring markets, looking at whether competition is workable in certain sectors so that they can relax regulatory requirements and so on. So there's just a whole list. The job has certainly become much more complex.

We recognize – and I've already mentioned some of the advantages of the traditional model. Probably the leading advantage in a lot of respects is the encouragement of long-term infrastructure investment. Now, economists have also said that the regulatory model, because you make money based on investment, actually has a down side in that it could encourage too much investment. So there are regulatory techniques to respond to that.

But for the most part we've had some successes in regulation but I think everybody in the field recognizes that it's an imperfect substitute for competition. You know, we would all prefer a robust, competitive environment but the reality is in the absence of that we try to regulate. So in the interest of fair play the traditional model also has limitations in terms of incentives, in particular for efficiency, for innovation, and also for social environmental considerations. I'll come back to this one as well.

Some of the issues you're talking about today: the regulatory model has been a bit clunky about dealing with some of the social and environmental issues that might apply, especially in water. I like to use and advocate sort of a simple transitional model of regulation, because in my mind, I guess whether you're talking about the traditional model or some of the things we're dealing with today in restructured markets. Regulation has always been about three things and always, I think, can be: standards, accountability, and incentive. And so I think, whether it's public policy in general or regulation, if we think about standards, accountability and incentives, we start maybe moving along and finding some instruments for encouraging that.

Last few points: privatization is not the same as competition. You know, you've heard the term "partnerships," and alluded to – I think we'll probably hear some more about it and get some additional information. But the introduction of the private sector does not introduce competition; in fact, it introduces profit-seeking motive, and then that's where I think we have to be cautious, especially, again, with an essential and generally monopolistic industry.

Something has to regulate, either the market or the states, but something has to regulate this activity, and if the state can't – state and local government can't do a good job for itself then it may argue for something at a higher level.

For all these sectors, though, generally, we're going to see co-existence of markets and regulation. Regulation can do a better job, could do a better job on equity issues. We tended to find equity in economic terms – you know, if it's efficient, it's equitable – and I think some of the issues that we run up against, especially with a service

as essential as water, that deal with social equity and affordability, we need to modify the regulatory system accordingly. So I think it can do it but it takes a little bit of effort.

Challenges for new regimes – I’ve just ticked off a few of these. When we invite regulators – I’ve done less globetrotting. You know, I tend to sit up in East Lansing and people will come to us, so we’re learning so much from our international colleagues, and we actually find there’s a lot more in common than there is difference in terms of the day-to-day struggles that new regulators have. They tend to want pragmatic solutions. They want to avoid the pitfalls of some of the political will issues and political pressures. It’s very gratifying, actually, to hear people from all over the world sit around a table and share a few laughs and tears over some of the common struggles that they have but then hopefully walk out with some practical ideas. So we work with them on trying to give them tools, share experiences without, again, selling our model. We don’t do that; we share – we share our experiences, good and bad.

Regulation can fail, just like markets can fail, so we need to pay attention to designing regulatory systems that really work that are transparent, that are ethical. I think those points were extremely important, made earlier. So I think it’s up to us to really do this and sort of work on capacity development as a long-term process – again, some ideas out there for building capacity, including strategic planning and some of these other things that I think can be done.

So finally, water – wastewater, you know, remain very monopolistic, so an economic regulatory framework may be appropriate, may be certainly compatible with some of the goals talked about here. I do think we need water-specific models. I went back to the brochure just to say, again, sort of as a reality check, you’ve got the five goals that I think were so well laid-out for this program – reducing supply and demand pressure – where I think, again, a regulatory framework could introduce some improvements in planning and pricing systems: supporting an infrastructure development. And again, that prudent investment test, expanding financial resources, I certainly would argue that you’d see an improved investment and cost recovery with a regulatory framework, market-based pricing.

Again, what regulation tries to do is set prices based on the cost of service and avoid monopoly exploitation – and then finally, probably somewhat of a secondary benefit, but in terms of promoting multilateral cooperation I think – to the extent that we share knowledge and paradigms and language and tools – I think that will improve and I think – you know, while we used to think of states in regulation as our experimental laboratory, we now think of the nation-states and I think that’s proving certainly to be true. So I thank you and look forward to the rest of the event.

MR. DAVIES: Thank you. (Applause.)

Our final speaker of the afternoon is Gordon Binder. Gordon comes to us from Aqua International Partners, which is a private equity investment fund specializing in water sector in the emerging markets. Gordon served as the chief of staff to Bill Reilly,

the administrator of the U.S. EPA during the first Bush administration. He is a senior fellow at the World Wildlife Fund in Washington, and he serves on the Environmental Technology Advisory Committee, administered by the Department of Commerce, where he chairs the Water Subcommittee.

Gordon?

GORDON BINDER: Among the realities of speaking last are not only that we've lost a lot of people – you're the hearty souls – but a lot has already been said. Nonetheless, here goes. First, I want to thank the Center for Strategic and International Studies and to Erik Peterson, in particular, for taking on this issue. I've always thought of CSIS as engaging the foreign policy and national security establishment, and they are important and welcome new voices in international water discussions.

I'm going to start by offering three observations that underpin my views of finance issues. First, as Jan stated, water is an economic good and a social good. It's not one or the other; it's both. Second, water rates will continue to rise as an inevitable response to growing demand and increasingly constrained supplies. Now, new and more efficient technologies will help some, but it won't stop price increases. The wild card in all this is climate change, as Sandra mentioned this morning. I think there's a real threat that climate – a change in climate, global warming, will upset familiar patterns of precipitation and could render obsolete enormous investments in water infrastructure, requiring replacement facilities. Third, for the developing world, money is important, but it's not sufficient. We're going to need lots of money, to be sure. But transparency functioning, utilities, dispute-resolution mechanisms, project development skills, and other attributes are essential. And I agree with Jacob that political will is probably the most important determinant here.

Let's turn to finance. Jerry laid out some numbers. The World Water Commission, in the year 2000, estimated that about \$180 billion a year would be needed by 2025 in the developing world, and that was more than twice the level being spent at that time. That includes all uses: drinking water, sanitation, energy, industry, agriculture, and so on. The drinking water and sanitation part of this was about – we were spending about \$30 billion in the year 2000, and they estimated that \$75 billion would be needed by the year 2025. That's \$45 billion more. Now, rigorous data on coverage is lacking, so I think we have to see this as indicative, perhaps a best guess. And it may be at the high end of the estimates. An OECD report, "Closing the Sanitation Gap," in the year 2004, suggested that something like \$10 (billion) to \$15 billion a year more would help meet basic needs.

Now, separately, the World Bank said, whatever the number, that 90 percent of this money is going to come from domestic sources, about five percent from international sources – international private sources – and about 5 percent from bilateral and multilateral development assistance agencies. A recent macro-level economic analysis suggests that there are good returns if we make these investments. The World Health Organization sponsored a study by the Swiss Tropical Institute that indicates that for each

dollar invested, you get a yield or a return of between \$3 dollars and \$34. That's a lot of wiggle room in the numbers, and there's not a lot more research on this, and particularly not at the household or the community level.

Finance issues were addressed by the Camdessus panel, named after the former head of the International Monetary Fund, which reported at the World Water Forum in Kyoto in 2003. I think it's an excellent report and they lay out a finance agenda. Among the issues they raise – among the recommendations were double the official development assistance for water and target it to the neediest places; use ODA to improve technical and managerial capabilities of water agencies and utilities. They called for more lending, more sub-sovereign lending, more partial guarantees by multilateral financial institutions in recognition of the devolution of water responsibilities to local governments that don't have the resources to take on these tasks. They recommended developing local capital markets and other funding sources, to put more depth in local currency. They recommended a revolving fund for project planning and preparation. There are many other recommendations and I commend the study to you.

Let's look briefly at these sources. First of all, on donor agencies – according to OECD data, overseas development assistance or official development assistance for water dropped despite growing attention. The annual average for 1996-1998 was about 3.5 billion (dollars) a year. From 1999-2001, the average was 3.3 billion (dollars) per year. Moreover, it's concentrated, as we've heard, in a handful of countries. The U.S. share of this is about 8 percent, or a total of 260 million (dollars). AID says they spend 970 million (dollars) over three years, according to the projects launched at the World Summit on Sustainable Development. Jerry's slide has \$406 billion in 2000. I'm sure there are definitional issues and problems; I haven't been able to square them and I'm not going to try.

In respect to this, U.S. development assistance clearly is far short of what's needed, and as I mentioned this morning, I don't think there's a strong likelihood for seeing a lot more. Now, the new kid on the block is the Millennium Challenge Corporation, and this approach is pegged to country priorities, not U.S. priorities. I heard the other day, however, that about 75 percent of the proposals received by the Millennium Challenge Corporation have some water angle to them. There's no guarantee on funding – these are just proposals – and I don't think a dollar has gone out the door of the Millennium Challenge Corporation. Nonetheless, I thought that was interesting. And I also thought, wouldn't it be interesting if some of the regional development banks worked with eligible countries to draft a water strategy to make a proposal? So, for example, the Inter-American Development could work with the three eligible Latin American countries – Bolivia, Honduras, and Nicaragua – as a way of getting a good proposal before MCC.

There also has been a proposal by the Millennium Water Alliance, which is a group of seven non-profit, non-governmental groups operating in the water sector. They are community-based, typically, and they want to create a global water fund, probably analogous to the global AIDS fund. I've also heard it's gotten a somewhat cool reception

on Capitol Hill. However, in early January, Senator Frist, who I hope we'll hear from tomorrow, wrote President Bush, asking that he make water a higher priority in international assistance, and this is the first time that there's been a real champion in Congress in a position of authority and he is drafting legislation. Stay tuned; we'll see what that entails.

Now, turning to the private sector – the private sector really serves no more than about 5 percent of the population and there's not a lot of new activity in developing countries. China is the exception. They're spending a lot of money on water and wastewater treatment and they are drawing some international operators. In the mid-1990s, when my investment fund, Aqua International Partners, started, there were about a dozen major international water operators. Today there are three, and two of those are pulling back in the developing world. One, in fact, walked away from a \$20-million dollar investment in Vietnam. The business model hasn't worked for international operators in developing countries. Cost recovery is a laudable yet elusive goal.

Operators often complain about the data on which their bids have to be based – was very faulty. The expectations for improved service are off the chart, and the ability of these operators to deliver results, actually quite limited. For example, one of the best ways to improve efficiency of operations is by rationalizing employment, and that means reducing employment. That's controversial. You can also reduce unaccounted-for water, and that requires capital investment and management skills. You could also raise tariffs, and that's not particularly popular. Many of these operators have come to recognize that a solid regulatory framework – laws, enforcement, tariff review, and so forth – are essential to make the private sector model work and those are often lacking in developing countries.

Now, one new angle for the private sector is to enlist companies with facilities in countries in need, either by expanding their water and wastewater services to include nearby communities, schools, and hospitals, or by supporting NGOs and others in-country, to help directly expand coverage, or at very least, providing technical help to local utilities or communities. Now, looking at local sources of equity and debt, I think, frankly, that's the best long-term approach. We're talking here about capital markets, drawing on in-country private investors and banks; we're talking about the equivalent of something like the U.S. state revolving fund. USAID is a leader in promoting these approaches. They've used, as we've heard, partial-loan guarantees and they have been promoting things like the equivalent of a state revolving fund. I'm under no illusion that it's going to be easy. Many countries don't even have a clue about what a state revolving fund is. And to make it work, you need the rule of law, you need accounting standards, dispute resolution, and regulatory structures.

That's the supply side for capital. Let me take a moment to talk about the demand side – that is less-expensive approaches. I tend to think that what I would tend to call community-based approaches offer a great deal of promise. I'm not the best spokesperson for this, we have Steve Werner here with Water for People, the non-profit arm of American Waterworks Association, and he's one of the leading practitioners of

this. Not a lot is known about this experience and the cost and how many people have benefited, and so forth.

But the model is sustainable – it involves the right people in the community, typically women. How you finance is part of the discussion when they plan a project. They use low-tech solutions that the community agrees they can afford – and that's things like standpipes and boreholes and rainwater and septic tanks and simple and improved latrines. Hygiene education is typically a central part, as they are trying to change behavior. It's an absolutely critical component of these approaches. And there's some anecdotal evidence that perhaps at \$25-\$50 per person per year, you can kind of provide this approach. This comes from a paper done for the Wilson Center that's not yet finalized. There are questions about how you scale up and reach more people and there are also still questions about how you finance these projects. But the opportunity for micro-finance and other innovative schemes are clearly there.

Now, we've also heard about the point-of-use approach. Proctor & Gamble, Population Services International and CDC collaborated to develop this coagulant that decontaminates water. Roughly a penny a liter is the cost. But I've heard an executive with Proctor & Gamble say that it actually costs far more to distribute it. So they too need to find a better model to make this work. There are here lots of opportunities to create local businesses. We're not talking about rocket science – it's chlorine dioxide -- but you do need sources of water.

I also of something called the Acumen fund. This is a group of equity investors, social entrepreneurs, looking for cheap technologies for widespread use by the poorest people. We've heard the example of the Treadle pump. Acumen has been working with IDE India and has developed a \$30 kit for drip irrigation. They claim 25,000 units have been sold. I don't know a lot of what this entails, but the average cost for installing drip irrigation is about \$2,500 an acre, so this could be something quite significant.

There's a new non-profit group called Water Mission International, and their founders developed a reasonably affordable water treatment system -- \$10,000. It has filters, 275-gallon storage tank, pump powered by fuel, electricity, or by hand, and they say they're now serving about half a million people in South Africa, Afghanistan, and elsewhere.

I want to say a word about U.S. water finance needs as well. That's for drinking water, combined to our overflows, wastewater treatment, and the like. There's been a lot of attention in the last few years. The Water Infrastructure Network, Congressional Budget Office, General Accounting Office, and EPA all prepared analysis as to what's needed over the next fifteen to twenty years. And the estimates go up to \$1 trillion with a very sizeable shortfall, based on the known sources of funding, and some of them have called for new federal grant programs. EPA concluded that with an average price increase of 3 percent a year, those gaps largely disappear. We're experiencing about 4 percent price rises each year. The average American family spends about \$21 a month for water. Now, that's based on an EPA study in 2000 and it's probably higher now. It's

already higher, I know, in San Francisco, which you pay an average \$54 a month, and in Los Angeles, \$64 a month.

So let me sum up. We need lots of money, but it's not sufficient in itself. Prices are going to rise to reflect growing demand and constrained supplies. Higher prices and technology will address some of the problems but not all. Continuing research and development and investments are the key to getting more efficient technologies, particularly for agriculture and industrial use, where the payoffs can be significant.

We need to address climate change or it could undo a lot of the investments we've made. I think it's ironic that one of the most important steps we can take to securing water for the future is to get our energy policy right, and that means reducing the greenhouse gases we pump into the atmosphere. For poor countries, trying to increase coverage over the long-term, develop local capital markets and build project development capabilities. In the short-term, look at community-based approaches, point of use, cheap technologies, which we need more of, and look to MCC, the Millennium Challenge Corporation, and other donor agencies for help on water. And that requires making it a domestic priority.

(Applause.)

MR. DAVIES: Thank you, Gordon.

What I'd like to do now is start with a question that I have for our panelists and then I'd like to open it to the floor for additional comments on that question or other questions you may have. My question relates to a number of insights that were made, some this morning as well as some this afternoon, about the risk we have in oversimplifying what global water issues are, in terms of putting up broad statistics and failing to recognize the variability in some of these issues, in different parts of the world.

Now, in this afternoon's panel we heard from Gordon about money being important but not sufficient – that those other dimensions, there are multiple other parts of the problem that are important. Jerry talked about building new consensus and Jacob about political will. And my question is really in that political will and consensus, that if we can imagine a future in which that has been achieved – we've actually achieved that political will or we've built that consensus – but it's important to recognize that that has to be built in different areas. There's a piece of it that needs to be built in the United States, here, for us to act.

But there are also comments made that it's very important to have that built in-country with each of these different settings. And the comment was made, I believe by Jacob, about some disappointment at the Johannesburg Summit when at the end the national leaders stood up and didn't really address water as one of the primary issues. And so my question is, imagine that we're successful in building this political will or building this consensus in these different areas – and so I'm going to choose three of them that I'd like to have to you imagine about – if we had the political will in the United

States, what would it look like – I mean what would we envision. If we actually got there, what would it look like. If we have political will – there was created consensus in China. What would it look like and how would it be different from what we might see in the United States. Or we got to Sub-Saharan Africa – a very different setting in which that political will may take on a different characteristic. My question is, how does that – try to imagine what that political will, the impetus for action gets created – but it's created in these different settings, and how does it vary from setting to setting, in terms of our ability to make things happen. And so, I'd ask our panelists to wrestle with that a little bit and then we'll open it up.

So, Jacob, comments on political will?

MR. SCHERR: You know, it's interesting; we always talk about political will but no one's really ever defined it, and I think this is the first time I've ever really tried to really grapple with the assumption that we have it in place. Obviously, I think if we look at the United States, the kind of political will – if I can make it more specific to the subject of water would be – if we had a society in which water was – providing safe drinking water to people around the world was a high priority, was a matter of discussion in the public arenas, it was in the media, it had the same sort of prominence as perhaps the Michael Jackson trial – I mean, maybe I'm hoping too much, but I think clearly part of it is political will, really the willingness to put an issue high on an agenda and to act on it, and I think that it sort of would play itself out, obviously, in different societies in different ways.

MR. DAVIES: (Off-mike.)

MR. BINDER: What is political will in the U.S.? I would say that it is support for higher prices, get the prices right. And I think that will include allocations for conservations and efficiency, and that would come because people understand the connection between prices and having enough water for the future. And I've mentioned before, that before – I think we need to get our energy policy right, too.

As far as like China, I think it comes down to support for non-governmental organizations and for civil society. And I'd also like to see them incorporate the environmental interests in their planning for various water projects. For Sub-Saharan Africa, my guess is it would reflect the increased respect and adoption of the rule of law, anti-corruption measures, and things like that. And there too, NGOs and civil society, I think, will have a tremendous role to play. So that's the really the way I figure it.

MR. DELLI PRISCOLLI: Well, I go third so I had a longer time to think. (Chuckles.) We started out by saying over-simplification, and I think that's true, that's possible, because we have mentioned principles over and over again in the world communities, and really water needs to be seen in the regions and the localities. I think the political will, which is something that comes out of the political systems and political culture and social culture, will differ in the different countries, not only because of the

systems, but because they're dealing with the different water issues, and they're dealing with them at different times.

For example, when you ask about Sub-Saharan Africa, it would probably be more appropriate to ask, what was the political will that brought this country together to do things in 1920s and 1930s to scratch out of the Depression, and that may have a lot more to say about the nature of political will in Africa. It's not a one-to-one relationship in certain places in Africa, but it certainly would frame the issue based on the experience, because what people do is based on their values and their assumptions.

In the case of China, it's transitional, so that the political will that comes out of China and its rapidly-expanding and growing economy, probably has a far more macro-strategic notion to it – I mean, a lot of transfer from south to north in China. If it, or something like it, isn't done, there's a good chance the Beijing can't access it for a period of time. We don't know. So therefore these are at a mega-level in terms of a huge continent and society.

So my answer is that what water forces us to do is look at localities, regions, what's happening, because they provide the experience that people are having, which in turn, provide the values, the approach things. Frankly, what we have is a problem is that we the U.S. and Europe have done a lot of things, and we form our political will and our values, based on how we confront problems. And for us, environmental restoration and a number of other issues are very important. But if that experience is striving on norms and our prescriptions to people in Sub-Saharan Africa, and we don't examine those assumptions, we should not be surprised when they turn around and tell us, look, you're not interested in having us develop and generate our own kinds of wealth. You want to keep us more or less at a steady state and do nothing.

And it's really a confrontation of the unexamined value assumptions underlying what's driving how we approach. Both have political wills and both do different experiences, but we need to get those competitions of those values out. In a sense, it's a little bit like, we used to accuse the Western countries of economic, extractive imperialism, taking everything out of these countries. But the West still remains. We have ideas about what we should do in water and environment and things have very well meaning and are very important based on what we do now, and then we turn around and prescribe the same way.

MR. DAVIES: Thank you.

Jan, I'd ask the question to you slightly differently, and that is, given the potential role that a regulatory infrastructure plays, what kind of a political will is necessary for that kind of structure to function?

MS. BEECHER: Sure, I get a trick question. Well, I mean, I think our regulatory system is really being challenged on this point. That's why it's a good question; I'm not sure I have a good answer. I think that – I guess the best we can come up with is some

manifestations of political will. And I'll echo, to some extent I think, what Gordon said, and that is, to me a manifestation would be a rate structure that embraced not only economic efficiency goals but possibly affordability goals as well. In fact, if you listen to economists, the resource economists, they talk about the tail block being the most important being the most important block, pricing block, in terms of achieving economic efficiency goals. It's all in the tail block, it's all at the margin, meaning that you can – at the lower end of the scale you can also address some affordability concerns. And again, I don't think we necessarily have to be giving water away, although – except, I mean, in some circumstances, that may be necessary and really appropriate, but you can design a rate structure that recognizes the realities of subsistence needs for population.

Another manifestation in the regulatory world is transparency. And I think if we can see the kind of openness and expose some issues to daylight, including exposing subsidies to daylight – I mean, I think the problem with subsidization in the water sector – and it's every which way, right? We know examples where water is considered a revenue-generating utility, it actually makes money, and others where it's being subsidized. Half the battle seems to me to be exposing those to daylight. And again, regulation might be able to provide some help there.

I think that we need to reassert, though – I'm an advocate to some degree of sound regulation – I'm an advocate, though, of a model of regulation that I fully realize is not always the reality of regulation. Don't quote me outside of this room; I don't think I have any of my regulators here. But we need to reassert regulatory independence in this country, and then I think that needs to be nationally done. We need to train – this sounds weird, not the right word – train governors to pick regulators or train the electorate to pick regulators in the few states where they are elected – I don't know how many, seven or eight states, maybe more, a dozen states, where they are elected officials – and re-embrace the concept of independent regulations, which is, I think, very well-defined as the political will issue. Because the concept of independent regulation is that you give them some breathing room – we use the term sometimes quasi-judicial, quasi-legislative, quasi-bureaucratic in terms of how they or administrative in terms of how they operate. We always, though – at least some of us – I mean, one of my biases is you put a little bit of a emphasis on the quasi-judicial role of regulations. In other words, elevate that up.

Now, does that always transfer internationally? Maybe not, and it only will if your judicial system is really well established. So you kind of ground regulation in the appropriate institutional structures that you might have. Here, we are very comfortable and well established, in terms of the legal foundations of regulations. I'm not sure if I answered the question, but I do think we need to think as a society about this concept of independence, and also – and I guess this echoes what some of my fellow panelists have said so well – and that is, it's okay to talk about values. I think we went through this weird cycle where it was, we want everything to be neat and efficient, we could crank it out of a spreadsheet, and then we'd have some correct answer. I mean, here's a couple of political scientists up here, for crying out loud, how did that happen? We're basically, I don't know, unemployable for most practical purposes, but all of a sudden, political

scientists have a role to play in this dialogue, and I think that that says something, because the economics is not that hard, it's the politics that's hard.

MR. DAVIES: Thank you.

I'd like to open the floor for questions for our panelists. Back in the back, could you come up to a mike, please?

Q: I'd like to address a question raised by the chair.

MR. DAVIES: Could you actually – following this morning, I'd like to ask everybody to identify yourself and your organization.

Q: My name is Eliot (sp) and my lack of affiliation allows me to claim glorious independence – (chuckles) – although I am occasionally afflicted upon a bunch of graduate students interested in emerging security environments, and I'm an economist; I study political instability and state failure. What would political will look like in the United States? I think it would be a general consensus upon a set of foreign policy and national security goals that would allow us to revisit and to codify anew the basic legislation as well as the policies upon which we operate in the international arena. In particular, I would point to the National Security Act, which is 50, 60 years old; the Foreign Assistance Act; Public Law 480; the Food For Peace Act, and a couple of others. There's one potential exception to that, and that would be within the defense establishment. Because of the effects of the Goldwater-Nichols Act, it might not be required, although I would not accept that as an assertion but would be willing to listen to arguments to that effect. I would welcome the panel and my colleagues' comments upon my statement.

MR. DAVIES: Comments from the panel?

MR. DELLI PRISCOLLI: I don't know if we addressed that exactly, but you did spur something in my mind when you go back to the acts when we passed the legislation. The act of passing legislation sets off a major program for a number of years and it does signify in and of itself the coalition of political will. One area that we speak of, that we know very well – it's not all the areas of water – but the Flood Control Acts in the '20s and – late '20s and '30s represented the largest expenditure by percentage of GDP for water infrastructure in the United States. And of course they occurred in periods of terrible floods, which had lots of deaths and huge economic disruption.

It's intriguing – it's always been intriguing to me to note that Roosevelt, who was a very powerful president at that time, wanted something done. Congress insisted on just the flood control program alone like a – well, sort of a single purpose with other purposes surrounding it. Roosevelt wanted upstream – it became the agricultural programs of dealing with the upstream areas and land use – incorporated in this and a broader what we would call integrated water management approach.

We got the large acts. We got the huge expenditure, and the program became an enormous program, but it was a program of flood control and not an integration of – so in our culture what happened was the Congress won. And they did represent the political will because that political will was tied to so many different entities. You know, people living in communities and others have said something had to be done by an entity bigger than themselves. And I suspect you can look at other acts in our own water history like that and see what were the things that brought us together – but it's local and it's a direct relationship between politicians and mayors responding to real needs in a particular location.

MR. DAVIES: Thank you. Erik, you had a comment?

Q: Thank you. Yes, Mr. Chairman.

Let me begin, first of all by thanking all four of the panelists. It was a very interesting set of comments. And I am trying to think of a question that would be able to be crosscutting for all four of the presentations, and I have come up with the following.

This pertains to governance and political will. And Claudia may recall that recently there was a report out of the World Bank entitled "Doing Business in the Year 2005." It was issued by the chief economist of the IFC, Michael Klein, and his team.

And what this report did is it took a survey of about 90-plus countries across the world and asked the question: if these countries surveyed were able to in effect incubate businesses in the private sector better than they do, if they shored up their political will and their governance, what would be the effect? And the report, importantly in my view, came up with the conclusion that, among other things, if they could get it right in governing for the lowest quartile of those countries surveyed, it could be the equivalent of between 1.2 and 2.4, 2.5 percent of GDP each and every year. Imagine.

Now, I raise this because I wonder if it might possible to express the price of governance, either good or bad, by taking an aggregate in this area or by focusing in on water. And so the question here is from your discrete angles – Jacob, you looked at the issue of political will. Certainly, Gordon, you know it from the standpoint of deploying capital and the question of risk premium cost of capital. Jerry, I mean, you look at this from a variety of different angles; and Janice, from the regulatory angle I think that this has relevance as well.

Is there any possibility that we could think about what – again, in the spirit of what Jacob was saying about thinking out of the box – that we could determine the price of either good or bad governance with respect to water stewardship across the world?

(Cross talk.)

MR. DAVIES: Gordon.

MR. BINDER: I don't think there's any question but that if you got the governance straight and the expression of political will, you know, that you would see increased investment by the private sector in water in countries perhaps even into infrastructure, which has been very difficult to do. So I suppose if you were a great economist, you could play that out a little bit and how much money might go into country X and to do what and so forth and figure out what they're lacking or what they're missing by not having that kind of governance regime in place.

I'm not an economist. I wouldn't pretend to do something like that, but I can assure you that from the standpoint of private equity and private equity investors that question of issues of governance and being able to function and do business in a country is absolutely at the top of the list.

Q: Is there a standard frame of reference, for example, a hundred basis points per level of governance that you can point to, Gordon?

MR. BINDER: I've never seen anything like that. In fact, even – frankly, I know of incidents in places like China where equity investors thought they had covered all their bases with, you know, contracts, local partners, and all the rest only to find out that local partners and the government were playing, you know, the investor off against them. And they got burned badly. I mean, it's – if you have open, transparent, accountable governments, you will see more private sector investment. I'm not sure you can put a number on it. I've never seen anything like that.

MR. DAVIES: Thank you.

Jerry?

MR. DELLI PRISCOLLI: Can I ask, Erik, would you be willing to say or ask the question another way, which is, can the investment in water itself become an investment in governance? Because if you ask it that way, I would think, at least historically, we can come up with a whole bunch of numbers and ideas. Now, I'm not sure that we're going to prove anything -- causality, but certainly persuasively we can because we have examples of this not only here but other places.

MS. BEECHER: I don't think these things are easily quantified partly because some of the benefits on the benefit side of these equations are very hard to measure and maybe are not even morally or ethically measured, you know, in terms of benefits. But I think you raise a really good point. I mean, the closest we come to that in the regulatory world might be the cost of capital, which is sort of an empirically valid measure – narrow, but valid.

And if you looked across, for example, in the States – and there's been some comparison of the U.K. and the U.S. in terms of investment trends based on perceptions of the regulatory environment – again, sort of a little more narrow than the whole governance structure. But there's been some interesting work actually looking at how

that environment does affect the behavior of utilities and their investors. In fact, I did a very back-of-the-envelope kind of a chart over 10 years looking at average rates of return in the U.S. compared to average rates of return in the U.K., and then when the U.K. regulator got kind of tough and brought that rate of return down, it pretty much correlated with increased investment activity in the U.S. on the part of the U.K. water systems.

So, you know, capital will follow the rate of return. Now, that's a very imperfect measure. I mean, if the rate of return is too high, that's obviously – that may not be, you know, good for ratepayers. I mean, so there's a, again, that balancing act. But if it's too low, capital may flow elsewhere if you've got a better deal to put your dollar. So I think, you know, that's one narrow measurement, but I think the metrics for this have to be much more broadly defined in terms of public health and environment. And it gets pretty tricky.

MR. SCHERR: Can I just add that when I think of governance – just a slightly different perspective – not so much from an economic standpoint in terms of the cost, but if you look at successful societies around the world, they've really figured out a way to engage their citizens in, you know, a very deeply and in a broad range of economic, social, and political decisionmaking. And so, you know, to the extent that you can do that in the water arena or in a general political arena, it sort of sets the stage for greater success across the board.

And so I would agree that – and I think what's been interesting is that at the Johannesburg Summit was really the first time led by the United States that people really started talking about the governance issue. And I think that we heard talk about the Millennium Challenge Corporation, and what's been exciting about that is, for example, efforts by Transparency International and other international institutions to kind of create indicators of governmental capabilities -- all of a sudden those things have real meat to them because there's something at the end of the day. So I think we're moving in that direction. I think it's once again trying to move from, you know, sort of some of these general abstract ways of dealing with issues to be more focused.

MR. DAVIES: Jerry has another comment.

MR. DELLI PRISCOLLI: Erik, you reminded me of another – sorry -- another historical example. I was taken also when I read the early debates of the TVA that while whether it was instituted to be the best of the private investment in the public so-called by the president after it got started moving, here's an organization that was regional, that was very comprehensive in its authority, based on river basin but for total social development; in other words, another form of governance. It was not a state. It was not a federal government. It was not a locality. It was something else, therefore a threat.

And what were the early debates around that by Congress? The most difficult debates were about the level of bonding authority the TVA had, which was what? Its independence to raise revenue. But it had great capacity to raise revenue. Why?

Because it was a poor area, but it was a successful place to put money and also a highly successful governing structure for a period of time.

MS. BEECHER: And I'll add that, you know, I mean, I was emphasizing cost of capital, but timeliness. Utilities – one thing a utility manager told me when I was just starting out as a, you know, regulatory staffer in Illinois over 20 years ago said, what utilities like least is uncertainty. They don't care if there's – all the regulators are Democrats or they're all green-eyed and red-haired, or whatever. What they want is a certain amount of predictability. They want an environment that they – where the process is reasonable and timely and so on.

So there's a whole bunch of dimensions like that that, you know, you could really try to quantify. And some of us have dabbled in sort of performance measurement – measurement is almost too strong a word – but performance indicators for the commissions. What are some of the things that they should work on? You know, and having some technical expertise, having a basic understanding of the issues, basic, basic education of what – how capital markets work and why this matters. And again, I'm putting a private investment spin on it, but it's public investment as well and just sort of creating that environment.

So I think there are things you can look at, but a big part of it in this field is having enough technical capacity within the government structure. And again, I mean, one of the best parts and one of the most challenging parts about this field is it's so interdisciplinary. You just really need to draw from engineering and law, and accounting, and finance, and public policy. So somehow those pieces have to work together.

And I think really in a developing context, training the future managers and public policymakers – that somehow figuring out a way to educate the next generation – so getting -- and this would be my university hat I guess, you know – but getting into the universities, working with programs, providing opportunities and technical sharing there - - I think that would be a wonderful goal for all of us as professionals and nationally as well.

MR. DAVIES: Comment, first at the end of the table?

Q: Peter Cook with the National Association of Water Companies.

I'm going to backtrack a little bit to the fundamental question of how can we successfully address the international water problems and related problems. I think all of these speakers today have raised many very valid points but they haven't exactly all come together, and what I was going to try and do was integrate them with a proposal.

My observation is that we don't have enough money and won't get enough money to fully address all the international water problems. So what has to be done in whatever program we put in place is to make a lot of very hard choices: how and where to spend

the limited dollars that we have, basically triaging what resources can be coupled together. And the criteria that we use for making those choices are going to be very critical, and I think this is what we should be focusing on. Many of these criteria have already been discussed by various ways by panel members.

First, is there a functional and competent government in place that you would have any chance of success with at implementing whatever strategy is appropriate? Second, there has to be an absence of pervasive corruption. You can't have so much corruption that everything is totally dysfunctional in the society. You have to have a recognition that the water needs must be met for economic growth to occur or at least there has to be an openness on the part of officials to being educated on this issue so that they can embrace this reality and this priority.

Other institutions have to be present that can be engaged, both secular and perhaps religious in certain parts of the world and so that it's not just the government by themselves pursuing the solutions. You have to have cost effective options available that essentially are compatible with the local capabilities. And I'm not talking about Western solutions for Eastern societies; we're talking about things that are simple, cheap, and doable by the local populations.

And finally, there have to be conditions that are favorable to the partnering with the private sector because they, I think, can enhance along with government the total solutions. And that basically means a private company has to be able to make a rate of return on the work that they're doing in an area. And there may be another half dozen things that have to be looked at as criteria. But I think essentially we're talking about an elaborate triaging process, a decision tree that would help us decide what nations to target because we're likely to get the most bang for the limited bucks that we have. And we have to make sure that we accurately look at all the critical factors. And to the extent you can quantify some of those and give people a report card, that might be helpful to decision makers in deciding where to put the money.

MR. DAVIES: Thank you. I'd like to invite our panel members to give that some thought to see if there are other pieces of this criteria for the triage process that you think are particularly compelling.

MR. BINDER: I was going to say, absent of emphasis on water, that's what the Millennium Challenge Corporation was set up to do: spend the money better. They came up with – I don't remember – 16 different criteria for how much money is being spent on populations, on health and education, and how long it takes to start a small business as an indicator of receptivity to small business enterprise. So things like that.

But that's what they were trying to do. I think there were maybe 16, 18 countries that qualified, and then there's another round that didn't maybe quite make it. But that's where the money is going to go so I think that's a very promising approach, and I suspect we'll see a lot more of it. And some of the things you've ticked off are absolutely central to the criteria they use. Again, they're not saying, spend the money on water, but they're

saying, you know, you've got to have the governance structure, company government and corruption issues and all that in hand or we're not going to put money – (inaudible).

MR. DAVIES: Jacob?

MR. SCHERR: I agree with what Gordon has said. But there may be another way of – (inaudible) – where, you know – you identified kind of a top-down look at various nations, and maybe – which I agree with and I think is important, but also what we might be looking at is ways of working with private voluntary organizations at the community level to not only build their access to safe drinking water, but also the capacity of these communities to sort of govern themselves more effectively – touches on a point that Jerome made earlier on.

So maybe part of the solution is, in addition to conditioning and making our government-to-government aid more effective, as well as look at expanding the work that we're doing – the private and volunteer organizations, and perhaps from private companies to work directly with communities who are seeking safe drinking water.

Q: My name is Eugene Stakhiv with the Institute for Water Resource Corps of Engineers.

I'm not a political scientist so I have a little difficulty following the arguments. The question is the political will to do what -- to spend money or to change governance? The World Bank and the USAID, for the last 20 years, have had a game plan in place to use the water investments to change governments. And I have worked with them in a large number of cases in some of the more difficult areas, and no matter how much money you invest, these are difficult places to change the governance structure.

They have done institutional analysis, they have changed the water policies, they have done national water management planning, they have done the investment priorities, and it's still very difficult to get the job done. So if you're going to change the governance, then the political will has to be at the ministerial level rather than at the – our level, let's say – the water managers level, which is what I represent.

And you really haven't made clear exactly what is it that you want do. And particularly since I've seen the World Bank and the USAID do a very good job in those incidents where they can do – I haven't heard anything new here that I haven't heard for the last couple of years.

MR. DAVIES: I think the – maybe I need some clarification. I have the sense that you're talking about situations where you are able to put together a very good plan and then it sort of falls apart because of the corruption or inefficiency, or politics in a particular country. I mean, if that's the problem – and I think if that is the problem, then, you know, the key is trying to find settings in which there is a very high level of commitment hopefully at the very top of the country to address those problems that are going to make it very difficult for the best laid plans to be successful, which means,

you're going to end up probably operating in a lot few countries than you might otherwise.

Q: My name is Gary Sappet. I'm with the Johns Hopkins University Bloomberg School of Public Health Center for Communication Program. We have been involved in some of the safe water systems and household treatment of water, hygiene, sanitation, and safe water programs in response to the Mitch Hurricane. So I would like to share a perspective and make a request from the bottom of the perspective.

And I think as we look at policy, it traditionally is a top-down view. And a lot of the discussion has looked at structures and infrastructure, and systems, and ecosystems – all of which are important. So we're not talking about relative importance – all of which are important if you want to address any comprehensive way the global water issue.

At the same time, our look at the world – it's not ministries of agriculture that produce food; it's farmers; it's not ministries of health that produce health, it's households. And I think it's extraordinarily important here that we not forget the households and the communities in any kind of policy equation that we're putting forth. Governance can operate a national or a federal level; governance can operate at a community level, and in fact the community networks are in and of themselves a form of governance and it's often the place where the rubber meets the road regardless of what the national and federal governments want to do anyway.

And so as I look at my history and family planning programs, reproductive health programs, child survival programs, you didn't just pick a top-down; you picked every avenue that was available that's usually combined a top-down with a bottom-up that you had some evidence and some proof, and some viability of kind of interventions.

And so I throw this out both for comments but really it is a request that whatever we do in terms of a policy approach, we don't lose sight of the end users. We have been doing some very interesting research with household treatment of water. It seems so simple. Yet one of the things that we have seen is treatment is episodic. You had a cholera outbreak, you treat your water; you have got a hurricane, you treat your water. As soon as those outbreaks and as soon as those crises end, you go back to drinking the same contaminated water and children continue to get sick and they continue to die.

And there are all kinds of behavioral issues and implications, which we are just beginning to work on in terms of predictors of sustained treatment of water use. And ultimately what we in the public health field want to do is create cultures of hygiene, cultures of safe water where it becomes everybody's responsibility and households do it because other households do it and communities support it because other communities support it.

And so I do think that as we look at these policies, much of what was done in healthcare delivery left prevention off and so the money went into the hospitals, it went into treatment, and it really did not go into some of the most basic low-cost high returned

intervention that can have an impact on public health. I want to make sure that we don't make the same mistake as we look at global water, where we are looking at the big ticket items, at the financial issues, at the policy issues, at the governance issues, at the infrastructure issues, and lose sight of the fact that if you can have some impact on behavior at a household level and a community level, people will take advantage of technologies that exist, whether it's boiling water, filtering water, or using high technologies like Pure to take matters into their own hands. We should factor that into the equation.

MR. BINDER: I want to go back to what the gentlemen from the Army corps raised because I have made some – ticked off some things. When you talk about political will, what do I think of? Well, one is priority for water on the part of the government – it shifts to priority – engage, mobilize various institutions and perspectives in your society; develop the plans, the legal frameworks, the regulatory frameworks – to find the sources of money using education and the involvement that – with your citizens and making an ongoing and sustained commitment in policies – on these. And I think if that were explicit, I would say that was an indication of political will.

I guess – we've heard an example of South Africa being one of the states for countries that has tried to make that – you know, to better – how they are doing I don't know but for better or worse they said it's in the constitution; they're going to be working in communities where they are supposed to do it. So that is what I would start to look for in the sense of gauging political will and they didn't see these people, then – (off mike).

Q: (Off mike.)

MR. BINDER: I'm saying that the countries themselves need to take it on. There are some things that the U.S. government and other industrialized countries can do but we are sure not going to solve problems halfway around the world and local communities get water; they have got to take this on themselves. So I'm saying political will in that country might entail a number of these elements. And from our standpoint, if you contribute money, we can contribute extra fees, training – all kinds of lessons and failures and success – we can share all of that. But it's really the countries themselves that have got to make the decisions. And you know, my list may be incomplete, but nonetheless I think that's the direction that they would need to go and I would say, they don't actually have the political will.

MR. DAVIES: Comment? Here at this table.

Q: My name is Craig Schiffries with the National Council for Science and the Environment. And I would like to explore for a second a scientific basis for U.S. water policies and I can share a conference last year that had two of these panel members as speakers – Water for Sustainable and Secure Future – and just four very simple points I would like to make that we might want to consider as an element of U.S. water policies.

One is the need to develop a robust set of indicators regarding sustainable water management. And if we have a goal in mind, we need to be able to measure our progress towards achieving that goal. A second would be improving data and monitoring systems, again, for sustainable water management. If you have these indicators, you need the data to populate those indicators and we need to make better use of current existing data sets and in some cases we need much better sets.

Thirdly, some of these problems require enormous investments and before we make some of these investments, we might want to – whether it's in wanting development goals, we need to consider the role of our – the adequacy really of our RND budgets as we try to achieve these incredible goals – do we need to increase on the investments on these areas and do we have a balanced portfolio of long-term and short-term initiatives, and both large-scale and small-scale projects to meet these near-term and long-term goals.

And then it's very important of course to integrate the social science and natural science research together in these kinds of initiatives. And then fourth and finally I would say there are many opportunities to close the gap between water science and water policy. A trivial example in the United States is most of our state laws treat groundwater and surface water as if they were independent entities. We know that they are connected through the hydrologic cycle and that a failure to manage with that in mind – well, then many cases, will lead to practices of unsustainable groundwater withdrawal and ineffective water management policies. So we need to create some science-based frameworks here.

So those points that came out of conference that I think are relevant here. And then I have got a fifth point that is consistent with several other speakers and that is the need for education and outreach – are the critical components for any policy that simple hand washing – that slogan, “Wash your hands; save your child's life” – I mean, that actually goes pretty far and people need to understand the importance of source protection for their own human health and the health of the environment – that kind of thing. So those are five points that I would throw for consideration.

MR. DAVIES: Thank you. Comments from the panel?

MS. BEECHER: No, I just really appreciate that anytime someone asserts that policy needs to be made on the basis of good hard science and good social science. I just think you are right on the point there and we have got to continue that. And I was a little concerned that the previous line of discussion almost sound like a tough love -- we're not got to help you if you don't meet our vision of what good governance is. We won't always know that we're absolutely correct on what that model might be.

So I think that maybe somehow pulling these ideas together that while, yes, we have to have some methods and rational approaches to allocating scarce resources to where they can really be beneficial and really have an impact. At the same time, I think there are some humanitarian and ecological, and – reference to Sandra who I think had to

leave – there are some other fundamental values there. It may be education; it may be some of these on-the-ground direct stakeholder assistance, and R&D – I’m so glad you mentioned that.

You know, maybe that’s where then some resources have to be allocated but not to forget that the implications of the household that happens to be located under a regime that doesn’t meet our standards of criteria is still a household that is suffering. And I think we have to keep that in mind and we have to figure out a way to provide some kind of humanitarian – even if that involves a long-term educational and cultural assistance kinds of roles through various governmental and nongovernmental organizations. I just think we have to pay attention to that.

MR. DELLI PRISCOLLI: Well, I do like the idea of trying to think of criteria and go back for a moment. We do need to think about what should the end of ODA for water expenditures, what should it be? Should it be a plan – a series of pumps? Should it be the same everywhere? Should it be – I think should be used as leverage because I know that it’s always going to be small compared to what is needed to do the things we discussed in these panels about getting governments to be concerned about water and so forth and so on. Should it be used as leverage?

And I will come back to one comment – suggestion they made in those slides. I like the idea of thinking about prevention damages not just a reaction. I mean, we have a hard time in this country. We have a flood and everybody – every Congressmen says let’s go rebuild and, you know – (chuckles) – we our organization lives in the middle of it and of course we go rebuild and the money is there and people say they shouldn’t be living in the floodplains and on, and on, and on.

However, if we couldn’t – if we could peel a little bit of money from the huge amounts that go to relief – and they would be targeted directly to the places, you know, that we’re discussing – and somehow figure out a mechanism with the World Bank or others – I’m not sure who – to create some mechanisms that would deal with the prevention of planning issues, I think we would be way, way down the line very far ahead in this area because some of the things we’re talking about, which is the upfront thinking, which is the kind of planning, which is the engagement of the communities, and all the rest of it – this could happen out of that kind of money. And that percentage, while low, would be huge for these activities.

MR. DAVIES: Questions? Comments? If not, I have one last one for the panel to comment on. Much of our discussion has focused around the scale of an individual country or even the scale moving down to the – to local sectors within a country. We have heard this morning about the number of the challenges that face us in terms of – and face various parts of the world in terms of regional settings – shared water basins where in fact the water resources of an upstream country are a critical piece, not just for that country, but for a much broader regional setting.

And my question is relative to the discussion we have had around governance, political will, how it is one motivates solution of this kind of complex issues, how does that change when you move into a multilateral setting and what should we need to be looking for in those kinds of settings?

MS. BEECHER: There are some lessons from air quality regulation, probably some good and some bad, or that people really like or dislike in terms of, say, emissions trading, markets, and things like that if you're looking for a market-based solution. And I think that there is something to be said for – you know, have been wearing more of my political science hat than my economics hat – but I think there is something to be said for looking for a reasonable allocation schemes that are market-based and I think that was one of your initial framework issues for this conference.

But I also think that even in this country our regional governance ability is pretty limited. I mean, but there are some good examples – the Delaware River Basin Commission might be one, the Great Lakes, which is also across border as well as cross-state – or international border. You know, I think this is – we are on the edge of something new here I think in terms of regional government solutions as well and there is some good work that needs to be done in terms of legal – both the creation of legally sustainable documents and then dispute resolutions for disputes that might arise under those. I think this will be a very challenge but certainly needs some attention. But again, having some commonality of understanding of what the problems are and what the reasonable solutions that – will help us a lot.

MR. DELLI PRISCOLLI: I'll take a crack at it. First, when you say trans-boundary and shared basins – shared basins aren't just trans-boundary of nations. They are within nations like we have. We have rivers here that cross state boundaries and we have tried seven types of river basin organizations in our country. Three or four of them have succeeded; others have not succeeded. But many of them have so my response to it is, well, we have a debate in the water community. If it's trans-boundary across nations is that the different than the experience of trying to deal with trans-boundary within countries, meaning, you know, in our case, cross states, but still within the federal government.

And my opinion is, yes, of course there are diplomats and others that are involved across nations, but if all we do is look at it across nations and don't look at what happened in the river basins within countries, well, you're not going to develop models and ideas, and creativity about how to do deal with the real sharing of sovereignty. So we should look within countries that have trans-boundary sharing among their sovereign entities even though that within one county, it's .1. The basin organization concept will not – in the 20th century, it keeps coming up, it gets beaten back; it's now in the form of watersheds and eventually watersheds will come back to the river basin nations.

And it's very important because when you look at the whole river, we understand something that we don't understand with air pollution or eco – what we may call ecosystems – people understand the rivers; they can connect to it.

We should be using some of these experiences. Sandra mentioned – no – when the World Bank mentioned the negotiations on the Nile – well, those ministers ought to be looking at what is happening in the Columbia River, and we're trying to make that happen – trans-boundary sharing – huge amounts of money being transferred because of upstream storage, downstream protections, cross-boundaries and even rivers that cross the boundaries a few times. We ought to look at – you mentioned the Delaware, the Susquehanna or the Potomac – the Title II river basin commissions, which were probably the best things we ever devised theoretically failed – or some say weren't tried. Why?

So my appeal on the trans-boundary is, yes, but don't think of it only as international. Look – the INBO organization has identified something like 300 members – river basin organizations and these aren't trans-boundary, across nations. But these are river basin organizations being operated by various people who are signed for this organization of river basin organizations, if you will.

MR. BINDER: (Off mike) – and that's exactly where I ended up, thinking it's not just trans-boundary and international. But if you look at appreciation of the resource and what's at stake – (off mike) – fail to address some of the concerns; mechanisms to facilitate discussion, dialogue and negotiation – money, technical input, time to let a process work, the right players at the table. But that is not just a matter of international trans-boundary; those could be local discussions that center around the resource. And I think the key is people begin to appreciate, here is a resource we draw on for economic value, whatever, and if we don't pay attention, we're going to have trouble.

So you want to get the right people around the table. And in a trans-boundary situation – and I think the global environment facility, the World Bank, has been doing this – you can get some good countries and they do focus on what we have to do to keep this water body healthy, and I think that we're having some success.

MR. SCHERR: I would add – I mean, I would probably agree with everything that has been said and I think that – picking up on sort of a point that Jerry made earlier, I think -- I mean, if you look at the history of trans-boundary disputes, they have a tendency to fester – in pollution arena, they have a tendency to fester sometimes for decades. And I think as we look forward, I think we end up with more trans-boundary water problems and air problems, and they may get more acute.

And it really gets to the question of whether or not we have to wait until we have the problems or whether or not we can look forward because it's quite clear that at least some of these problems can be ones that could have a direct impact on our national security. And the real issue is can we – do we have a capability within our own government – look forward to five, 10, 15 years and identify those places on the planet where these trans-boundary problems could turn out to be so difficult and so severe that in fact they would threaten perhaps regional stability or, more directly, our own national security interests.

MR. DELLI PRISCOLLI: It's important to note that I think when we look at basin organizations, not just across nations -- what I was trying to say is that we can find models, organizational models. That goes maybe to Erik's earlier question about the relationship of organization building. But you find organization models and you also understand a lot about timing, how long things take, that there are many forms of agreement, that you don't have to have everything at once, and on, and on, and on. And so it's a topic in and of itself.

But the main point I would make in this is that there is a richness in the experience -- huge richness of this dialogue between people, organizations -- there is trans-boundaries always cutting across established sovereign entities. A huge richness in building administrative structures, the relationship of people and water, and technical and political -- the use of information and it's a gray laboratory to look for.

MR. DAVIES: Thank you. Before I turn this over I would like to ask Erik Peterson to comment on where we will be going tomorrow. I would like to talk about where we are going tonight. (Scattered laughter.) I want to remind you that Jim Thebaut will be here tonight and we will be screening "Running Dry" here in this room at 7:00. There will be people up in the lobby to make sure that you can make your way back down -- find your way back down to this room. And I think it will be a great opportunity to see this new documentary that has been put together as well as your comments from Jim about the experience of doing that.

Erik, do you want to comment on tomorrow?

MR. PETERSON: Peter, yeah, let me weigh in support of what you just said. The images that we saw as part of our presentation at the beginning of the day today are lingering as we talk about in more conceptual terms about many of the challenges that we face. And I would encourage you to animate the discussion we have had here today by coming to enjoy this film tonight. I believe it's about 55 minutes and it's quite extraordinary, from everything that I've heard, so you would be more than cordially welcome.

Tomorrow morning we will shift gears. We have talked about partnerships here from a few angles, but we'll focus square on this issue tomorrow morning. We'll begin by getting the view of the president and CEO of ITT, Steven Loranger at 9:00. And then we'll move into yet another outstanding panel, this one consisting of Jeff Seabright, Coca-Cola; Greg Allgood, P&G, who has waged a global campaign with that Pure product that we saw demonstrated this morning.

We look forward to hearing Steven Werner from Water for People talking about the NGO community -- again, how we get different forms of social organization to work together. And finally, with an assessment of international organizations and frameworks, we have Ambassador John McDonald. Then we have Karen -- I hope I can pronounce her name -- Krchnak, with Davos International. So we have another superb lineup and speaker. So we look forward to having you with us.

And then at the end of the morning we probably will be reading a statement from Senator Frist, who probably will not be able to be here in person but who feels very strongly about being engaged. And I'm delighted to report that a number of other members of the Senate, and we hope the House, will be engaged in our deliberations next time around. I think we have a good chance of having Senator Frist, and Senators Domenici and Bingaman have both agreed to speak in March.

So we have much more coming. We would like to thank again – to repeat Peter's thanks to this panel, and we look forward to seeing you tonight and the first thing tomorrow morning, 9:00. Thank you.

MR. DAVIES: Please join me in thanking the panel.

(Applause.)

(End of session.)