Developing Recovery Indicators: Theoretical Foundations

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“Connecting the Dots”

Where do recovery indicators fit?

How can theory inform indicator development?

How to develop suitable indicators?

Where do recovery indicators fit?
Suitability Depends on Purpose

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Example Motivating Questions</th>
<th>Importance of Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking</td>
<td>How well is recovery going?</td>
<td>Low ?</td>
</tr>
<tr>
<td>Building knowledge</td>
<td>What is the general pattern of recovery?</td>
<td>Medium ?</td>
</tr>
<tr>
<td>Informing pre-disaster planning &amp; policy</td>
<td>What is the business case for mitigation?</td>
<td>High ?</td>
</tr>
<tr>
<td></td>
<td>What recovery problems can we anticipate?</td>
<td></td>
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</tbody>
</table>
Indicators for Tracking Recovery (1)

- **Question:** How well is recovery going?
- **Criteria for indicator development:** data availability

Tracking Recovery (2)

- Can be informed by theory
- With purpose-built data collection

https://www.cph.co.nz/your-health/wellbeing-survey/
Indicators for Building Knowledge

- **Question:** What is the general pattern of recovery?
- **Criteria for indicator development:** data standardized, comparable

Indicators for Pre-Disaster Planning

- **Questions:**
  - What recovery problems can we anticipate?
  - What is the business case for mitigation?

- **Criteria for indicator development:** information needed for planning

![Diagram](image-url)
Research on Recovery Indicators

- What indicators should be used?
- What concepts should be captured?
- How should indicators be measured?
What Indicators Should Be Used? (1)

Table 3. Community Recovery Checklist

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total disaster-related business closures</td>
<td>The number of businesses within the geographic boundaries of the identified community that closed directly owing to the disaster.</td>
</tr>
<tr>
<td>Average level of business insurance</td>
<td>The average monetary value of insurance policies covering businesses for disaster-related damage.</td>
</tr>
<tr>
<td>Number of commercial bankruptcies</td>
<td>The number of businesses within the geographic boundaries of the identified community that have declared bankruptcy.</td>
</tr>
</tbody>
</table>

- Developed for tracking recovery
- Difficult to model for pre-disaster planning
What Indicators Should Be Used? (2)

Table 4. Importance Ratings by Delphis Panel (extract)

<table>
<thead>
<tr>
<th>Category</th>
<th>Recovery Indicator*</th>
<th>Average Rating (1~5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>Critical facilities and lifelines</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Housing</td>
<td>4.0</td>
</tr>
<tr>
<td>Environment</td>
<td>Water quality</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Debris removal</td>
<td>4.1</td>
</tr>
<tr>
<td>Social</td>
<td>Social service availability</td>
<td>4.1</td>
</tr>
<tr>
<td>Economic</td>
<td>Employment</td>
<td>4.0</td>
</tr>
</tbody>
</table>

- Can be modeled (partially)
- Conceptual basis for why these are most important?

*Importance ≥ 4.0

What Concepts Should Be Captured? (1)

Key insights from recovery literature

• Recovery involves more than physical reconstruction – economic, social, institutional, and environmental dimensions are important

• Different groups and sub-regions achieve recovery milestones at different times

• Recovery progress can be non-linear and iterative

• Social inequality influences recovery processes and outcomes

• The local context is important

• Recovery often involves change toward a “new normal”

What Concepts Should Be Captured? (2)

Variables that matter for social recovery

• Pre-disaster factors that shape vulnerabilities and exposures
  ◦ Social and economic well-being,…

• Disaster impacts and their implications for recovery
  ◦ Damage levels,…

• Immediate post-impact responses
  ◦ Safety inspection speed,…

• Post-disaster variables
  ◦ Institutional capacity, recovery aid,…

• Post-disaster conditions, trends and events that occur independently but shape recovery processes and outcomes
  ◦ Trends in national economy,…

• Methodological challenges: measurement and modeling

Need and Challenge

There remains a research need for recovery indicators that:

- Can inform pre-disaster planning and policy
- Capture key recovery concepts
- Can be modeled
- Have data to implement