

Survey reveals ongoing challenges for Iowa industries

In response to the devastating floods and tornados of 2008, Iowa State University Extension Center for Industrial Research and Service (CIRAS) has been reaching out to Iowa industry, offering information, providing guidance, and gathering data. A survey was conducted in June 2008 by CIRAS staff. The intent of the survey and this report is to act as a collective voice for Iowa industry by identifying industry obstacles to exceeding pre-disaster production levels and conveying industry needs to local, state, and federal agencies, organizations, and people providing support and resources.

Background:

There are more than 6,000 manufacturing companies in the state of Iowa with a workforce of 230,000. The survey was directed at 1,400 manufacturers located in ZIP codes that had been reported by Iowa media to have been flooded or hit by tornados. The companies in these ZIP codes have a total of 56,000 employees.

Most of the affected communities were in the eastern half of the state along rivers flowing southeast toward the Mississippi River. Some of the larger cities affected included Cedar Rapids (see Figure 1), Des Moines, Mason City, and Waterloo. The locations of the companies included in the survey are depicted in Figure 2.

For the purposes of this survey, direct impact is defined as sustained damage to the manufacturing facility (e.g., offices, production facilities, machinery, fleet). Indirect impact is defined as disruption



Figure 1. Floodwaters in downtown Cedar Rapids, Iowa.

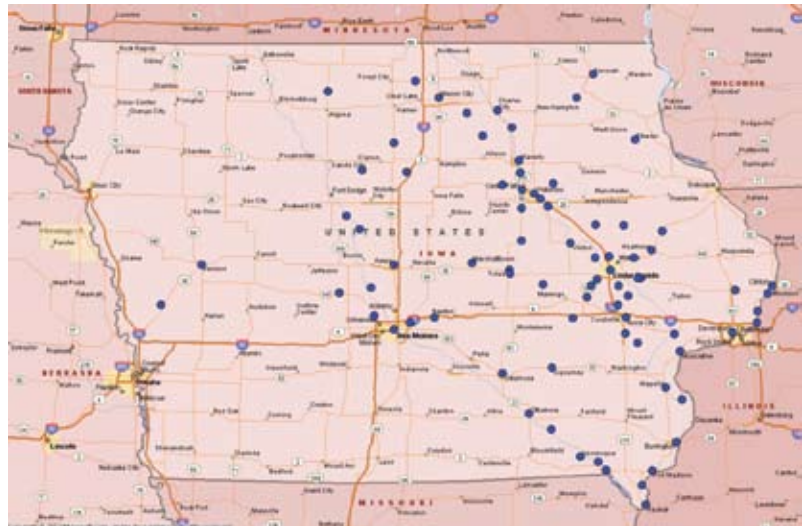


Figure 2. Locations of companies included in the survey.

in production due to issues affecting the manufacturer’s workforce, vendors, customers, transportation, utilities, etc.

Process:

Of the 1,400 manufacturers identified, 1,074 were called. This included all companies with 5 to 500 employees and one-third of the companies with fewer than 5 employees.¹ Surveyors were able to connect with 78% of the 1,074 manufacturers. The status of the remaining 22% of companies not answering the phone is unknown. These companies may have experienced no damage, limited damage, or severe damage. If the damage was so severe that the facility had to be shut down, the impact of the damage caused by the disaster might be greater than what is reported in the results.

Results:

Eight hundred forty-one companies spoke with the surveyors. Fifty percent of the manufacturers reported being directly or indirectly affected by the floods. For every one company directly impacted by the floods, two companies reported being indirectly impacted. The chart in Figure 3 displays the status of these companies.

Although it is anticipated that the effects of the floods outside of the calling area will be significantly less than the effects within the calling area, anecdotal evidence suggests many companies not targeted in the survey were indirectly impacted.

The disasters affected a majority of manufacturing sub-sectors. The chart in Figure 4 displays the 10 largest manufacturing sub-sectors affected. Not surprisingly, the distribution of affected companies closely mirrors the distribution of all manufacturing

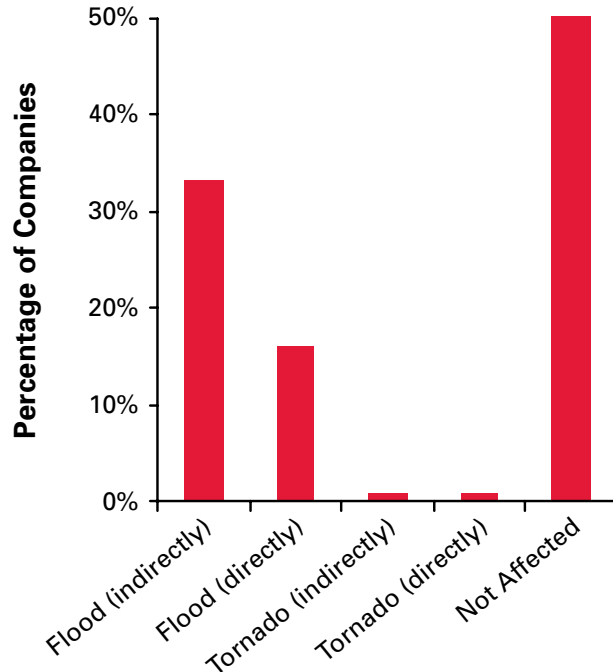


Figure 3. Status of the 841 companies responding to the survey.

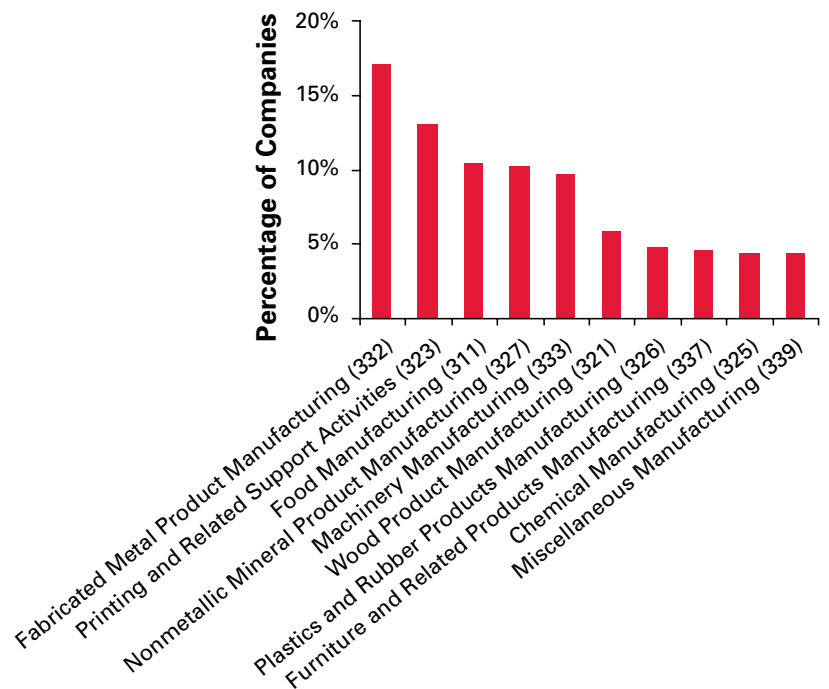


Figure 4. Ten largest manufacturing sub-sectors affected by flooding (three-digit NAICS² code is listed parenthetically).

¹ Only one-third of the companies with fewer than 5 employees were called because it became clear as the survey progressed that no significant new information was being gathered.
² NAICS (North American Industry Classification System) is a code used by business and government to classify and measure economic activity. Establishments that use the same or similar processes to produce goods or services are grouped together.

companies in Iowa. (link: www.ciras.iastate.edu/Manufacturing_In_Iowa_2008-01.pdf)

Of the companies reporting that they were directly or indirectly affected by the floods or tornados, 85% were able to provide more detailed information about the effects of the disasters. Many companies experienced more than one problem. Figure 5 displays these detailed responses.

Workforce was the number one issue affecting companies. Fifty-six percent of all surveyed companies indicated problems related to their workforce. Of companies with 5 to 500 employees, two out of every three responding to the survey reported workforce issues. Workers were unable to get to work because of flooding in their own homes, washed-out roads or bridges, etc. This created a variety of problems for manufacturers, including delays in order delivery, short-term lost sales, lost customers, and added costs when penalty clauses were included in orders.

Road transportation was the second most reported issue, with 53% of companies reporting problems caused by roads. Beyond hindering employees getting to work, closed roads also prevented or slowed incoming supplies and outgoing finished products. Closed roads increased transportation costs as alternate, longer routes had to be located. Most roads reopened with limited damage after floodwaters receded, but several roads sustained significant damage (see Figure 6).

Loss of customers was reported by 36% of the companies. Delays in getting supplies were reported by 31% of the companies. Loss or restriction in utilities (power and water) was reported by 26% of the companies. This affected industries in a variety of ways. Industries dependent on water for process cooling were significantly hampered. Some companies that were not flooded closed down because of unavailability of water for restrooms.

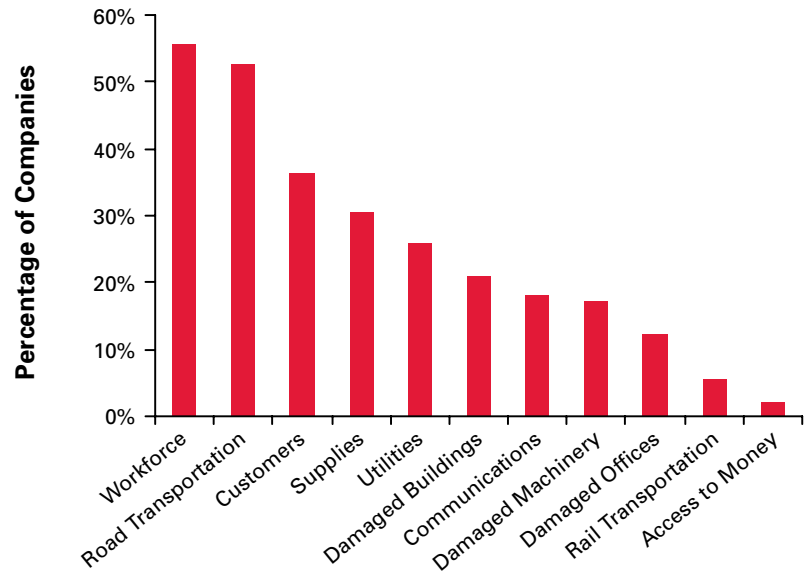


Figure 5. Detailed responses from manufacturing companies regarding disaster effects.



Figure 6. U.S. 6 near the Cedar River.

Companies also reported damage to buildings, machinery, and offices (see Figure 7), as well as communication problems, rail transportation bottlenecks (see Figure 8), and limited access to money.

Summary:

The monetary impact of the disasters on the companies surveyed varied significantly. Company estimates ranged from zero to millions of dollars. The median value of capital damage reported per employee was \$3,100, and the median value of lost income or profits per employee was \$2,200 for companies directly impacted by the floods or tornados. The median value of lost income or profits of companies indirectly affected was \$400 per employee.

It is difficult to accurately assess the total impact of the flooding and tornados on manufacturing. Many manufacturers could not be reached during the survey period. Only 46% of the companies that provided detailed information would provide cost estimates. Companies either did not know the extent of damage or they did not want to provide company sensitive information. The latter was true of many of the larger manufacturers. Parts of the state that were not flooded were not surveyed. Many manufacturers in these regions, especially in southeast Iowa, were indirectly affected by the floods. Despite the uncertainty in the data, it is reasonable to expect damages and lost income to exceed \$100,000,000.

The Center for Industrial Research and Service (CIRAS) provides education, research, and technical assistance to Iowa industry through partnerships with Iowa's universities, community colleges, and government agencies. Assistance is supported in part by the DoC/NIST Manufacturing Extension Partnership, the DoD/DLA Procurement Technical Assistance Program, and the DoC/EDA University Center Program.



Source: Reliable Machine in Cedar Rapids

Figure 7. Destroyed machinery and office equipment at manufacturing facility.



Source: Paul Gormley

Figure 8. Rail bridge destroyed by the Cedar River.

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