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BLUE PAPER 2-3

Case Study Analysis: The Benefits of Mitigation

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After the terrorist attacks on September 11, the 9/11 Commission found that the United States Intelligence Community was reactionary and lacked unity and focus. After Hurricane Katrina, post-Katrina analysis showed a failure to prepare, failure to understand the risks, and again, a reactionary approach. Exercises, such as Hurricane Pam in 2004, were either dismissed or their lessons not incorporated in a timely fashion. Again, emergency managers find ourselves faced with the question of why we continue to react to disasters rather than implement preventative measures. “Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation” discusses

an independent study and findings that support the notion that mitigation saves money over rebuilding after a disaster occurs. Using lessons from the “Natural Hazard Mitigation” study as well as the case study of Grand Tower, Illinois, this writer will convey the need to switch emergency management mentality from response-based to mitigation-based planning and demonstrate how that should be accomplished. There are two important premises here. First, mitigation saves money over time. Second, mitigation must involve the local community in order to be effective.

1. Mitigation Saves Money

According to the Natural Hazard Mitigation study, “Mitigation is sufficiently cost-effective to warrant federal funding on an ongoing basis both before disasters and during post-disaster recovery.”¹ This claim suggests that the cost of building mitigation features such as levees, enacting strategies such as targeted buyouts, or the equipping of local responders to enable them to respond more effectively to events saves money over time. Further, “the analysis found that a dollar spent from the federal treasury on Federal Emergency Management Agency (FEMA) mitigation grants potentially saves [the government] \$3.65.”²

Case Study: Grand Tower, Illinois

Grand Tower, Illinois is currently fighting for its existence against yearly flooding along the confluence of the Mississippi and Big Muddy Rivers in Southern Illinois. Yet, due to federal funding frameworks, the town is ineligible to receive the ~\$1 million it needs to repair the levee system. “No longer eligible for federal aid to repair flood

¹ “Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities.” 2005. National Institute of Building Sciences. Washington, D.C. p.6.

² Ibid. p.6.

damage to its levee, the financially-strapped Grand Tower Levee and Drainage District needs the money for more than \$1 million in repairs, including a pipe that collapsed in June.”³

If the Natural Hazard Mitigation study is correct, \$1 million could save up to \$3.65 million in potential costs. This estimate seems realistic, possibly even low, given that the town hosts nearly 600 families who would need to be relocated in the case of disastrous flooding, hundreds of acres of farmland that would be ruined, a major highway in Illinois Route 3 that could be threatened, and potential flooding of a multi-million dollar natural gas plant outside of town (See images below).



Grand Tower, IL levee along the Big Muddy River – Photo from (Mariano, 2014)



³ Mariano, N., “Grand Tower levee bill mired in House.” The Southern Illinoisan. 9 April, 2014.

Grand Tower, IL Grand Tower Energy Center – Estimated Value: \$7.05 million – Photo from (Graham, 2015)

Considering that the natural gas plant’s estimated value is \$7.05 million according to Graham (2015), not only is the Natural Hazard Mitigation study correctly assuming that cost mitigation could potentially save over three-fold the cost of repair, but in this case the cost savings could be as high as seven times the cost of repairing the levee.⁴ Further, the frequency of flooding and the costs of patching the levee over time make thorough mitigation efforts fiscally worthwhile. Consider that there have been major floods in this particular region in 1993, 1995, 2002, 2008, 2011, and 2015 (this writer has lived through the first 5 of these). This means that, over two decades, threatening floods occurred once every 3.5 years on average. Having personally seen the devastation and witnessed the ineffectiveness of constant patchwork repairs, it seems evident that mitigation would be more cost efficient continual, non-permanent repair work.

2. Mitigation Should Involve the Community

Another important lesson from the Natural Hazard Mitigation study is that “mitigation is most effective when it is carried out on a comprehensive, community wide, long-term basis.”⁵ The authors of the Natural Hazard Mitigation study argue that “Single projects can help, but carrying out a slate of coordinated mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically

⁴ Graham, S. H., “Grand Tower Power Plant asks for 93 percent reduction in valuation.” The Southern Illinoisan. 10 April, 2015.

⁵ “Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities.” 2005. National Institute of Building Sciences. Washington, D.C. p.6.

resilient in coping with future hazard impacts.” This requires comprehensive community involvement in mitigation that will also build trust.⁶

In Grand Tower, residents have developed a distrust of the government due to a perceived lack of cooperation and care – in contrast to the comprehensive approach recommended by the Natural Hazard Mitigation study. According to Time Magazine On line’s Steven Gray (2008), “In April 1990, the FEMA placed Grand Tower on probation from the National Insurance Program for failing to adhere to guidelines intended to mitigate risk of flood damage,” including raising buildings and homes 12 feet and imposing a \$25 surcharge on residents’ insurance policies.⁷ This is unaffordable in the eyes of town officials. According to the same article, “We’re a town that’s just barely getting by and can’t afford to fix all those violations.”⁸ Murray (2015) quotes a local resident stating “We don’t have the support we need, but our homes are just as important as anybody else’s.”⁹ The Grand Tower mayor, in 2015, also stated “They’ve bought big, fancy boats and they ride up and down the river, they’ve got airplanes that fly over it... Get down here where it’s at. Get down in the ditch and see what really needs to be done.”¹⁰ This almost palpable distrust for government will only cause problems should a crisis occur. The Natural Hazard Mitigation study illustrates that a better approach would be to carry out a series of preventive projects like the repair

of the levees and the locks. In this manner, not only are people’s homes restored and future costs mitigated, but also trust in both the local and federal government is established – something that has incalculable value in a future crisis.

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⁶ Ibid. p.6.

⁷ Gray, S., “The Unluckiest Town in America.” Time Magazine On-line. 20 June, 2008.
<http://content.time.com/time/nation/article/0,8599,1816756,00.html>

⁸ Ibid.

⁹ Murray, J., “Grand Tower: Living in the shadow of crumbling levees.” The Southern Illinoisian. 15 February, 2015.

¹⁰ Ibid.