

Survey of Emergency Management and Preparedness Agencies in Pennsylvania's Rural Counties

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Executive Summary

This research assessed emergency preparedness in Pennsylvania to determine if differences exist between Pennsylvania's rural and urban counties and between Pennsylvania's rural counties and rural counties in neighboring states.

The study included an analysis of Pennsylvania emergency preparedness policies and budgets, an online survey of county and regional emergency preparedness practitioners, and interviews with state emergency preparedness officials.

According to the research results, funding was a key issue among the vast majority of survey respondents. Budget and staff reductions, increasing costs and unfunded mandates are making it difficult for emergency preparedness officials to adequately meet their responsibilities. The budgetary analysis conducted as part of the research supported these claims.

Another key finding was that rural counties face unique challenges, such as smaller staffs, lack of equipment, lack of reverse 911 capabilities, and limited resources, compared to their urban counterparts. These restraints negatively affect their emergency preparedness levels as compared to the rest of the state.

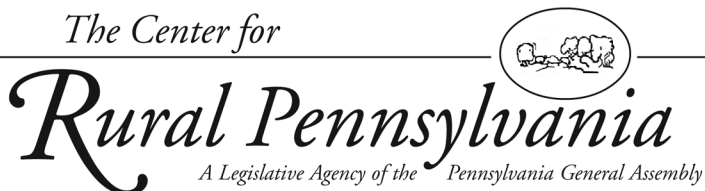
Rural counties also were less likely to have distributed emergency guides to the public or conducted public education/awareness campaigns, which could lower the preparedness levels of the public in these counties.

The results indicate that, to eliminate spatial inequities in emergency preparedness and enhance capabilities, rural counties may need additional assistance.

Overall, training appeared to be adequate in Pennsylvania. However, most survey respondents believed that emergency coordination was not as smooth and effective in Pennsylvania as necessary. This finding appears to be due, in part, to frequent policy changes, lack of staff, and a lack of cooperation between various emergency management agencies and levels of government.

Based on the results, the researchers suggest the following to strengthen emergency preparedness in Pennsylvania: the implementation of education and staffing requirements for emergency preparedness positions; increased funding for the Pennsylvania Emergency Management Agency (PEMA) at a defined percentage of the state budget to make it more stable; and the development of a state grant program specifically for emergency preparedness practitioners in Pennsylvania's rural counties.

The researchers also suggest that: PEMA develops online training opportunities for emergency management personnel to make training more convenient; the state mandates mutual aid agreements and Hazard Mitigation Plans from each county; and the state allocates state funds and emergency preparedness responsibilities to county emergency preparedness officials to oversee their entire county.



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The Center for Rural Pennsylvania is a bipartisan, bicameral legislative agency that serves as a resource for rural policy within the Pennsylvania General Assembly. It was created in 1987 under Act 16, the Rural Revitalization Act, to promote and sustain the vitality of Pennsylvania's rural and small communities.

Information contained in this report does not necessarily reflect the views of individual board members or the Center for Rural Pennsylvania. For more information, contact the Center for Rural Pennsylvania, 625 Forster St., Room 902, Harrisburg, PA 17120, telephone (717) 787-9555, fax (717) 772-3587, email: info@rural.palegislature.us.

Introduction

Emergency preparedness may be defined as a state of readiness to respond to a disaster, a crisis, or an emergency situation (Haddow and Bullock, 2006). Effective emergency preparedness is achieved through a process of planning, training and exercising accompanied by the acquisition of equipment, staff and technology to support emergency action (Gillespie and Colignon, 1993).

The Pennsylvania Emergency Management Agency's (PEMA) role in this process is to coordinate county emergency management activities, assist when more than one county is involved or overwhelmed in an emergency, and serve as a conduit and resource for federal programs to the state through its federal partner, the Federal Emergency Management Agency (FEMA).

There are national standards that FEMA recommends for comprehensive emergency management programs to adopt to comply with the National Incident Management System (NIMS) model. NIMS works hand-in-hand with the National Response Framework (NRF) to serve as the standardized framework in which emergency management systems operate in the U.S. under the U.S. Department of Homeland Security. Emergency management organizations in the U.S. are required to be NIMS compliant to receive preparedness funding and other disaster assistance.

The first recommended standard to assist with NIMS compliance is the National Fire Protection Association (NFPA) 1600, which provides a framework for building emergency preparedness and a benchmark for organizing an effective emergency management program. Specifically, NFPA 1600 recommends that each organization completes/institutes the following:

- Hazard identification and vulnerability assessments;
- Hazard mitigation planning;
- Resource management planning;
- Mutual aid planning;
- Emergency Operations Plans (EOP);
- Emergency Operations Center (EOC) or Multi-agency Coordination Center (MACS);
- Emergency communications system;
- Incident management system;
- Training;
- Exercises/evaluations and corrective measures, and
- Financial planning.

NFPA 1600 is also the basis for the Emergency Management Accreditation Program (EMAP) and the International Association of Emergency Managers' Certified Emergency Manager (CEM) program. A CEM must have:

- Three years of emergency management experience with letters of recommendation;
- A bachelor's degree or 2 years of experience per 30 hours of college credit*;
- 200 hours of training in emergency management and general management;
- Made six professional contributions to the profession;
- Completed a comprehensive emergency management essay; and
- Passed a multiple-choice exam.

(*Note: A recent bachelor's degree in emergency management reduces the experience requirement to 2 years and eliminates training requirements.)

The second recommended standard to be NIMS compliant, NFPA 1561, deals primarily with incident management systems and emergency response and was not the focus of this study.

Pennsylvania law requires that the emergency management coordinator at each level of government earn two levels of certification. A large part of the certification involves completing training offered by PEMA or the Federal Emergency Management Institute. PEMA also regularly conducts exercises to test the effectiveness of multi-agency adaptability and compatibility by using key personnel from state and local agencies as well as coordinating with other response partners and federal agencies (PEMA). The requirements at the Pennsylvania Department of Homeland Security currently appear to be the same as PEMA's.

Pennsylvania needs to be adequately prepared for emergency situations given its history for natural, man-made and biological disasters (such as the nuclear incident at Three Mile Island, industrial air pollution disaster in Donora, terrorist plane crash in Shanksville, and mine disaster in Jacobs Creek).

Unfortunately, national trends have shown an increase in the number of disasters in the U.S., which has been accompanied by an increase in property damage (Kreimer and Arnold, 2000; and van der Vink et.al., 1998).

Rural counties in Pennsylvania face particularly acute challenges in emergency preparedness as they may not have rapid access to necessary resources, and assistance may be needed from distant sources through prearranged mutual aid agreements or the Emergency Management Assistance Compact (EMAC). Not only are physical resources, such as hazmat suits, fire trucks with large ladders, and other equipment, often limited in rural areas, but so are some human resources, such as search and rescue teams, medical workers, and epidemiologists.

In emergencies, the lack of physical and human resources may result in longer response times and more casualties.

Insufficient financing may also restrict emergency preparedness activities in rural Pennsylvania. Proper emergency preparedness requires sufficient staffing and adequate training of personnel. Staffing and training may be difficult to achieve in rural counties with low budgets and tax bases. These issues also may negatively impact disaster resilience, which is defined as the “ability of social units to mitigate hazards, contain the effects of disasters, and carry out recovery activities in ways that minimize social disruption, while also mitigating the effects of future disasters” (Bruneau, 2007).

Promoting resilience requires: investing time and resources in plans that may rarely need to be activated; operating in a cohesive manner with multiple stakeholders; and conducting simulations, exercises and training (Boin and McConnell, 2007; McConnell and Drennan, 2006; and Perry and Lindell, 2003).

A major issue related to emergency preparedness in Pennsylvania is social vulnerability, which is the increased risk of loss due to demographic and social processes. Cutter et al. (2003) attempted to quantify social vulnerability at the county level. The results showed that social vulnerability varies across Pennsylvania, with most urban counties and many rural counties having high levels of social vulnerability. Some factors that serve to increase the social vulnerability of rural Pennsylvania include: lower incomes, higher poverty rates, large elderly populations, large institutionalized populations, fewer medical resources, and a high dependence on social services (Heinz Center, 2002; and the Center for Rural Pennsylvania, 2007). High social vulnerability can serve to amplify the impacts of disasters (such as Hurricane Katrina), while low social vulnerability can reduce the impacts of disasters.

Rural Pennsylvania also is faced with communications challenges that include topography and a lack of infrastructure.

Since the terrorist attacks of September 11, 2001, emergency management in the U.S. has gone through a dramatic shift with the creation of new homeland security organizations, which may pose new planning and management challenges (Rudman et. al., 2003). Emphasis has been placed on developing written plans to deal with terrorism. And while developing an approved Emergency Operations Plan is vital, the development of these plans should be process-based, not product-based.

Preparedness “results from a process in which a community examines its susceptibility to the full range of

environmental hazards (vulnerability analysis), identifies human and material resources available to cope with these threats (capability assessment), and defines the organizational structures by which a coordinated response is to be made (plan development)” (Perry and Lindell, 2003).

The emergency planning process should be comprehensive and coordinated with the input of all stakeholders (West, 2007). And, the planning and training process should be continually updated to maintain emergency preparedness (Daines, 1991; and Buckle et al., 2000).

Emergency preparedness inequities may exist among Pennsylvania counties. The availability and adequacy of knowledge, resources and personnel may differ significantly from one jurisdiction to the next, frequently correlating with the size of the community and the frequency of disaster occurrence (Perry and Lindell, 2003).

Goals and Objectives

This research, which was conducted in 2008, assessed the adequacy of emergency preparedness in Pennsylvania’s rural and urban counties.

First, it evaluated the adequacy of funding levels for emergency preparedness in Pennsylvania by analyzing budgetary trends and analyzing feedback from survey respondents. It compared how funds were being used by the state (PEMA) and by county emergency managers to improve emergency preparedness. It also evaluated the appropriateness of eligibility requirements for funding and training activities according to emergency management practitioners. The funding sources evaluated by the research included appropriations from federal and state budgets, PEMA-administered funds, and grants administered through agencies such as PEMA, FEMA, the Centers for Disease Control and Prevention (CDC), the Environmental Protection Agency (EPA), the National Research Council (NRC), and the National Institutes of Health (NIH).

Second, the study looked to evaluate current emergency preparedness efforts and emergency coordination in Pennsylvania. It also compared emergency preparedness in Pennsylvania with nearby states by analyzing the differences in budgetary priorities, emergency planning, and preparedness activities. It also compared emergency coordination within Pennsylvania and with other states by analyzing contracts among groups and mutual aid and EMAC agreements.

Third, the study compared emergency preparedness activities in rural and urban Pennsylvania counties. It evaluated whether any significant differences exist in

emergency preparedness between rural and urban Pennsylvania counties. It also determined if significant differences in emergency preparedness existed between rural Pennsylvania counties and rural counties in nearby states.

Methodology

This research included an analysis of emergency preparedness budget and policy trends, a web-based survey of county emergency management practitioners, and interviews with state emergency management practitioners.

The researchers used publicly available resources related to budgetary and legislative issues that impact emergency preparedness. This information was analyzed to explore how the budget and emergency management practices have varied over time and across Pennsylvania.

For the analysis, the researchers used: www.access.gpo.gov for federal policies; www.fema.gov, www.usace.army.mil, www.cdc.gov, www.epa.gov, and www.dhs.gov for federal practices; and www.whitehouse.gov for presidential directives.

The researchers summarized state regulations from the Pennsylvania Department of Health (avian influenza), the Pennsylvania Emergency Management Agency, the Pennsylvania Department of Homeland Security, the Pennsylvania Department of Environmental Protection, the Office of the State Fire Commissioner, and the Governor's office using information from their websites and records.

The researchers analyzed information from the following documents: Pennsylvania Emergency Preparedness Guide; PEMA Planning Guide for the Model Emergency Operations Plan; Pennsylvania Emergency Management Services Code; Radiation Protection Act; Counterterrorism Planning, Preparedness, and Response Act; State Fire Commissioner Act; Hazardous Material Emergency Planning and Response Act; Training and Certification Standards for 911 Emergency Communications Personnel; and various PEMA directives.

The researchers also analyzed 11-year trends (1998-2008) and projections of the Pennsylvania state budget. The researchers compared Pennsylvania budgeting trends to those of Ohio, Maryland and West Virginia to determine if the trends were specific to Pennsylvania or if they illustrated a more general trend regionally.

For the survey, the researchers used an online format since this survey format is commonly used in the emergency management field.

The online survey was sent to the following 162 emergency practitioners in all Pennsylvania counties:

- Emergency Management Agency Coordinators or Acting Coordinators (67 total);
- Regional Emergency Medical Services Councils' Executive Directors (16 total);
- Regional Department of Environmental Protection Directors (6 total);
- State Police Directors (1 total);
- County (and two city) 911 Coordinators (69 total, Allentown and Bethlehem have their own systems); and
- Office of the State Fire Commissioner's Regional Field Supervisors (3 total).

Emergency managers in nine bordering counties in Ohio, Maryland, and West Virginia were also asked to take the survey, bringing the total survey audience to 171. These agencies all have publicly accessible membership lists available on the Internet, and all have Internet access to complete the online surveys.

The study also included interviews with PEMA's Director of the Bureau of Plans, the Director of the Operations Division at the Ohio Emergency Management Agency, the IT Planner in Technology Support at the Maryland Emergency Management Agency, the Director of Operations at the West Virginia Division of Homeland Security and Emergency Management, and the Project Manager of the rural North West Central Pennsylvania Emergency Response Group (one of nine regional task forces in Pennsylvania).

The survey and interviews included questions about the number and qualifications of staff members in the agency or region; the requirements, availability, and usefulness of training; emergency preparedness plans and exercises, preparedness activities and awareness programs; availability and need for funding; and coordination within the agency and with other agencies/regions. Most of the questions were multiple choice questions, but some open-ended questions were included to get more in-depth responses.

The survey yielded 54 complete responses, for a response rate of 35 percent. Forty-seven of the respondents were from Pennsylvania and seven were from surrounding states.

To identify rural counties, the researchers used the Center for Rural Pennsylvania's rural county definition: a county is rural when the number of persons per square mile within the county is less than 274.

Results

The researchers grouped respondents as rural, urban or “combination,” according to the respondent’s county location. If the respondent covered both rural and urban counties, the respondent was placed in the “combination” group.

It should be noted that, while the overall response rate was good and the margin of error was plus or minus 10 percentage points, the results may be less accurate when the respondents were divided into the rural, urban and combination groups; particularly the combination group (n=6).

Respondent demographics

The majority of respondents were county emergency management agency coordinators or 911 coordinators (See Table 1).

Seventy-seven percent of respondents were male, and 66 percent of all respondents were between the ages of 41 and 60.

In terms of education, there was a large discrepancy between the urban and combination county respondents and the rural county respondents. While 32 percent of rural respondents had a bachelor’s degree or higher, 75 percent of urban respondents and 83 percent of combination respondents had a bachelor’s degree or higher. While experience is important for emergency managers, education is becoming essential as well (Wilson and Oyola-Yemaiel, 2001).

Most respondents, however, did not have a degree in emergency management. This follows national trends since emergency management has become more professionalized during the past decade. Again, the percentage is notably lower in rural counties (8 percent with a degree in emergency management) than in urban counties (31 percent with a degree in emergency management).

Most respondents also did not have a military background: 20 percent of rural respondents, 25 percent of urban respondents and 33 percent of combination respondents had a military background.

Most respondents held positions in emergency management, public safety, or EMS prior to their current position. However, a few rural respondents previously held unrelated positions such as real estate agents, general contractors, journalists, and teachers.

Table 1: Emergency Management Respondents By Position

	Urban % (n=16)	Rural % (n=25)	Combination % (n=6)	Total % (n=47)
Emergency Management Agency Coordinator	63	44	0	45
Regional Emergency Medical Services Council Executive Director	6	4	50	11
Regional Department of Environmental Protection Director	0	4	50	8
State Police Area Command Office Directors	6	0	0	2
911 Coordinators	25	36	0	28
Other	0	12	0	6
Office of the State Fire Commissioner’s Regional Field Supervisor	0	0	0	0
Regional Counter-Terrorism Task Force Primary Point of Contact	0	0	0	0
Total	100	100	100	100

Twenty-four percent of rural respondents have been in their current position for 4 to 10 years, while 38 percent of urban respondents and 67 percent of combination respondents have been in their current position for that length of time. More specifically, among rural respondents, 16 percent have been in their current position for less than 1 year, 20 percent for 1 to 3 years, 12 percent for 11 to 15 years, 12 percent for 16 to 20 years and 16 percent for 20 or more years.

Adequacy of current funding levels

According to the survey results, the respondents do not believe that current funding for emergency preparedness is sufficient (See Table 2).

The survey did not include a dollar amount to indicate “adequacy” of funding because the “adequate” value would depend on the area of the county, population, and emergency management demands/risks to that county.

These responses indicate that the vast majority of emergency preparedness agencies at all levels believes they are underfunded. This is a problem nationwide due

Table 2: Respondent Replies to Question on Adequate Funding

	% Responses to statement: “My agency receives adequate funding for our responsibilities.”			
	Urban % (n=15)	Rural % (n=24)	Combination % (n=6)	Total % (n=45)
Strongly Disagree	27	25	17	24
Disagree	53	54	50	53
Neutral	7	21	17	16
Agree	13	0	16	7
Strongly Agree	0	0	0	0
Total	100	100	100	100

Table 3: Respondents Who Received Grants for Which They Applied

	Urban % (n=8)	Rural % (n=14)	Combination % (n=3)	Total % (n=25)
Yes	88	79	100	84
No	12	7	0	8
Don't Know	0	14	0	8
Total	100	100	100	100

to restricted state budgets. Several respondents commented that inadequate funds have been a problem for several years (8 percent), and that the lack of funds has limited what their offices can do.

The interviews with state officials revealed similar frustrations in response to this question, with all disagreeing or strongly disagreeing about being adequately funded.

In response to an open-ended question on how emergency preparedness and coordination could be improved in the respondents' jurisdiction of responsibility and the state overall, the respondents suggested increases in funding and staffing for county agencies, improved coordination between federal, state, county, and municipal agencies, and stopping unfunded mandates.

Applying for federal funds

Almost half (47 percent) of all respondents said their agencies had applied for federal grant monies related to emergencies or disasters during the past 5 years (in addition to regular funding). Forty-four percent of rural respondents applied for federal grants and 50 percent of both urban and combination respondents applied for these grants.

The majority of respondents who applied for grants, received them (See Table 3).

Among the respondents who received grants during the past 5 years, the total amount of grants ranged from less than \$50,000 (33 percent) to more than \$300,000 (27 percent).

About 56 percent of respondents also applied for state grants related to emergencies or disasters during the past 5 years. The percentage was slightly higher among rural respondents (58 percent) than urban (53 percent) and combination (50 percent) respondents. The majority of respondents who applied for these grants received them (100 percent rural, 88 percent urban and 100 percent combination). And again, the grant amount ranged between less than \$50,000 (30 percent) and more than \$300,000 (30 percent).

When respondents were asked if there were a sufficient number of grant opportunities available for their agencies, 41 percent said no, 34 percent were neutral, and 11 percent said yes.

Budget analysis

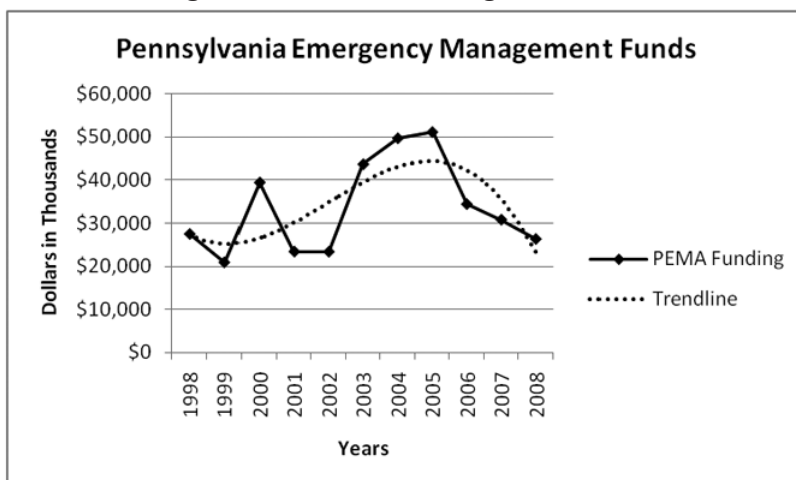
The researchers analyzed Pennsylvania's emergency management budget from 1998 to 2008. According to the analysis, the state's emergency management budget fluctuated over the 11-year period, as illustrated in Figure 1. It appeared that the budgetary priorities and funds increased after large disasters, particularly to address recovery and response efforts, mitigation programs or grants, and decreased during disaster-free periods.

The overall trend looked to be dependent on the hazards of the previous year. Unfortunately, the general recent funding trend has been decreasing budgets, which is the opposite of the recent trend in the number of disasters.

When comparing Pennsylvania's emergency management budget with Ohio's and Maryland's, the researchers found that Ohio had the largest increase in funding, primarily due to federal aid for flood relief in 2004. Throughout the following years it remained high, until 2008, when it began to decline again due to recovery efforts.

This further shows the trend that state emergency management funding is dependent on disasters encountered

Figure 1: PEMA Funding, 1998-2008



Source: Pennsylvania Office of the Budget, 2009

Table 4: Per Capita Spending on Emergency Management
(data from state budget websites and U.S. Census Bureau)

State	Money Spent	2007 Pop. Estimate	Per Capita
Maryland	\$30,791,000	5,618,344	\$5.48
Pennsylvania	\$31,945,000	12,432,792	\$2.56
Ohio	\$170,775,000	11,466,917	\$14.89

within the state. A large portion of those funds were being used for emergency preparedness in the form of public awareness programs and mitigation. However, the declining trend in Pennsylvania may prove to have a negative effect on the preparedness of the state through the next disaster.

Table 4 shows the per capita emergency management budget (adjusted to 2008 dollars) based on 2007 population estimates from the U.S. Census Bureau.

The results of the per capita analysis indicate that Pennsylvania spent the least on emergency management per capita of the three states. The research did not include West Virginia in the analysis because its budget data were unavailable.

The trend of recent decreases in spending on emergency management was evident when analyzing the percent of the state budget that is dedicated to emergency management. Pennsylvania decreased that percentage in recent years at a time when emergency management has become more difficult and expensive due to new threats. In recent years, Maryland has increased the percentage for emergency management and now spends the same percentage of its budget on emergency management as Pennsylvania. Ohio spends more than either Pennsylvania or Maryland. The percentages spent may vary based on the population and area to be protected (size of state), but, at the time of the study, less than one-tenth of 1 percent of Pennsylvania's general fund expenditures were allocated for emergency management.

Staffing and equipment

According to the survey results, 69 percent of respondents said they were understaffed. This appears to be a pervasive problem nationwide due to restricted state budgets. However, sufficient staff is needed to provide effective emergency preparedness practices.

Many respondents commented that even just one more staff member could help immensely, and that recent staff cuts have limited what their offices could do.

In response to the question of having sufficient equipment to fulfill their duties, 47 percent of respondents

disagreed and 22 percent were neutral. Respondents from rural counties tended to disagree more (54 percent) than other respondents (43 percent urban and 17 percent combination). Thus, a lack of equipment could hinder emergency preparedness and response. Comments included a lack of funds for maintenance and upkeep and a lack of trained staff.

The majority of respondents agreed that the technology they had was adequate. Fifty-four percent of rural, 67 percent of urban, and 50 percent of combination respondents agreed or strongly agreed that their agency had up-to-date technology to fulfill their duties.

The interviews with the state and regional emergency management contacts indicated the same general responses for the adequacy of staffing and technology.

Training and preparedness

The survey results showed that most respondents had attended training during the past year. In fact, 96 percent of rural, 100 percent of urban, and 83 percent of combination respondents had attended a training session related to their job within the past year.

The most common training sessions attended were: National Incident Management System (NIMS) (16), PEMA quarterly training (14), Incident Command System (ICS) (9), 911 (4), and Computer-Aided Drafting/Geographic Information Systems (CAD/GIS) (3).

The majority of respondents also indicated that staff was sufficiently qualified and trained. Seventy-one percent of rural, 93 percent of urban and 50 percent of combination respondents said staff in their agencies was sufficiently qualified/trained. Comments stated that training is continuous and vital and that the staff work very hard.

The state officials interviewed also indicated that their staff was sufficiently qualified and trained. Most agreed that staff was doing a great job, but the officials acknowledged that there is always room for improvement.

While the majority of respondents (78 percent) said there were sufficient training opportunities available to them, many indicated that they do not have time to take advantage of training due to limited staff and funding.

The majority also agreed that the available training was relevant to work-related duties.

The majority of respondents (56 percent) believed that their agencies had above average emergency preparedness levels when compared to similar agencies nationwide. While these responses were subjective, they helped to give a sense of the level of preparedness the respondents feel they have relative to other locations.

From state and national conferences, meetings, and communication, they often have a fairly good sense of what other emergency preparedness officials are doing and where they stand relative to other locations.

Eighty-four percent of respondents had mutual aid agreements in place. County respondents are encouraged to have these agreements in place for extra resources. While the state usually assumes responsibility during large disasters, having mutual aid agreements in place at the local level further ensures that resources will be available for incidents.

About 50 percent of respondents had agreements with five to 10 surrounding municipalities, which is good for support services if needed. The interviews with state officials indicated that all states now participate in the Emergency Management Assistance Compact, EMAC. In addition, the agreements are often with the county.

In response to a question about data, 73 percent of respondents noted the use of digital, versus analog, data. All respondents also indicated that they use computers every day.

Most respondents had frequent contact with PEMA (89 percent) and the department of homeland security (50 percent).

When asked if emergency coordination in the state was smooth and effective, 31 percent of respondents were neutral and 49 percent disagreed or strongly disagreed. Urban respondents were particularly strong in disagreement (73 percent). Comments included a lack of cooperation between emergency management agencies and local governments, a lack of staff, and frustration with frequent policy changes from PEMA and FEMA.

Emergency plans, systems in place

According to the survey results, 96 percent of respondents had an official Emergency Operations Plan (EOP) in place. The only respondents who did not have an EOP were from rural counties. This could indicate a lower level of emergency preparedness in those rural counties since an EOP is required by NFPA 1600 and is necessary for proper response.

Most, but not all, respondents also had a Hazards Mitigation Plan. The combination respondents were much less likely to have one. These plans are required by the Disaster Mitigation Act (DMA 2000) to receive federal assistance after disasters, and Pennsylvania needs to ensure that counties are 100 percent compliant.

All urban respondents also had an Emergency Operations Center (EOC) and an Emergency Communications System. Most rural respondents (88 percent) had an

EOC and Emergency Communications System (96 percent), as well as combination respondents (92 percent and 96 percent, respectively). All emergency managers should have an established EOC from which to operate and coordinate response after disasters and an established Emergency Communications System.

Most respondents (64 percent) also participated in evacuation exercises in their service area in the past 5 years and have conducted vulnerability or risk assessments recently (72 percent).

The majority of respondents had plans in place for special needs groups (68 percent), distributed emergency preparedness materials to the public (66 percent) and conducted public education/awareness campaigns during the past year related to emergency or disaster issues (83 percent). Sixty-nine percent of respondents also maintained a frequently updated website with information for the public.

A majority of respondents (64 percent) agreed or strongly agreed that they rate above average when comparing their agency with others in the state. The percentage, however, was lower for rural counties (52 percent).

Ninety-one percent of respondents agreed or strongly agreed that disaster drills/exercises are important for assessing emergency preparedness and 57 percent agreed or strongly agreed that emergency preparedness in Pennsylvania is improving with time.

A follow-up to only 911 Coordinators and Emergency Management Agency Coordinators asked whether their agency used warning sirens to disseminate warnings: 62 percent of urban, 47 percent of rural, and none of the combination respondents said yes.

Another follow-up to only 911 Coordinators and Emergency Management Agency Coordinators asked about their reverse 911 capabilities to call people in their region with emergency information: 62 percent of urban, 11 percent of rural, and none of the combination respondents said yes. This was surprising as reverse 911 can be an effective method to reach many people quickly. Reverse 911 is a communication system that allows emergency responders to reach targeted groups or everyone in a geographic area using automated phone calls to notify them of an emergency situation.

A third follow-up found that 69 percent of urban, 74 percent of rural and none of the combination respondents had a Community Emergency Response Team (CERT). CERTs are composed of private citizens who receive training to assist with response before emergency professionals arrive and contribute to emergency preparedness activities in their area.

The last follow-up question asked if their agencies maintained a database of emergency shelters for their jurisdiction of responsibility. Ninety-two percent of urban, 79 percent of rural and none of the combination respondents said yes. A database of emergency shelters is a listing of sites to which people may be evacuated. It is important to have a database so proper planning and training can occur ahead of time to make these shelters function properly during disasters.

Comparison with other state's rural counties

Among the six emergency preparedness practitioners from rural counties in states bordering Pennsylvania who responded to the survey, 83 percent had three to five staff members. All non-Pennsylvania respondents disagreed or strongly disagreed that they had enough staff. They were evenly split on their satisfaction with the qualifications and training of their staff, but most (67 percent) agreed that adequate training was available and useful. Responses ranged from neutral to strongly disagree on the adequacy of funding. Sixty-seven percent of these respondents had applied for grants from the federal government and 83 percent had applied to the state government for grants during the past 5 years. However, all were neutral or disagreed that there were sufficient grant opportunities available to them. Most of these respondents were neutral when comparing their emergency preparedness levels with others nationwide, and they had a range of answers from disagree to strongly agree when answering whether their county was as prepared as other counties in their states.

All non-Pennsylvania respondents had an Emergency Operations Plan, an Emergency Operations Center, a website, and mutual aid agreements; had attended a training session during the past year; and had distributed emergency guides during the past year. All but one non-Pennsylvania respondent had a Hazards Mitigation Plan; had an annex addressing special needs groups; had conducted a disaster evacuation drill within the past five years; and had conducted a public awareness/education campaign during the past year. Sixty-seven percent had an Emergency Communications System, and 50 percent had conducted a vulnerability or risk assessment recently.

Conclusions

The majority of emergency management practitioners at both the county and state levels indicated that funding is inadequate for their responsibilities and the problem is getting worse with budget and staff reductions. Costs have increased while funding has not, and insufficient funding and staff are limiting the capabilities of emergency management practitioners.

The research also found that the level of participation in grant programs among respondents was fairly low (approximately half), but the application success rate was quite high. Most respondents who applied for grants were seeking homeland security grants for equipment and training/exercises from the federal and state governments.

Most respondents believed there were not sufficient grant opportunities available to them. Some also believed that eligibility requirements for the grants were not appropriate. However, the eligibility requirements for training appeared to be adequate.

The budgetary analyses indicated that state funding for PEMA has decreased since 2005 back to the level at which it was in 1998. PEMA funding varied and fluctuated according to recent disasters. PEMA's funding was on par with or lower than Maryland's and Ohio's on a percentage and per capita basis.

The research also found that the percentage of females who are county emergency preparedness officials is relatively small. Also, many emergency preparedness practitioners (particularly in rural counties) lacked a college degree and some lacked any related experience as well.

Some key differences between rural and urban county respondents in Pennsylvania were:

- Rural counties have smaller staffs, which limit what they can do.
- A few rural counties did not have an Emergency Operations Plan, an Emergency Operations Center, or an Emergency Communications Plan, which all counties should have as recommended in the NFPA 1600 standards to accommodate NIMS compliance. All urban counties had met these standards.
- Rural counties were less likely to have distributed emergency guides to the public, and were less likely to have conducted a public education/awareness campaign during the past year. This could result in lower emergency preparedness levels among the public in rural counties.
- Rural counties were more likely to indicate they did not have enough equipment and were below

average on preparedness compared with the rest of the state. They also lacked reverse 911 capabilities at a higher rate than urban counties.

- Rural counties particularly were being hard hit by staff and budget reductions, and some were finding it difficult to complete their basic duties with the limited resources that were available.

Among all survey respondents, most had attended training and felt that there were sufficient training opportunities available to them. Most had attended training by PEMA, NIMS, or ICS. However, many respondents did not have the time or funds to complete the training.

Based on the survey results, quantity, and not quality, of staff is a problem in Pennsylvania. And while training in Pennsylvania is based on federal guidelines, there are no state or federal guidelines concerning staffing.

In Pennsylvania, most county emergency preparedness officials reported having mutual aid agreements, except for a few rural counties. These counties are possibly the ones who might need these agreements the most, as indicated by the key finding from the rural survey respondents that indicated a lack of equipment and lower levels of preparedness.

All non-Pennsylvania respondents had mutual aid agreements in place.

All states now participate in the Emergency Management Assistance Compact (EMAC), including Pennsylvania. All respondents use computers daily and most have digital data. This technology can enhance coordination because it is easier to share data and communicate quickly via computer.

Most respondents agreed that involving the public in planning helps and most have frequent contact with PEMA. Approximately half had frequent communication with the state Office of Homeland Security. Most survey respondents indicated that emergency coordination in Pennsylvania was not smooth and effective. Frequent policy changes, lack of staff, and lack of cooperation between agencies and the various levels of government also were identified as problems.

Most survey respondents in Pennsylvania had a Hazard Mitigation Plan as these are required by the Disaster Mitigation Act of 2000 to participate in FEMA's Hazard Mitigation Grant Program. Almost all respondents had an Emergency Operations Center, an Emergency Operations Plan, and an Emergency Communications System.

Most respondents had conducted a disaster evacuation exercise and a vulnerability/risk assessment that incorporated special needs groups. Most also had distributed emergency guides and conducted public education/awareness campaigns. Most respondents had

an updated webpage, Community Emergency Response Teams (CERT), and a shelter database.

Finally, most respondents were keeping their plans up-to-date.

Rural respondents indicated they had a lower preparedness level than others in the state overall.

However, even with the challenges discussed, most respondents agreed that emergency preparedness is improving with time in Pennsylvania.

Based on the research results, the researchers suggest the following to strengthen emergency preparedness in Pennsylvania: implement education and staffing requirements for emergency preparedness positions; increase funding for the Pennsylvania Emergency Management Agency (PEMA) at a defined percentage of the state budget to make it more stable; and develop a state grant program specifically for emergency preparedness practitioners in Pennsylvania's rural counties.

The researchers also suggest that: PEMA develops online training opportunities for emergency management personnel to make training more convenient; the state mandates mutual aid agreements and Hazard Mitigation Plans from each county; and the state allocates state funds and emergency preparedness responsibilities to county emergency preparedness officials to oversee their entire county.

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