

Effects of good infrastructure design on Insurance Risks

IAJ presentation



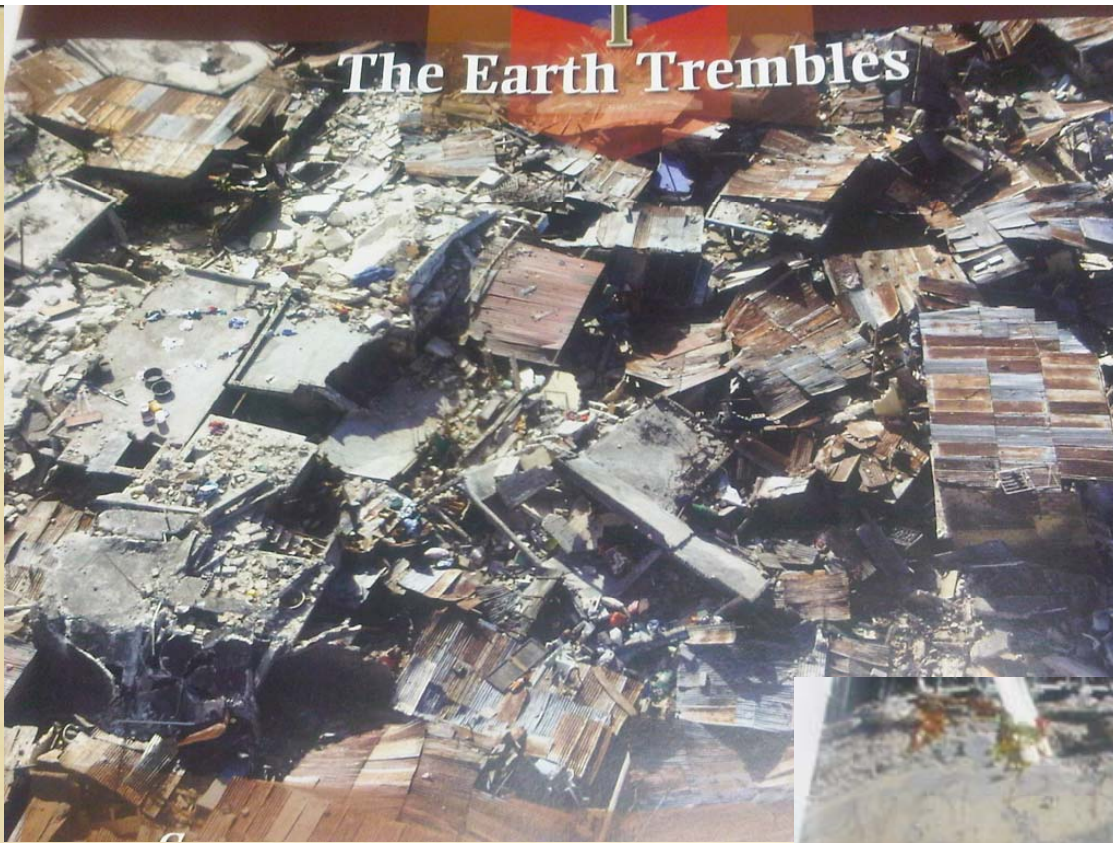
Picture Source: Chile
REUTERS/Eliseo Fernandez

- What Went wrong?



Picture Source: Chile Earthquake - Inhabitat.com

The Earth Trembles



- Who is to Blame?



Picture Source: The Salvation Amry: Voice from Haiti Vault



- Could this have been Avoided?



Picture Source: Go-Jamaica Weather Watch

Objective

At the end of this presentation you will have a better understanding of:

- The effects of good infrastructure design
- The impact on Insurance Risks
- The impact on a society that fails to pay attention to their building codes

Deadliest Atlantic Tropical Cyclones

Rank:	Name:	Year:	Category:	Damage (U.S.):*
1.	Katrina (LA/MS/AL/SE FL)	2005	3	\$81,000,000,000
2.	Andrew (SE FL/SE LA)	1992	5	\$34,954,825,000
3.	Wilma (FL)	2005	3	\$20,600,000,000
4.	Ike (TX/LA/MS)	2008	2	\$18,000,000,000
5.	Charley (FL)	2004	4	\$14,000,000,000
6.	Ivan (FL/AL)	2004	3	\$13,000,000,000
7.	Rita (LA/TX)	2005	3	\$10,000,000,000
8.	Hugo (SC)	1989	4	\$9,739,820,675
9.	Frances (FL)	2004	2	\$8,860,000,000
10.	Agnes (NE U.S.)	1972	1	\$8,602,500,000

Source: National Hurricane Center Publication

World Largest Earthquake since 1900

	Location	Date UTC	Magnitude
1.	Chile	1960 05 22	9.5
2.	Prince William Sound, Alaska	1964 03 28	9.2
3.	Off the West Coast of Northern Sumatra	2004 12 26	9.1
4.	Near the East Coast of Honshu, Japan	2011 03 11	9.0
5.	Kamchatka	1952 11 04	9.0
6.	Offshore Maule, Chile	2010 02 27	8.8
7.	Off the Coast of Ecuador	1906 01 31	8.8
8.	Rat Islands, Alaska	1965 02 04	8.7
9.	Northern Sumatra, Indonesia	2005 03 28	8.6
10.	Assam - Tibet	1950 08 15	8.6

Source: USGS National Earthquake Information Center

The Reality!

- Insurers' Claims data shows that damage to some types of buildings during a Catastrophe are greater than expected.
- Why?
- Structural engineers realized that while building codes were sufficient to ensure buildings would withstand moderate impacts, adherence to those codes was inconsistent

Comparison

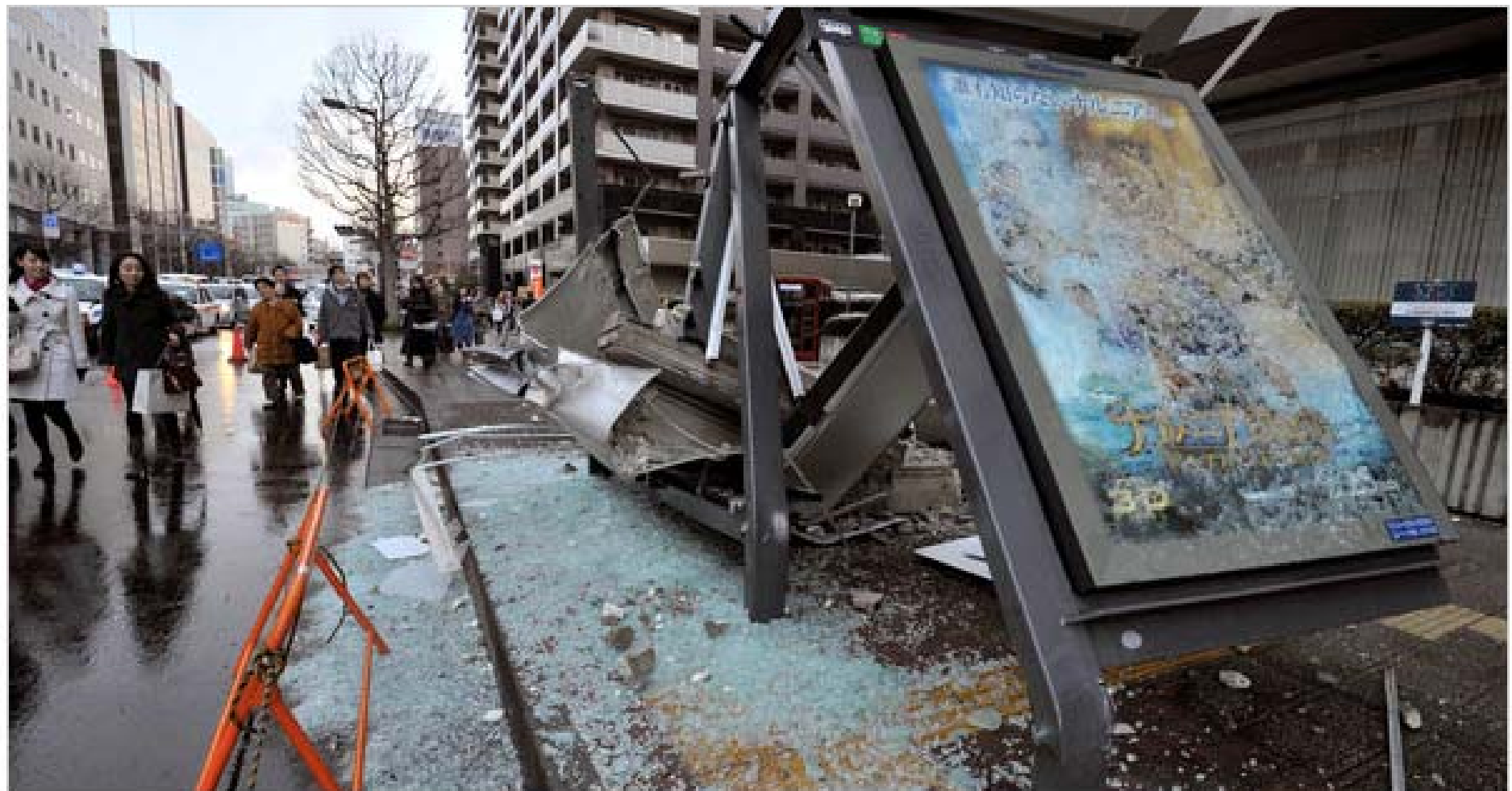
- In January 2010, Haiti experienced an earthquake of a magnitude of 7.0 resulting in over 200,000+ deaths and great devastation
- In February 2010, Chile experienced an earthquake of a magnitude of 8.8, resulting in over 700+ deaths with far less devastation than Haiti
- Earthquake in Chile was 500 times stronger than Haiti's.....but far less damage. Why?

The New York Times

Asia Pacific

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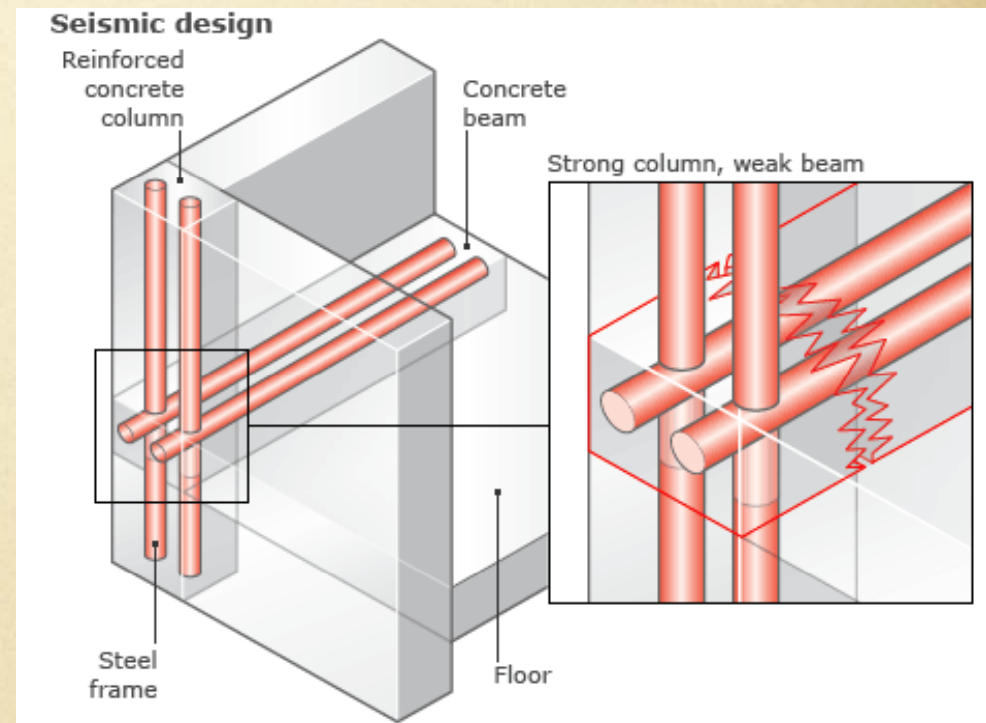
Japan's Strict Building Codes Saved Lives



Kyodo News, via Associated Press

Chile's building codes

- Chile learned from a long history of earthquakes
- After the [massive 9.5 earthquake](#) in 1960, the Chilean government developed a seismic design code for all new buildings
- The country's building codes were revised again in 1993 to include significant advances over previous versions
- Resulted in infrastructure built to high standards



Comparison

	HAITI	CHILE
Magnitude	7.0	8.8
# of deaths	220,000+	700+
Corruption Index ranking	168	25
Avg. time to acquire construction permit	1,179 days	155 days
Recovery Period	Decades (Most buildings were not built to withstand a major earthquake)	3-4 years (Most of the buildings were built to withstand a major earthquake)

Jamaica's building Code:



- Currently, The Kingston and St. Andrew Building Act (1883) and Parish Councils Building Act (1908) provide the rules governing buildings in Jamaica
- In 2002, a consulting team was assembled with the mandate to review the International Building Code of USA and developed a local building code, making the necessary adjustments applicable to Jamaica.
- Cabinet prompted by the devastating earthquake in Haiti issued instructions for the drafting of legislation to establish a national building control framework for the island.
- GOJ is now finalizing the necessary legal document for the National Building Act of Jamaica - Estimated to be enforced by June 2011

Now is the time!



NEWS

Earthquake fright

8.8 tremor would destroy 70% of Kgn's buildings, say engineers

BY PATRICK FOSTER Observer writer fosterp@jamaicaobserver.com
Tuesday, March 02, 2010



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- Legal building code in Jamaica is 102 years old, crafted one year after the earthquake that destroyed Kingston in 1907.
- "People might be saying most of our houses are made of block and steel [but] one of the big issues is that the foundation in some of the houses is sometimes non-existent,"
 - -Noel DaCosta
 - Jamaica Institution of Engineers (JIE) member.
- It was not "all gloom" as the JIE is "here to take us out of the situation".
 - - David Chung
 - JIE president

What is required?

1. Planning

- Assembling of required expertize (i.e. Engineers, Insurers, Legislators..) to create an appropriate standard

2. Design

- Standards set as per the specific need of Jamaica (mitigate against Hurricane, flooding, earthquake..)

3. Enforcement

- Building codes have little value if not enforced
- Plan reviewers and building inspectors are key to the success

4. Maintenance

- Regular review of building standards to incorporate new technologies and effects of climate change

Insurers' perspective

- Insurers Recognize the Critical Importance of Code Enforcement.
- Effects of Hurricane Andrew prompted the insurance industry to initiate a code-effectiveness grading schedule, in order to identify and rate country with good code-enforcement
- Good code-enforcement practices are correlated with reduced insurance premiums.

Earthquake Insurance Coverage Helping Recovery Efforts In Chile

Posted on Fri, March 05, 2010

[News](#) > [Earthquake Insurance Coverage Helping Recovery Efforts In Chile](#)

posted by Lawrence Shipman

While it is known that good insurance coverage can help people to rebound from a catastrophic incident, an example of just how helpful it can be is currently being seen in Chile following the earthquake that hit it last month.

According to the Insurance Information Institute, the highly developed insurance market that has been developed in Chile in the last 50 years has led to an abundance in options regarding earthquake insurance coverage, which is often tacked onto standard fire policies.

"In addition to a number of Chilean insurers, many large international insurers and re-insurers - mainly American and European - compete for business in that country, and will provide the financial resources for Chile's reconstruction," said Robert P. Hartwig, the institute's president and an economist. "This is very different from Haiti, which has virtually no private insurance market."

He added that the money spent by insurers to help rebuild Chile, a figure that will likely reach into the billions of dollars, will also help to stabilize the country's economy.

"Insurance is the swiftest, most efficient means to affect recovery after catastrophic events," he said.

The organized recovery efforts in Chile caused by the abundance of insurance policies should serve as a reminder to consumers who live in earthquake-prone areas that taking out appropriate [home insurance](#) policies could serve to make a recovery process much simpler.

Summary

- Climate change and Catastrophic events are a reality
- Good infrastructure design make structures more resistant to natural hazard forces
- Enforcement of appropriate/relevant building codes can reduce insurance premiums
- Insurance is the swiftest, most efficient means to affect recovery after a catastrophic event .



Recovery
Period

Decades
(Most buildings
were not built to
withstand a major
earthquake)

Recovery
Period

3-4 years
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Thank You