Survival & Recovery from a 7.8 & 8.8 Quake: Lessons from Haiti & Chile for the US

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On Saturday, February 27 at 3.34 AM an 8.8 Magnitude Earthquake & A Series of Aftershocks Struck the Maule Region of Chile
435 Mile Long Area
12.8 Million People Effectected - Similar to LA
802-521-279* Killed
800,000 People Displaced
370,000 Buildings Damaged
170,000 Buildings with Major Damage
73 Hospitals unable to Operate Immediately
221 Bridges Damaged
Moved Earth 3 Inches off its Axis
Shortened the length of the day by 1.26 microseconds
$8 Billion in Damage
10 Minutes later a series of tsunami waves hit low lying coastal towns like Talcahuano Killing Hundreds
Weekend campers are swept away
January 12, 2010 Haiti Earthquake

- Casualties: 250,000-300,000
- Largest in History (per capita)
- 13 out of 15 Gov’t buildings collapsed
- 250,000 homes collapsed
- 30,000 commercial buildings collapsed
- 300,000 injured
- 1.5 million homeless
- Estimated cost of $10-14 billion
- Highest cost for a natural disaster (as function of GDP)
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<thead>
<tr>
<th>Challenges</th>
<th>Opportunities</th>
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<tbody>
<tr>
<td>1. Large displaced population</td>
<td>1. Provide disaster resilient housing and development</td>
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<td>2. Concentration of infrastructure and services in PaP</td>
<td>2. Decentralize development across different regions of Haiti</td>
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<td>3. Sub-standard infrastructure and services (basic water and sanitation, roads, power, etc.); resultant environmental degradation</td>
<td>3. Develop resilient and sustainable infrastructure systems (water, roads, power, etc)</td>
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<td>4. Lack of empowerment of private sector</td>
<td>4. Positively engage private sector</td>
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<td>5. Lack of coordination between GoH, NGO’s, and private sector in Haiti</td>
<td>5. Restructure coordination among GoH, NGOs, and private sector in Haiti</td>
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<td>6. Dysfunctional education, healthcare systems</td>
<td>6. Create new, improved educational and healthcare systems</td>
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<td>7. Political uncertainty</td>
<td>7. Engagement of Haitian Diaspora</td>
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<td>8. Lack of capacity in GoH</td>
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Electricity Grid Goes Down
Water Lines Are Broken
No Communications
Hospitals are Quickly Evacuated
...and Reassembled Outside
First Responders Arrive
The Injured are Transported Locally
Temporary Shelters are Erected
Field Hospital’s Are Established
Looting breaks out
Citizens Protect Their Property
The Military Restores Order
Bulk Supplies Are Distributed
Debris are removed & re-used
Transitional Shelters are Constructed
Families Move In
This Disaster could have been much worse

At Night
Full Moon
Saturday
Summer Vacation
Low Tide
Very Few Fires
Very Few Water Breaks
“Seismic Culture”
Swift Local Response
What Does This Mean For Southern California?
Modern Buildings are Not Necessarily Safer Buildings
Your Safety Depends on your Building’s Location, Soil, & Construction
…& Your Builders Priorities & Liabilities!
Beware of Unsecured Nonstructural Elements!
Governmental Communication Must Function Well
Even When General Communication Systems Will Not Work
Plan A Often Does Not Work
...Nor Does Plan B
Fires will be a Bigger Issue Here
Expect Industrial Fires
Disaster Response Starts In Your Neighborhood
Lives need to be saved quickly
There is a Role for Our Military
Your Neighbors Will be Your Heroes
Hospitals Must be Flexible
Mental & Moral Support is Needed
Supplies will be Stranded
Your Suppliers Will be Stranded
Your Business Will Be Stranded
You Could Be Stranded Too
Business Continuity = Lives Saved
Family Needs Will Come First
Have an Evacuation Plan!
Drinking Water Will Be Scare
Have Three Days Of Supplies
Prepare Your Pets & Loved Ones
The “Social Earthquake” Arrives
Community Makes A Difference
Infrastructure Takes a Long Time to Rebuild
Is Los Angles Ready?
How will our Infrastructure Survive?
Will we be able to respond?
Will we handle the initial surge?
Will We Pull Together as a Community?
Will We Be Ready to Help Others?
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