

The Horinko Group
Networks, Coalitions, and the Role of Social Capital
in Water Resources Management
Water Salon Series, Part II
Summary and Synthesis
August 31, 2010
Washington, DC

Purpose and Overview

The Horinko Group sponsored the second in its 2010 Water Salon Series to provide an opportunity for participants from the federal government and non-governmental agencies to engage in a collegial, robust, and reflective discussion about timely and emerging water resources topics (refer to *Attachment I-II: Attendee List, Agenda*). The focus of this Water Salon was a framework to account for and harness the power of social capital presented by Dr. Stephen P. Gasteyer, Assistant Professor of Sociology at Michigan State University (refer to *Attachment III: Executive Biographies* for his recent publications). Dr. Gasteyer presented the Community Capitals Framework as a systems model that presents key variables which water managers and decision-makers at all government levels should consider to help them conceive program change within an integrated water resources management context. The framework emphasizes the role of advocacy coalitions in implementing sustainable water programs and policies.

In an opening presentation entitled, “*Networks, Coalitions, and the Function of Social Capital in Addressing Water Quality, Availability, and Management*” (click to view [presentation](#)), Dr. Gasteyer discussed the theory behind the framework and its applicability to water resources management, citing specific examples that address community water infrastructure, flood control, river basin management, and groundwater management. Dr. Gasteyer’s thesis is that we benefit from more dynamic social relationships in solving water problems. The discussion that ensued considered practical applications of the framework and challenges to its application.

Context

Water professionals are faced today with the need to address issues in a cross-cutting manner, considering multiple factors and stakeholders (e.g., drinking water and wastewater, domestic and industrial irrigation, water quality and water quantity, groundwater and surface water, the public, corporate and civic society sectors). These factors and community groups must be addressed as a whole. In particular, the social aspects of water management (e.g., improved means for broader citizen engagement, identification and inclusion of key community leaders, meaningful forms of public participation, the social networks of knowledge, solidarity, and exchange) are becoming more important to the success of water resources interventions to improve conditions for a sustainable water future.

Collaborative governance is considered to be essential for integrated water resources management and adaptive management to cope with the complexity of ecological systems. Stakeholders from multiple social networks participate in both formal and informal relationships with water resources advocates, managers, and decision-makers. Research shows that social cohesion is deemed essential for sustainable economic and social development. Social networks to exchange knowledge, resources, and solidarity are critical for the success of water resources decisions across sectors dealing with water resources planning and management. Such networks provide the glue to craft and carry out a common vision of successful water management. How water managers perceive and account for the role of social capital is important for adaptive management and continuous improvements to water resources.

Water resources safety and security require additional focus on proper and cost-effective management of water infrastructure and systems, public information, public health systems, and decision-making authority. Sustainable infrastructure involves human/social aspects of a community interacting with the physical and mechanical aspects of a community's local water infrastructure. This relationship commonly takes place through a social infrastructure – a network of interactions among individuals, groups, and institutions within and outside a community. As Dr. Gasteyer reported, “community water system sustainability is determined by the relationship among social and physical infrastructure.”¹

A system of “community capitals” provides a context for addressing the human/social dimension of water management.

A Framework for Addressing Social Capital

Healthy ecosystems and a vibrant regional economy depend on several types of capital or resources used to create new resources. Flora et al. (2004) have identified six forms of capital that communities must identify and transform to achieve sustainable development.² Water resources managers must be aware of these capitals, as each will influence what is possible and probable. Successful implementation depends on development of all forms of capital.

To determine the state of each capital before and after a change intervention, one must analyze the situations and conditions stratified by size, region, and water source, as well as the degree of participation in each sector, and interview key informants in each water system. The more forms of capital involved and the more elements of participation employed within each capital, the greater the number of capitals that influence decisions. Each community's unique array of capitals determines the extent to which infrastructure is or is not installed and maintained. Diverse stakeholder perspectives are necessary in order to link a water system to a place and the people who will use and pay for it. The notion of capitals provides a way to think about diverse variables or factors that affect decisions and their implementation. It can provide a framework for understanding where to intervene in a given water system to affect positive change.

¹ Gasteyer, Stephen P. (February 2004). “Building Bridges: Community-Based Social Networks for Sustainable and Secure Water Management,” *Water Resources Update*, 127, pp. 31-40, Universities Council on Water Resources.

² Flora, C.B., J.J. Flora, and S. Fey. 2004). *Rural Communities: Legacy and Change*, 2nd edition. Boulder, Colorado: Westview press.

The Community Capitals Framework Model

The Base of Any Community

1. **Natural Capital** – the environment (altitude, longitude, climate, slope and other fixed geographic configurations) as well as natural resources (water – surface and groundwater, quantity and quality – soils, and plant and animal biodiversity). Natural capital is the base around which humans act in the water resources arena.
2. **Cultural Capital** – ways of knowing and acting, language, and defining what is problematic. This capital determines how people see the world, what is taken for granted, what is deemed possible to change, expectations, and assumptions about the way the world works.
3. **Human Capital** – native intelligence, skills, abilities, education, and health of individuals within a community.

Other Capitals

4. **Social Capital** – a community characteristic based on the interactions among individuals and groups. It includes mutual trust, reciprocity, collective identity, cooperation, and a sense of a shared future. There are two types of social capital: 1) *Bonding Social Capital* – the interactions within specific social groups; 2) *Bridging Social Capital* – the ability to access power brokers and decision-makers to make things happen. Bonding Social Capital builds cohesion within and between sectors in a community. Conditions in a community are optimal when both Bonding and Bridging Social Capitals exist. Citizens share a collective vision of their water future and can mobilize the resources internally and externally to move toward that future.

Signs of low Bonding and Bridging Social Capital are disorganization and weak or non-existent mechanisms of social control (i.e., high crime rates), high turnover in governance bodies, and no collective or collaborative decision-making. When only Bridging Social Capital exists, a community does not work well together and there is no guarantee of integration. When Bonding Social Capital is high but Bridging Social Capital is low, the community rejects actions and ideas from outsiders and supports factionalism within the community. When Bridging Social Capital is high but Bonding Social Capital is low, the community may adopt outsider initiatives but implement them without full community input or consideration. Bonding Social Capital is not always good – it can create a cohesive but exclusive community (e.g., those who were not born and raised there may be shunned or suspected).

5. **Political Capital** – the ability of a community to influence the distribution of public resources and to determine which resources are made available to community members through the voices of individuals, organization, connections, and power bases. A community can make decisions about the distribution of resources on the basis of rules and regulations and rational plans and decisions (the democratic process) or rely on political connections.

6. **Financial/Built Capital** – debt capital (e.g., bonds or low-interest government loans), investment capital (e.g., public-private financing), savings, tax revenue, tax abatements, grants, and the constructed physical infrastructure.

Decisions about water systems are certainly not clear-cut; many people may weigh in on technical questions, even contest them. The degree to which the decisions are contested may be explained through analysis of the various capitals. For example, with respect to Social Capital, further analysis may reveal trust issues among the various factions involved. In small rural communities, compliance with federal regulations may not make sense to people who view regulations as something that an uncaring and unknowing bureaucrat thinks up with little or no understanding of the local condition. Transparent and frequent communication between the federal government, local interests, and users can go far in helping a community accept federal environmental regulations. Building this connection can help translate the intent of a regulation into a common understanding among residents.

Decision-makers/implementers who understand the value of Social Capital will have strong educational and relationship-building components built into their strategies. If the policymakers can build trust among local community networks, those policymakers will be able to build consensus for a plan more easily, thereby making it more sustainable. The community must have a greater understanding of the water issues as well, especially the importance of water system maintenance and human health. In short, if understanding improves, progress is attainable. Policymakers must understand local communities and their unique concerns. Local communities must understand how their behavior impacts water issues. Once this understanding occurs, true sustainability is achievable.

Implications

The Capitals Framework can be used to monitor the impacts of water systems, as well as provide a systems approach to account for the impacts of water decisions. Monitoring allows all parties to discern if the many benefits of a water system are being achieved and at what cost. Through these insights, a community will be better positioned to make informed decisions with respect to infrastructure investment.

For a community to have a comprehensive and effective vision of the condition and management of its water resources, it must first have a collective vision for each of the six types of capital. For example, community water management is dependent not only on physical infrastructure but also on social infrastructure. The development of relationships and social organizations play a critical role in how our nation's rural communities perceive and interact with their water systems. The safety and security of small community water and sanitation systems are a function of the social infrastructure that will monitor the water system to ensure its safety. Social networks that draw on local knowledge of the surrounding ecological, cultural, and economic contexts provide robust prevention and adaptive responses. The key is to connect these social networks across watersheds and at regional and state levels.

Allocation, treatment, and the responsibility for water management must be considered when attempting to balance the economic and social impacts on a community's water resources. Both Human Capital and Social Capital are germane. Human Capital sets a baseline capability (i.e., skills and abilities of community members). Social Capital

highlights the networks and trust that exist (i.e., number of active organizations, level of participation in community events, range and number of community members involved in decision-making, linkages to those outside the community). Bonding Social Capital describes the strength and extent of relationships within the community. Bridging Social Capital describes the depth of the community's networks with outside groups or institutions. Often, analyses focuses too narrowly on selected variables – e.g., Financial and Human Capital for flood control and navigation water resources development or only Natural Capital for ecosystem restoration – when the linkage between quality of life and Natural Capital suggests that programs must be accompanied by initiatives that maintain or enhance Social and Financial Capital. Solutions become more robust when additional capitals are added to the equation.

Examples

The following examples illuminate the wisdom of expanding the water system approach to consider multiple variables or capitals:

- Water sustainability is about balancing Human, Social, Financial/Built, and Natural Capitals. For example, at the community level, water resources represent the cultural, economic, and intrinsic values of Natural Capital to provide wildlife habitat, recreation areas, and solace through sheer enjoyment of the outdoors. Water and infrastructure is further connected through the use of water for drinking, irrigation, energy, and waste removal, which connects Financial/Built Capital resources (money and concrete) with Human Capital (construction, management, and operations skills and knowledge), and Social Capital (networks between local groups, state primacy agencies, federal funding agencies, and engineering firms) to move water from its natural location to the community and back again.
- The conventional approach is to consider the Financial/Built Capital alone and to direct wastewater from homes and businesses to a treatment plant. A more holistic approach would be to install a decentralized wastewater treatment program that is managed through a vigilant network of Social Capital institutions that monitor septic performance throughout the town and to use the Human Capital interventions of educational campaigns to ensure that homeowners and renters understand the responsibilities of septic system management. Adding the Natural Capital focus, construction of a wetland would allow for native grass regeneration, provide habitat for species, and help manage wastewater. This focus also supports ecotourism by attracting visitors to the site.
- Sustainable solutions are best derived for flood and storm damage reduction if they consider capitals beyond Financial/Built Capital, such as a costly concrete levee system. A more sustainable solution should consider Natural and Social Capitals in the solution-finding mix as well, such as “green infrastructure” approaches. In this case, Federal Emergency Management Agency (FEMA) funds would be used to help displaced homeowners resettle in upland areas, while converting the floodplain back into natural wetland buffers, forests, and open space.
- In terms of homeland security and expanded risk analysis, awareness of the unlikelihood of small rural communities being attacked by terrorists might

dissuade city managers from instituting expensive hardware to fortify water infrastructure. Rather, there should be a greater appreciation for managing more realistic risks such as vandalism to community water systems or from natural disasters. Currently, FEMA funds small-system operators to develop vulnerability assessments and technical assistance organizations to educate trainers to teach operators to develop assessment plans to enhance Human Capital. These plans are partly covered by another EPA requirement for water systems to do “sanitary surveys” to ensure that drinking water systems are in good working order and that water treatment achieves adequate quality. Another strategy would be to enhance Social Capital by building social networks to ensure that community water systems have the capacity to respond to unexpected events. This strategy suggests tactics to minimize harm to the community: providing people with useful resources for disastrous events, ensuring multiple forms of communication and interaction through preparedness planning, and determining the backup water supplies that residents should have on-hand.

- A chain or sequence of capitals helps balance community capitals: water system sustainability depends on balancing current development needs (Financial Capital) with future needs and ecosystem integrity (Natural Capital). Natural Capital (e.g., ecosystem integrity) considers maintenance and enhancement of cultural considerations and local knowledge (Human and Social Capitals). Human Capital strategies enhance capacity for making decisions and taking actions at the community level to maintain and enhance water quality. The sequence can be evaluated by identifying current and future development needs (Financial/Built Capital) in the face of ecosystem integrity (Natural Capital), which must consider maintenance and enhancement of cultural considerations and local knowledge (Human and Social Capitals), which can all be enhanced through community capacity for decision-making (Human Capital). Evaluation of success would involve measuring baseline levels of Human Capital in the operation and decision-making related to the water system, as well as the number of institutions, organizations, and social networks involved in water issues and the quality of their interactions (Social Capital).

Benefits and Performance Measures

The Community Capitals framework offers a definition of desired outcomes and performance measures for sustainability and security³ that can be used to assess each capital at three points: needs analysis, baseline conditions analysis, and evaluation of intervention results to gather pre- and post-intervention changes:

1. **Human Capital** – increased use of the skills, knowledge, and ability of local people, measured as:
 - a. Increased number of community members involved in water system monitoring and evaluation activities.
2. **Social Capital** – strengthened relationships and communication, measured as:

³ Gasteyer, Stephen P. (February 2004). “Building Bridges: Community-Based Social Networks for Sustainable and Secure Water Management,” *Water Resources Update*, 127, pp. 31-40, Universities Council on Water Resources, Figure 3, page 37.

- a. Improved diversity and representation in community decision-making about water resources (e.g., community sectors represented on community water board); and,
 - b. Increased number of groups involved in the initiative (e.g., type of groups and activity in the water sector).
3. **Political Capital or Bridging Social Capital**– improved community initiative, responsibility and adaptability, measured as:
- a. Increased political support for water quality protection (e.g., community support for water conservation efforts).
4. **Natural Capital** – sustainable, healthy ecosystems with multiple community benefits, measured as:
- a. Improved water quality (e.g., decreasing turbidity over time, decreasing BOD level, decreased nutrient load);
 - b. Improved water availability, (e.g., decreased variation in water levels over time);
 - c. Improved ecosystem function, (e.g., increased fish stocks, increased birds measured through Audubon song bird counts); and,
 - d. Activities and practices adopted to improve water quality, (e.g., number of acres of vegetative buffers installed).
5. **Financial/Built Capital** – appropriately diverse and healthy economies, measured as:
- a. Increased local funding of the initiative;
 - b. Improved integration of water quality and economics;
 - c. Dollars leveraged for infrastructure improvements; and,
 - d. Improved accounting for infrastructure depreciation replacement.

The Community Capitals Framework Applied

As suggested previously, an example related to water security illustrates how use of the Community Capitals Framework can expand thinking and options for water management. One can define water security as securing adequate water resources for human needs or as safeguarding water infrastructure from natural or human-caused failure. The second definition enables a more holistic analysis and allows for consideration of ways in which unauthorized parties can compromise the water infrastructure system. Essentially, it brings the Social Capital variable into focus in the analysis, specifically the creation of diverse networks for emergency response. Gathering information about the various capitals through measurement indicators provides information that can help communities create networks to leverage resources for implementing actions. This information can better inform stakeholders and thus better balance desired outcomes: economic growth, social welfare, and ecosystem integrity (including water quality), and safe and secure physical assets (water infrastructure). Thus, attention to the Human and Social Capitals may well incline city officials to focus on education to enhance individuals’ understanding about the value of maintaining and protecting water systems.

Dr. Gasteyer noted his experience working locally with the Natural Resources Conservation Service and local soil and water conservation districts to promote the U.S. Department of Agriculture’s Conservation Reserve Program to address water quality

threats from feed lots, septic systems, above-ground and underground storage tanks, livestock, waste treatment facilities, treated wood and lumber yards, and wells and lagoons in the Taylorville-Macon County Aquifer in central Illinois. Attention to Social Capital led to education outreach brochures funded by disaster management funds that were distributed to those who live and work within the community's recharge areas, the notion of a GIS system to track threats, and best management practices for farmers and land owners, as well as revised planning strategies, ordinances, and policies.

A top-down Chippewa Watershed initiative in the Minnesota River Basin encountered initial resistance among the locals in 1994 when it was launched to promote water quality. Consideration of Social Capital led to an intensive public participation process, discussion of local economic development, preservation of place, and alternatives for farmers beyond the initial intent of the initiative.

The Value of Social Capital

These examples highlight how valuable the Social Capital becomes in the analysis of key factors for successful water resources planning, implementation, and evaluation. Social Capital reveals that behavior change may well be more a function of positive sanctions vs. negative sanctions for people and institutions acting in the "public good." This is evident when looking at how and why people work for the common good. The "Tragedy of the Commons" highlights how self-interest tends to overtake the common good in that people work for their own gains over working for community or public gains. Local institutions can manage the commons through nested systems that deal with Social Capital. A robust analysis that considers all community assets (capitals) provides opportunities for leadership to achieve desired outcomes through identifying areas of intervention and investment to improve the function of the system. Therefore, the Community Capitals Framework not only describes desired outcomes but also suggests pertinent activities and provides indicators of success, which provide performance measures for evaluating success.

Overcoming Challenges to Using Social Capital

The group discussed the following ways to overcome common challenges to creating effective networks:

Practice Adaptive Management

Build support for a solution incrementally with defined intermediate goals where objectives are effected, monitored, performance measured, and adjusted in an iterative sequence.

Foster Commons Sense Implementation

Relieve state and local levels of the burden of unfunded federal mandates that are squeezing local leaders. Federal agencies must consider the costs and the type of assistance needed to implement in their regulatory rulings.

Enhance Decision-Making

Provide communities a stake in crafting a solution to the problem. Innovative technologies are now available to facilitate such problem-solving networks. Move beyond theoretical solutions and consider how solutions will be implemented at the local level. No longer rely on cost-benefit analysis as the criterion for making

decisions about water resources. Instead, focus on sustainability and resiliency as the core values.

Promote Effective Leadership

Leaders are key to changing the incentive structure and permitting experimentation. Leadership should be encouraged to demonstrate situational leadership. Political will is also essential to optimizing opportunities within existing authorities.

Enhance Learning and Cultural Change

Social learning must be reinforced (i.e., continual learning from reflecting on experience). Through the study of an organization's culture, identifies ways to foster an environment that permits and reinforces honest dialogue and safety in revealing genuine positions. Incentives should not encourage people to be risk averse, but rather incline people to take ownership over their future, rather than relying solely on the government to "fix it."

Improve Planning and Problem Solving Processes and Techniques

Work at a watershed or basin-level scale for integrated water resources management. Conceptualize the system as multiple sectors with a multitude of resources. Consider which to invest in and which provide opportunities to leverage.

Review and Revise Programs

Consideration of multiple lenses will be necessary when crafting a reform package, while working closely with local champions and esteemed local leaders who appreciate the federal program and can promote its principles.

Build Relationships, Collaboration, and a Sense of Community

Strong relationships that exist should be nurtured, while building bridges across networks. The disciplines should be brought together into an integrated team, recognizing that there are many people and groups that can become change-drivers. States and localities should be provided with a suite of tools to help them address all the factors in a water system. Participatory education should be a major strategy to foster a comprehensive understanding about such issues. Capitalize on the work of existing networks involved in particular issues, especially groups that cross issues. Consider the Community Capitals model as nested assets upon which to build.

Define Roles and Responsibilities

The federal government may simply have to step away and entrust a party in the community to work out a solution. Incentivize government workers to then take on more of an educational role and adopt the role of facilitator to assist social networks come to consensus on water issues and solutions. The federal government becomes the convener, while redefining the public's role in water management.

Bottom Line

Federal agencies and non-governmental organizations must be innovative when managing water resources, implementing smart and strategic actions in a systems way, with a responsibility to the public and water stakeholders. The Community Capitals Framework can facilitate this.

The Framework leads to opportunities for better management of water resources if key elements of a water system – Community Capitals – are considered as plans are being developed. As Dr. Gasteyer concluded:

We see here the nexus at the community level among the community capitals, as financial capital is enhanced through an investment in community organization (social capital), to better manage water resources (natural capital). Achieving this balance provides for water resources sustainability, as the community improves management and begins to implement water conservation. This, in turn, improves water system security, as the community is better prepared to respond to the next water crisis (most likely in the form of drought). The infrastructure for addressing chronic water shortages is a combination of social and physical, green, and built. Through developing appropriate networks, the community is able to address water security and sustainability issues⁴.

In summary, there is a need to move beyond traditional processes and to get outside the Water Box of myopic thinking that separates water professionals and community leaders from decision-makers. We need to sort out the relationship between levels of governments. Government needs to reach out more, to utilize modern tools, and to gather new inputs. This implies collaboration and innovative partnerships. Fostering innovation is critical. Modeling can help. The Community Capitals Framework can allow government decision-makers to consider multiple variables, multiple resources, and to measure results. We must look at the relationships among key actors in a watershed or community and how communication between/among them shapes their frame of reference. We must define the new roles of government, the private sector, and civil society. Allow people to try and fail. Acknowledge that this social learning process is messy and might not end up where we think, but taking the risk to experiment is well worth it.

⁴ Gasteyer, Stephen P. (February 2004). "Building Bridges: Community-Based Social Networks for Sustainable and Secure Water Management," *Water Resources Update*, 127, pp. 31-40, Universities Council on Water Resources, p. 38.

ATTACHMENT I: FINAL ATTENDEE LIST

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ATTACHMENT II: AGENDA

***Networks, Coalitions, and the Role of Social Capital
in Water Resources Management***
Water Salon Series, Part II
August 31, 2010

Registration	12:30 – 12:50pm
Welcome, Objectives, Introductions	1:00 – 1:05pm
Marianne L. Horinko, President, The Horinko Group	
The Power and Appeal of Social Networks	1:05 – 1:20pm
<u>Presenter and Moderator</u>	
Dr. Stephen Gasteyer, Assistant Professor, Michigan State University	
How Social Capital Influences a System Model for Water Management	1:20 – 2:00pm
Dr. Stephen Gasteyer, Assistant Professor, Michigan State University	
Water Salon Program – Practical Applications	2:00 – 4:15pm
Participants will hear how the social capital variable is applied within the water sector, discuss barriers to using a social capital framework, and why we should endeavor to overcome them.	
Summary and Follow-Up	4:15 – 4:45pm
Closing Remarks	4:45 – 4:50pm
Marianne Horinko, President, The Horinko Group	

ATTACHMENT III: EXECUTIVE BIOGRAPHIES

Presenter and Moderator

Dr. Stephen P. Gasteyer is an Assistant Professor of Sociology at Michigan State University. Dr. Gasteyer's research focuses on rural community leadership, decision-making and management capacity, around key natural resources and development sectors. Specifically, his research looks at the dynamic social networks and systems involved in water and wastewater infrastructure systems both in the U.S. and overseas, and the processes and systems around economic and agricultural development.

Ongoing research includes: study of the dynamics of social networks in influencing ground and surface water use; research on the design and impacts of rural community leadership development education programs; study of the social aspects of conversion to the bioenergy economy in rural communities; study of the landscape and social change in economically depressed communities; and study of small community water infrastructure operational and management capacity.

Before coming to Michigan State University, Dr. Gasteyer was on faculty in the Department of Human and Community Development at the University of Illinois. Prior to that, he was Research and Policy Director at the Rural Community Assistance Partnership in Washington, DC and a research consultant on issues of global water governance. Dr. Gasteyer was a Peace Corps Volunteer in Mali from 1987 through 1990, and worked from 1993 through 1998 in the Palestinian territories. He received a BA from Earlham College in 1987, and a Ph.D. in Sociology from Iowa State University in 2001. He has been a member of the Rural Sociological Society since 1996.

Recent publications include:

Gasteyer, Stephen P. 2009. Agricultural Transitions in the Context of Growing Environmental Pressure over Water. *Journal of Agriculture and Human Values*.

Gasteyer, Stephen P., Sarah Hultine, Leslie Cooperband, and Patrick Curry. 2008. "Produce Sections, Town Squares, and Farm Stands: Comparing Local Food in Community Context." *Southern Rural Sociology*.

Hultine, Sarah, Leslie Cooperband, Patrick Curry, and Stephen Gasteyer. 2008. Linking Small Farms to Communities with Local Food: A Case Study of the Local Food Project in Fairbury, Illinois. *Community Development*.

Gasteyer, Stephen. 2006. Human Indicators of Water Resources Sustainability: Infrastructure Availability. *Water Resources IMPACT*. Winter 2006.

Gasteyer, Stephen. 2005. The Privateers: Global corporations compete with local initiatives for failing municipal services. *Worldview*, Winter 2005.

RCAP (Stephen Gasteyer and Rahul Vaswani). 2004. Still Living without the Basics: Analyzing the Availability of Water and Sanitation in the United States. Washington, DC: Rural Community Assistance Partnership.

Gasteyer, Stephen. 2004. Water and sanitation in the rural US – scaling up through NGO technical assistance. *Waterlines* 23(2)

Gasteyer, Stephen. 2004. Building Bridges: Community-based Social Networks for Sustainable and Secure Water Management. *Water Resources Update*, No. 127: 31-30.

Gasteyer, Stephen. 2003. Water utility - farmer Co-operation in the US. Chapter 11 in Brouwer, F, I. Heinz, T. Zabel (eds.) *Governance of Water-Related Conflicts in Agriculture: New Directions in Agri-Environmental and Water Policies in the EU*. Kluwer Academic Publishers, Dordrecht

Opening/Closing Remarks

Marianne L. Horinko is the President of The Horinko Group. Ms. Horinko's expertise is in watershed-based approaches to cleanup and revitalization, corporate sustainability, and collaborative solutions to environmental progress through unique public-private partnerships and innovative use of environmental management system concepts. Prior to founding The Horinko Group, she served as Assistant Administrator for the Office of Solid Waste and Emergency Response (OSWER) at the U.S. Environmental Protection Agency from 2001 to 2004, and Acting EPA Administrator in 2003 between Administrators Christine Todd Whitman and Michael O. Leavitt.

Following the events of September 11, Ms. Horinko served at EPA assisting in environmental cleanup activities at Ground Zero in lower Manhattan, the Pentagon in Washington, D.C., and the U.S. Capitol due to anthrax contamination. In 2003, she oversaw EPA's response to the Columbia Space Shuttle Disaster. As a result of these experiences, she crafted the groundbreaking National Approach to Response. She brought new approaches to environmental protection using partnerships, flexibility, and innovation to create environmental improvement. The Brownfields program, signed into law by President Bush in 2002, is the embodiment of these new approaches. Under her leadership, the budget for the Brownfields program more than doubled.

During the first Bush Administration, Ms. Horinko was Attorney Advisor to Mr. Don Clay, EPA's Assistant Administrator for OSWER. Subsequently, she served as President of Clay Associates, Inc., a national environmental policy consulting firm, where she launched the RCRA Policy Forum. Ms. Horinko is an alumna of the University of Maryland, College Park and Georgetown University Law School.