10:30 am – 12:00 pm Morning breakout sessions

Ballroom

Civity workshop: Creating Connections in your Work

Civity is a national nonprofit organization dedicated to supporting leaders who want to create a welcoming culture to more successfully address community challenges. This workshop offers skills that leaders from various sectors can use to build 'social muscle' in their communities and workplaces by intentionally cultivating relationships of respect, empathy and social trust across differences.

For leaders working in water quality and resource management, communication skills and tools to engage effectively with individuals from diverse backgrounds are crucial. In this 1.5 hour skillbuilding workshop, which includes opportunities for real-time practice, participants will learn how to deepen conversations and connection through storytelling and active listening. Participants will take away actionable strategies that are grounded in cross-cutting social science research.

Lucy Hancock: Lucy Hancock is an entrepreneur, a Fulbright scholar, an organizational trainer and a facilitator for Civity. For over a decade she has worked in the world of international higher education where she fostered partnerships abroad, facilitated trainings for intercultural communication, and built relational bridges between local and global communities in Omaha.

Ballroom West

Urban Environment Breakout Session (15 minutes to present, 5 minutes for audience questions)

Differences between urban and rural water sources, demands, and impacts.

Agricultural contaminants such as nitrate from fertilizer have led to conflicts between urban and rural water users, for example in the Raccoon River Watershed in Iowa. During drought, Eastern Nebraska metropolitan areas have shown willingness to conserve water during times of high agricultural demand, but chronic challenges in supplying clean drinking water may have the potential to strain this relationship. This session seeks to explicate the differences between urban and rural water sources, demands, and impacts.

Erin Haacker: As an assistant professor at the University of Nebraska - Lincoln, Erin Haacker conducts research on Nebraska groundwater for irrigation, using the MODFLOW modeling framework integrated with social and economic models.

Urban Heat Islands and the Water, Climate, and Health Program

Kristina Kintziger, Associate Professor, Department of Environmental, Agricultural & Occupational Health at the University of Nebraska Medical Center

Differentiating between urban flood risk as a unitary problem and as a strand in a braided problem set: Implications for administrative coordination

Flood protection is a leading priority for urban water sustainability. Making cities more resilient to flooding has become urgent as the climate changes and as cities increasingly become the loci of human population and resources. Reducing the risk of future flooding in cities often necessitates different jurisdictions working together. They may do so because they confront a shared problem. This was the case in the City of Lincoln, Nebraska, USA, when partnering agencies shared a single focus on reducing flood risk from Beal Slough to the Nebraska State Penitentiary. In contrast, entities may band together to confront braided problems, intertwined problems that cannot be resolved independently. The Antelope Valley Project, also in Lincoln, Nebraska, USA, combined addressing three problems, for which individual solutions had not been achieved: reducing flood risk from Antelope Creek, improving road transportation safety and capacity, and revitalizing neighborhoods with deteriorating physical structures. Such a scenario is becoming more frequent as cities increasingly face multiple demands on the same location. As this comparative case study demonstrates, there are implications for administrative coordination for whether flood risk reduction can be achieved as a sole focus of a project and when it cannot. The Antelope Valley Project necessitated an innovative management structure and governance process that the Beal Slough Project did not. In the Antelope Valley Project three different, stand-alone entities operating in dissimilar, substantive domains redirected their independent policies to harmonize their problem solving. Collaborative learning among policy actors in the Antelope Valley was more extensive and across policy domains than was required in the Beal Slough Project. Yet, both projects were triggered by policy-oriented learning from the remapping of their respective subwatersheds. The study contributes to understanding interdependency among policy problems and to reducing urban flood risk through administrative coordination.

Dr. Sarah Michaels is the 2021-2022 Fulbright Canada Distinguished Chair in Environmental Science at Carleton University, Ottawa, Canada. She is Professor, Department of Political Science and Faculty Fellow, Public Policy Center, University of Nebraska-Lincoln, USA. She has consulted for the U.S. State Department, the U.S. Water Partnership, the International Sava River Basin Commission, the Missouri River Recovery Implementation Committee, and Environment and Climate Change Canada.

Connecting Underserved Communities to Water: Rejuvenating Ecosystems, Enhancing Livelihoods, and Fostering Social Equity

Equitable access to bluespaces and greenspaces has emerged as a critical concern, particularly for underserved communities. Lack of exposure to natural areas reduces opportunities for exercise and relaxation, creates a disconnection from environmental concerns and hinders efforts toward sustainable behaviors and environmental advocacy. Additionally, the absence of green infrastructure can leave communities more vulnerable to climate-related challenges, such as flooding and extreme heat events, exacerbating existing inequalities.

Stream restoration efforts, led by a team of engineers, hydrologists, and stream ecologists, focus on improving function, reducing flooding, improving water quality, hydraulics, and enhancing aquatic and riparian habitat. Unfortunately, there are often few interactions between the design team and the community throughout the process. This may be due to budgetary constraints, but a likely factor is that the typical design team is often focused more on the traditional measures of a successful stream restoration and less so on the human elements. Involving community members in the planning and implementation process empowers them to take ownership of their surroundings and advocate for their needs, contributing to a more inclusive decision-making process. These efforts have the potential to uplift communities and enhance their overall well-being.

Case studies of urban stream restoration projects located in Iowa will be presented, each with their own set of unique challenges and opportunities both a design and a human perspective... Gathering input from the community has proven to be beneficial from the early planning stages through design and construction, and often improves the outcomes and success of the project from the perspective of those that are impacted most by the project. Investing in our rivers presents a unique opportunity in terms of ecological restoration, socio-economic advancement, and equitable resource allocation. These initiatives can empower residents to appreciate and protect their natural surroundings. By addressing these disparities, societies can pave the way for healthier, more resilient communities and a more sustainable relationship between people and the environment.

Judith E. Joyce – SPWS, Professional Geomorphologist and Principal, Director of Community Building. Off the Clock: Judy volunteers as the Executive Director of Take a Kid Outdoors (TAKO). In her spare time, she likes to harvest wild edibles, fish, cook, travel, play tabletop games, D&D and hang out with her two lovable basset hounds.

Midlands Room

Flood Planning and Mitigation Breakout Session (15 minutes to present, 5 minutes for audience questions)

Omaha's Flood Planning, Papillion Creek watershed planning

Lori Laster, Stormwater Management Engineer

Fremont and Dodge County area flood mitigation efforts

Tom Smith, Dodge County Emergency Management, and Kevin Kruse, JEO Consulting Group

A Typology of Properties Generating Flood Damage Exposure in Omaha: Implications for both Urban Development and Flood Mitigation Projects.

This research uses unique and rarely seend data generated from the U.S. Army Corps of Engineers (USACE) as part of their recent (2021) evaluation of the feasibility of floodplain mitigation projects in the Greater Omaha Area, to quantify what types of properties (including when and how they were developed) generate flood damage exposure being used to justify proposed flood mitigation projects.

There are about 3,075 structures in Papio Basin facing varying levels of future flood risk.

But unexpectedly: 45% of expected annual flood damage (EAD) (as modelled and estimated by the USACE) is associated with only 500 structures built in either the the 100 or 500 year floodplains since 2005 when the most recent FEMA 100-year floodplain maps were established in the Papio Basin

This surprising result regarding the high frequency of flood damage exposure in the Papio Basin associated post 2005 development clarifies indicated that most of the need for hundreds of millions of taxpayer dollars for proposed flood mitigation projects is a direct result of recent building activity that has taken place after flood risk knowledge (i.e. FEMA floodplain maps and Omaha's involvement in the National Flood Insurance Programs) have been established.

These findings challenge the ‘assumption’ that governments in the Papio Basin (mostly cities with control of building permits and tax increment financing development tools) are effectively dealing with sustainable floodplain management practices.

In contrast to flood damage exposure quantified in other parts of the country, in the Omaha area,' recreation' classified structures are generating the highest amount of post-2005 flood damage. It is important to note that there is a huge variation in the nature of recreation structures ranging from movie theatres to hockey arenas, and concession stands and bathrooms at soccer and baseball fields. Restaurants and office structures also make up a great deal of post-2005 flood damage exposure, whereas a relatively low proportion of post 2005 damage exposure is attributed to residential structures (either single family homes or apartment buildings). Hotels and special use (a broad and highly heterogenous category of structure types), and industrial structures represent a relatively small amount of total flood damage exposure in the Basin but a lot their damage exposure has been generated since 2005. Conversely, virtually no mobile home or service station flood damage exposure has been generated since 2005.

The implications of this study indicate that either the USACE is not accurately representing the actual flood damage exposure risk of properties meaning that recently built properties in the 500-year floodplain are actually floodproofed at the time of construction, or alternatively, that urban development in Omaha in the last decade years are directly responsible for justiication of pending (and costly) current flood mitigation projects.

This research can and should be replicated in other locations using a recently released USACE database (the National Structural Inventory) both to help educate planners, and

taxpayers regarding both the merits of allowing floodplain development and the economic feasibility of flood control projects.

Steve A. Schulz is an Associate Professor of Supply Chain Management at the University of Nebraska at Omaha. He has an active interest in logistics, new product development, and high-performance organizations.

Convergent research towards building flood resilience in Nebraska

Flood-related issues are commonplace in Nebraska. We have experienced several large flooding events in the recent past. With the changing nature of the environment, the characteristics of these extreme events have also been changing, which makes it imperative that we revisit and update our existing approaches to tackle these problems. One of the ways to accomplish this is by converging ideas from different domains to derive effective and efficient solutions. This talk will focus on some of our recent research activities focusing on different dimensions of flooding, including understanding flood-generating processes, impacts of snow, nature-based solutions, applications of machine learning and causal analysis, and flood monitoring. These efforts are expected to serve as key ingredients in building flood-resilient infrastructure in the state.

Tirthankar Roy is an Assistant Professor of Civil and Environmental Engineering at the University of Nebraska – Lincoln.