AFTER GREAT DISASTERS

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Imagine that you are the mayor, governor, or prime minister, and a great disaster has just struck...
You respond to address immediate emergency needs. Yet within days, everyone wants answers to longer-term questions:

- How much money will be available for rebuilding?
- Will everyone get new housing?
- How will the local economy be restarted?
- Who will lead the process?
- Will everyone be allowed to rebuild as before?
Why is it important to understand long-term recovery from disasters?
Why the process of long-term recovery is important:

- Disasters extend over time.
- Post-disaster reconstruction can offer opportunities for betterment (physical, economic and social)

Adapted from “Reconstruction Following Disaster, by Haas, Kates, and Bowden, 1977"
What do we know about recovery?
Recovery is a process, rather than an outcome

- It’s not about going back to the past.
- It takes many actors to rebuild a city: A decentralized process of self-organizing systems.
  - Segments of the community will recover at different rates; some may not recover at all.
- It has no well-defined end.
- Because recovery is a process, the most important quality of a community is its ability to adapt to changing circumstances.
Central dilemma: be fast or smart?

- All recovery levels—from households to national governments—feel a tension between speed and deliberation, between rebuilding what was there and making improvements.
- A useful way to understand this is through the concept of time compression....
Time compression—a compression of urban development activities in time—is what distinguishes recovery from normal urban development.

Normal processes of replacing capital stock and services (thick line) that have reached the end of their useful life compress in time during and after disasters. Source: Olsansky, Hopkins, and Johnson (2012).
Our Research

How can governments best manage recovery and reconstruction, meeting time-sensitive needs while also maximizing the opportunity for community betterment? (How can we be both fast and smart?)
About the Authors

- Johnson is an urban planner with extensive experience in disaster recovery and risk management.
- Olshansky is a professor of urban planning at the University of Illinois at Urbana-Champaign.
- Both have collaborated for over two decades, with field research covering recovery in a dozen countries.
Findings

Money, Information, Collaboration, and Time
Recovery Management: Money, Information, Collaboration, and Time

- The goal of recovery management is to cope with uncertainty by
  1. Finding and managing funds
  2. Providing information
  3. Involving all stakeholders, and
  4. Balancing time constraints

New Orleans residents participating in neighborhood-level recovery planning
Photo: L. Johnson, 2006
1. Managing Money

➢ Find sources of public and private funds.
➢ Apply the funds to rebuild infrastructure, homes, and businesses.
➢ Access it quickly, and spend it efficiently, effectively, and equitably.
Some major sources of recovery funds

- In the U.S. Congress provided funds for permanent reconstruction after 9/11, Katrina, and Sandy.
- The Chinese government asked eastern provinces to allocate a portion of their budgets to help the stricken western counties.
- Indonesia asked for help from international donors after the 2004 tsunami, and created a multi-donor fund to augment Indonesian funds.
- New Zealand relied upon its national insurance program and provided additional funding for infrastructure and “anchor” projects.

“Guangzho-Wenchuan heart to heart.”
Photo: Laurie Johnson, 2008

The Multi-Donor Fund disbursed over US$500 million in reconstruction aid in Indonesia. Source: MDF
Money controls the pace and quality of reconstruction

Power over the recovery process is held by the level of government that controls the acquisition, allocation, distribution, and audit of public funds.

- They make the rules, shape the plans, and devise the policies.
- True in all our cases.
2. Increasing Information Flows

- Gather, integrate, and distribute information effectively among all recovery actors, who need to know what other actors are doing.
- Use media or people (e.g. websites, data centers and clearinghouses, regular meetings of representatives from governmental and/or nongovernmental organizations, neighborhood planners or liaisons)

Money *Information* Collaboration Time
Examples of organizations’ roles in managing information

- The BRR in Aceh posted online databases of projects and NGOs.
- In India, the “settu” subcenters were local information trading centers for government, villages, and construction organizations.
- In the United States, the Hurricane Sandy Rebuilding Task Force actively shared information among federal agencies.
3. Supporting Collaboration

- Support collaboration and coordination among all stakeholders.
  - Between government agencies, horizontally and vertically.
  - With residents, business owners, NGOs

- Support multiple collaborative networks throughout society.

Broad stakeholder ownership is what makes recovery sustainable in the long term.

Money Information Collaboration Time
The Gujarat State Disaster Management Authority in India supported the work of the Abhiyan network, which connected many local organizations.

In several cases governments paid planners to empower neighborhoods.

- Kobe and the Tohoku region of Japan; Louisiana, New York, and New Jersey in the United States; Aceh and Yogyakarta in Indonesia; and Gujarat and Maharashtra in India.

City-funded *machizukuri* planning consultants met regularly in Kobe.  
Photo: L. Johnson, June 1995
4. Balancing Time Constraints

- Meet immediate needs for recovery, while also seeking long-term betterment.
- Be strategic in seeking opportunities to speed up:
  - Streamline bureaucratic processes,
  - Sometimes slowing down to set rules can lead to speed later on.
- Or strategically broaden information channels so as to promote betterment without needing to slow down.
Recommendations
Recommendation 1:
Enhance existing systems and structures to promote information flow and collaboration.

- The role of governmental recovery offices is to inform, support, influence, and *manage the many recovery actors*.
  - Support the existing ecosystem of builders.

- New NGOs often emerge to fill roles unsuited to government bureaucracies.
  - Governments should support them and stay out of the way.
Recommendation 2: Emphasize data management, communication, transparency, and accountability.

- Frequent and honest reports from recovery management organizations help to build trust between the government and the community.
- Recovery management organizations should create public databases for all projects to promote openness and equity at the local level.
Examples of transparency and accountability

- The BRR in Indonesia placed a priority on collecting, managing, and providing data to the public.
- In Tamil Nadu after the 2004 tsunami, villages posted lists of aid beneficiaries.

Photo: R. Olshansky, 2008
Many agencies, such as in this example from New Jersey, publish lists of recovery contracts.
Recommendation 3: Plan and act simultaneously

- Planning needs to begin right away, but it should not consume time and resources needed for reconstruction.
- Deliberation and action need to occur simultaneously. Three ways to accomplish this are to:
  - Increase planning capacity by hiring more staff and encouraging more citizen involvement;
  - Decentralize information and decision processes so that numerous local groups can deliberate and act; and
  - Iterate by acting first on easier issues, and delaying action for a few particularly troublesome areas.
- To be fast and smart, all the recovery actors must share decision making.
Several of the cases, including Gujarat, Kobe, Yogyakarta, and the US, increased planning capacity by hiring local community planners.
China’s pairing system is a good example of both decentralization and increased planning capacity.

<table>
<thead>
<tr>
<th>No.</th>
<th>Disaster Area</th>
<th>Assisting Province</th>
<th>Budgeted Investment (100 Million RMB)</th>
<th>Number of Budgeted Project</th>
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<td>1</td>
<td>Beichuan</td>
<td>Shandong</td>
<td>108.88</td>
<td>228</td>
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<td>2</td>
<td>Wenchuan</td>
<td>Guangdong</td>
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<td>714</td>
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<td>3</td>
<td>Qingchuan</td>
<td>Zhejiang</td>
<td>76.58</td>
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<td>4</td>
<td>Mianzhu</td>
<td>Jiangsu</td>
<td>99.60</td>
<td>289</td>
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<td>5</td>
<td>Shifang</td>
<td>Beijing</td>
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<td>Dujiangyan</td>
<td>Shanghai</td>
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<td>Hebei</td>
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<td>108</td>
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<td>8</td>
<td>Anxian</td>
<td>Liaoning</td>
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<td>300</td>
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<td>Fujian</td>
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<td>11</td>
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<td>Hunan</td>
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<td>201</td>
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<td>Anhui</td>
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<td>Heilongjiang</td>
<td>12.29</td>
<td>146</td>
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<td>19</td>
<td>Gansu Province</td>
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<td>20</td>
<td>Shaanxi Province</td>
<td>Tianjin</td>
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<td>Total</td>
<td></td>
<td>824.22</td>
<td>3,976</td>
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Data sources: Sichuan Province Development and Reform Commission, 2010 Annual Report

Note: \(^a\) Shenzhen city belongs to Guangdong province.
The Kobe case shows how to iterate planning decisions over time, based on damage, hazards, and reconstruction needs.

- Kobe designated disaster restoration areas as the basis for programs that target particular problems.
New Zealand applied differential rebuilding rules to its liquefaction hazard zones.

This map shows the red zone areas and three green zone technical categories (shown in blue, yellow, and gray) for the residential foundation repairs in central Christchurch as of February, 2016. Source: New Zealand Government (2016).
Recommendation 4: Budget for the costs of communication and planning; revise budgets over time

- Budgets need to cover the costs of information, data, communication, public involvement, technical support, and planning.
- They also need to provide for revision over time, because time compression creates a high probability of mistakes.
The State of Gujarat, India paid for comprehensive planning processes in 2002 for reconstructing urban areas.

Source: B.R. Balachandran, Environmental Planning Collaborative
In New Orleans, government did not pay for planning, so the Rockefeller Foundation stepped in to do so. But they didn’t initially allocate enough for communication, which caused major problems.
New Zealand’s Stronger Christchurch Infrastructure Rebuild Team (SCIRT) anticipated budget revisions over time.

- A flexible contracting arrangement that consists of an alliance between three public bodies and five construction organizations.
- Provides for the uncertainties of speedy reconstruction and the frequent need to revise budgets.

<table>
<thead>
<tr>
<th>SCIRT #</th>
<th>Project description</th>
<th>Streets within project boundary</th>
<th>Suburb</th>
<th>Delivery Team</th>
<th>Approx start</th>
<th>Approx finish</th>
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<td>10425</td>
<td>Repair of the wastewater network</td>
<td>Glandovey Rd, Elmwood Rd, Lloyd St, Orkney St, Jeffreys Rd, Taylors Ave, Idris Rd, Garreg Rd</td>
<td>Fendalton</td>
<td>McConnell Dowell</td>
<td>Dec-12</td>
<td>Mar-17</td>
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<td>10349</td>
<td>Repair of the wastewater network</td>
<td>Heathcote St, Ferry Rd, Service Ln, Glenn St, Portman St, Oban Pl, Stacey Pl, Thistledown Pl, Hargood St, Sheilad St, Cob Crescent, Claymore St, Dunoon Pl, Clydesdale St, Lomond Pl, Shire Ln</td>
<td>Woolston</td>
<td>City Care</td>
<td>Jul-13</td>
<td>Feb-17</td>
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<td>11048</td>
<td>Repair of the wastewater network</td>
<td>Rutherford St, Connel St, Ln St, Chapman Rd, Jubilee St, Bamford St, Barton St, Long St, Nutball Dr, Broad St, Atom Ln, King Edward Tce, Garlands Rd, Trackers Quay, Monre St</td>
<td>Hillsborough</td>
<td>Downer</td>
<td>Mar-14</td>
<td>Mar-17</td>
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<td>10832</td>
<td>Construction of a new pump station</td>
<td>17b Airport Pl</td>
<td>Woolston</td>
<td>City Care</td>
<td>Jul-14</td>
<td>Mar-17</td>
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<td>11112</td>
<td>Repair of the wastewater network</td>
<td>Woodham Rd, Worcester St</td>
<td>Linwood</td>
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<td>11572</td>
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<td>Aranui</td>
<td>City Care</td>
<td>Aug-15</td>
<td>Mar-17</td>
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<td>11204</td>
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<td>New Brighton</td>
<td>Fulton Hogan</td>
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<td>Mar-17</td>
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<td>10937</td>
<td>Repair of the wastewater network</td>
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<td>Lyttelton</td>
<td>Fulton Hogan</td>
<td>Jan-16</td>
<td>Mar-17</td>
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<td>Repair of the fresh water, storm water, and roads</td>
<td>Ponds Spur Rd, Mertons Ln, Marama Crescent, Michael Ave, Accessway, Glenmore Rd, Major Hornbrook Rd, Santa Maria Ave, Te Awakura Tce, Madeley Rd, Mt Pleasant Rd, Quarry Rd, Cannon Hill Crescent, Anatoro Pl, Glendevine Tce, Defender Ln, Micormacks Bay Rd, Maffey Rd, Mandaleyn Ln, Citrus Ln, Challenger Ln, Egnott Heights, Drayton Dr, Plaina View, Rockview Pl, Solaene Ave, Assail St, Redcliffs View Ln, Bellview Tce, St Andrews Hill Rd, Valencia Ln, Toledo Pl, Margot Ln, Cave Tce, Service Ln, Hilltop Ln, The Brave, Jannic Pl</td>
<td>Mount Pleasant</td>
<td>Downer</td>
<td>Feb-16</td>
<td>Mar-17</td>
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<td>11194</td>
<td>Repair of the wastewater network</td>
<td>Ponds Spur Rd, Mertons Ln, Marama Crescent, Michael Ave, Accessway, Glenmore Rd, Major Hornbrook Rd, Santa Maria Ave, Te Awakura Tce, Madeley Rd, Mt Pleasant Rd, Quarry Rd, Cannon Hill Crescent, Glendevine Tce, Defender Ln, Micormacks Bay Rd, Maffey Rd, Mandaleyn Ln, Citrus Ln, Challenger Ln, Egnott Heights, Drayton Dr, Plaina View, Rockview Pl, Solaene Ave, Assail St, Redcliffs View Ln, Bellview Tce, St Andrews Hill Rd, Valencia Ln, Toledo Pl, Margot Ln, Cave Tce, Service Ln, Hilltop Ln, The Brave, Jannic Pl</td>
<td>Mount Pleasant</td>
<td>Downer</td>
<td>Feb-16</td>
<td>Mar-17</td>
</tr>
</tbody>
</table>

Programme funded by

Christchurch City Council
New Zealand Government
Recommendation 5: Increase local capacity and empower local governments to implement recovery actions.

- National governments can provide money, technical support, and oversight, but local governments should take recovery actions that meet their needs.
- Implementation of recovery should be done by stakeholders.
Indonesia’s BRR supported local governments to develop their own plans and priorities.
Both India and Indonesia successfully assisted homeowners to rebuild on their own (owner-driven reconstruction).
Recommendation 6: Avoid permanent relocation of residents and communities except in rare instances, and only with full participation of residents.

- Residents are attached to their homes and communities, and relocation disrupts their social and economic networks.

- Sometimes there are compelling physical reasons to relocate. If so, residents must fully participate in all the decisions.
Our cases provide evidence of the challenges of successful relocation

- Farmers displaced by the eruption of Indonesia’s Mount Merapi need new livelihoods;
- Buying out earthquake-damaged lands in Christchurch has suffered from lack of sufficient stakeholder involvement.
In Tamil Nadu, India after the 2004 tsunami, relocating fishing villages safely inland made life difficult for fishermen and their families.

Tamil Nadu, India. Photos: R. Olshansky, 2008
Recommendation 7: Reconstruct quickly, but do not be hasty.

- Many governments and stakeholders assume that it is important to rebuild as many houses as quickly as possible. But meeting the needs of residents is even more important.
  - Transportation access, public services, livelihoods, culturally appropriate housing design, etc., etc.
- Rebuilding too quickly often means reducing resident involvement, which usually causes dissatisfaction with the result.
After the 2008 earthquake, China overemphasized the need for speedy physical reconstruction, ignoring many social and economic concerns.
Kobe used a large area of immediately available land to rapidly construct new housing units, rather than developing multiple sites that were more accessible to social networks and existing transportation systems.
Conclusions

- Recovery is always complex and is never fast enough for affected residents. We need to set realistic expectations at the outset.

- But we can be both fast and smart by:
  - Empowering all stakeholders to participate in the processes.
  - Emphasizing transparency and communication.
  - Paying for planning, data, and communication.
  - Ensuring governance to manage both money and information.

- Finally, a foresighted community thinks about recovery processes before the next disaster, and:
  - Reduces risk now, or
  - Acts to ease future recovery processes (this is resilience!).

- Planning ahead of time improves community resilience — the ability of the community to survive, adapt, and recover.
Lincoln Institute of Land Policy
http://www.lincolninst.edu/publications/

Book

Policy Focus Report

AFTER GREAT DISASTERS
An In-Depth Analysis of How Six Countries Managed Community Recovery

Laurie A. Johnson and Robert B. Oshansky

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