NATURAL HAZARDS CENTER

University of Colorado Boulder

RESEARCH BRIEF SERIES

MITIGATION MATTERS

AWARD RECIPIENTS

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FEMA defines mitigation as the effort to reduce loss of life and property by lessening the impact of disasters. Effective mitigation requires that we all understand local risks and invest in long-term planning to reduce risks and enhance community well-being.

UNDERSTANDING FLOOD MITIGATION IMPLEMENTATION ACTIVITIES IN MINNESOTA'S RED RIVER BASIN

SUMMARY

Floods are historically the deadliest and costliest natural hazard in the United States. Rising flood impacts are evidence that present mitigation efforts are insufficient. It is more important than ever to have a clear understanding of the factors that influence implementation of mitigation strategies—and how to manipulate those factors towards positive outcomes.

This study sought to better understand factors that facilitate or hinder flood mitigation implementation in rural settings, where 15% of the U.S. population lives. Little research has considered flood mitigation efforts in the rural realm.

This study was based in Minnesota's Red River Basin, an area encompassing all or part of 18 predominantly rural counties. For 25 years, flood mitigation projects in this region have been marshaled by the Flood Damage Reduction Work Group, which is made up of representatives from local watershed districts, the state Department of Natural Resources, environmental interest groups, citizens, and other federal and state partners. The work group uses a consensus-based, collaborative approach to flood damage reduction efforts.

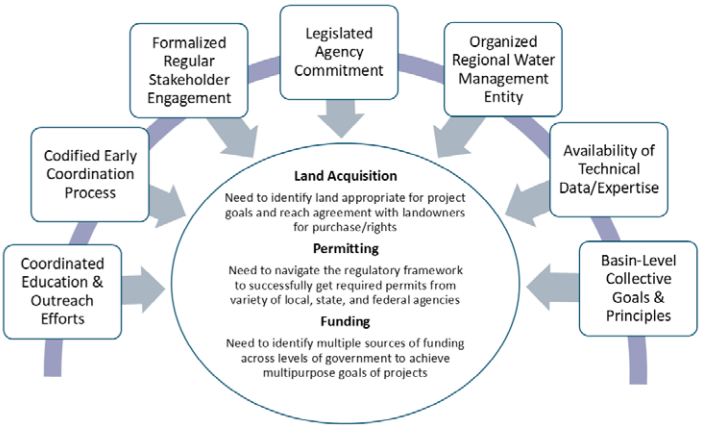
This study employed semi-structured interviews with members of the Flood Damage Reduction Work Group and their key partners—as well as a review of the work group's documents and observation of their meetings—to learn more about this novel approach to flood mitigation and its influence on implementation.

The Red River near Moorhead, MN. Image credit: Sarah Kirkpatrick, 2020.

KEY FINDINGS

- Eighteen major flood mitigation projects have been completed since the inception of the Flood Damage Reduction Work Group in 1998, with an additional 17 projects in various stages of development at the time of writing. These projects have included a variety—and typically combination—of specific flood mitigation strategies. Moving these projects from exploration through to finished construction has proven to be a complicated, lengthy, and expensive process

- Successfully completing a flood mitigation project—or not—has hinged on three key components: landowners, permits, and funding.
- Seven overarching and related factors appear to positively affect all three components and facilitate completion of projects: commitment from a legislated agency, formalized and regular stakeholder engagement, an organized regional water management entity, a codified early coordination process, the availability of technical data or expertise, having basin-level collective goals and principles, and coordinated education and outreach efforts.



Overarching Factors That Influence Rural Flood Mitigation Components

POLICY IMPLICATIONS

- There is a perceived need for a more consistent interpretation of regulatory frameworks. There is also still room for improvement in state and federal systems and processes related to funding and permitting for mitigation projects to make them more "user friendly."
- It can be beneficial to create a written and formalized agreement between key mitigation stakeholders across jurisdictions, sectors, and levels of government. Bringing the key identified stakeholders to the table, building consensus around how those stakeholders are going to work together, and codifying that agreement in a written document can serve as the foundation for mitigation implementation activities. These actions could potentially be incorporated as part of the Federal Emergency Management Agency's (FEMA) local hazard mitigation planning process. However, as currently outlined by FEMA, there seems to be a greater emphasis on identifying and prioritizing proposed mitigation strategies and less focus on determining how the different agencies and entities involved in strategy implementation across sectors and government levels will collaborate to navigate critical components and accomplish the work.
- Rural areas may benefit from considering the creation of a regional water management entity to address flood issues across a broader geographic area. Such an entity may prove beneficial in setting direction, providing leadership, offering a stronger collective voice, and coordinating efforts for the entities it represents. Such a regional organization could be particularly useful in those areas that are resource-strapped or politically limited.

AUDIENCE

This research would be useful for scholars interested in studying hazard mitigation implementation, particularly in rural settings. It would also be applicable to those working to develop and implement mitigation strategies within local, state, and federal government agencies, again, particularly in rural environments.

Full report: Kirkpatrick, S. (2024). Understanding Flood Mitigation Implementation Activities in Minnesota's Red River Basin. (Natural Hazards Center Mitigation Matters Research Report Series, Report 20). Natural Hazards Center, University of Colorado Boulder. Available at: https://hazards.colorado.edu/mitigation-matters-report/understanding-flood-mitigation-implementation-activities-in-minnesotas-red-river-basin

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