Upper Mississippi River System Flood Risk and Sediment Management and Extended Drought

Integrated Water Resources Management Pilot





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UPPER MISSISSIPPI RIVER SYSTEM FLOOD RISK AND SEDIMENT MANAGEMENT AND EXTENDED DROUGHT

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I. BACKGROUND

The Upper Mississippi River System (UMRS) was identified as a nationally-significant ecosystem by the Presidential Administration in 1986. The Upper Mississippi River (UMR) flows approximately 1,300 miles from its headwaters at Lake Itasca in Northern Minnesota to the confluence with the Ohio River at the southern tip of Illinois. The UMRS drains roughly 189,000 square miles, including parts of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. More than 30 million people reside in the Basin; millions visit the Basin each year to participate in recreational activities. Sixty percent of all grain exported from the U.S. is shipped via the Mississippi River, and 29 locks and dams form a water stairway for safe passage.

The UMRS provides unparalleled value to the Nation. The most important U.S. Army Corps of Engineers' (Corps) mission areas in the UMRS are Navigation, Flood Risk Management (FRM), and Ecosystem Restoration. While each of these mission areas provides countless benefits and services, there are outstanding needs and issues in each mission area that must be addressed.

Throughout the Corps' history, a watershed approach has been, at varying levels, integrated into the process by which water resource systems have been investigated. The geographic "watershed" organization of the Corps Civil Works programs supports the Corps' historic understanding of the necessity of managing water resource activities within a watershed context.

The UMRS makes a great pilot for Integrated Water Resources Management (IWRM) because a unified strategy is required to address the interconnected issues of land use changes, increasing flood frequencies, economic resilience of local river communities, and safety and reliability of commercial navigation. Furthermore, for the past 3 years the Corps, the Upper Mississippi River Basin Association (UMRBA), and other Federal and state partners

have updated models, held various stakeholder summits, and released a watershed health assessment for the entire Mississippi River Watershed. The updated models, stakeholder feedback collected at the summits, and the UMR portion of the *America's Watershed Initiative Report Card for the Mississippi River* support the need for an integrated, comprehensive, and systems-based approach to managing the UMRS.

II. PROJECT GOAL AND OUTCOME

The Corps, the UMRBA, and other Federal and state partners within the UMRS continue to work toward an integrated solution and adequate funding for a watershed study specifically focused on flood and sediment management. Although momentum and public support have been gained over the past 3 years, a synchronized approach is needed to address the flood risk and sediment management problems in the UMRS watershed. The goal of this pilot is to develop a communication and collaboration approach to reach more of the potentially affected interests (PAI) to assist the Corps and other UMRS partners in better understanding and identifying the concerns in the watershed in order to effectively address the problems. The UMRS is too large, too complex for a single agency to successfully restore, protect and sustain it for future generations.

The UMRS IWRM pilot provided an opportunity for the Corps and other UMRS partners to better understand how successful civic engagement (to include proactive, routine communication and coordination) can assist larger efforts such as a watershed study in being more successful. Mr. Brian Stenquist, Minnesota Department of Natural Resources facilitator, trained the key partners in the UMRS in the Systematic Development of Informed Consent (SDIC) approach and how it can assist the multi-agency and multi-state effort.

III. THE SYSTEMATIC DEVELOPMENT OF INFORMED CONSENT WITHIN THE UMRS

Informed consent is a proven process aimed at moving a project forward. The definition of informed consent is *"the grudging willingness of opponents to go along with a course of action even if it has a negative effect on one's self-interest."* – The Institute for Participatory Management and Planning

Typically the Corps and other Federal and state partners host public meetings at various points of project development and in most cases these meetings are the only touch point the PAI has with partners. According to the SDIC process, partners can unintentionally

communicate a sense of "power" to the PAIs, creating an "us vs. them" environment which hinders efforts of strong coordination, collaboration and communication.

On the other hand, when the PAIs perceive the decision-making process as "fair", they are more willing to accept a project that disproportionately impacts different interests. Additionally, the PAIs have learned that *no issue is impossible to fight* if it threatens their livelihood or core values. This is why it is extremely important to have a successful engagement and communication strategy for all of the PAIs from the beginning.

At its core, informed consent is all about civic engagement; therefore, the IWRM pilot focused on the SDIC process because a majority of past efforts did not have the support from the PAIs to move dirt and get a project completed.

IV. THE SDIC PROCESS

The SDIC process forces the project development team to develop a strategy around the PAIs. PAIs are those directly, indirectly and/or who think they are directly or indirectly affected by a project.

Throughout the SDIC process it is important to ensure all the PAIs understand the following four facts:

- There is a serious problem or an important opportunity one that has to be addressed
- 2. The Corps, the UMRBA, and other Federal and state partners are the right entities to address it, given their missions it would irresponsible of these agencies not to address it.
- 3. The approach being used to address the problem is reasonable, responsible and responsive.
- 4. The PAIs voices matter and they are being listened to. It is not that these agencies do not care about the PAI, it is because there is a serious problem or opportunity that has to be addressed.

The above facts probe how well or how poorly the project team is following the SDIC process. More importantly, the project team will not fully gain informed consent from *all* PAIs until these four facts are truly understood by all.

The SDIC is accomplished by 15 objectives. These 15 objectives are broken out into three categories: Responsibility, Responsiveness and Effectiveness.

Five Responsibility Objectives of Civic Engagement

- Establish the legitimacy for the Project and your Agency
- Maintain that legitimacy over time
- Establish the legitimacy of your processes and procedures
- Maintain that legitimacy over time
- Establish and maintain the legitimacy of earlier decisions and assumptions

Five Responsiveness Objectives for Civic Engagement

- Get to know all the potentially affected interests
- Get to see the project, the agency, the world through their eyes
- Help identify all potentially relevant problems
- Help generate solutions and partial solutions
- Articulate and clarify the key issues

Five Effectiveness Objectives for Civic Engagement

- Nurture and protect your credibility
- Have your communications received and understood by the PAIs who need to understand them
- Receive and understand the information that you need to receive from PAIs
- Search for common ground among PAIs who have conflicting, polarized values
- Mediate between PAIs who take polarized positions even though they do not have polarized values

The 15 objectives can be executed through **75 different techniques,** eight of which are as follows:

- Open Forum Meetings
- Content-Type Advice Giving Advisory Committee
- Producing and Releasing Materials to PAIs and the Media
- Educating the PAIs about the project and its processes.
- Use of existing clubs, civic groups and other organizations
- Open channel of communication with each PAI
- Successful website development
- Use of Social Media

These eight techniques are likely going to assist the Corps and its UMRS partners in establishing legitimacy for agency involvement, the project and the project's processes. Additionally, these techniques will assist the Corps and other UMRS partners to get to know all PAIs and see the project through their eyes.

V. THE UMRS IWRM PILOT PROCESS

The following outlines the process the UMRS IWRM team followed to develop a rough communication and outreach framework using the SDIC process.

Step 1: Inform and Educate the Team



Since SDIC was a new process for a majority of the UMRS partners, the first step of the process was to convene the appropriate Corps team members and the UMRBA board members (which includes a crosssection of state, Federal and nongovernmental partners who are active in the UMRS) for a face-to-face workshop aimed at educating them on the SDIC process and why this process is needed to complete efforts within the UMRS.

On August 6, 2018, the Corps and the UMRBA hosted an educational webinar on the SDIC process facilitated by Mr. Brian Stenquist, Minnesota Department of Natural Resources, who is trained in the SDIC process and is familiar with the various projects and programs in the UMRS. The goal of the webinar was to prepare participants to dig into exercises and meaningful conversation when attending the SDIC Workshop the following week.

On August 13, 2018, the Corps and the UMRBA hosted the face-to-face SDIC Workshop in La Crosse, WI. Mr. Stenquist walked the 40+ participants through the 15 SDIC objectives and discussed a few of the 75 different SDIC techniques. The participants then worked in small groups practicing how to answer the following questions:

- 1. What is the serious problem or important opportunity?
- 2. Are the appropriate agencies addressing the problem? If so, why and how are you going to communication that to the PAIs.

- 3. Who are the PAIs? How are you going to address this problem/opportunity in a reasonable way, with responsibility and responsiveness?
- 4. How is the PAI's voice going to be heard? And what are you going to do with the information you gather from the PAIs?

The small group exercises helped the UMRS partners think about what would go into an engagement and communication framework aimed at educating PAIs about efforts in the UMRS to reduce flood risk and sediment.

Additionally, the participants were asked to imagine they were members of the PAI groups to think about how they might view the efforts occurring in the UMRS. This helped the participants to see the world from the PAIs' perspective and not through their traditional agency mission execution roles.

Step 2: Recap with potential team leaders after face-to-face workshop



Directly following the face-to-face SDIC workshop, Mr. Stenquist pulled together a handful of leaders from the Corps and UMRBA UMRS team to talk about next steps and how they felt about the SDIC process.

After an hour of conversation, the team realized maybe the reason why they have not been as successful with past projects was the fact that they were focusing on the project and not the people who are

directly, indirectly, or think they are directly or indirectly affected by the project. The team agreed the next step should be to look at the information collected during the face to face workshop and use it to develop a draft engagement and communication framework. The framework will serve as a starting point for the team to use as they figure out the following:

- 1. Who are the PAIs?
- 2. How are we going to engagement them? What do we want to know from them?
- 3. How do the PAIs view the project? How much do they know about the project and why it's so important to take action now?

The Corps and staff from UMRBA were tasked with developing the draft framework over the next month.

Step 3: Review the results from the face-to-face workshop

Section IV presents the results gathered from participants at the face-to-face workshop. These results were used to draft the initial communication and engagement framework.

VI. THE RESULTS

What is the urgent issue or important opportunity?

- Increasing floods and how to convey a major flood
- No watershed plan for FRM
- Life safety
- Protect and manage fish, forest and wildlife resources so citizens can have an opportunity to use, enjoy and learn from these resources.
- Lack of a framework to inform decisions either during an event or planning for future events
- Lack of a holistic drought action plan
- Sediment management and channel maintenance
- Lack of a system framework for permitting
- A list of impacts and benefits for the UMRS
- A governing body

What will happen if the issues or opportunities are not addressed?

- Loss of habitat
- Increased cost of navigation
- Increased channel closures
- Impacts to economic, environmental and social aspects of the UMRS
- Not properly prepared for a disaster
- Impacts to personal and commercial property
- Health and public safety
- Piecemeal flood fights
- Increased impacts to water supply, thermal power plants, farmers, recreation, hydropower, water quality, aquifer depletion
- Impacts to people, fish and wildlife

Who are the PAIs?

- Mississippi River Cities and Towns Initiative
- Soil and Water Conservation Districts
- NRCS
- Department of Health and Human Services
- Friends of Pool 2
- Farmers and Ag Industry
- Businesses (local)
- General public
- The environmental agencies
- Governmental agencies (Federal, state and local)
- Non-governmental organizations
- Navigation industry
- Recreation users and outdoor enthusiasts
- Energy section –production
- Counties
- Levee Districts
- Insurance Industry
- Federal Emergency Management Agency
- Water supply users
- Regulatory agencies
- Marinas
- Property owners along the UMRS
- Harbors
- Highway and transportation agencies
- Railroad
- Utility
- Recipients of goods and services
- Consumers
- Exporters
- Stream bank owners
- Commodities
- Water-based goods and services
- Economic Development agencies
- Media
- Tourism

- School districts
- Legislators
- Farm machinery businesses
- Academia
- Activists
- Out of geographic area "do-gooders"

Sample Talking Points:

- UMRS is an integrated, multi-use system with shared mission and interest.
- Working together, we can make the system better for future generations.
- Investing in science-based modeling/research, we can better lean the impacts and benefits of human and natural made structures and actions.
- Now is the time to come together and make a difference to protect lives and reduce risks associated with flooding.
- Your voice matters!
- If we don't get involved, someone else will and make the decision for us.
- Rainfall intensity is increasing every year,
- We need to look at the entire system,
- Flood flow frequency curves are increasing.
- Flood control is critical to navigation,
- Without change and a plan, the issue will continue to grow.
- Proactive management versus reactive management
- We need predictable resiliency that is science based.
- We need multi-state buy-in and consistency.
- Economic justification
- If we don't work to reduce flood damages together, we are stuck with the status quo of continued flooding and future disasters.
- It is one Mississippi River but we all need to recognize that significant differences exist in each reach that impact us directly but may not impact others.
- We want to seek a solution to convey a major flood event with minimal property damage and no loss of life.
- We want to accomplish this plan within a reasonable time period, recognizing that it will not be a fully federally funded will be public private partnership
- Target areas on the flood control from Guttenberg, IA, to Cape Girardeau, MO
- PAIs have an opportunity to direct how comprehensive flood protection will be done.
- PAIs' perspective and participation will give local impacts on a basin wide project
- The process will be deliberate and full encompassing and will take time.

- Completing this process and project improves communities and give more certainty to future generations.
- We need to understand concerns.
- We will evaluate and address all your concerns.
- We will try to communicate in the method you prefer on our project toward a tentative plan.
- PAIs will have opportunities and we encourage feedback during the life of the study Drought is not preventable but the impacts associated with drought can be mitigated.
- Appropriate actions taken during non-drought periods can lessen the impacts of drought.
- Extensive long duration drought.
- Desiring to gather feedback and input on the target audiences would likely be addressed in the watershed study
- Inclusive process
- Wanting people to be engaged in the process.
- The eventual watershed study will be informed and guided by the scoping effort (PAS study.
- Attempting to address recurring flooding on the UMRS and to prevent loos of life and property
- FRM has been inconsistently done in the past.
- Greater and more frequent flood events will continue to impose problems on all stakeholders. Group will develop a comprehensive management plan with feedback from stakeholders to more equitably tackle flood issues
- Risk-informed decision making needs to be supported by sound economics and engineering data
- We have an issue UMR sedimentation that needs to be addressed sooner rather than later.
- If no action is taken, the cost of shipping will increase
- Increased cost of environmental restoration to produce clean water to drink (public health)
- Solutions may be developed that could impact how you manage the soil and H2O on your land.
- Sediment is the biggest environmental and economic issue impacting the UMRS
- The quantity of sediment entering the UMRS is increasing
- The cost to dredge material from the Navigation channel is increasing and placement locations are becoming more difficult to acquire

- Need for a systemic FRM plan clear problem definition
- Need for a plan that is comprehensive and fair all stakeholders have an opportunity to be a voice at the table
- Need for a plan that can be clearly articulated to the various focus groups show inundation maps
- Energy production is critical to daily life. Our agency understands this and seeks to create a strategic plan / communication to exchange information during drought. We aim to mitigate lapse in energy production due to low water levels and in exchange want to hear issue of concern during drought
- Drought will impact the ease of navigation barges in the most critical times. We in partnership with XX agency want to exchange real time drought information to promote safety and our economic livelihoods. We hope to partner with you in this effort.

Sample Action Statements To Get PAIs Involved:

- UMRS FRM efforts have been going on for many years. Partners have been working together, fighting floods, working through differences on regulations and learning how to make the UMRS a better system. If nothing is done to this portion of the river there will be more economic impacts and life safety concerns.
- If we don't come up with a plan, someone else will for us. They build more parking lots every day. Flood Fighting is difficult, expensive, and dangerous. Let's have protection already in place.
- We need your involvement in drafting a plan to prevent future flooding along the river. We will need to develop ideas on what will be beneficial to the entire system as well our local area. This will be a long-term plan that will affect your children and grandchildren. Bring your old thoughts and have a clean piece of paper for new ones.
- To help develop a sustainable science-based flood plan for the UMRS that reduces flood damages, improves public safety, and reduces public costs to the greatest extent possible, you are invited to participate in a content-type advisory team. Your perspective and proactive nature are needed. UMRS needs a plan to reduce flood damage via a clear image. UMR needs a plan to prevent "levee wars"
- Three state regulatory and flood response consistency is needed.
- Hello, I'm ___, I've been active in the effort to improve the UMRS. We want all those impacted both directly and indirectly to be involved. If successful we will see both sedimentation management, drought resiliency and flood risk management – do you want to help?

- We have an opportunity to make lasting change in the basin. I sure hope you will join our team. We're looking forward to receiving your input.
- Drought can be harder than floods. We need smart interested individuals to join a team we are forming to find a solution.
- Being proactive with drought planning allows for a reduction in immediate and lingering economic impacts as well as a more efficient and effective use of funds.
- The flood risk working group was convened to develop a strategy to address recurrent flood risk on the Mississippi River and Illinois Waterway and to gather input from affected or interested parties.
- A multi-state FRM framework is needed for the UMRS in order to avoid a repeat of the 47 deaths and \$15 Billion damage as witnessed in the 1993 flood.
- The current piecemeal approach provides less predictability than desired by the citizens and business owners affected. This framework includes sediment control, FRM, and drought management. Do you want to help?
- Sedimentation is the biggest environmental and economic issue impacting the UMR. This issue may be a concern to you because it is impacting habitat and water quality, we would love to hear your thoughts on the issue and potential solutions for managing sediment on the River.
- Extended drought has the ability to interrupt our lives and our economic prosperity as this is a common concern uniting us all; impacts multiple sectors and requires that we have accurate information to plan and act accordingly in various degrees of drought. As a result, the UMRBA is convening Federal, state, and local partners as well as non-governmental organizations and private entities to strategically plan.

VII. A FRAMEWORK FOR COMMUNICATION AND OUTREACH

Based on the workshop discussions and the information collected, a draft engagement and communication framework was developed. The team identified four main steps to communicate and collaborate with PAIs, as shown in Figure 1.



Figure 1: UMRS Integrated Watershed Engagement Strategy

The first step in the communication and outreach framework is to gather more information from the PAIs. The Corps and the UMRBA partners will do this by hosting multiple "open forums" in strategic parts of the UMRS. These open forums will allow the team to listen to more voices without the constraints of a traditional civic engagement "public meeting" process. The Corps will encourage the attendees to discuss topics with each other to learn from each other and better understand each other's position.

The Corps realizes not everyone will be able to attend the open forums; therefore, virtual civic engagement platforms will also be used to gather information.

Once information is gathered the Corps and the UMRBA partners will analyze and categorize the information to learn more about the PAIs, what their viewpoints are and how they feel

about the project and potential solutions. If clarity about various viewpoints is needed, specific PAIs will be connected.

As the project continues, more of the 75 different SDIC techniques will be used to ensure the PAIs are still engaged and informed on the project and its progress.

VIII. OVERARCHING MESSAGES

Below are the overarching key messages developed at the 2017 UMRS Flood Risk and Sediment Management Summit. The "sample talking points results" from the September 2018 IWRM Workshop confirm that these messages are still relevant and continue to successfully communicate the need for integrated water resource management in the UMRS. These key message will be adjusted to incorporate the voices of the PAIs as more information is gathered at the open forums, virtual meetings and other means of engagement venues.

Lack of coordination to achieve a common vision: There is no existing forum for the riverfloodplain community to discuss challenges and new information and to work towards shared goals. Without a forum and shared vision, misunderstandings and mistrust are fueled and individual actions are not understood within a larger floodplain or watershed context.

Management and assumption of risk based on outdated information: There is no common, science-based understanding or framework (e.g., model) of existing or potential future conditions to serve as a basis for dialogue. Current channel maintenance and flood risk plans assume the historic risk of sedimentation and flooding without considering the impacts of weather and land use changes. Additionally, there is a lack of awareness and utilization of available knowledge to inform decision making.

Land use and weather changes altering watershed and floodplain dynamics: Flood and channel constriction events are increasing in frequency and severity. They are occurring in unusual and unpredictable ways that Federal and state agencies and floodplain communities are not prepared to deal with. Urban and rural land use development throughout the watershed and floodplain, in combination with changing weather patterns, has resulted in an excessive volume of water and sediment moving through the watershed at a high velocity. Structural and nonstructural measures impact neighboring communities and habitats in ways not well understood.

There is insufficient capacity to store and remove dredged material particularly near accumulation hot spots. Increasing costs, antiquated land acquisition policies, lack of proactive planning, and inadequate funding have all contributed toward more frequent emergency closures of the navigation channel. Insufficient communication about these closures to mariners exacerbates impacts to navigation. Sedimentation also affects ecosystem health and water quality.

Lack of systemic, agreed-upon approach to management: The Upper Mississippi has a decentralized management structure involving multiple layers of Federal, state, and local authorities with differing scales, reach, constituents, perspectives, and goals. Conflicting, duplicative, and inconsistent policies and enforcement result in subjective and oftentimes unfair flood protection decisions for neighboring floodplain communities. This has created a high degree of mistrust among neighbors and government officials and a lack of motivation to work collaboratively. Existing planning guidance for channel maintenance management is outdated and no longer relevant.

Lack of investment to improve system infrastructure (structural and nonstructural):

Overall decline in Federal, state, and local investment has resulted in antiquated and unreliable navigation and flood control infrastructure (structural and nonstructural) that needs immediate and ongoing attention. Readily available economic information about the river's importance and benefit of investment is needed to motivate decision makers. Levee districts and local communities differ in their financial abilities to invest in their respective infrastructure. Lack of funding for channel maintenance has left the Corps in a reactive position that forces the states to streamline permitting to avoid emergency closures.

IX. INTEGRATED WATER RESOURCES MANAGEMENT LESSONS LEARNED

- Engage PAIs early
 - There was some concern about bring a sampling of PAIs into the IWRM workshop; however, it was clear from the beginning it was important to have them involved early so they understood their voices matter.
- Educate the core project team on the process being used and why
 - When the UMRS team first start talking about the SDIC process a lot of the key partners didn't know what SDIC stood for let alone how to implement the process. Ensuring the partners not only knew what the SDIC was but having them actually work through an example SDIC framework helped them realize

the foundation of any successful project is strong communication and engagement.

- Make use of third-party facilitator if available
 - Using Brian Stenquist as the facilitator allowed the SDIC process to be agencyneutral. Meetings led by the Corps or UMRBA could be perceived as being biased by the agency lead. Additionally, the third-party facilitator asked critical questions the team had not thought about which helped the team realize they need to put more focus on what it was they were working toward and how they were going to communicate this effort to the PAIs.
- Make use of competent G&A employees and agency Communication/Outreach personnel to save time and money when planning engagement and communication strategies for programs and projects
 - Everyone brings a unique skill set to the team. Inviting the appropriate communication and outreach people to lead the communication and engagement efforts not only saves the projects money it allows the right process and techniques to be used for the project. Not every project communication and engagement strategy is created equally. Each project has its own set of PAIs and the techniques for engaging with those PAIs might be different than other projects.
- Don't force any preconceived notions on the process. The UMRS is a complex system with a complex set of PAIs. What worked in another watershed is not going to always work in this one. It will take time and understanding to gain the needed support for any one agency can push out a solution even if the agency scientifically or professionally knows it the right solution.
- Continue to ask the four factors throughout the process.
 - What the problem statement?
 - Why are agencies XYZ the right people to tackle this problem? Why now?
 - Are the solutions reasonable, responsible and effective?
 - Are the PAIs being heard? Is the team looking through the PAIs' eyes and understanding their point of view?

X. **RESOURCES**

- 1. Systematic Development of Informed Consent: <u>https://consentbuilding.com/sdic/</u>
- 2. America's Watershed Initiative Report Card: http://americaswater.wpengine.com/reportcard/