3Rivers HAZUS User Group:
Past, Present, Future

Jamie Mitchem, Ph.D.

2007 3Rivers HAZUS Conference
What is the 3 Rivers HAZUS Users Group (3RiversHUG)?

- Forum for southwestern Pennsylvania public, private, non-profit and academic organizations that use HAZUS software and related technologies to develop public policy and programs for building disaster-resistant communities.

3RiversHUG Objectives:

- To advance opportunities for training in the use of HAZUS-MH software and technology,
- To be a resource for hazard mitigation information and data,
- To encourage and assist local governments in the establishment of hazard mitigation protocols,
- To be a conduit for communication among public, private and third-sector (not-for-profit) institutions for hazard mitigation efforts and best management practices.
PAST

• Level 1 analysis
• Meetings to establish group
• Training
• Outreach
Displaced (Shelter) Population - 100-year Flood in Washington County, PA
100-year Flood in California, PA
## Direct Economic Losses for Buildings

May 31, 2006  
Study Case Name: Countywide  
Study Case Description:

Return Period: 100  
Analysis Options: 0

All values are in thousands of dollars

### Capital Stock Losses

<table>
<thead>
<tr>
<th></th>
<th>Cost Structural Damage</th>
<th>Cost Contents Damage</th>
<th>Inventory Loss</th>
<th>Loss Ratio %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westmoreland</td>
<td>190,241</td>
<td>161,155</td>
<td>5,495</td>
<td>6.9</td>
</tr>
<tr>
<td>Pennsylvania Total</td>
<td>190,241</td>
<td>161,166</td>
<td>5,496</td>
<td>6.9</td>
</tr>
<tr>
<td>Study Case Total</td>
<td>190,241</td>
<td>161,166</td>
<td>5,496</td>
<td>6.9</td>
</tr>
</tbody>
</table>

### Income Loss

<table>
<thead>
<tr>
<th></th>
<th>Relocation Loss</th>
<th>Capital Related Loss</th>
<th>Wages Losses</th>
<th>Rental Income Loss</th>
<th>Total Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westmoreland</td>
<td>11,517</td>
<td>50,645</td>
<td>76,634</td>
<td>6,364</td>
<td>502,155</td>
</tr>
<tr>
<td>Pennsylvania Total</td>
<td>11,817</td>
<td>60,848</td>
<td>78,834</td>
<td>8,364</td>
<td>602,166</td>
</tr>
<tr>
<td>Study Case Total</td>
<td>11,817</td>
<td>60,848</td>
<td>78,834</td>
<td>8,364</td>
<td>602,166</td>
</tr>
</tbody>
</table>
HAZUS Limitations

- Best used as regional loss model with aggregate data
- Can be customized down to building level, but requires much better data and engineering study results
- Missing/incorrect data
- Model limitations
- Computation
HAZUS Student Project

- HAZUS default schools database for Washington County, PA

- Updated and added fields (number of stories, in floodplain?, shelter capacity, kitchen?, back-up power/generator)

- Location data not good, updated with GPS

- Provided to 911 Coordinator
PRESENT

- Addressing challenges with modeling

- Developing Level 2 analysis

- Expanding relationships

3Rivers HAZUS Conference
PEMA

- HAZUS MR 2 runs for each county in 2007
- 10, 50, 100, 200, and 500 year floods
- Download GIS shapefiles or reports

http://www.pema.state.pa.us/pema/cwp/v
Economic Damage

500 Year Floodplain (PEMA; Level 1 Analysis)
I-ASSIST Lab

- Institute for Analysis of Safety and Security Issues using Spatial Technologies (I-ASSIST)
- Workstation dedicated to HAZUS
- Related emergency management technologies
Problems

- Permission to work with government agencies
- Incomplete/Inaccurate/Outdated data
- Privacy/Security of data
- Proprietary data
- Large amount of data = time
- Politics and trust, must develop good working relationship = time, patience, and diplomacy
FUTURE

- California Borough Level 2 Analysis
- Incorporate better DEM (lidar) = better results
- Regional HAZUS Training
- Level 3 Analysis
FUTURE

- Assist with Spill Detection, real-time warning systems
- Vulnerability studies
- Explore related technologies
- Preparedness activities (including on campus)