Evaluation of New York State County Plans for Disaster Resiliency

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Background

This study was a work unit in the New York State Resiliency Institute for Storms and Emergencies (NYS RISE). NYS RISE was launched in November of 2013 as a consortium to address the challenges associated with enduring severe weather events. It acts as a hub for in-depth research, analysis, and education on disaster preparedness.

This specific work unit followed the method described by Berke and Smith (2009) to assess the quality of hazard mitigation planning in NYS.
Background

Hurricane Irene, Tropical Storm Lee, and Hurricane Sandy had devastating impacts on communities throughout New York State. To protect the life and property of New Yorkers, state and local governments have created Hazard Mitigation Plans across various counties based on the Community Development Block Grant Action Plan.
Background

In 1969, the Congress at the urging of the Federal Emergency Management Agency (FEMA) passed the Disaster Relief Act which authorized grants for establishing comprehensive disaster-relief plans (Disaster Relief Act, 1969).

Planning for hazard mitigation became required under the Disaster Mitigation Act of 2000 for states and localities to qualify for pre- and post-disaster assistance from the federal government.
Project Scope

• Evaluate county-level Hazard Mitigation Plans (HMPs)

• Determine the impact HMPs have on reducing floodwater damage

• Make recommendations to New York State
The following criteria were used to evaluate the HMPs:

1. Plan basics
2. Participation
3. Inter-Organizational Coordination
4. Hazard Identification
5. Capability Assessment
6. Goals
7. Proposed Actions
8. Monitoring

<table>
<thead>
<tr>
<th>FEMA Sections and Requirements</th>
<th>Corresponding Principles (Modified from UNC-CH instrument for NYS-RISE)</th>
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<tr>
<td>Planning Process</td>
<td>Participation, Inter-Organizational Coordination</td>
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<td>Documents planning process, coordination among agencies, and program integration</td>
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<tr>
<td>Hazard Identification &amp; Risk Assessment</td>
<td>Hazard Identification</td>
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<td>Identifies and profiles hazards, assesses vulnerability and estimates potential losses</td>
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<tr>
<td>Mitigation Strategy</td>
<td>Goals, Proposed Actions, Capability Assessment</td>
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<td>Identifies goals, mitigation actions, and implementation information</td>
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<tr>
<td>Plan Review, Evaluation, and Implementation</td>
<td>Plan Basics, Inter-Organizational Coordination, Monitoring</td>
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<td>Monitoring, evaluating and updating the plan, and monitoring the progress of mitigation actions</td>
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Methodology

Evaluation Of Hazard Mitigation Plans In The Local Level Based On FEMA Principles

**Binary Scale**

A 0 or a 1 Scale:
- A score of 0 means that the quality principle was not described in the HMP and
- A score of 1 means that the quality principle was described

**Ordinal Scale**

Each quality principle received a score of 0, 1 or 2:
- A score of 0 means that the quality principle was not mentioned in the HMP,
- A score of 1 means that the HMP had a brief, general description explaining the quality principle,
- And a score of 2 means that the HMP described the quality principle in detail and included lists, table, figures, and maps, where applicable

➢ To calculate the aggregate result, binary scores were added together and then standardized on a scale of 0 to 10.
➢ To keep the scale consistent for the ordinal scores, the scores were divided by 2, added together, and then standardized on a scale of 0 to 10.
After evaluating and scoring each available HMP based on the eight criteria, the scores were normalized on a 0.0 to 10.0 scale.

Based on the aggregate HMP normalized scores, the county with the highest rated HMP is Ulster, receiving a score of 7.9. The county with the lowest rated HMP is Chemung, receiving a score of only 4.8.
Results

Another aspect of this project was to evaluate the HMPs based on how well they incorporate resiliency measures. Of the eight HMP evaluation criteria, the last five relate directly to resiliency including:

4. Hazard Identification
5. Capability Assessment
6. Goals
7. Proposed Actions
8. Monitoring
Results

Based on the aggregate HMP normalized scores using only the resiliency criteria, the county with the highest rated HMP is Orange with a score of 5.8. Ulster and Tioga have the second highest score of 5.4. The counties with the lowest rated HMPs are Chemung and Oneida, receiving a score of only 2.8.
Results
Expectation is that when Resiliency score goes up, the dollar damage comes down. But, the graph shows that there is no coordination between the damages happened through Hurricane Sandy, Tropical Lee and Hurricane Irene in each county with their resiliency score.

NYS deaths rate in **Sandy**: 64 (NYC 43, LI: 14, Northern NY Suburbs: 7) (Nassau: 7, Ulster: 3, Rockland: 1, Suffolk: 7, Westchester: 3)

NYS deaths rate in **Irene**: 10 (Greene: 2, Montgomery: 1, Delaware: 1, Albany: 1, Clinton: 2, Suffolk: 1, Westchester: 1, Bronx: 1)

NYS deaths rate in **Lee**: 2
Conclusion

1-Proposed action, Monitoring and implementation and Capability assessment respectively got the lowest scores.

To receive a high score for the Proposed Action and Implementation principle, plans are expected to:

• Provide a detailed methodology on implementation strategies of various activities (e.g. determining the costs of different hazard mitigation alternatives)
• Introduce the responsible agencies to implement the required activities
• Establish a timetable that includes activities that communities, small businesses and industries can complete to receive funding
• Most counties should take these factors into consideration to improve their plans, particularly Broom, Oneida, Warren and Schoharie counties.

2-Reorganization of the county plans based on FEMA requirements can help guide stakeholders to information relevant to them, and can provide space for further modifications. One way to achieve this is to establish an organization in each state that filters and organizes the HMP before issuance.
Conclusion

3-Analyzing each subcategory reveals the specific strengths and weaknesses of each plan, and the level of detail of each subcategory description. This study can be continued by improving the HMPs of the most vulnerable counties by filling in the recognized gaps in each principle.

4-Since each county experiences hazards such as hurricanes and floods differently, including a section on how various mitigation strategies rank in terms of their effectiveness would be very useful for both the local government and the State. The State could use this information to distribute funds to the resiliency and recovery projects more effectively. The State could also use this information to compare the local plans with each other, and make any budgetary adjustments they deem necessary. Ultimately, counties would benefit from a more efficient recovery process.