TOWARDS A MORE DISASTER RESILIENT MINNESOTA

Re-engineering the Division of Homeland Security and Emergency Management

Shaping the Future of Emergency Management

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SODAA LADREM

HSEM Homeland Security and Emergency Management

About This Report

This report is one of three reports produced as part of a semester-long, innovative problem solving engagement between the Minnesota Division of Homeland Security and Emergency Management (HSEM) and North Dakota State University's Disaster Resilience and Emergency Management Academic Program (NDSU). Each report in this series addresses the following problem statement presented by HSEM: Re-engineer MN HSEM to better meet demands created by the interaction of four primary disaster contexts (economic, hazardscape, political, and social) and support enhanced community-based disaster resilience for 2025-2050. Addressing this challenge required students to consider the entire emergency management spectrum.

NDSU offered the model interdisciplinary course focused on innovative problem solving for MN HSEM in partnership with Kevin Reed, Deputy Director, and Brian Olson, Director of Preparedness and Recovery, both of MN HSEM. The goal was to bring the perspectives and insights of next generation leaders to current (and future) challenges facing emergency practice from a state-level perspective. Students began their problem-solving process assigned to one of the primary disaster contexts (economic, hazardscape, political, and social). Working with their problem sponsors and subject matter experts to better understand and contextualize the challenge. Solution teams including one student representing each context then collaborated to create feasible solutions. The data collected from interviews, coupled with an understanding of the existing literature, allowed the teams to develop and test solutions within a systems thinking framework, and offer specific insights and recommendations.

The teams approached problem solving from a research and development approach, similar to the approach used by the Pentagon's Defense Advanced Research Projects Agency (DARPA). Using a Pasteur's Quadrant perspective (a use-inspired basic research approach) allowed teams to seek a fundamental understanding of the problem with a focus on dynamic solutions. This approach

required a grounded understanding of the problem, and the context and systems within which it exists. The solutions offered often pushed beyond existing programs and workflows.

NDSU's evaluation of this model course's development and delivery is supported, in part, by a service-learning instructional grant award through the NDSU College of Arts and Sciences. NDSU faculty, Dr. Caroline Hackerott, will supply all modified materials to the Emergency Management Higher Education Network to encourage other DREM higher education programs to engage in similar partnerships. It is envisioned that this model course can be used with partners at all government levels and across multiple sectors to bring new perspectives to enduring challenges.

NDSU would like to that the MN Division of HSEM problem sponsors, as well as all the emergency management and partner agency subject matter experts who graciously shared their time, energy, expertise, and guidance. In particular, the team thanks Kevin Reed and Brian Olson, who brought this opportunity to NDSU and fueled the faculty and students with a level of vision, commitment, and enthusiasm that set the tone for the entirety of the experience.

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Executive Summary

This report addresses the challenge of re-engineering the Minnesota Division of Homeland Security and Emergency Management to meet the changing hazard and disaster management environment and improve the level of community-based disaster resilience in Minnesota 2025-2050. Through a research process that included interviews with Subject Matter Experts (SMEs) and extensive review of empirical research, the team identified key disaster management drivers and developed practical recommendations to support HSEM in addressing the identified drivers. The team included students serving as “expert” in one of four critical aspects of the disaster management context: economic, hazards and threats, political, and social.

The drivers identified included climate disruption, mistrust within public agencies, political involvement in HSEM, professionalism, standardization, and social division. To address the impact of these drivers on disaster management and community-based disaster resilience, the team developed three critical recommendations. These recommendations all center HSEM as an agency of connection and integration. The recommendations call for the integration of HSEM into state legislative work groups, the integration HSEM personnel into communities to facilitate the inclusion of the whole community and incorporating local knowledge into decision-making and planning and creating meaningful working relationships with multiple private sector partners.

Challenge Overview

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Introduction

Re-engineering the Minnesota State Division of Homeland Security and Emergency Management (HSEM) presents a complex challenge. Any modification of HSEM must maximize flexibility and adaptability in a rapidly changing disaster management environment. Identifying multiple key drivers led the process of determining how the agency could best address the associated challenges and promote community-based disaster resilience throughout Minnesota. Additional considerations, including constraints, policy, and interagency relationships, further influence the proposed changes.

This report is organized into sections. The first section provides a contextualization of the problem presented by HSEM. The next section presents an overview of the research strategies used to establish the current disaster management environment and identify anticipated changes over the next 25 years. The Literature Review section discusses the current body of knowledge and provides empirical support for both the identified key drivers and recommendations. The key drivers are discussed in the Findings section. The NDSU's recommendations and the support for these recommendations appear in the Recommendations section. This report and its associated presentation will be available after June 1, 2025, on the NDSU DREM website.

Please don't hesitate to contact the department with any questions or to request more information about this project.

Problem Contextualization

Minnesota is seeing an increase in the frequency and intensity of hazard events. Extreme heat events in Minnesota are becoming more common, severe, and lasting longer. Extreme heat events can cause several health-related problems, including an increase in deaths and nonfatal outcomes (MN Dept of Health, 2024). Heavy rainfall events are increasing as well. The Minnesota Department of Natural Resources' (DNR) climate office tracks "Mega-rain" events, events in which six inches of rain covers more than 1000 square miles in 24 hours or less, with at least eight inches falling in that area since statehood. The number of these events is increasing steadily and the DNR expects the trend to continue (DNR, 2025).

Not only are disasters more frequent and severe, but individual, household, and community preparedness levels are not meeting this change. Hazard events are localized, and each unique community reacts in a manner that reflects the level of local knowledge and resources. It is critical that HSEM is aware of the location of vulnerable communities and the extent and type of vulnerability they experience. Without this knowledge, planning is likely inappropriate, and resources misallocated. The risk environment of Minnesota differs regionally and according to a community's disaster resilience profile. Preparing for, responding to, recovering from, and mitigating disasters must reflect these community-based differences. For example, the rural disaster experience differs substantially from the urban experience. However, it is possible to increase the level of disaster resilience of communities in both environments. HSEM must be flexible, agile, and effectively resourced to meet the demands of both community contexts. Agile navigation of these communities requires deep, personal community connection, an understanding of pre-existing social divisions, and an acknowledgement of an increasing level of mistrust in government agencies.

In addition to the challenge of the shifts in the hazard and risk environments within Minnesota, HSEM must navigate the evolution of FEMA and the system of federal disaster management support. The Federal Emergency Management Agency (FEMA) is undergoing a comprehensive review conducted by individuals with no substantial experience in effective disaster response and recovery. This team will provide recommendations to the President to enhance FEMA's operations and structure, with the charge to serve the national interest better and building resilience across the nation. This review council is to assess whether FEMA can effectively function as a supportive entity, offering additional federal assistance to states without undermining their authority over disaster relief efforts. In the meantime, the relationship between state and federal disaster management, and the associated processes and systems are fluid and uncertain.

Research Process

The research process began with students being assigned to one of four focus teams to examine the impact of one of the following disaster contexts: social, economic, political, or hazardscape. Research into these areas included interviews with multiple Subject Matter Experts (SMEs) and reviewing the empirical body of knowledge. At the end of the focus team period, students were assigned to solution teams and expected to bring highly focused knowledge regarding their focus area to the next step. Each solution team included a student "specialist" representing the social, economic, political, and hazardscape context.

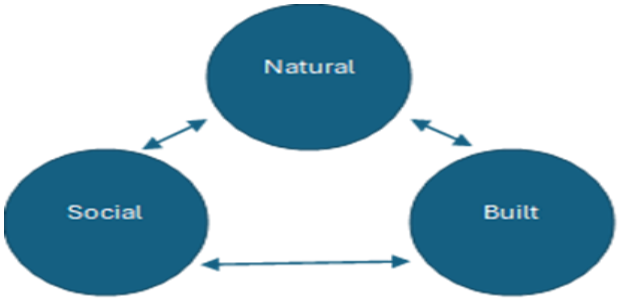
Collaborative knowledge sharing and continued research informed the identification of key drivers impacting disaster management and disaster resilience over the next 25 years. The team developed practical recommendations to address the identified key drivers. Throughout key driver identification and recommendation development, students continued to consult SMEs. The insight provided by SMEs supported by empirical research is included in this report. In this manner, SMEs remain anonymous while their valuable contributions are incorporated.

Literature Review

Disaster resilience

Adopting a community-based disaster resilience perspective for effective disaster management requires an understanding of the foundational concepts of disaster risk, disaster resilience, social capital, and social vulnerability. Equally important is the relationship between them and their factors. These relationships are explained through multiple models, including the foundational Systems Theory (Mileti, 1999), Socio-Political Ecological Theory or SPET (Bates & Pelanda, 1994), Disaster Risk Reduction (DasGupta & Shaw, 2017), and Norris et al.'s (2008) Model of Community Resilience as a Set of Networked Capacities.

Understanding the relationship between natural systems and these social factors is critical for comprehensive risk management and sustainable development, both key elements of community-based disaster resilience. Disaster resilience refers to an individual's, community's, organization's, or government's capacity to absorb, adapt to, and recover from shocks or stresses. Mileti's (1999) presentation of Systems Theory notes that three systems or environments (natural, built, and social) interact with one another constantly (Figure 1). Should a mismatch occur between any of these environments, a disaster occurs. Without an interaction between at least two of these environments, a state of disaster does not occur. For example, a wildfire that impacts no social system (human community, business, organization) or any form of the built environment (houses, roads, infrastructure) would not qualify as a disaster.



Bates and Pelanda (1994) build on Systems Theory as they explored how social environments organize to create differential disaster experiences through SPET. In short, SPET demonstrates that the organizational strategies that result in differential resources available among society or community members will result in similar differentials in disaster contexts. In every society, there are individuals, households, and organizations that are under-resourced relative to other members of their community. Those with diminished access to key resources (economic, political influence, social connections) are less likely to be prepared adequately for a disaster. Post-disaster, those same individuals, households, or organizations will experience greater negative impacts from the disaster and be less likely to access key resources to fully recover from the disaster. This cycle worsens as the negatively impacted systems are left in an even more diminished condition when the next extreme event happens. Bates and Pelanda frame their discussion as competition among different social systems (individuals, households, organizations, communities) for finite resources. They also introduce the concept of adaptation as the impacted entities attempt to navigate the new environment with or without adequate resources. Those entities with greater access to key resources have the greatest capacity to adapt to the new post-disaster environment.

SPET helps to explain the concept of social vulnerability. Social vulnerability is the quality and state of being exposed to hazards, this can be a result of personal, social, physical, or construct factors, and can affect at the individual, household, community, state and federal level (Perry, & Lindell, 2007). Social vulnerability is complex and includes social factors that influence access to key resources and, thus, adaptive capacity or disaster resilience. Factors contributing to social vulnerability include geographical location and exposure to hazards, race and ethnic background, socio-economic status, social and political capital, physical ability, and age. Many of these factors are institutionalized and require intentional interventions to alleviate inequities. Wisner et al. (2008) introduced their PAR Model (Figure 2) to explain how social vulnerability factors the result of dynamic forces and root causes within a society's institutionalized systems are. Addressing social vulnerability requires commitment and a willingness to challenge long-held value and belief systems and the resulting institutional processes.

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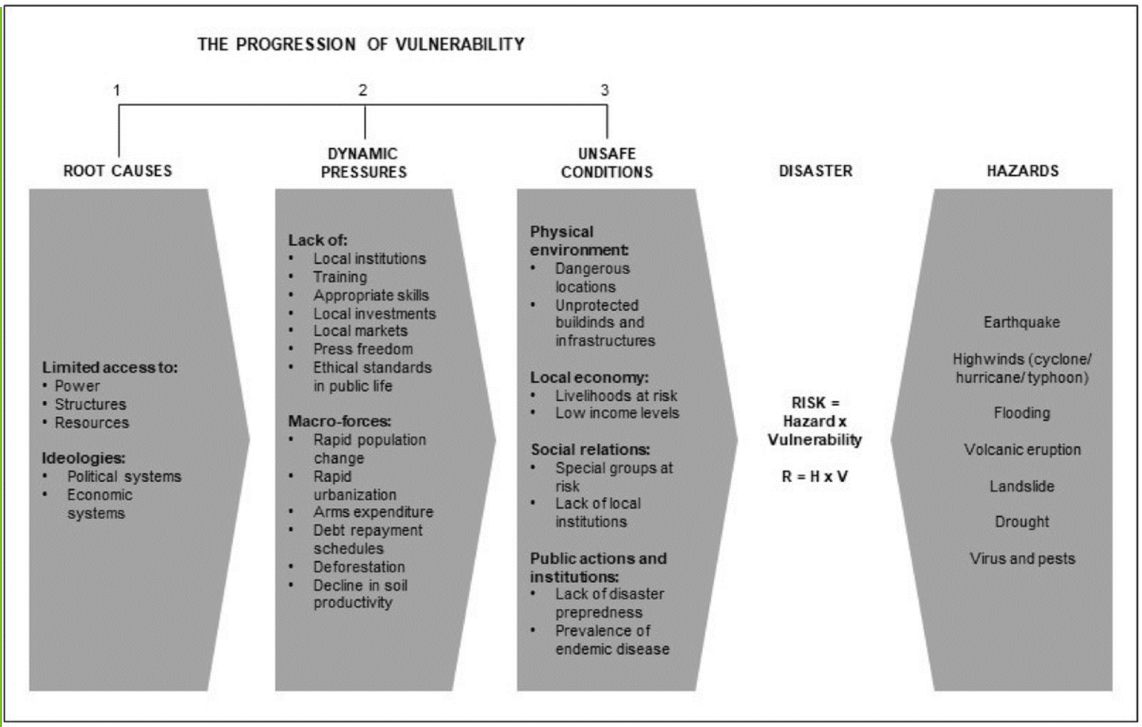


Tierney (2014) emphasizes the potential cost to a community that social vulnerability presents. She moves the discussion from vulnerability to effective risk management which requires members of a community to share the burden of risk equitably. She emphasizes that those who are more socially vulnerable are more likely to bear the burden of risk while receiving little or no benefit from the decisions leading to that risk. Tierney suggests that identification of socially vulnerable individuals and communities followed by intentional inclusion of all community members in disaster planning processes and development decision-making is key to more equitable risk distribution and greater overall disaster resilience. It is also through inclusive processes that systemic vulnerability can be addressed. Inclusive governance also reduces public mistrust in government agencies (Pew, 2019). The potential for social division increases in tandem with mistrust in government. Facilitating public involvement and ownership in governance enhances social cohesion and trust (O'Leary & Bingham, 2009). This relationship is discussed in greater detail later.

Social division poses a challenge on disaster management and community-based resilience and management. As discussed in the findings section, social division occurs when a society creates a significant gap among groups of individuals based on their differing perspectives and/or value systems on specific issues. These differences result in oppositional priorities, making it difficult

to reach an agreement or consensus. These differences and resulting distances are growing more extreme within the political context. Because each group has different priorities, agreement becomes more difficult to achieve. When considering social division within the context of disaster resilience and disaster management, acknowledging and purposefully addressing the divisions is critical. Communities need to acknowledge divides and vulnerable groups in the community while also allowing their ideas and imputes to be heard. Successful disaster resilience building activities require an increase of the whole community including the private and non-profit sectors.

The link between disaster risk, disaster resilience, and social vulnerability is illustrated by the risk equation presented by DasGupta and Shaw (2017). This equation is provided below.

$$\text{Disaster Risk} = \frac{\text{Hazard (H)} \times \text{Exposure (E)} \times \text{Vulnerability (V)}}{\text{Adaptive Capacity (or Disaster Resilience)}}$$

Examination of this equation indicates that risk could be reduced by any of the following strategies: reducing hazards, reducing exposure to hazards, reducing vulnerability, or expanding disaster resilience. While there may be hazard control and hazard consequence reduction actions possible, most carry a hefty price tag. Exposure to hazards may be reduced through land use policies, insurance, or other efforts. However, the ability for community members to participate in or benefit from these activities may be limited by their level of resources. It's likely not feasible for public agencies to fill the resource gap to alleviate disparities among their community members. While these physical mitigation strategies may be possible and feasible, research indicates that reducing vulnerability is more effective (Hackerott, 2020). Inclusion is the key strategy and is typically not expensive. Additional investment in addressing issues of exposure associated with social factors like socio-economic status also magnifies the reduction of both exposure and vulnerability. Actions to reduce vulnerability not only reduce risk but also result in greater disaster resilience thus multiplying the positive effect. Positively impacting overall disaster resilience has the greatest effect on the risk level for a community.

Norris et al.'s (2008) model of disaster resilience as a set of networked capacities illustrates the intersection of social vulnerability, governance, economics, and disaster resilience (Figure 3).

It should be noted that every identified capacity cluster includes factors immediately associated with social vulnerability and social connectedness.
Each cluster is interconnected, emphasizing the necessity of incorporating social dimensions across all domains. As the directional arrows illustrate, these clusters are linked, reinforcing the importance of integrated approaches. The social and communication cluster focuses on the methods and purposes of public communication, particularly in reaching vulnerable populations. This informs outreach mechanisms and the nature and quality of interpersonal and community-level interactions. The community cluster centers on identifying interactions at the local level and assessing specific community needs, emphasizing grassroots engagement. The economic cluster, in contrast, is more concerned with analyzing vulnerabilities within communities and understanding their broader socioeconomic impacts. The economic cluster functions more indirectly than the other clusters, offering insight into structural and systemic challenges. Nevertheless, each cluster relies on the others; effective resilience-building depends on strengthening these interconnections to foster a more adaptive and supportive system.

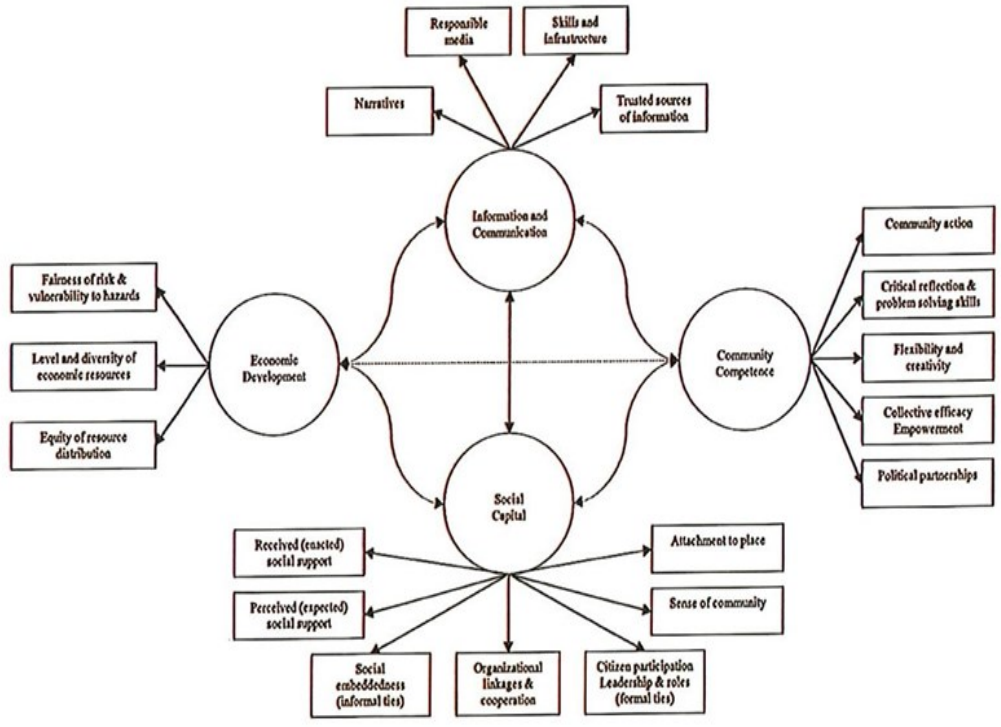


Fig. 2 Community resilience as a set of networked adaptive capacities

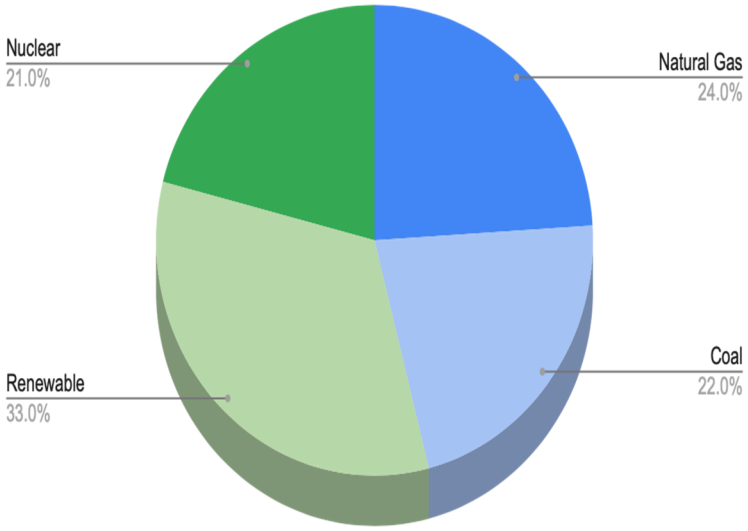
Utilization and creation of energy in Minnesota

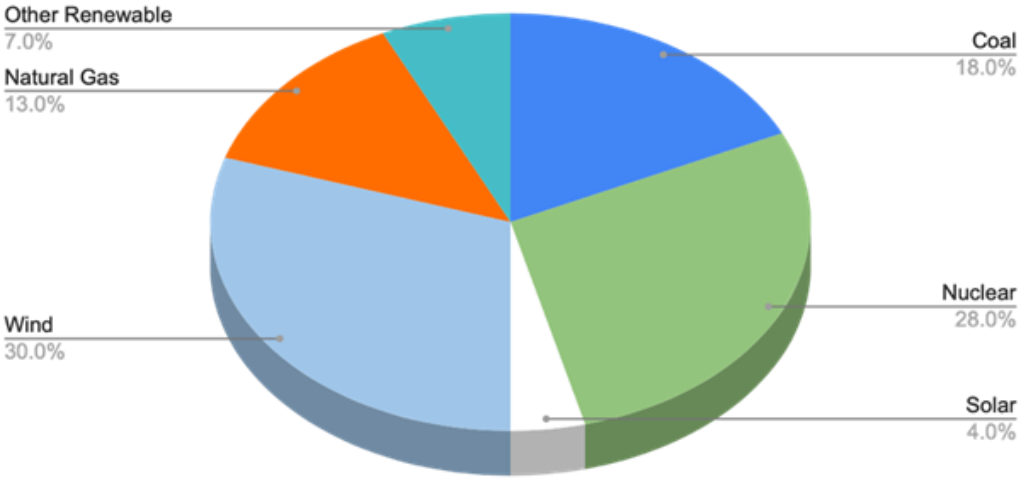
Minnesota has no fossil fuel reserves or production, but it has significant renewable resources and is committed to developing more. Wind, biomass, corn for hydropower, and solar are current renewable energy resources. Wind energy provides the largest share of Minnesota's electricity generation from renewable resources. In 2023, it accounted for more than three-fourths of the state's renewable generation and 25% of the state's total net generation. Minnesota was one of the 10 states with the largest share of in-state wind power generation. The state ranked eighth in the nation in wind capacity, accounting for more than 3% of the U.S. total (U.S. Energy Information Administration, 2024). In 2023, solar energy accounted for 4% of Minnesota's total electricity generation and approximately one-eighth of the state's renewable energy generation. More than four-fifths of the state's solar power came from utility-scale installations.

Biomass provides 2% of Minnesota's total electricity generation and about 6% of the state's renewable generation. Nearly three-quarters of the state's biomass generation uses wood or wood-derived fuels. Most of the state's landfill gas and municipal solid waste biomass power plants are in more densely populated areas in southern Minnesota, while two of the largest wood-fueled plants are in the more heavily forested areas of northern Minnesota (U.S. Energy Information Administration, 2024).

Minnesota is known as the "Land of 10,000 Lakes," but the state produces only modest amounts of hydroelectric power, partly due to its gently rolling terrain. There are 27 utility-scale hydroelectric power plants in the state, with the largest having a capacity of approximately 76 megawatts. Although most plants are small, they account for about 1% of the state's total electricity net generation and nearly 4% of generation from renewable resources (U.S. Energy Information Administration, 2024). Minnesota is the nation's fifth-largest producer of fuel ethanol, accounting for almost 9% of the U.S. total production. The state has 18 fuel ethanol production plants, all of which are in agriculturally rich southern and western Minnesota, where most of the state's cropland is situated. All the state's ethanol plants use corn as a feedstock, as seen in Figure 4. By 2040, Minnesota is expected to be carbon-free in its fuel sources. These options include solar, wind, hydro, biomass, and nuclear energy. Minnesota has 11 hydroelectric sites and three main river systems that utilize

hydropower. Northern Hydro, Western Hydro, and Central Hydro operate stations under 8 federal licenses. All but one of the stations rely on natural river movements to generate power, while one dam is also in operation for power generation. The amount of energy our state produces from renewable resources, such as solar power and wind, has increased by 60% over the past decade. As you can see in Figure 5, today, renewable energy accounts for 28% of Minnesota's electricity generation, with 52% of the state's energy coming from carbon-free sources, including renewables, nuclear power, and hydropower. The results Greenhouse gas emissions from our power sector have decreased by 40% over the last decade (Our Minnesota Climate, 2025).





Overview of Emergency Management

The primary objectives of emergency management in the United States are preserving life, property, and the environment. These principles are the foundation for all emergency management. The process is carried out in four key phases: Mitigation, Preparedness, Response, and Recovery (FEMA, 2021). When each phase is appropriately implemented, a significant impact can be achieved.

Mitigation, the first and ongoing phase, aims to reduce loss of life and property damage by implementing actions to mitigate the impact of future disasters. Preparedness is carried out to prevent, avoid, or stop an imminent threat, natural or man-made. During the Response phase, actions are taken quickly to save lives, protect property and the environment, and meet basic human needs after a catastrophic incident. Finally, Recovery is guided by efforts focused on restoration, strengthening infrastructure, housing, and the economy, as well as affected communities' social, cultural, historical, and environmental fabric (FEMA, 2021).

Threat and Hazard Identification and Risk Assessment (THIRA) is a crucial aspect of hazard assessment. This process is essential when working with weather systems and infrastructure, enabling individuals to effectively identify and evaluate potential threats and hazards. THIRA also aligns with systems theory (Mileti, 1999). Figure 1 examines the interconnectedness of the natural, social, and built environments. Each of these components influences the others, meaning that a disruption in one can impact the overall system's functionality. A mismatch of any two of these systems creates a disaster.

Role of State-Level Emergency Management

State-level emergency management serves as a critical intermediary between local emergency management agencies and the federal government. It plays a pivotal role in coordinating and disseminating resources, information, and guidance from the federal level to local jurisdictions. Among its key responsibilities is facilitating local-level mitigation efforts, ensuring communities are better prepared to prevent or reduce the impact of disasters. Additionally, state emergency management agencies provide essential support to local governments in the form of financial assistance, managerial oversight, and guidance in fulfilling their responsibilities (Cigar, 2009). There is also a

oversight, and guidance in fulfilling their responsibilities (Cigar, 2009). There is also a political involvement at the state level, influencing critical HSEM decisions regarding disaster resilience and disaster management. Emergency management exists to protect lives, livelihoods, and the overall quality of life, which closely aligns with political priorities. However, disaster management often becomes a background issue during disasters (Cwiak & Butterfass, 2025). With community outreach, people can become informed regarding localized disaster management and resilience efforts from the state. These same outreach efforts can also improve resident understanding of the processes involved with disaster management, decreasing the opportunity for dis - or misinformation during an actual event. Such an understanding also enhances public trust in government agencies. It is essential that communication systems supporting increased public engagement and HSEM concerns are prioritized in the political landscape. This is especially important as these concerns are competing against other high-profile issues within politics.

Policies, Strategies, and Operations

In Minnesota, government decisions shape the development and operation of emergency management systems by allocating funds, enacting laws, and prioritizing risks. Legislation and policy decisions directly impact the scope and effectiveness of disaster management efforts, such as flood control, infrastructure resilience, and public health preparedness. Furthermore, political leadership at the state and municipal levels sets the tone for coordination and collaboration. During disasters, HSEM is responsible for facilitating disaster management activities and mobilizing state and federal resources. The funding is allocated through legislative bodies, which determine how much the state can invest in technology, training programs, and infrastructure needed for disaster preparedness (MN Dept. of Health, 2024). Additionally, Congress and the executive branch jointly allocate federal resources during both grey and blue-sky periods, according to the Stafford Act and through multiple grant programs.

In such, distinct statutes and regulations define the roles and responsibilities of several entities involved in emergency management. These laws are prone to change due to political pressures, variations in public priorities, and emerging threats. This tendency to change illustrates the ongoing influence of politics on emergency management. Political interaction with stakeholders,

including the public, industry leaders, and advocacy groups, helps shape policies that protect vulnerable populations and ensure fair disaster response and recovery. Finally, the interaction between politics and emergency management in Minnesota demonstrates the complicated, interrelated nature of policy making, resource allocation, and disaster response, making it an essential component of adequate homeland security and emergency management.

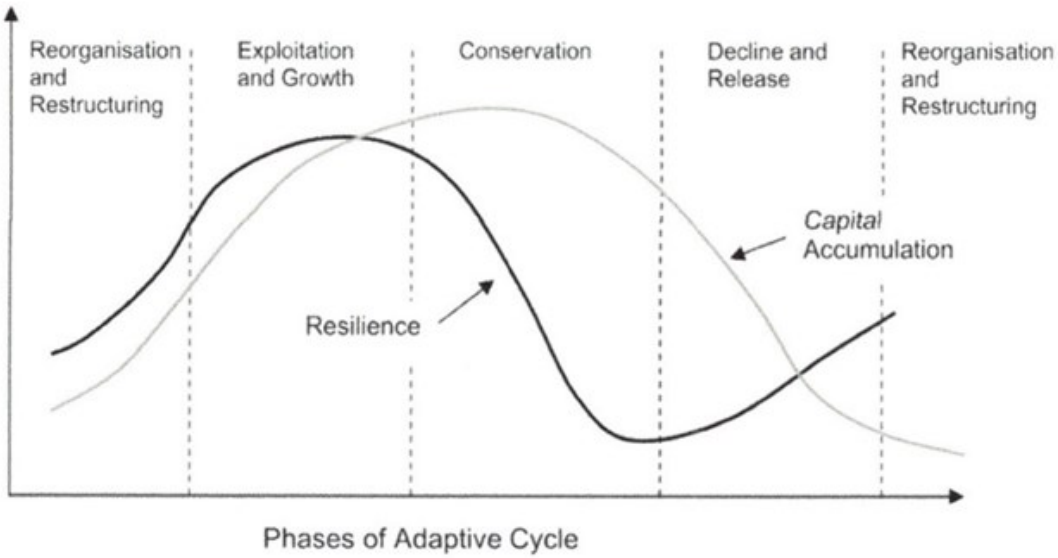
Economic Pressures and Challenges

Regional economic resilience plays a crucial role in shaping a community's ability to withstand and recover from disasters. Scholars have examined economic resilience in various ways, from the financial crisis to the impact of disasters on the world. Disaster resilience research intersects with economic resilience in many ways. We see this through systems theory.

In Minnesota, the lack of resources for disaster management makes a resilient economy with extensive vertical and horizontal integration vital. Minnesota must prioritize maintaining and establishing partnerships with other states to support economic growth during stable periods and facilitate aid after a disaster. Safeguarding Minnesota's ability to trade should also remain a key focus, as it is essential to the state's economic success. A resilient economy must be diversified enough to withstand a hit. The extent to which a regional economy can avoid being thrown out of its previous equilibrium state by an exogenous shock could involve avoiding the shock altogether (e.g., by having a regional economy that is not dependent on an industry that is likely to experience a negative demand shock) or withstanding the shock with little or no adverse impact (e.g., by having an economy that is sufficiently diversified that the shock has little macroeconomic effect) (Briguglio et al., 2006). Horizontal and vertical growth is the development of relationships within and beyond a community. Horizontal relationships are established among local groups, organizations, and institutions, fostering collaboration and unity at the community level (Berke, Kartez, & Wenger, 1993). Vertical relationships are formed through strong connections with outside businesses, state agencies, and government bodies beyond the community.

Minnesota communities project stability when a wide range of relationships are established in the economy. This stability is ensured when strategic partnerships, both horizontal and vertical relationships, are established and maintained, with continual efforts directed toward further expansion. However, as

this growth continues, the various components of the economy are revealed, and the development pattern becomes increasingly fixed, leading to resilience to potential shocks (Figure 7). If such a shock is experienced, structural decline and a loss of growth momentum are likely to slow.



Phases of Adaptive Cycle

Key Drivers

The team identified eight key drivers that shape disaster management and community-based resilience in Minnesota. These drivers include climate disruption, political involvement in emergency response decisions, mistrust in public agencies, community vulnerability, economic inequality, standardized emergency management practices, social divisions, and strengthening vertical and horizontal economic relationships. Each of these drivers influences how the state addresses disasters, and together, they form a complex set of challenges that need to be addressed to ensure more resilient and effective disaster management. This research aligns with existing literature on climate change, public policy, and emergency management, supporting many concerns raised by experts and stakeholders. The literature highlights the increasing risks of climate disruption and the critical role of political involvement and public trust in shaping response strategies. Analyzing these drivers provides a deeper understanding of Minnesota's vulnerabilities and strengths, emphasizing the importance of empowering communities. By enhancing the capabilities and resilience of those most affected by systemic inequalities, targeted recommendations can strengthen disaster management efforts, foster a more equitable and inclusive approach to managing future challenges, and improve Minnesota's overall disaster management capabilities and capacity, ultimately promoting community-based disaster resilience. Table 1 provides an overview of the key drivers identified by the NDSU team.

Climate Disruptions

Climate disruption is the leading cause of both individual and complex hazard events in the state of Minnesota. This driver intersects with and influences other focus areas, requiring adaptable policies to allow for effective and efficient disaster management. To foster resilience within a community, it is crucial to identify those most at risk and allocate adequate financial resources accordingly.

Climate disruption refers to long-term changes in temperature and weather patterns. Such shifts can be natural due to changes in the sun's activity or significant volcanic eruptions. Since the 1800s, human activities have been the primary driver of climate change, primarily due to burning fossil fuels, including coal, oil, and gas (United Nations, 2024, website no longer available). Despite ongoing studies of the root causes of climate change, the impact of these shifts demands immediate attention and changes in disaster management.

Focusing the discussion of climate disruption on temperature swings supports the argument for immediate change in disaster management and an increased focus on community-based resilience. Weather patterns and temperature variability are especially dangerous for more vulnerable community members. These vulnerable groups include those without access to cooling and heating systems, those with pre-existing health conditions that make them more sensitive to heat or cold, and those who are either extremely young or elderly. Extremely high temperatures create heat islands, which occur when a developed area experiences higher temperatures than nearby rural areas or when different regions within a city experience hotter temperatures (Environmental Protection Agency (EPA), 2025). Cities are often covered in darker pavement, which absorbs more heat than rural areas. Of Minnesota's population, 73% (over 3.9 million) live in urban areas. Eleven percent live in towns or near towns with 10,000 to 49,999 residents. (MN State Demographic Center, 2017) Hot temperatures also cause problems for agriculture and livestock, reducing yields and negatively affecting economic stability. Minnesota windstorms and tornadoes increased significantly due to the shifts in hotter temperatures. However, Minnesota's challenge includes concerns about cold weather. CDC's National Center for Health Statistics Compressed Mortality Database (based on death certificates) indicates the reverse—about twice as many people die of excessive cold conditions each year than of excessive heat. For community-based resilience, it is essential to identify the most vulnerable individuals and direct sufficient monetary resources to them appropriately.

Climate disruption creates heavier rainfall events, which allows flood risk to grow and causes soil erosion and lake pollution. Heavy rain also increases the frequency and intensity of 1-2-3-inch rains, which have dramatically increased. (Minnesota Department of Natural Resources (DNR), 2024). Since 2000, Minnesota has experienced an increase in devastating, large-area extreme rainstorms. Rain that historically fell in the 98th percentile annually has become

more common. Climate projections indicate that these big rains will continue to increase. (Minnesota Department of Natural Resources)

As a result of the increased intensity and frequency of rain, the risk is increased. An overwhelmed drainage system leads to flooding on roads, housing areas, transportation systems, and agricultural production areas. Climate disruption also increases drought risk as temperature and water patterns become more extreme and variable. With warmer temperatures increasing evaporation, groundwater levels decrease. Decreased groundwater availability impacts drinking and agricultural water supplies. Due to limited water availability, crop yields decline, and vegetation becomes dry. Dry vegetation and overall drought increase wildfire risk and extend the wildfire season.

Mistrust of Public Agencies

The NDSU team determined that public mistrust in government agencies is a critical driver of future disaster management. Recent research demonstrates that this mistrust is a daily factor impacting the relationships between public agencies at all levels of government (Pew, 2024). The loss of credibility is shared by organizations closely related to governmental agencies. However, community-based organizations still enjoy a relatively high level of public trust at the local level (Schario & Konisky, 2008). Researchers identified multiple factors contributing to the loss of public confidence in government agencies. These factors include real or perceived failed attempts to assist individuals and communities, limited financial capacity to provide needed assistance, reduced key organizational staffing or presence, systemic racism, and variability in political influence (United Nations, 2024).

Public knowledge of and perception of an organization's mission matters (United nations, 2024, website removed). Individuals, communities, and partner organizations must understand how an agency intends to support and serve their needs. The best intentions fall short if the mission is not demonstrably obvious. A local presence in the community is also crucial for building public trust. (Schario &Konisky, 2008) As an agency or organization increases its regional identity, the public tends to view it as more trustworthy. People assume greater local knowledge, understanding, and investment when they identify others as part of their community. Communication is critical to the credibility of public agencies. Organizations must ensure that messages are accurate, concise, and straightforward.

Any inaccuracies must be recognized and corrected with transparency as quickly as possible. Acceptance of accountability and responsibility is critical in maintaining public trust. Research indicates that minority groups mistrust agencies more than other groups. Sometimes, these groups fail due to a lack of clarity between the system and the agencies or the group. There may be a lack of systems to help minority groups, and the existing ones often lack funding or can only provide limited assistance. When one public agency fails to serve communities equitably, other related organizations hold similar biases (Pew, 2019).

Integration of HSEM in Political Disaster Management Policy and Decision-making

Political involvement in HSEM plays a crucial role in shaping funding, decision-making, and policy implementation at the state and local levels. Emergency management exists to protect lives, livelihoods, and the overall quality of life, which closely aligns with political priorities. However, it often becomes a background issue during disasters. Public perception impacts politicians' involvement with disaster management directly. As a strategy to demonstrate commitment and caring for their constituents, politicians frequently engage with emergency management when disasters occur, sometimes using disaster response as a "political opportunity or a blame game mechanism" (Cwiak & Butterfass, 2024).

Partisan divides are increasingly impacting emergency responses at the federal level, which can create obstacles to funding and disaster declarations. As an emergency manager, it's important to work with politicians. Funding for emergency management comes from political decision-makers. Politicians make decisions that impact public safety and resilience (Canton, 2023). Politics often influences FEMA funding decisions.

Political tension has often marked the historical relationships between state and federal administrations. For example, when Minnesota clashes with the federal government, the state may struggle to secure necessary disaster funding due to political conflict. By actively engaging with politicians, MN HSEM can influence legislation that strengthens disaster resilience (Canton, 2023). Politically motivated decisions weaken public trust in emergency response and create uncertainty around the effectiveness of disaster management strategies.

Political turnover also brings new priorities, funding approaches, and leadership styles. Emergency managers must continuously educate incoming politicians about the realities of the HSEM field. However, many emergency managers lack the time or resources to maintain consistent political engagement, which makes it challenging to secure ongoing support for critical programs. Without strong communication and outreach strategies, HSEM may lose political relevance, mainly when it competes with higher-profile issues.
This driver crosses over into all different context groups. Politicians make decisions about funding, post-disaster recovery aid, and other economic matters, thus intersecting with the economic context (Cwiak & Butterfass, 2024). Politicians make numerous decisions that affect public safety and social vulnerability (Canton, 2023). Politicians make significant decisions about climate change and different issues related to climate change, thus crossing over into the climate change context (United Nations, 2024).

Professionalism and Standardization

HSEM is responsible for communicating with multiple agencies, including those at the local, state, and federal levels. Differing vocabularies and jargon create difficulty in interorganizational communication. The ability to navigate multiple agency terminology is complicated and time-consuming. HSEM cannot constantly educate and train new people. If professional standards exist, there are ways to navigate some political issues (Cwiak & Butterfass, 2024). The disconnect between the federal and state governments makes it difficult to work and collaborate due to a lack of agreement. The structure of emergency management is highly loose and a standardized structure at every level of government facilitates the broad support of emergency management functions (Oyola-Yemaiel & Wilson, 2005). Educating politicians on emergency management standards or codes of ethics can help them understand how to work with HSEM and create policies that will have positive cascading effects for HSEM.
Therefore, HSEM must develop key partnerships to leverage knowledge and resources, ensuring a standardized profession in disaster management. No one sector can create resilience in the community. Because HSEM and the government share the same goals, working together and collaborating to build community resilience is essential. Ensure that the state and HSEM engage with each other to be part of each other's systems (Cwiak & Butterfass, 2024). It is essential for HSEM to establish strong partnerships with state and local

agencies, such as public health departments and the Department of Natural Resources (DNR), as well as other critical entities, and to fully integrate these key partners into emergency management planning and operations. This integration enhances coordination, maximizes resources, and strengthens the state's overall resilience from disasters.

Social cohesion and division

Social division occurs when a society creates a significant gap among groups of individuals based on their differing social characteristics, perspectives, or beliefs. These differences are currently growing more extreme. These differences result in opposing priorities, making it difficult to reach an agreement or consensus (Cutter, Ash, & Emrich, 2016). Research identifies certain social factors as contributing significantly to a splintered society. Work by the Pew Research Center (2020) indicated that the distances between the lower and higher socioeconomic (SES) classes are widening significantly. Factors contributing to the expansion of income inequality include gender and ethnic background, which account for the majority of the income differential (Pew, 2023; SHRM, 2021; US Bureau of Labor, 2024). Income gaps create a generational impact, leading to the construction of systemic separation. An example of the institutionalization of income inequality involves the criminalization of poverty and the desire by multiple public agencies to “hide” houseless individuals from public view (Vera, 2023).

Geographical location also contributes to differential disaster resilience and experience as demonstrated through the disaster risk reduction equation presented previously (Cutter, Ash, & Emrich, 2016). This differential experience is especially prominent when examining rural and urban communities. 73% of Minnesota’s population lives in urban areas, and 27% lives in the rural areas of Minnesota. Overall, urban communities are better resourced than rural communities in terms of disaster management. Rural areas struggle to meet and maintain the required capacity and capability within professional disaster management. Major governmental disaster management agencies and non-profit disaster service organizations are typically headquartered in large population centers. Therefore, urban areas have full-time professional emergency managers and other disaster management professionals, while rural areas are chronically understaffed, with a higher proportion of those working in disaster management holding part-time positions. Those filling urban disaster management

roles also tend to be more highly educated and experienced (Cwiak & Butterfass, 2024).

Location also influences social network cohesion (Sowell, 2023). Rural areas are more likely to be racially and ethnically homogeneous and have more consistent socioeconomic status among their residents compared to urban areas. Pew (2018) found that these factors contribute to greater trust among community members than urban residents. This trust differential is critical when applying Norris et al.'s (2008) model of disaster resilience discussed previously. Shared local knowledge, close personal ties, and interaction appear to be the key to increasing social capital and cohesion through trust.

Political polarization is at an all-time high. The political ideologies of the Democrats and Republicans are very different, and tension between the groups can lead to social division and strain social cohesion. Groups of people can be so politically divided that it can lead to the rejection of other groups with different political identities, even within the same community. Cooperation can decrease between groups within the same community when local networks distort information or undermine the opposite groups (Kelly, 2021).

Strengthening vertical and horizontal economic relationships

The economic relationship between individuals, local government structures, and state agencies is vital in disaster planning, mitigation, response, and recovery. Additionally, the connection between government entities and other partners, such as businesses and nonprofits, is equally significant. A community is likely to recover effectively when there is strong horizontal and vertical integration, meaning solid relationships up the chain of command, such as with the federal government, and across industries and sectors, including partnerships with nonprofits. This concept is directly applicable at the state level within an economic context.

Minnesota must prioritize maintaining and establishing partnerships with other states to support economic growth during stable periods and facilitate aid after a disaster. Safeguarding Minnesota's ability to trade should also remain a key focus, as it is essential to the state's economic success. According to the Office of the United States Trade Representative, Minnesota exported $26.6 billion in goods worldwide in 2024, supporting 118,000 Minnesota-based jobs in 2022 (United States Trade Representative). These exports also help thousands of businesses across the state, making protecting trade and supply chains

a crucial component of the business sector's resilience (USTR). From a governmental perspective, promoting trade and strengthening vertical and horizontal integration helps preserve a significant portion of Minnesota's tax base.

Driver	Justification	Support
Climate Disruption	Climate patterns are becoming more unpredictable and extreme. As a result, Minnesota should expect an increase in the frequency and intensity of flooding, extreme precipitation, wind events, and extreme temperature events.	Minnesota Department of Natural Resources, (2024). Minnesota Department of Health, 2015. Climate Central, (2024).
Mistrust within public agencies	Mistrust of state and federal agencies is a significant social driver influencing community response and collaboration during disasters. Rebuilding trust is critical to ensuring efficient emergency response and equitable resource allocation.	Dholakia, N. (2023) Wright, Bradley & Pandey, Sanjay. (2011)
Integration of HSEM in Political Disaster Management in Policy and Decision-making	Political involvement has a significant impact on emergency management through funding, disaster declarations, and the policymaking process. Decisions based on partisan agendas can delay aid or hinder preparedness. Emergency managers must collaborate with political leaders to prioritize resilience, educate officials, and prevent political turnover from undermining ongoing HSEM initiatives.	Cwiak, C., & Butterfass, M. (2024). yola-Yemaiel & Wilson, 2005 Canton, Lucien, (2023)
Professionalism and Standardization	Inconsistent structures, varying terminology, and a lack of formal standards exist across agencies. HSEM can improve local, state, and federal communication, coordination, and efficiency by promoting professionalism and standardization.	Cwiak, C., & Butterfass, M. (2024). yola-Yemaiel & Wilson, (2005) Friedman, T. L. (2017)
Social cohesion and division	Widening societal gaps based on politics, class, race, and geography hinder collaboration during emergencies. Polarization increases mistrust and miscommunication across groups, particularly affecting marginalized populations. Addressing root causes, such as income inequality, urban-rural divides, and political messaging, is crucial to strengthening community resilience and mutual aid systems.	Umsystem. (2008). Cwiak, C., & Butterfass, M. (2024). Kochhar, R. (2023) Kelly, M. (2021) Cutter, Ash, & Emrich, 2016
Strengthening vertical and horizontal economic relationships	Strong economic networks across government levels, as well as with the private and nonprofit sectors, enable faster and more equitable disaster recovery. Maintaining trade, protecting supply chains, and fostering intergovernmental cooperation ensures Minnesota's tax base and business sector can withstand disruptions. Economic integration supports more resilient communities and adaptive emergency systems.	Berke, P. Kartez, J., & Wenger, D. (1993).

Recommendations

Based on the findings and analysis presented in this report, the NDSU team proposes the following recommendations to re-engineer the Minnesota State Department of Homeland Security and Emergency Management (HSEM) as identified in the original problem statement. While the future focus remains on integrating, building, and establishing a culture of resilience, these recommendations are designed to be the goals of the HSEM by 2050.

Recommendation 1: Integrating HSEM representatives into legislative work

Integrating HSEM representatives into legislative work groups and committees ensures input on critical decisions, such as funding legislative work and other policy areas. This presence will ensure that strategic priorities related to all four phases of Emergency Management are adequately considered at the legislative level, which is crucial to implementing all additional recommendations. Intentional integration of HSEM employees with community groups foster stronger connections between HSEM and public and private stakeholders. This strategy provides collaborative opportunities with state- and local-level community work groups, planning committees, and disaster management-focused task forces. Furthermore, inclusion of the private sector with HSEM at the state and local levels ensure that HSEM makes critical decisions reflecting the leveraging of resources provided by private sector partners. Enhancing alignment and coordination across all sectors involved in emergency management encourages improved efficiency, effectiveness, and community support for HSEM processes and decisions. This recommendation is reflected by adding a political advisory board under in the operations and readiness section on the HSEM organizational chart as reflected in Appendix (B).

Recommendation 2: Create a State Disaster Fund

To empower and protect the average Minnesotan and local economies from disaster impacts, the state must be prepared for a reduction in support from the Federal government through the Federal Emergency Management Agency (FEMA). Therefore, Minnesota needs to accumulate resources to assist individuals, households, organizations, and local economies through a household assistance program (Weissert & Megerian, 2025). Historically, FEMA provides financial support through individual assistance and public assistance programs. With diminished access to federal resources, local and state emergency management must increase or establish self-reliance.

The NDSU team identified that individual and household assistance is critical for both the public sector and individuals and households. This assistance is threatened partly due to recent actions involving Executive Orders (13961). According to the US Census Bureau, Minnesota's poverty rate was 9.3% in 2023 (US Census Bureau, 2025). To be considered the top 1% of Minnesota households, you need to make $625,000 a year, and the average income for a household is $115,861, a $509,139 difference. Having a state individual and household disaster fund is a way to protect individuals in poverty and those who suffer from income inequality. Not only can this fund be used to replace the FEMA Individual and Household Program, but it can also be used in conjunction with it if the program is designed to fill the gap in disaster recovery (Berke, Kartez, & Wenger, 1993).

Readily available funds are crucial for meeting the needs of Minnesota's most vulnerable communities (Berke, Kartez, & Wenger, 1993). This issue directly impacts the social context group. Additionally, while it has economic implications, it is closely tied to the political context group because it involves government funding, requires legislative action, and is integrated into state budgets (Minnesota Management and Budget, 2021). This recommendation is reflected by adding a Disaster fund advisory board under the finance and grant section on the HSEM organizational chart as reflected in Appendix (B).

Recommendation 3: Develop a community outreach position focused on developing strong networks focused on climate, disaster, education, and planning

Having outreach programs in the community fosters partnerships between schools, families, and community organizations, creating a sense of belonging and collaboration (MN Office of Higher Education, 2017). Engaging with schools and the community to discuss climate change will help gain knowledge and build trust. Teaching Disruptions to vulnerable communities is crucial. It is essential to inform communities about the direct and indirect impacts of climate change and its impact on disruptions. When integrating members and advocates of vulnerable communities into work teams, HSEM representatives can inform and engage with the community, increase preparedness for hazard events, and build community support for mitigation projects. It can also increase participation in preparedness activities and planning. Additionally, bringing communities together and involving them in planning activities on local concerns and priorities is considered to improve public trust (Hackerott, 2020). When a community understands shared risk ownership, overall disaster resilience is improved (Tierney 2014). These connections are key because civic engagement is one of the best ways to expand the social network.

Climate disruption poses a substantial challenge to disaster resilience and disaster management. As discussed previously, the intensity and frequency of events, extreme temperature variability, changes in natural environmental cycles, and increased public health threats intersect significantly with the role of HSEM. Minnesota's formal disaster management organizations must provide educational outreach to all communities within the state. Resilience requires all community members to understand the hazards and risks they face. The natural environment will continue to change, and one way to limit these impacts and become disaster-resilient is to reach out to the community and get involved in preparing for and preventing hazards. Having these teams go out and local liaisons integrate into the communities to build and strengthen ties among the public and private sectors and the community. The creation of these positions will have a positive return on investment. The value of local knowledge is critical to creating connection and trust to facilitate two-way communication. Such open and trustworthy communication increases the likelihood of effective and community-supported mitigation projects, increasing

the economic benefit to both the state and the involved community. The value of mitigation continues to increase. Traditionally thought to provide a return of $6.00 for every $1.00 invested, more recent research indicates the return has tripled to $18.00 saved in response and recovery for each dollar invested in mitigation (IAEM, 2025). social mitigation like placing community engagement liaisons is an exceptionally effective approach. As a long-term investment, a liaison hired at $80,000.00 annually would save HSEM $1.4 million. Then NDSU recommends creating two community engagement specialists to facilitate HSEM integration into both urban and rural communities. This recommendation is reflected by adding two community coordinators and one education coordinator under in the preparedness and recovery section on the HSEM organizational chart as reflected in Appendix (B).

Recommendation 4: Develop energy self-sufficiency at the state level.

Much of Minnesota's energy is exported; therefore, renewable energy consumption must be increased to become self-sufficient. Minnesota's progressive energy efficiency policies, coupled with effective demand-side management over the past 30 years, put the state in an enviable position (MN Commerce Department, 2023). Developing self-sufficiency energy connects with disaster management and HSEM because it makes communities more resilient and ensures a continuous power supply. A community with a reliable power supply can maintain essential services such as healthcare, communication, and transportation during a disaster. This capability enables quicker restoration of daily activities and aids in recovery efforts, allowing schools and businesses to reopen sooner and families to return to normalcy. Investing in infrastructure that supports a stable power supply helps mitigate the effects of disasters, reinforces community resilience, and ultimately contributes to effective disaster management strategies. This way, communities are better prepared to face challenges and recover more swiftly when emergencies arise. Energy self-sufficiency, primarily through renewable resources like solar power, enhances community resilience by providing an alternative energy source during outages that can occur due to natural disasters like hurricanes or earthquakes. This capability ensures that vital services, including hospitals, communication systems, and necessities, can remain operational, essential for effective disaster response. Achieving energy self-sufficiency reduces reliance on external electrical

grids and fuel supplies, which can be vulnerable during emergencies. This approach helps reduce the chances of supply interruptions and facilitates more effective power management before, during, and after disasters. Dependable energy is crucial for maintaining essential services such as hospitals, communication networks, and water treatment facilities. Autonomous energy systems ensure these essential services remain functional, facilitating efficient emergency response and recovery operations. Having a dependable power supply during and after a disaster is crucial in enhancing the coordination of emergency response initiatives. It facilitates effective communication, medical assistance, and other vital services, thereby streamlining the processes of damage assessment, aid distribution, and the commencement of recovery efforts.

To support the implementation of this recommendation, HSEM needs to identify at least two individuals to engage with energy officials at all levels of government, aiming to expand wind and solar generation, improve energy efficiency in buildings and transportation, and upgrade the state's energy grid. This group can provide resources to the community through homeowners, businesses, schools, and nonprofits, offering ways to reduce energy use. This recommendation is reflected by the adding two energy team coordinators in the operation and readiness section on the HSEM organizational chart as reflected in Appendix (B).

Conclusion

The field constantly changes with shifts in the intensity and frequency of extreme events, structural social shifts, political changes, and economic demands. Building a flexible organization with the ability to adapt quickly and effectively is key to building a better tomorrow. Integrating HSEM into existing systems and processes while creating a culture of self-sufficiency as recommended is critical to meeting the disaster management environment over the next 25 years.

Holistic integration of HSEM into community systems and daily routines provides insight for stakeholders while maintaining and strengthening vertical and horizontal ties. These will help HSEM make critical decisions and strengthen ties within the community and community-based organizations. Another essential step for the future is creating a state disaster fund, which is key to funding the future of emergency management, as federal resources become less reliable. Creating funding pathways at the state level provides flexibility for more localized decisions based on close community working relationships.

Close community partnerships require intentional outreach from HSEM. Empowering local communities is the first step in creating enhanced disaster resilience. Through locally based liaisons, HSEM may facilitate disaster and risk education leading to greater public trust. Inclusive mitigation planning can strengthen resilience through the equitable sharing of risk.

Having self-sufficient energy at the state level would be key. It would ensure that essential buildings have power. With this recommendation, there would be quicker restoration, which is very important to maintaining essential buildings and daily life activities. This recommendation would put HSEM ahead and make sure that power restoration is less of a task. This recommendation would create a more resilient community.

These changes support flexible but dependable systems and processes to reach all stakeholders at the local and state levels. Reducing local and state risk

would also help start the steps towards a more resilient community. It also gives voice to local community perspectives and provides a pathway to proactively assess the changes in Minnesota's risky environment. The future constantly changes, and each solution was created based on the drivers the NDSU team identified as most critical for the year 2050. The future starts now and with these solutions.

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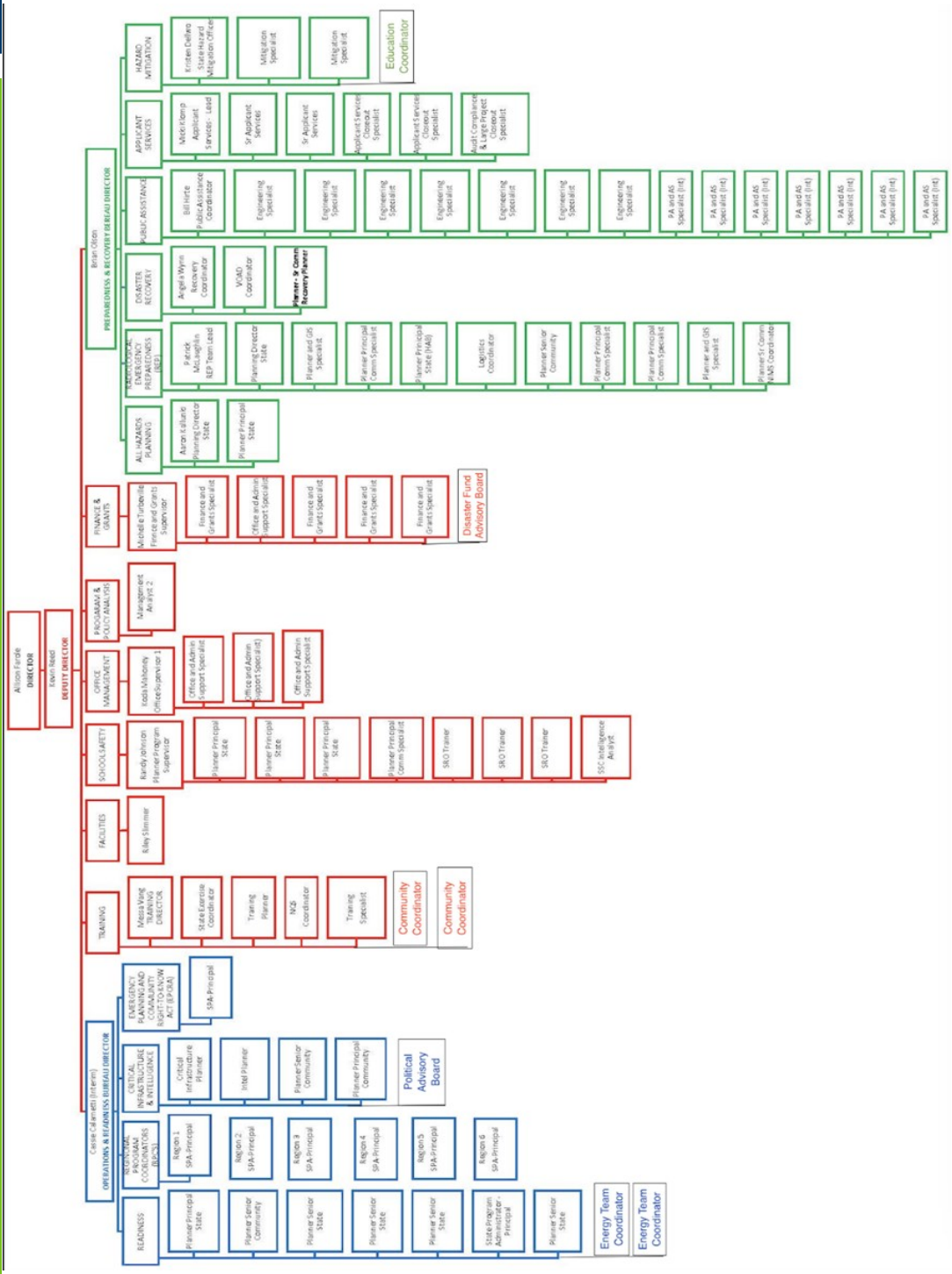
Appendix A

HSEM Organization Chart – Revised 4/14/2025

Appendix B


Allison Fargo
DIRECTOR
Kevin Reed
DEPUTY DIRECTOR
Brian Oden
PREPAREDNESS & RECOVERY BUREAU DIRECTOR
Cassie Calendine (Interim)
OPERATIONS & READINESS BUREAU DIRECTOR
ALL HAZARDS PLANNING
Aaron Lubeck
Planning Director State
Planner Principal State
CATASTROPHIC EMERGENCY PREPAREDNESS GRID
Patrick McLaughlin
NEP Team Lead
Planning Director State
Planner and GIS Specialist
Planner Principal Comm Specialist
Planner Principal State (HAB)
Logistics Coordinator
Planner Senior Community
Planner Principal Comm Specialist
Planner Principal Comm Specialist
Planner and GIS Specialist
Planner Sr Comm & MS Coordinator
DISASTER RECOVERY
Angie Wynn
Recovery Coordinator
VOAD Coordinator
Planner - Sr Comm Recovery Planner
PUBLIC ASSISTANCE
Bill Horte
Public Assistance Coordinator
Engineering Specialist
Engineering Specialist
Engineering Specialist
Engineering Specialist
Engineering Specialist
Engineering Specialist
Engineering Specialist
PA and AS Specialist (Int)
PA and AS Specialist (Int)
PA and AS Specialist (Int)
PA and AS Specialist (Int)
PA and AS Specialist (Int)
PA and AS Specialist (Int)
APPLICANT SERVICES
Vacant Temp Applicant Services - Lead
Sr Applicant Services
Sr Applicant Services
Applicant Services Closeout Specialist
Applicant Services Closeout Specialist
Audit Compliance & Large Project Closeout Specialist
HAZARD MITIGATION
Kristen Dellino
State Hazard Mitigation Officer
Mitigation Specialist
Mitigation Specialist
Education Coordinator
PREPAREDNESS & RECOVERY BUREAU DIRECTOR
PRIVACY & GRANTS
Michelle Turbeville
Finance and Grants Supervisor
Finance and Grants Specialist
Office and Admin Support Specialist
Finance and Grants Specialist
Finance and Grants Specialist
Finance and Grants Specialist
Disaster Fund Advisory Board
PROGRAMS & POLICY ANALYSIS
Management Analyst 2
OFFICE MANAGEMENT
Kayla Mahoney
Office Supervisor 1
Office and Admin Support Specialist
Office and Admin Support Specialist
Office and Admin Support Specialist
SCHOOL SAFETY
Randy Johnson
Planner Program Supervisor
Planner Principal State
Planner Principal State
Planner Principal State
Planner Principal Comm Specialist
SRO Trainer
SRO Trainer
SRO Trainer
SSC Intelligence Analyst
FACILITIES
Riley Slemmer
TRAINING
Melissa Wang
TRAINING DIRECTOR
State Exercise Coordinator
Training Planner
WEB Coordinator
Training Specialist
Community Coordinator
Community Coordinator
OPERATIONS & READINESS BUREAU DIRECTOR
EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)
SPA Principal
CRITICAL INFRASTRUCTURE & INTELLIGENCE
Critical Infrastructure Planner
Intel Planner
Planner Senior Community
Planner Principal Community
Political Advisory Board
SEISMIC PROGRAM COORDINATORS (SPCS)
Region 1 SPA Principal
Region 2 SPA Principal
Region 3 SPA Principal
Region 4 SPA Principal
Region 5 SPA Principal
Region 6 SPA Principal
READINESS
Planner Principal State
Planner Senior Community
Planner Senior State
Planner Senior State
Planner Senior State
State Program Administrator Principal
Planner Senior State
Energy Team Coordinator
Energy Team Coordinator