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Working Paper #51

SOME OBSERVATIONS ON ORGANIZATIONAL RESPONSE TO THE
SNOWSTORM IN DES MOINES, IOWA, APRIL 9, 1973

By

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Objective

Around April 9, 1973, Iowa was hit by what the press called the worst spring snow storm in eighty years. Telephone contacts with agencies in Des Moines indicated that activity in the city had been halted for two days by the unexpected blizzard. Because of the severity of the storm and the opportunity to investigate the response to the storm by a community within the "snow belt," the Disaster Research Center sent a two-man research team to Des Moines, Iowa. The team stayed two days, April 26 and 27, focusing on storm-associated activities within the city of Des Moines. Information was gathered to answer the following questions:

- (1) In what way did the community respond to the storm;
- (2) What role did the local civil defense organization play in the coordination and other storm-associated organizational responses; and,
- (3) What geographical area within Des Moines and surrounding communities would be affected by disruptions of the city and private agencies and utilities?

Field Work

The field team contacted major emergency organizations including:

- City-county civil defense office
- State civil defense office
- City fire department
- City police department
- City public works department
- Local-state Red Cross chapter

and local utilities:

- Local power and light company
- Local waterworks office
- Local telephone company office

In the case of civil defense and other emergency organizations, intensive interviews were conducted with key officials. The prime focus of contact with the utility companies was to obtain data on their geographical service areas and some idea of the possible scope of disruption of service caused by the loss of vital distribution facilities. Cooperation by the city and local officials was excellent in all instances, giving the research team much time and information.

General Observations

Our observations, based on the overall and general impressions of the field team, can be grouped under the three general questions about this situation.

1. There was neither the need nor an attempt to have overall community coordination in Des Moines.

Iowa, and the city of Des Moines, is quite accustomed to natural disaster agents including floods, tornadoes, lightning and summer storms, and snow. Even the unexpected and untimely nature of the present storm was not totally abnormal for the area, with a similar storm occurring late in the fall and history recording a storm which hit Iowa on May 28, 1947. Iowa, considered part of the "snow belt," frequently experiences snow storms of considerable magnitude during the winter months.

On April 8 and 9, 1973 (Saturday and Sunday) over 13 inches of snow fell in the city, blown into 8 to 20 foot drifts by 50 mile per hour winds. Such a storm had not been forecast. There were attempts for city activities to proceed as normal on Monday morning as only light accumulation and "normal" snow conditions were forecast. However, worsening conditions and low visibility resulted in work personnel having to remain at their homes or at work. There was a general paralysis of all transportation for a period of two days.

Snow removal operations, although highly organized, were hampered by several conditions. The first problem was low visibility, resulting in the State Highway Commission halting snow removal operations until after the storm. Although Des Moines city crews stayed on the streets, they were further hampered by 8 to 20 foot drifts of dense snow (a density of 50 pounds per cu.ft. as compared with a normal density of 5 to 10 pounds per cu.ft.). One further problem was the number of vehicles abandoned in the streets (although this was in direct violation of laws pertaining to snow removal plans). All studded snow tires had been removed from all vehicles including police and rescue vehicles before April 1 in compliance with the state snow tire law. The result was hundreds of abandoned vehicles on main transportation arteries throughout the city. Because of these major transportation problems, activities within the city were focused on emergency operations and snow removal.

Considering first the emergency operations, the major problems were (1) getting those individuals stranded in their automobiles rescued, housed, and fed and (2) attending to emergencies encountered by those isolated in their homes. Radio and television stations broadcast emergency messages both to those in vehicles and in homes and requested that telephone calls to emergency organizations be limited to those calls involving actual emergency situations. Responses by the fire, rescue, and police departments were initially hampered by the lack of snow tires and the fact that the city garage had run out of chains. However, the police and fire departments separately requested and received four-wheel drive vehicles and armored personnel carriers from the National Guard. The police augmented these vehicles with four-wheel drive vehicles and snowmobiles owned by departmental personnel and the Parks Department. Numerous offers by residents of the community of snowmobiles and four-wheel drive vehicles were made and were utilized when practical. The Fire Department used one of the armored personnel carriers for rescue operations and made the second tracked vehicle available to the city ambulance company. Once movement capabilities were regained, all calls for service from the community were answered.

Most emergency operations during the storm period involved taking patients and doctors to hospitals, taking medicine to those isolated in their homes, removing bodies from homes, checking automobiles stranded on Interstate Highways for occupants, and picking up emergency personnel from their homes to relieve those

officers working since the emergency period began. These operations were also accompanied by an increase in the number of heart attacks, an increase in the number of pregnant women needing transportation to hospitals, and the need to evacuate some occupants of mobile homes. This increase in demand may have been, in part, due to the inability to utilize other modes of transportation.

Operations were most accurately characterized as a working cooperative relationship among all the agencies and organizations that normally would function in a situation like this. The public continued to contact the usual emergency organizations which were able to meet public demands using their own resources or resources obtained by them from the outside. Normal emergency operations were augmented only to a limited extent by outside resources other than transportation vehicles. Fire Department rescue units were assisted by Red Cross nurses and a hospital intern.

Although all agencies reported that all calls for service were met in some way, most also learned from their experiences and recommended changes in future operations. Most recommendations included obtaining better vehicles for traveling in snow such as snowmobiles with sleds on the back and four-wheel drive vehicles. Arrangements have already been made with the local civil defense office, a local snowmobile manufacturer, and dealers of four-wheel drive vehicles for obtaining such vehicles in the event of future need. Chains and snow tires are also to be kept in stock at all times for use on normal vehicles. A better communication system was also recommended to increase current capabilities as well as providing more walkie talkies for use in supplemental vehicles during emergencies. Lists of four-wheel drive and snowmobile clubs are also being compiled. One final recommendation was stocking offices used during emergency operations with enough supplies to support office staff stranded at the office for periods of two to three days.

The effects of the storm, therefore, were not as dysfunctional as otherwise might have been the case because the community was not totally unfamiliar with such occurrences. The storm built up slowly, allowing for some preparation, and did not require emergency operations which were not specifically planned for or easily arranged at that time.

Turning attention to snow removal operations, the city of Des Moines has an elaborate snow removal program set up by the Department of Public Works. Although snow removal activities are ultimately under the control of the city manager, design, implementation, and coordination of city snow removal activities are directed by the public works director. The written snow removal program includes specification of relations with school districts, hospitals, and the Traffic and Transportation Department in addition to including separate appendices specifying the activities to be performed by the police, fire, and parks departments. Contingency and emergency plans are also included, specifying priorities for operations during emergencies as well as a program for supplementing city equipment with a wide variety of equipment and drivers from local contractors.

Initially, weather conditions and forecasts called for normal chemical or abrasive control and snow plowing programs. As stated earlier, however, major problems developed Monday morning caused by the total accumulation of snow in combination with 50 mile per hour winds resulting in 8 to 20 foot drifts. Des

Moines city crews stayed on the street all day Monday although their efforts were not successful. Priorities at this time were to break a path through on the major arterial network, while reserving enough equipment to take care of emergencies.

Once the snow stopped late Monday night, the mayor appeared on television, appealing to local businesses not to conduct work on the following day to allow for emergency work and snow clearing operations. Since normal city equipment could not break through the drifts, local contractors were contacted and earth moving crawler-dozers were used to break through the drifts. Removal of abandoned automobiles was accomplished using police and privately contracted tow trucks which accompanied snow removal equipment. A path on major arteries was cleared the first day following the storm, residential plowing was accomplished the second day, and by Thursday, three days after the storm ended, most city streets were open. Snow removal operations were aided by warm temperatures after the storm which melted the pavement dry on plowed streets and lowered snow depth from 13 inches to 6 inches in four days. Despite the magnitude of the storm, emergency operations encountered minimum delays due to problems related to snow removal.

2. The Des Moines-Polk County Civil Defense office did not play a key role in such storm-associated organizational responses as did occur.

The local civil defense office (a joint city-county group) has both saliency and legitimacy in Des Moines. This view was expressed by agencies and organizations throughout the area. The Des Moines office is not exclusively nuclear-warfare oriented; it has a disaster plan based on medical treatment for casualties of massive accidents. This orientation is further reflected in civil defense drills involving accidents, such as plane crashes, designed to confront the medical system of the community with a sudden excess of patients in need of emergency treatment. Further involvement in the community includes participation in the Surplus Property and Excess Programs for the procurement of helicopters, generators, four-wheel drive vehicles, etc. to be used by community agencies and organizations. However, it is also felt that much of civil defense's position in the community is due to the fact that the civil defense director is also the Fire Chief, a man respected in the community prior to his being civil defense director. Hence, it is difficult to separate his actions taken as civil defense director and those taken as Fire and Fire Rescue Chief.

In the snowstorm situation, the city EOC was not activated. Civil defense operations were conducted concurrently with fire department operations from the central fire house. The role of civil defense was seen as making sure that certain needs of the community were met. There were requests for transportation which the local civil defense office was unable to meet due to the lack of civil defense four-wheel drive vehicles. However, civil defense did open the city auditorium, making blankets and cots available to those stranded there, obtained Red Cross nurses and a hospital intern for rescue operations, made announcements over the television and radio regarding emergency procedures, obtained armored personnel carriers from the National Guard, evacuated families from mobile homes, and generally met community needs through the resources of the fire department. As a result, civil defense coordination was low keyed with most agencies meeting their own needs, few outside agencies actually being needed, and their being no local civil defense equipment with which to meet the specialized needs of the community during the storm.

However, there was some feeling that the role of the local civil defense office could have been greater with the development of a disaster plan with a scope broadened beyond simply medical emergencies to include situations such as snow storms. Included in this plan would be information regarding heavy snow removal equipment, tracked vehicles, four-wheel drive and snowmobile clubs, owners, and dealers, and service stations with tow trucks and agreements to make these resources available to the community during times of emergency. It should be noted, though, that transportation problems associated with the heavy snowfall were experienced by all agencies and organizations in the city and appear to be in the process of being alleviated for similar occurrences in the future. As many city officials stated, "You can plan as much as you like, but you are never quite sure what you will be up against until you have experienced the real thing." Little was said about across-the-board planning for any kind of community emergency; nor was there any implication that such activity should be a prime responsibility of the local civil defense office.

3. Because of the large geographical areas served by city and private agencies and utilities, it is very probable that the areas affected by a disruption of these services will be much larger than the actual impact area of the disaster.

Most of the city departments contacted stated that the areas they were responsible for were bounded by the corporate limits of Des Moines. There do exist a few mutual aid agreements which are limited to circumstances when they are called in by surrounding communities. The local Red Cross office served a three county area. However, because Des Moines is also the state capital, many agencies, such as Red Cross and Civil Defense, maintain state as well as local offices. The local telephone, water, and power companies all indicated that they serve much of the area surrounding Des Moines in addition to the city proper.

Problems in delivering services to areas not directly affected by the disaster agent are related to: (1) the centralization of offices, resources, and distribution mechanisms, (2) communication, (3) demands on normal operations, and (4) transportation.

Focusing first on the centralization of offices, resources, and distribution mechanisms, it appears that most organizations locate their offices, resources, and distribution mechanisms in one or a few locations. In such cases, a very limited disaster agent could disrupt a major portion of the organization's services to the public. For example, the Red Cross locates blankets and cots in a few central locations. During the storm, because they were unable to move about freely, it was felt that it would have been very difficult for them to have utilized their cots and blankets for any purposes. The telephone company also indicated that most local calls were handled from a single location, although long distance calls through the city could be re-routed. Most other agencies and organizations, including the electric company, indicated that they were sufficiently decentralized that a single limited disaster could not totally disrupt their service to the public.

The second element, communication, has a marked effect on the distribution of services to the public by many agencies. Telephone communications are of

major importance, linking most agencies to the public, such as the police and fire departments. The electric company also depends entirely on telephone lines for feedback on its operations throughout its service area. Between and within emergency organizations most communication is handled through radios. However, even a well developed radio system must include provision of portable units which can be transferred into snowmobiles and four-wheel drive vehicles which are not normally a part of the radio network. A final communication problem encountered was that at the time when the blizzard was first developing and weather reports were most needed some agencies were able to obtain only a recording when calling the weather bureau.

A third possible source of disruption of services to the public is associated with demands on normal operations. Most organizations could identify marked effects which the snow storm had on their operations. For example, the electric company indicated that power usage was down from the normal weekday levels; service calls almost tripled. Figures from the telephone company indicate that their business calls were down 50 percent while long distance usage increased. Police crime reports show a marked decrease in crime during the worst time of the storm. Fire rescue units encountered an increase in both heart attack victims and pregnant women in labor. Service was also affected by the agencies themselves as when the Water Company called off all service calls and the police requested that the public limit their requests for service to actual emergencies.

Finally, a major factor in the disruption of service during the storm was transportation limitations. Transportation, first of all, affected the number of personnel available to agencies. In most cases, if personnel were not replaced they simply remained on the job until they were replaced. There were, however, certain types of personnel, such as doctors, policemen, and snow removal equipment operators, which were not on duty in sufficient numbers at the onset of the storm to meet the demands placed on their services. In these cases it was necessary to transport individuals to their place of work and to obtain replacements whenever possible. In other cases, as with garage personnel to put snow tires on police vehicles, organizations simply had to do the best with the personnel that they had.

A second facet of the transportation limitations is the effect that it has on an agency's access to individuals in need of service. Many problems with transportation and how they were handled have already been discussed. One additional example involves the electric company. It took eleven hours with a snow plow and caterpillar front-end loader to get one man a relatively short distance where he could throw the switch which would restore power to a large section of the city. In general, all major services to the public involve transportation either directly or indirectly.

A Few Concluding Observations

We conclude with a few general observations in terms of the three general questions used to guide the field work.

In general the community response to the snow storm indicated that the community was not unaccustomed to similar situations and tended to depend on

existing frameworks for operations during snow conditions, despite the fact that this particular storm placed unusual demands on the community. This appeared to be a function of the fact that the community faces snow conditions frequently during the winter, the full effects of the storm built up slowly and in a way such that people could see what was happening, and the major effects were inhibiting rather than devastating.

The local civil defense office, although both salient and legitimate, did not play a major coordinating function during the storm. This fact can be explained by: (1) most community agencies were strong enough to meet their own needs, (2) the lack of a civil defense disaster plan which included snow conditions, and (3) the civil defense director's handling any problems encountered through the resources available to him as fire chief.

Finally, evidence seems to indicate that community services to areas not directly impacted by disasters are likely to be affected. Specific elements associated with the disruption of services during severe snow storms were found to be (1) the centralization of offices, resources, and distribution mechanisms, (2) communication, (3) demands on normal operations and (4) transportation.