Wading into a More Resilient Future: Iowa's Story of Survival and Recovery

In 2008, Engineers at the Stanley Hydraulics Laboratory flooded their building. This was no accident, though; as flood waters in the Iowa River rose to a terrifying crest of 31.52 feet, the pressure of the raging water threatened to cave in the foundation and send the structure downstream in a pile of rubble.

Luckily, the hydraulic engineers had the perfect expertise for this kind of crisis. They quickly produced a plan to flood the basement, where the tow tank for aquatic vehicle testing was housed. As the high flood waters flowed into the building, it equalized the immense pressure of the raging river, saving the building from collapse.

Stanley Hydraulic Building During 2008 Flood

The Impact

FEMA declared the 2008 flooding across Iowa the fifth-most costly natural disaster in U.S. history at that time. The financial cost was enormous, estimated at $743 million. Communities across the entire state took a hit, with 85 of the state's 99 counties declared federal disaster areas.

It can take decades for a community to fully recover from the damage of a major flood. Last year, Iowa City residents saw the return of the Stanley Art Museum after extensive flood waters shut down the museum in 2008. Some communities across the state still struggle with the effects of the flood nearly 15 years later.

The 2008 flooding event was the impetus for creating the Iowa Flood Center (IFC), which helps Iowans manage flood risk and prepare for flooding when it does happen. With March

designated as Flood Awareness Month, IFC looks back at Iowa's history of flooding to drive home the importance of successful flood education and mitigation.

Since 2009, IFC has worked with community leaders, lawmakers, educators, and the public to educate and provide flood-related resources for Iowa and beyond. "The information provided by the IFC has been critical in our decision-making process," said Kip Ladage, a member of the Bremer County emergency management team, "They provide vital public safety information not available elsewhere."

Unfortunately, for many small cities and towns in Iowa, the resources are simply not there to fund large-scale flood mitigation efforts. Thankfully, the Iowa Flood Center provides free technical assistance to these small communities, including:

- Hydraulic and hydrologic modeling
- Identifying suitable flood mitigation projects
- Conceptual designs for flood mitigation projects that can be leveraged for grant funding
- Assistance with FEMA mapping appeals and submittals

IFC also developed the Iowa Flood Information System, or IFIS, to help Iowans and emergency responders. IFIS is a one-stop web platform to access community-based flood alerts and forecasts, flood maps, weather conditions, and other flood-related information and visualizations. Free to use and open to the community, IFIS makes it easy to see direct flood impact to personal property and the community at large quickly and effectively. Check out this resource at https://ifis.iowafloodcenter.org/ifis/app/

An IFC Hydrostation Measuring Rainfall and Soil Moisture

Looking to the Future

Preparedness is key when it comes to flooding. Understanding how to engineer a city and its waterways helps minimize the impacts on the front side. At the Iowa Flood Center, engineers work with communities across the state to develop better city solutions. Implementing green infrastructure in flood-prone areas is one solution used to decrease the impact and costs associated with flooding. Green infrastructure utilizes materials and designs that account for flooding to create community spaces that can be enjoyed when flood waters are not present. When flooding does occur, these green spaces are engineered to have minimal financial impact and work to absorb flood waters rather than hold them.

This kind of city engineering has become even more important as flooding events are predicted to increase in frequency. Extreme weather in general is becoming a more regular occurrence across the world. “Just in the past few decades, we’ve noticed changes in the intensification of rainfall and more flooding,” said Dan Gilles, IFC water resources engineer. “The 100-year flood isn’t the 100-year flood anymore.”

Today when the Stanley Hydraulic Laboratory engineers look out their window, they see the bare concrete and rocks lining the banks of the Iowa River below. Currently 20 feet below the river’s crest in 2008, and over a decade removed from the event, it seems impossible to picture the slow-moving river as capable of such destruction. But even as Iowa sits in a severe drought, the memories of the recent historic floods are never far from the minds at IFC. As climate change continues to impact our weather, many people think of those on the coast as the most at risk of severe weather events. However, while we may have rows of corn instead of rolling waves in Iowa, water certainly still leaves its mark in the middle of America.

2008 Cedar Rapids FEMA Response