

**Federal Reserve Bank of Chicago**  
**Fourth Annual Summit on Regional Competitiveness**  
**November 17, 2016**  
**Watersheds as a Mega Region Unifier**

DAVID RYAN: Water knows no boundaries, and a 21st Century vision includes working across political lines on water, wastewater and stormwater issues. This panel will explore game changing watershed policies, projects and programs. The discussion will reinforce how a comprehensive plan can unite the region, addressing challenges and implementing solutions.

We couldn't ask for a better panel moderator, Mayor of Racine, John Dickert. One major asset Mayor Dickert believes Racine has is what he calls our greatest natural resources and gems, our lake and our river.

Racine is home to the best tasting water in America and Racine's -- sounds like a chamber of commerce. The lake and river water are rated some of the cleanest in the world. He serves on the Board of Directors for the Great Lakes and St.

Lawrence Cities Initiative and the U.S. Commerce of Mayors Water Council. Currently he serves on Governor Walker's Wisconsin Coastal Management Council which provides funds to communities seeking to implement coastal initiatives.

We have one small change in the program. Following the panel presentation, Kelly will come up and we have a speaker between lunch and the last presentation. So don't bolt after Mayor Dickert is completed.

So, ladies and gentlemen, watersheds as a megaregion unifier, Mayor John Dickert.

MAYOR JOHN DICKERT: Good morning everyone. Morning.

(Chorus of good morning.)

MAYOR JOHN DICKERT: Come on now. In Racine we eat Kringle. It's a state treat and we make it there so when we eat it, you get sugared up. So good morning everyone.

(Chorus of good morning.)

MAYOR JOHN DICKERT: That's what we like to hear. First of all, I would like to thank Kelly, who has done a magnificent job as always, and her team, who has put this together. So thank you for being here, and we really

appreciate seeing you and having you part of this conversation.

You know, we're talking and I'm hoping I'm going to get this right. I didn't get the course in the clicker, so I'm hoping that -- oh, there it is. Okay. So I figured it out. So what we're going to be talking about today is our watersheds. And one of the things we look at as mayors is what are those watersheds and what do the aquifers look like. And more importantly, what does the future look like.

Well, this is a NASA map of the aquifers around the world. And what it shows you -- and you can't see it too easily, but what it shows you is anything that is not dark blue is in trouble. Many of these aquifers have thousand-year recharges.

So what is happening is while we are seeing water on our level, lakes, rivers and streams, we are forgetting about what is going on below us. And what is going on is people are drawing down water at such an intense rate that they're creating a devastating future.

The second thing that we see is this: It's a map of the United States, where for the most part we have recognized that

people are moving over the last decade to areas with the least amount of water, which is going to cause a problem because people like to have water. Industries like to utilize water. And if you're trying to create a food processing center, Lord knows you need a lot of it.

So as we see these two things happen we look at this, water supply issues. Red is bad. So if you look at where red is as compared to the map of where everyone is moving to, we have a little bit of a problem.

So what are we going to be talking about today? We're going to be talking about the fact that the Great Lakes, the region that you are in right now if you were to head due north into Canada, the third largest economy in the world.

If you're going to talk about how we're lagging behind, which is what the OECD report talks about, and how we're going to start making that up and start rebuilding this economy, which in the Chicago metro region if you haven't heard is not only a lagging economy, but can be one of the most impressive and strongest economies in the future if, if we do it right. If we don't, there is one thing I can guarantee you: We know where we will be if we don't. If we do, we have the

opportunity to be one of the greatest regions in the world. So do we continue on this path or not?

We've brought some panelists together today. We are going to start talking here with these professionals about what does this future look like. Because as we know, water does not see boundaries. It does not see lines. It doesn't stop between the Cubs and the White Sox. It moves. So we are going to take a look at that. And we are really honored to have the guests that we have here today.

First, Suzanne Malec McKenna. Suzanne, Executive Director of the Chicago Wilderness, a regional alliance of more than 200 organizations that preserves and improves and expands nature and quality of life in the region. She really has an emphasis on natural resources and water quality, which is something that's imperative to all of us. But also, she is going to talk about how it intersects with the business community and development.

She helped to oversee the implementation of the Chicago Climate Action Plan and has worked with the Morton Arboretum to initiate an urban forest strategy. So bringing the environment together with our businesses for a better

community is what we'll be talking with with Suzanne. And I want you to welcome her, please.

Jack Wittman is the Vice President of the Midwestern Division of Intera. He works with water resource consulting, water supply, planning analysis all over the county. He has 30 years in groundwater consulting as a groundwater hydrologist and an expert in this area. He's worked with the Indiana Water Resource Association and been appointed to the Governor's Water Shortage Task Force. Thus, the pictures and the conversation.

The comprehensive approach is what Jack is looking to bring to watersheds, which is not to allow us to really follow any lines, but really to work in our municipal jurisdictions together. So let us please welcome Jack.

Tricia Braun, Chief Operating Officer of the Wisconsin Economic Development Corporation, WEDC. She served for 15 years as an economic development leadership in three states actually. She's been in Riverside, California, which is just a little bit west of here. She's worked in community development in Zumbrota, Minnesota; is that right?

TRICIA BRAUN: Zumbrota.

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MAYOR JOHN DICKERT: Zumbrota, Minnesota. Okay. Just to the west of us. And the Executive Director in River Falls at the Chamber of Commerce. The amazing thing that Tricia brings to us with her broad range of experience is how these economics work. And as we say, she has been one of those few people that has actually been at 10,000 feet to look down upon us to see how it works in different levels. And we're hoping to hear her view of how we work together on a region. Please welcome Tricia Braun.

And now, David Garman. What can we say about David? You'll notice a slight twinge of an accent. He's not from the south side of Chicago. He's actually from Australia. He's presently Associate Vice President, Water Technology and Research and Development and a founding dean at the School of Freshwater Sciences at the University of Wisconsin, Milwaukee, the leading establishment of the new water research programs for the industry through the Water Council, which is also located in Milwaukee.

His research is directed to the environmental issues both nationally and internationally. And you'll hear about that today. He's recently completed a number of small projects

with the Wisconsin Department of Commerce in technology transfer and translation.

David really brings together trends, the technology and business commerce to solve problems. But David has that opportunity and that experience to not only look at it here in our area regionally, but also internationally. So please welcome David Garman.

So just for a little heads up, we're going to hear from each one of the panelists. We are going to leave plenty of time for questions. So please welcome these folks and let's get to work. You're up, Suzanne.

SUZANNE MALEC MCKENNA: Good morning, everybody. I'm really excited to be here speaking to this organization. I've become a big fan of the Alliance for Regional Development ever since Steve Schlickman sat next to me at a luncheon and told me about it, and then brought me in to meet with him and Kelly and learn about all that you are doing. And I thank Kelly and Steve and Shalora and Greg for their leadership in this effort and during a really incredibly important time and opportunity in this region.



What I want to just tell you -- and I'm supposed to go to that somehow? Pardon me? On the right? Nope. Okay. Somebody gave me a link, but I'm not sure how to get there. Unless I touch the screen. Nope. Our friend is going to come over here and I am just going to keep going and then we'll have pretty pictures that go along with it at some point. You know, apologize for that commercial break.

So we are a regional effort as well. We have a great overlap with the Alliance for Regional Development. And -- there we are, as a matter of fact, as we were saying. Thank you. Wonderful work. Let's give him a hand. God love those tech people.

So we are Regional Alliance and we focus on preserving, improving and expanding nature and quality of life in the region. And I always point out the word expand which may sound a little different than preserve. It is because it's about looking at all of our lands that could have greater benefit to nature while also giving greater benefit to the quality of life in our region.

And this is our region. You'll see it's quite like Alliance for Regional Development. 200 plus organizational

members, 4 states, 38 counties, 10-plus million people, 500-plus municipalities in the region, gross regional product, 575 billion plus. I don't totally know what that means completely, but I'm learning. And the importance is just the whole aspect of the relationship between economic development and our natural resources in the area.

So here is Alliance for Regional Development and the Chicago Wilderness Region. So it's lovely this overlap and this connection because I think the connection between Natural Resources Management, specifically water and economic development and quality of life, is so imperative in our region.

And, indeed, just in our water effort alone thus far we have about 60-plus organizations who are engaging with us. First of all, our regional planning organizations who are here, NERFC, SEAMAP and SEWRPC who've had really active engagement and we're so thankful for them and their expertise. As well as, you can see, nonprofits, businesses, counties, the farm bureaus.

It's just a really important point in time. And the fact that these organizations want to come together and collaborate

says something. It says something about opportunity. It says something about challenge, and how we might be able to have multiple problem solving going on at the same time.

So we got a few challenges here in the region, not surprising, around water. And those challenges overlap and are throughout the region.

We're talking about groundwater. And we're talking about that important aspect when you tap more of Lake Michigan, the cone of depression comes up; but there is only so much you can do as we have continued sprawl. So how do you address all those issues which include water quantity and water quality, which impacts both businesses and residents and farms, et cetera, and come up with a solution that is regionally strategic?

Well, what you do is you bring together all these players we were just talking about and you look at the range of issues that are like the range of players. And so President Preckwinkle was talking about the truck -- the roads and the ability to bring trucks on them. In the city when I worked for the City of Chicago, we tried to get an industrial truck route through an area in Calumet. And if we had done it, it

would have improved the hydrology of those wetlands and ecosystems. It didn't happen. And, of course, the trucks go around the city as a result. Which is great in some ways, not so great for the local economy.

But when you start looking at all the different challenges we have in the area and the opportunity to bring those together, that's super important. And we need to think about those multi-stakeholders and how we can look at these issues and do kind of multiple problem solving if you will.

So here's my favorite map, which I just begged to let me put in here. So thank you to everybody for allowing that drama. We just finished this last night. And it's really the importance of showing the data and the challenges and how they interconnect.

What this shows throughout the region are the range of regulatory challenges that our municipalities and our businesses and different landowners have. And they're related to nonpoint discharge elimination system, aka water regulations, at the federal and state and even local levels.

What you can see is there's something in common across this region. We have major dischargers. We have minor

dischargers. And they're all regulated. And what we've been seeing in some really strategic problem solving oriented opportunities is that we can be more productive if we align our missions.

And regulatory work does not have to be punitive. Regulatory work as we work on it can be supportive. It can keep businesses. It can save money. It can protect the environment. And where I came from at the City of Chicago Department of Environment, that was our focus. It's not -- let's not push people out of business and cause them more costs. Let's bring about the compliance they need and make it economically viable. At the same time, this happened to be good for the environment while we're at it. So that's not a bad thing when you think about all those combinations together.

So what we need to be thinking about is how to pull all this information together. And while our previous speaker said boxes aren't sexy, I personally think they are. I think data is sexy. I think data is really sexy. I think supply chain is sexy. And transportation is sexy. And economic productivity that connects with environmental is super, super,

super sexy. So as is last mile infrastructure. But there's so many things that just make this a really sexy thing. So I think I made that point.

You add to it another layer of information and you look at our transportation infrastructure. Whether it be a county highway, a local highway, a tollway, the railroads, utility corridors; all those things together represent a ton of land.

And our property manager, Jones Lang LaSalle, who spoke earlier, really talked to that, the millions of acres of land that is either productive or could be productive through infill development, but also the opportunity to look at all those lands and how they interconnect, again, by achieving water quality goals in an economically efficient way. Because as you saw, there are a lot of regulated organizations there. And we can help them by working in partnership with the U.S. EPA, the state environmental management groups, et cetera.

So this really just brings together for me what we think about how we work, and I think it's a lot like Alliance For Regional Development. We don't have to be the brilliant entrepreneurs. They exist out here. The businesses, the leaders, the strategists can be the brilliant entrepreneurs,

and they are. We need to be astute, well informed, strategic. We need to be an engine of productive collaboration.

And I think that brings around -- we are talking about Romeoville and the city just over the border we were just talking about it, Pleasant Prairie. I've ridden my bike through there. There can be healthy competition. There can be collaborative competition. And I think by solving these challenges together, we can achieve that.

So I look forward to building a productive collaboration with all of you. And I look forward to continuing to build a very fortunate megaregion that has a lot of opportunity going forward. Thank you.

JACK WITTMAN: I am going to have to rethink sexy. That's what I am going to have to do. I need to -- yeah, switch this. This has been an eye-opening discussion about economic development and I'm -- I am loving it.

What I am going to talk about is how water policy developed in Indiana. And in a way it is a model for how water policy can bring together the conversation, the players and the region in a way that is different than has been discussed in the past.

In Indiana there's really been a chronology that leads to policy development that's affected by water availability. And everyone around the country knows that you never waste a drought. If there's a drought you have to attack the policy problems soon.

And in 1988 we had a pretty severe drought. And just prior to that there was a Water Management Act passed in the state. And since then there have been -- there's been water shortage plans. I've been a part of that discussion. And there was another drought in 2012. And further development has been occurring since that time.

But really, the development of policy on water requires data about the resource in a way that is different than what might be thought of in other areas of policy. So the question that I'm trying to answer and ask and answer is really, who uses water in Indiana and what is it used for?

So if you look at the state, what we have is a map of the state with little pie charts in every single county. And the pie charts are color coded according to the user of the water in that county. So the blue in the middle of the state is used by primarily community water supply systems. The green



that's in the northern part of the state and the Kankakee basin, that's agriculture. And red is power plants along the big rivers. And then blue -- or excuse me, brown, which is up in the region in the northwestern corner of the state, is industrial use. And these are all very large users at least in the on the perimeter.

So if we know these are the different users, are they really competing or are we really sharing? That's a critical question. So if we take all of the use in the state of Indiana and we compare the users just by these bubbles, these sizes, energy is the biggest user of water in the state of Indiana with the close second being industrial use. Indiana is a manufacturing state, so it makes sense.

Public water supply is the blue dot. And it's relatively small. And that little green circle, that's agriculture and irrigation -- or that is irrigated agriculture. So the total is three million gallons, is the total use that we're looking at.

If we only look at groundwater, the picture changes. So the surface water is flowing by. People are using it for generating power. They're using it for cooling water. But

groundwater is a different, older water that's in the same state. And public water supply becomes the big player that's much cheaper to treat and deliver. And agriculture then becomes at least visible. So the other two users of water are really using surface water, which is a different time scale, different temperature, different problem than groundwater supply and management.

But, in fact, the real question I think that most people who worry about water and water supply are concerned about is what are they -- who is using the water when everyone needs it and there is a shortage? This comes from my work on the shortage plan.

If you think only about the summer and say who is using water in the summer, the picture changes. And it shows that agriculture is one of the biggest users of water besides the public water supply. They actually compete during the summer.

The reason is this. The reason is that while irrigation has been declining in the United States, it's been increasing in the Midwest rapidly. So irrigation water use is one of the new big players in this part of the country. Maybe not, you know, directly in Chicago, but in the vicinity of Chicago. So

the changes in irrigation have kind of changed the discussion about who and why water is a critical resource.

Flint, Michigan, changed the story in this discussion everywhere. It's the simple syllables that can be uttered in the legislature that gets everyone's attention. So legislative action around Flint has been something that has happened in all the states. People are concerned about what the future really is going to bring for infrastructure. And I think that it's going to change in water as well.

Some of the things that are opportunities for regional cooperation are these systems that I'm showing here. The Kankakee basin flows from Indiana into Illinois. It's an important basin for many reasons, water supply and other users. The aquifer that surrounds the area is all pumping ancient basal water, none of it recharged in since the last glaciers. That aquifer is supplying the communities that are growing with the e-commerce. It's probably not something that is sustainable for a very long period of time as it's being used.

Tools, methods, demand forecasting can be shared and made regional to really make a better -- draw a better picture of

what's happening and what the future holds. And data is I think crucial to the discussion as well.

I'm just -- in this slide I'm simply showing that all of these basins in the state of Indiana have different characteristics and different users. And I think the same applies as throughout the region. Each part of the region has its own separate collection of users.

So with that I'm going to hand it to the next speaker. Thank you.

TRICIA BRAUN: Thank you. Good afternoon, everyone. Tricia Braun again with the WEDC. Incredibly honored to be here today with all of you because, you know, as my panel appears, I'm from government. These are experts. A little humbled in fact to be among them.

But what I think is important and what you're hearing from everybody is that this collaboration and partnership between your government, your universities, education, academia and your private companies is incredibly not just critical, but required in order for us to be making progress on this. And so my focus will be on the Global Water Center

in Wisconsin and the impacts that that is having and the momentum.

Most of you -- many of you I know know Dean Amhaus, who is the President and CEO of the Water Council, who is traveling and can't be here today. So I am giving this presentation on his behalf, but he truly is I would consider him kind of the father of this, the ambassador, the champion. And so I'm a mere cheerleader. So kind of bear with me as we go through it a little bit.

So Milwaukee is a natural fit for the location of the Water Council and this industry cluster. The Native Americans, back in the day, Milwaukee actually came from their terms for gathering place by the water.

So if we look back at the state's history and we had, you know, the French that settled Wisconsin first, quickly followed by the Germans. And so with that was the establishment of several large breweries in the state, canneries, manufacturing facilities. And so there had to be suppliers in that area that provided those necessary -- the necessary equipment to make their companies work: the meters, the valves, the pumps, the pipes, et cetera.

So now while those breweries have somewhat reduced in scope and size, the companies that were their supply chain have actually grown. They've diversified. They've innovated. They've created new companies. And today Milwaukee is actually home to over 150 water technology companies, including the world headquarters for several of the global operators.

The interesting fact about that is that up until about 2009, there really wasn't a NAICS code. As many of you probably know, that is specific to water technology. And so they didn't really realize that this cluster existed until that research had been done. And it was at that point that the private sector leadership, you know, A.O. Smith, Rexnord, VAG Armaturen, decided that there was a real opportunity to create something special in the Milwaukee region and form the Water Council in partnership with our higher education institutions and the state.

In 2011 they decided that there should be an actual building or a center, a place for all of this collaboration to occur. And so with a grant from WEDC, some assistance from

the Milwaukee Redevelopment Authority and private sector investment, the Global Water Center was completed in 2013.

This facility actually went into a very blighted area in Milwaukee. It was an old cardboard box manufacturing facility. And so today with 98,000 square foot center is really the only one of its kind in the nation that also serves as this collaboration space for these companies that would otherwise be considered competitors; but then also an accelerator for new and startup companies, whether they're coming they're just entrepreneurs or they're coming from one of the research institutions or from the companies within themselves.

It also houses some support services from attorneys that provide IP assistance to the companies from -- WEDC has an office there. The Regional Planning Commission has an office. So some of the support organizations as well are located in this space.

Within the accelerator, which we've called the Brew, there are up to six companies that can be going through the accelerator program for six months at a time.

And so just a few stats based on the success of that accelerator. They've had several pilot projects. And, in fact, I think there's been over 100 pilot projects that have been launched through those programs and two and a half million dollars of private investment in addition to SBIR and additional government assistance from our assisted programs.

So after the success of the Global Water Center, which is essentially completely full, it was determined that we needed to continue this investment. And there was a delineation of a water technology district that expanded the footprint of where, you know, these business -- where the cluster would kind of create.

So with this what they call an ecoindustrial zone, which in addition to some tax increment financing it also includes urban bio spills, rain gardens, the purple pipe for the grain water, demonstration sites, pilot project locations for some of the companies. And then the possibility of over a million square feet of office space for water type companies.

The success is -- is not only shown in the infrastructure, but in the momentum that has occurred through that. Between 2012 and 2015 as the Global Water Center was



getting off the ground, over \$210 million of private sector investment went into it. And since then we've had the announcement that Zurn Industries, which was acquired by Rexnord, has established their headquarters there.

We've also, like I had mentioned before, begun the redevelopment of Global Water Center II, which will be kind of the landing place for the Brew graduates. And then the future construction of Water Tech I, which is the first of the private office buildings.

And then as we look forward at the end and as we have become this globally recognized water hub, we continue to see increased interest from other countries and companies within other countries. In fact, last year we had 47 different countries represented in -- that visited the Global Water Center. And companies from France, Canada and Ireland have already opened up in the facility.

So I'm seeing my time card. So I'm going to turn it over David Garman, who is going to kind of recap some of this.

DAVID GARMAN: So we've heard a lot about the environment, groundwater, business and the interactions with

water. What I want to do is to take this one step further as a preface to the theme of this looking over the horizon.

We heard Jack say, never waste a drought. I think it's more general than that. Never waste a crisis, particularly in water. Some of these are drought. Some of these are floods. Some of these are water quality. Flint is a classic example we've already heard. And really what we're talking about is these are not isolated. These are fully integrated.

So what we're talking about is do we understand our water resources. We heard about the lack of data. How do we treat our water? Badly most of the time, I think. We deliver water, use water, retreat water, return the water to the source, and keep that as part of the water cycle.

This water cycle as we've already heard is not a respecter of state or any other boundaries. In fact, if you look at the catchment for the Great Lakes, it doesn't coincide with the groundwater catchment. This is important in terms of understanding the whole of these processes.

If we have a look at how we manage water, more recently with the smart water systems putting in green infrastructure, reestablishing ecosystems in Milwaukee; the overflows into the

Great Lakes from the CSO's, combined sewer overflows, have dropped from nearly 100 to under 5 and this year it's 1. And that was a touch and go 1. It could have been zero.

What we're showing here is smart infrastructure, smart cities. Data, information and where we're going. So that this one water means we have to get away from separating our drinking water, separating our groundwater, separating our waste water. Thinking of agriculture as being over there, not part of us. And urban stormwater as a resource, not simply as something which is either got rid of or just a nuisance.

If we go to the IWA, they think of this in terms of water wise cities. But the water wise city is not just the city; it in fact deals with a catchment as a whole.

So what is the vision for this? Let's think. If we put our resources together, we have the industry, our concentration to the north. Indiana and Chicago are two of the greatest water users. We are integrated into a food and beverage industry, a manufacturing industry, and our biggest resource of the lot is the lake. Are we looking after the lake? Yes and no. Are we -- what's going to happen as we see changes? We are really moving all over the place.

So the vision that I see for this water is that this region becomes the epitome of wise water use. We have the industry. We have the smart systems. We have the data. And we bring all these together into a fully integrated system which meets Suzanne's needs, meets Jack's needs. It meets Tricia's needs, and even John can continue to say we've got the best water in the U.S.

So altogether, let's bring this together and say, let's think of the future. This is future technology. It's sensors. It's networks. It's information systems.

It also means new financing. We've heard a lot about infrastructure financing. Water infrastructure financing conservatively comes out in the -- at \$3 trillion. We're not going to be able to do that with existing financing. So we have got to start thinking about using smart financing. And there are things around this which are going on now using green infrastructure bonds, looking at avoided costs. We can't replace things as they are.

The future is a new paradigm in water management which will benefit industry, agriculture, the cities and everybody else. And this is where I want you to start thinking how do

we make that future paradigm come real using all the inputs you've heard today. Thank you.

MAYOR JOHN DICKERT: Okay. So we want to start with questions because we think that this not only a hot topic, but one that is going to draw at a least some questions and concerns and -- even more in knocked-over water. Dr. Hill.

DR. MARK HILL: Thank you. Dr. Mark Nolan Hill, Highland Park. Mayor Dickert, may I please ask you a question and then you sort it out with the panel as you feel?

Mayor Dickert, when you were chair of the Great Lakes and St. Lawrence Cities Initiative you brought energy, enthusiasm and education, which was clearly disseminated in our organization following in the footsteps of Mayor Daley who founded our Great Lakes St. Lawrence Cities Initiative as well as his worship David Miller, who is cofounder and former Mayor of Toronto.

In a symposium like this, the information similarly is disseminated. In my day and night job as a surgeon, I have the opportunity to chitchat with my patients and take the pulse of their interest and knowledge of what is going on with the water processes and the issues we're talking about.

And Miss Malec McKenna used the word well informed. And, Chancellor, you used the terms understanding and management of water with a new paradigm in processes.

So, Mayor, how can we disseminate this information to the community, to the schools, to the young college students, in addition to groups like this and the Great Lakes St. Lawrence Cities Initiative and groups that these fine folks are associated with? How can we do that, sir?

MAYOR JOHN DICKERT: Sure. So I am going to turn it over first, Tricia, you are going to get the first piece of this. I'm going to forewarn you in advance.

I think the first thing that is the most imperative thing that we need to do right now is educate. And you've seen that in our work in the Great Lakes St. Lawrence Cities Initiative when people said, why are microbeads a problem? Well, because fish eat the plastic and you eat the fish.

So how do we stop that? Well, we start talking about the products that we're using that contain them. Or what do we do to educate people about pharmaceuticals and how it's not okay to throw them down the drain and how to dispose of them. Why? Because those pharmaceuticals are getting into our water and

virtually changing the species of our fish in the Great Lakes if not killing them.

So when we start to educate people on the basics of these things, why not to throw oil down your storm water drain? Because it's going to get to your lake. Why we have certain regulations that make sure that you keep your water going out of your wastewater plant better than it came in.

When you start educating people on what is the end-game of that water, how no matter whether it's from the watershed or from your waste water treatment plant, those things are going to directly impact you or maybe even your kids.

You can't swim on the beach today. Why? Because we've had a very large storm and it washed out all the junk sitting in your storm water.

When you start educating people on the basics of how it's going to directly impact them, I think then people start to change their attitudes. And then you hope and pray that they start changing what they do every day. So I think that's part of it. The education oftentimes I find when we're educating individuals they say, I never knew that.

Now, we have a lot of very smart people in this room. And they do know that, but for the most part, the average individual does not know the answer.

So, Tricia, I'm going to start with you because I think it's important when he talked about how this relates to individuals.

TRICIA BRAUN: Well, and I think, I don't remember -- one of the speakers talked about kind of the old -- not old school, but traditional economic development. And we are in this new paradigm now. So it's not just educating the companies and looking at kind of that what we would consider the future entrepreneurs, but starting even younger than that and working with our schools. And as we're talking about collaborations and resources to make sure that they're part of the conversation.

Because I think with the Midwest we have a great opportunity because of what's happening, because of the work that these folks are doing and my friends at the Water Council that they would have the opportunity to be a part of it. And so I think that that adds another element to the conversation of not just building awareness, but helping them see how they



can be part of making these changes for our future generations.

That's sort of I think, not water is one industry where this is impacted, but I think those of you that are in government or economic development can think of it in a number of different ways especially with its manufacturing or the traditional industries that supported our economies in this area and how we can effect change and improvement through those.

MAYOR JOHN DICKERT: Anyone else? Jack.

JACK WITTMAN: Yes, I think that one of the really important problems that we face is that we do not pay for water. In the Midwest we do not pay for the water, we pay for the pump. We pay for the guy who has to run the pump. We pay for the chemicals to clean it. We pay for the sand for the filter. We do not pay for the water. And that is a problem.

Because we have been blessed with so many and abundant resources, we imagine that it's free. That it's like the air. And it's not any longer like the air, that my use of this air does not affect your ability to use the amount of air that we

have in the room. That used to be the case with water. It's no longer the case.

And one of the problems that we have is that we should pay some kind of nominal amount of -- a few dollars per million gallons would change this, and that would educate people quickly. I promise. A few dollars and I'm talking low single digit dollars per million gallons of water would change everything. And that it is a politically I guess difficult thing to do, but we're paying for it anyway. We're going to pay this price. It's time for us to like integrate that information and use it differently because we pay for it.

MAYOR JOHN DICKERT: Suzanne.

SUZANNE MALEC McKENNA: I just want to go back to what the Mayor was saying about how do you get the word out. And we talked about a range of ways here. And I think we spend a lot of time talking about our future and our children and our students, which I think is very important, but I like to think about today's population: those children's parents, the businesses and our elected officials.

And I think it's really incumbent upon us to organize our communications and work those communications through those

hubs, the Mayor's Conference, Great Lakes St. Lawrence Cities Initiative, our government bodies, you know, the way they're organized, the businesses and the engineering associations, et cetera.

And if we do that together and have a common platform which uses that mission alignment of -- which I think we all agreed, water quality, water supply, and what the critical things are that need to be done, I think we're going to achieve much more than a broader campaign. Because we're going to get to the practitioners.

And so I think we've got a lot of knowledge in this room and I think it's about how to recoordinate and align the critical things that need to happen that we all believe can happen and still have a sound economy. I think that's really worth us investing in.

MAYOR JOHN DICKERT: Okay. Other additional questions?

DAVID GARMAN: Yeah, can I have a go?

MAYOR JOHN DICKERT: David, are you jumping in? Come on, you got to let me know. I can't see you back there. Go ahead, David.

DAVID GARMAN: Thanks. This education aspect is really significant. I really think you've hit on something. This coming year we'll have Seth Siegal, who wrote *Let There Be Water*. He'll be in for the year in Milwaukee talking about water policy in the U.S. And this is where it comes down to it.

His book has been a best seller now on the *New York Times* Best Seller List of nonfiction in the environmental area I think now for something like 60-odd weeks. He took Israel as an example to say how they tackled their water issues, which were a combination of water quality, water quantity, how they're managing it, and how they are moving towards restoring the dead sea and doing various other things.

But what that boils down to -- that is one aspect of that communication. It is -- I agree, it's going to the school kids. It's going right from that word go. It's involving people. Citizen science. How much do we know about the water quality coming through the taps, for example. How much are people aware of what that is?

If we had better senses, better information, people would know and people would be complaining, let me say, every so

often. But we divide things up. And by dividing things up, whether it's the water, the wastewater, the ecosystem management. And between administrations and everything else, nobody gets the big picture.

And I would come back to this: It's going to take a ground swell of informed citizens to make a difference. And I believe that education whether it's at the graduate level or at the primary school level to actually make -- and even kindergarten, the kids will tell you to turn the taps off.

And it is going to be those sorts of things and the links at water energy nexus we start becoming more sustainable societies. We start thinking about how we're managing the whole of our economies and not just thinking about a bottom line.

MAYOR JOHN DICKERT: If you haven't read Seth's book, I suggest getting it. It's one of the most incredible reads I think I've ever had and also incredibly enlightening. Sir.

MARTIN MARCUS: Yes, I'm Martin Marcus, an economist. And I was delighted to hear Jack talk about pricing. You talked about policy in Indiana, but I know of no pricing policy in Indiana. I believe -- that there is policy of any

sort in Indiana is a surprise to me. But there is another issue, and that is who owns the water?

It's very difficult to set a price on something if you don't have property rights. So policy, pricing and property rights are three P's for you to consider. You've got the pod now.

MAYOR JOHN DICKERT: Jack, you want to start?

JACK WITTMAN: I knew I would get someone's attention. I'm glad it was Mr. Marcus. This is great.

As it turns out, waters of the state is a term that can be applied directly to the waters that flow through the state or are beneath the state. When there are no water rights, it is the state's responsibility to manage the resource for the public good.

So in Indiana there are three reservoirs that were built by the Corps of Engineers in the southern part of the state. And those three reservoirs, if a community uses water out of those reservoirs, they have to pay \$33 per million gallons because there was a deal cut with the federal government about the dam height and they should pay for this if they use it.

Okay. So there was a precedent set already and a number, a weird number, but a number, \$33. I have no idea where that came from. And so there is a place to begin the discussion.

Waters of the state have to be -- the state has to assume responsibility for this crucial resource. I think of water resources as being the ultimate infrastructure below the infrastructure. If we don't have it and if we only can get to it at certain times of year or whenever, we need to know that. So pricing is something that we can work out because it's really about pricing so that we can manage the resource. There are other issues about infrastructure that are really utility questions that are different than the resource questions.

So there's pricing, policy; policy has to be pretty much formulated at the level of the state. So the legislatures and the governors have to be aware and informed enough to see the value and the -- to the public of these kinds of assets.

What was the third P? Property rights. Exactly. So property rights, it is common property. That's why the state needs to be in the position to manage that resource so that all of the users can get what they need. It's very rare in

that while we might not affect the amount that's there with management in the middle of the country, unlike California, we can all use what we have. There is enough water. We just have to shift it around and move it properly. Store it, use it and maneuver the -- manage the resource itself. So those are the three -- my best crack at answering your three questions.

MAYOR JOHN DICKERT: All right. I'm going to give it to David Garman, otherwise he's going to -- David, you've got to wrap it up.

DAVID GARMAN: Just like to comment. I've lived through administrations with water attached to property and water detached from property. We went through the whole process of detaching it because that led to optimum economic value for the water. It led to water trading. It led to water banks. And this was one of the best things that we ever did.

It also allowed us to take water which we could put back into the environment. And it also managed to increase the domestic product in those regions so that we were able to optimize both the land use and the water use to give maximum productivity.



All I'm saying is be careful; don't attach them to property rights.

MAYOR JOHN DICKERT: Okay. Unfortunately I've been given the high sign. So I'm going to leave you with a question and a formula. The question is, how do we build a regional and cooperative effort to be an economic driver while we're building an economy and solving problems?

But I was just talking with a UIC professor as we walked in and we created a new equation:  $E+E=S$ , which is simply efficiency and effectiveness equal sustainability. So let's work at those and start building this into our future so that we can take care of those kids who are counting on us. Thanks everybody, and please congratulate everyone.

End