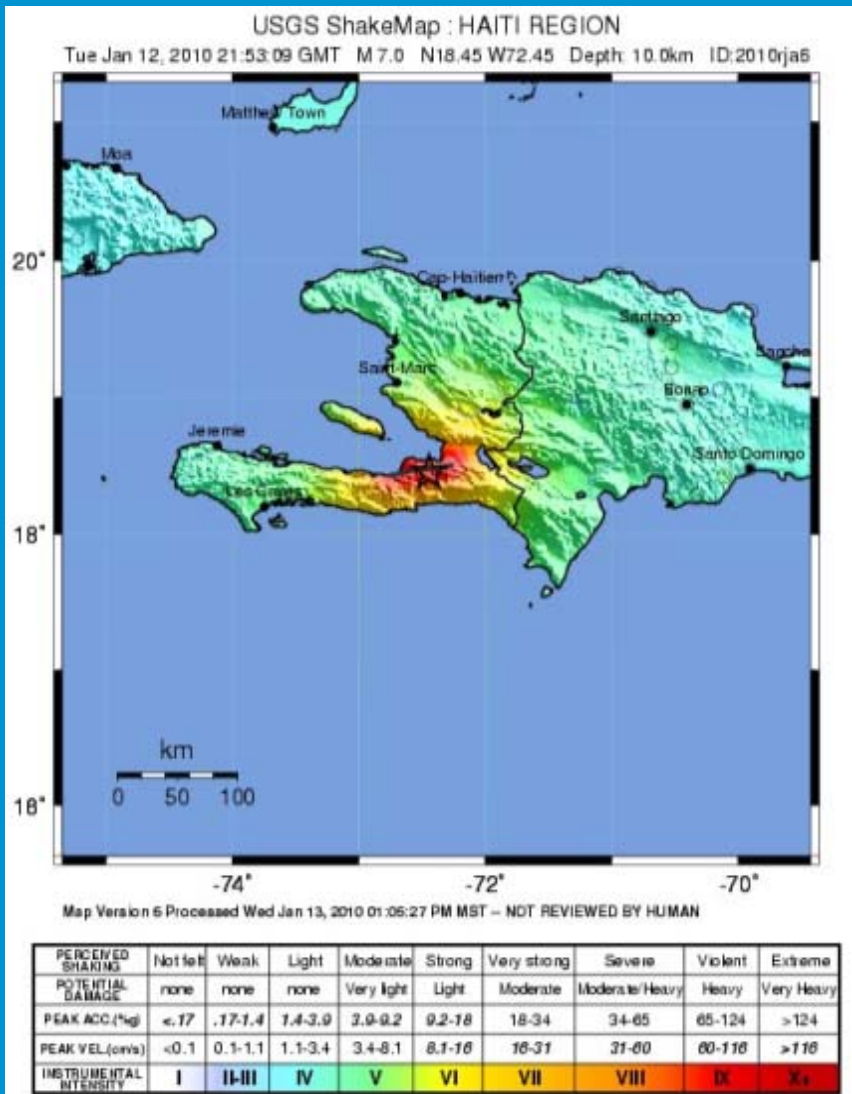


# Building Resilient Communities by Effective Seismic Risk Reduction and Resilient Disaster Reconstruction

H. Kit Miyamoto, Ph.D., S.E.  
Miyamoto International  
California Seismic Safety Commission



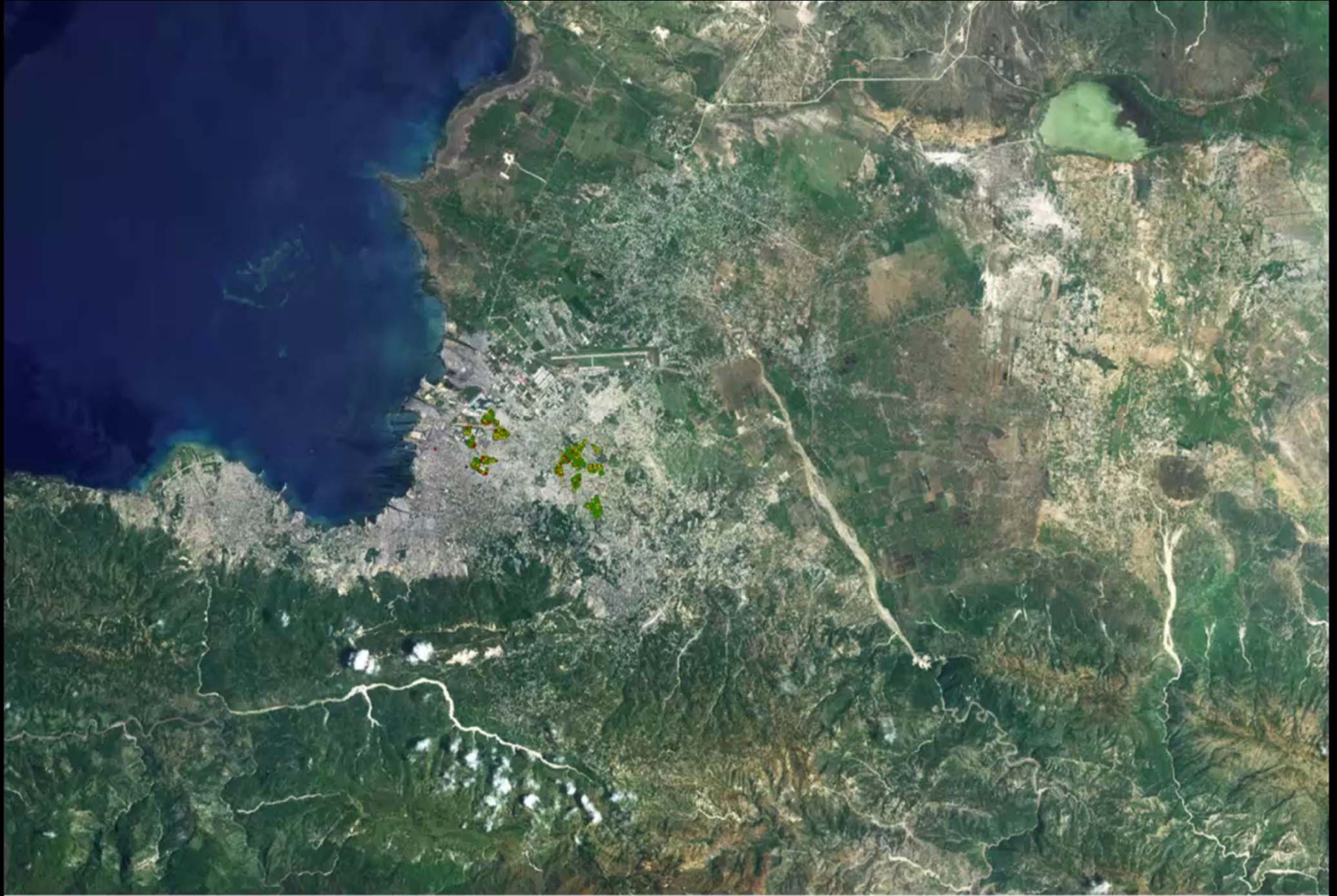
- M7.0 earthquake struck on January 12, 2010
- 300,000+ deaths
- 3 million people in affected area
- 200,000 buildings damaged
- 1.2 million people homeless

USGS Shake Map of the affected area



**430,000 buildings assessed**

**miyamoto.** EARTHQUAKE +  
STRUCTURAL  
ENGINEERS

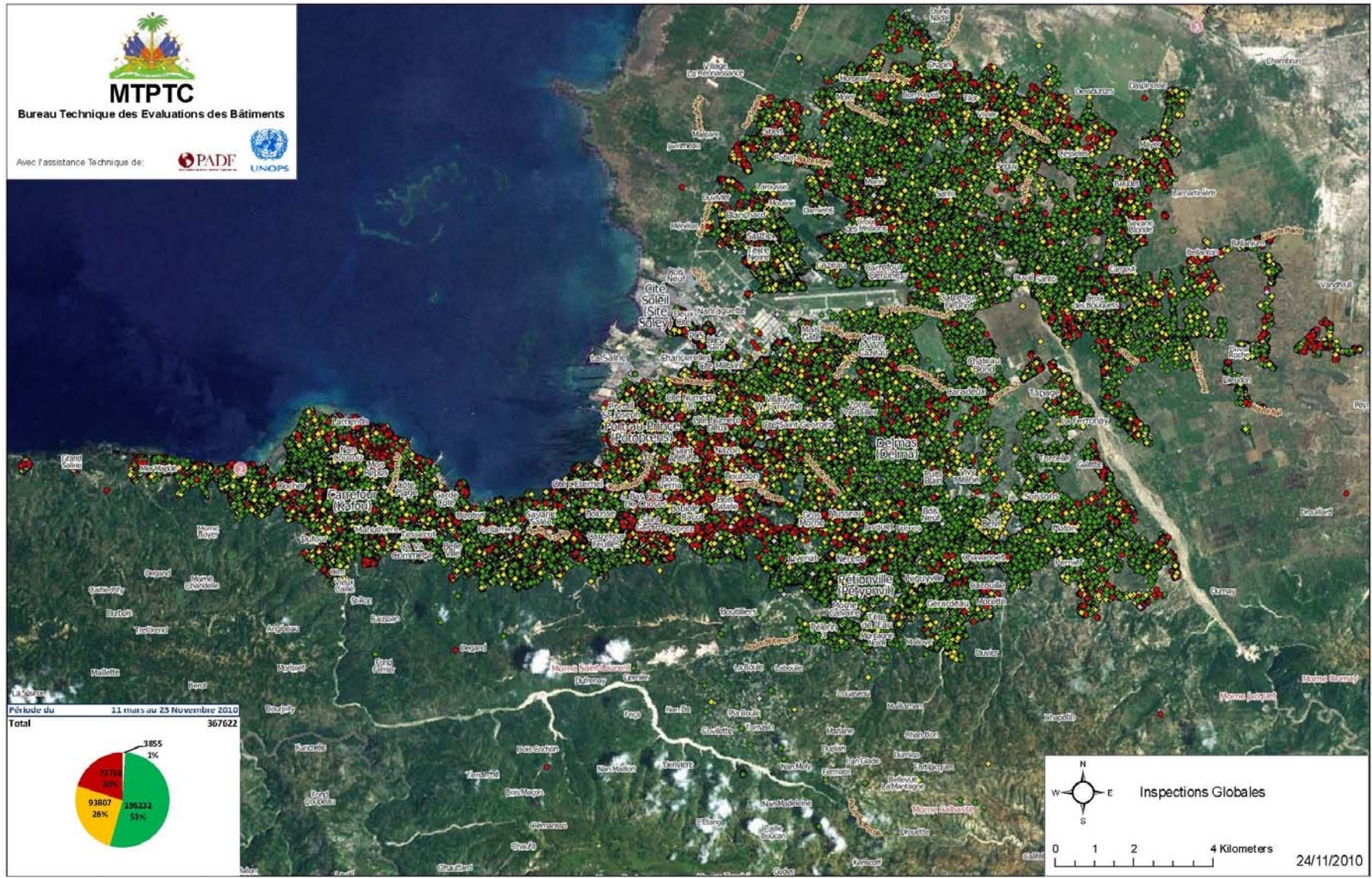




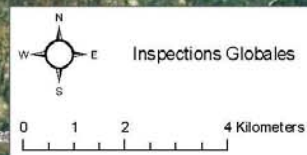
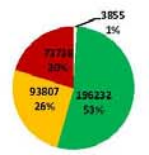
**MTPTC**

Bureau Technique des Evaluations des Bâtiments

Avec l'assistance Technique de:



Période du 11 mars au 25 Novembre 2010  
Total 367622



24/11/2010

Organization	Homes Repaired	Area
DAI/USAID - OTI	125	Delmas 31
ADORATION	200	Delmas 31
Chemonics/OTI	12	Martissant
PADF/USAID-OFDA/Caterpillar	1,200	Leogane
PADF/USAID/OFDA 2	1,696	Nazon, Delmas
PADF/USAID/OFDA 1	1,843	Simon Pele, CFF, Bel Air, Delmas 32
PADF/ARC	4,026	CFF, Delmas 31, 19, 33
UNOPS	800	Brise Tout, Pegguy Ville
<b>Total Houses Repaired</b>	<b>9,902</b>	
<b>TOTAL HOUSEHOLDS AFFECTED</b>	<b>14,952</b>	
<b>TOTAL PEOPLE AFFECTED</b>	<b>104,664</b>	<b>Avg. 7 people/household - 52% women</b>



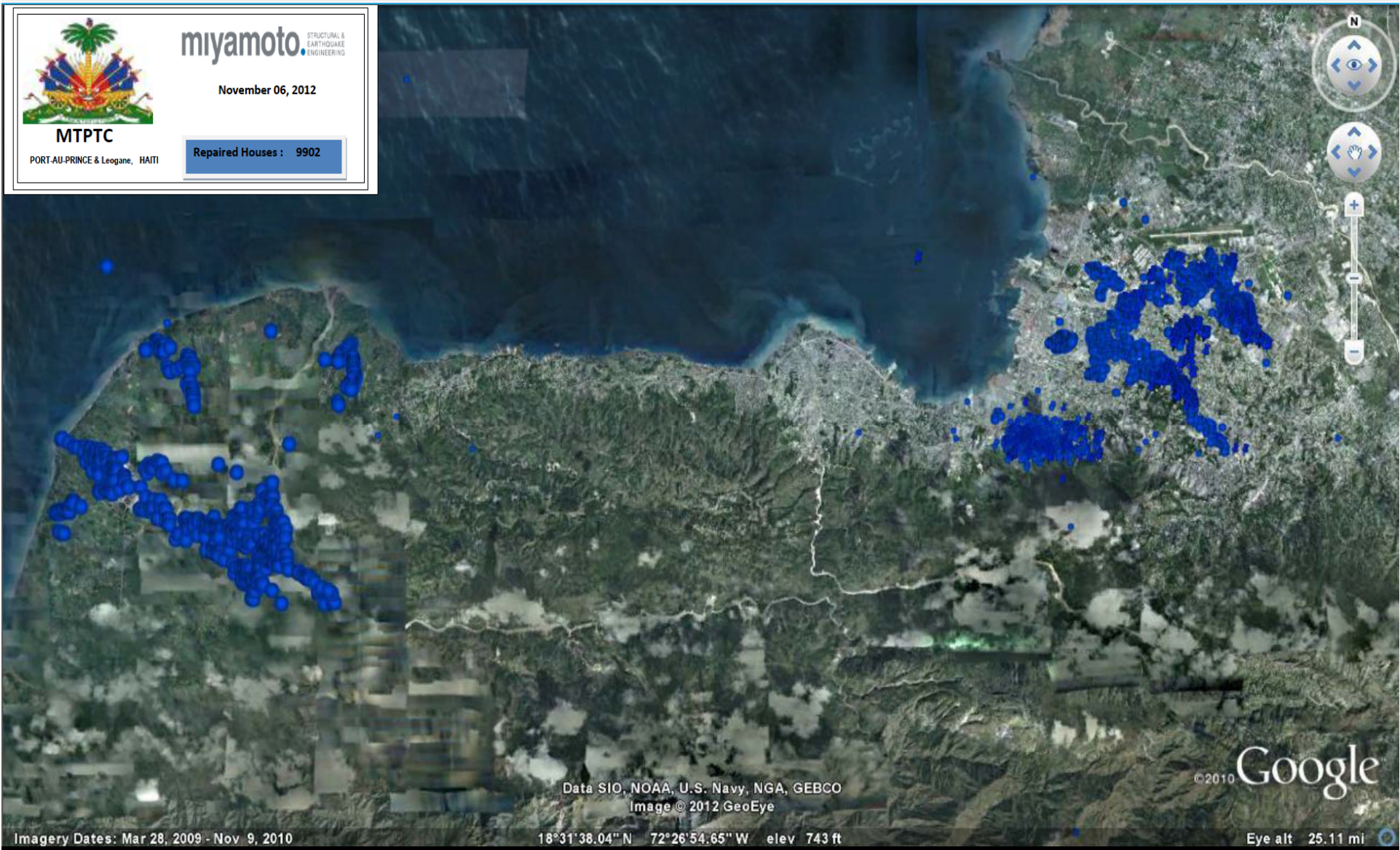
**miyamoto.** STRUCTURAL &  
EARTHQUAKE  
ENGINEERING

November 06, 2012

**MTPC**

PORT-AU-PRINCE & Leogane, HAITI

Repaired Houses : 9902



Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image © 2012 GeoEye

©2010 Google

Imagery Dates: Mar 28, 2009 - Nov 9, 2010

18°31'38.04"N 72°26'54.65"W elev 743 ft

Eye alt 25.11 mi

**9,902 Homes Repaired**







# 2008 M8 Sichuan Earthquake

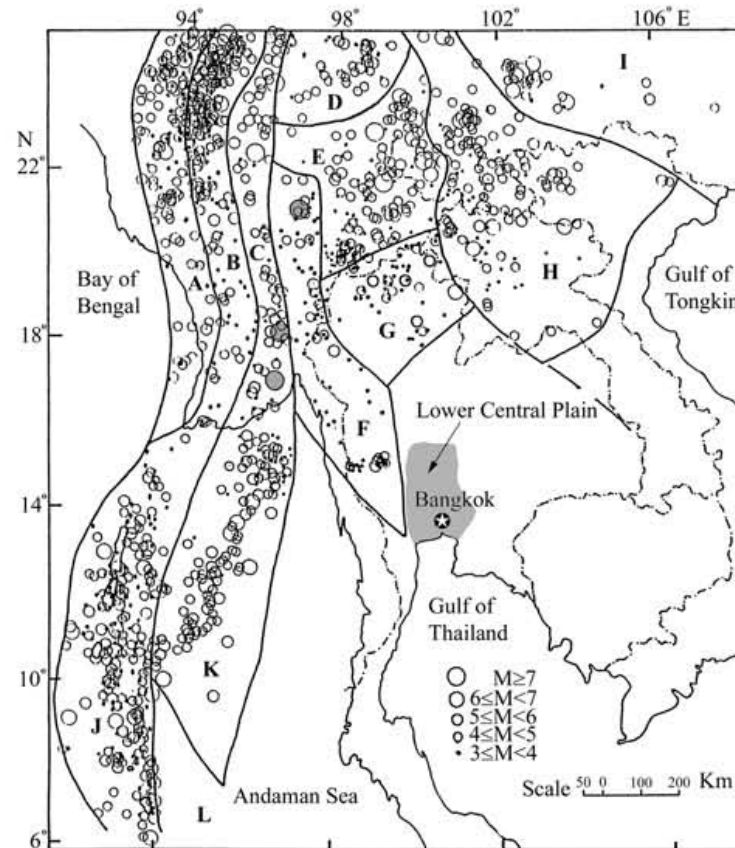


# Istanbul Seismic Risk Mitigation and Emergency Preparedness Project

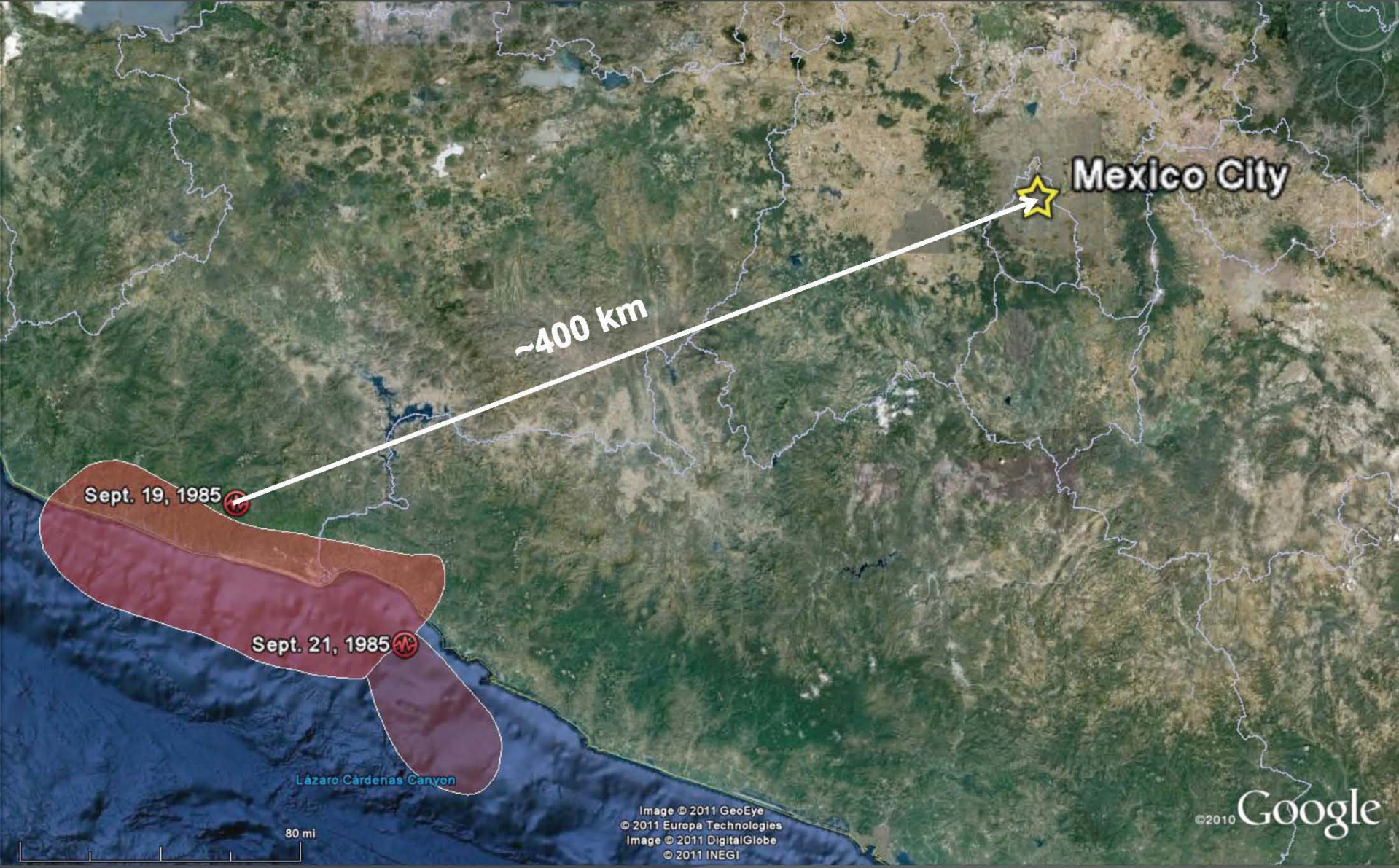
- Project Duration : 2006-2014
- Finance: World Bank and European Investment Bank
- Loan Amount : over \$1.5 billion





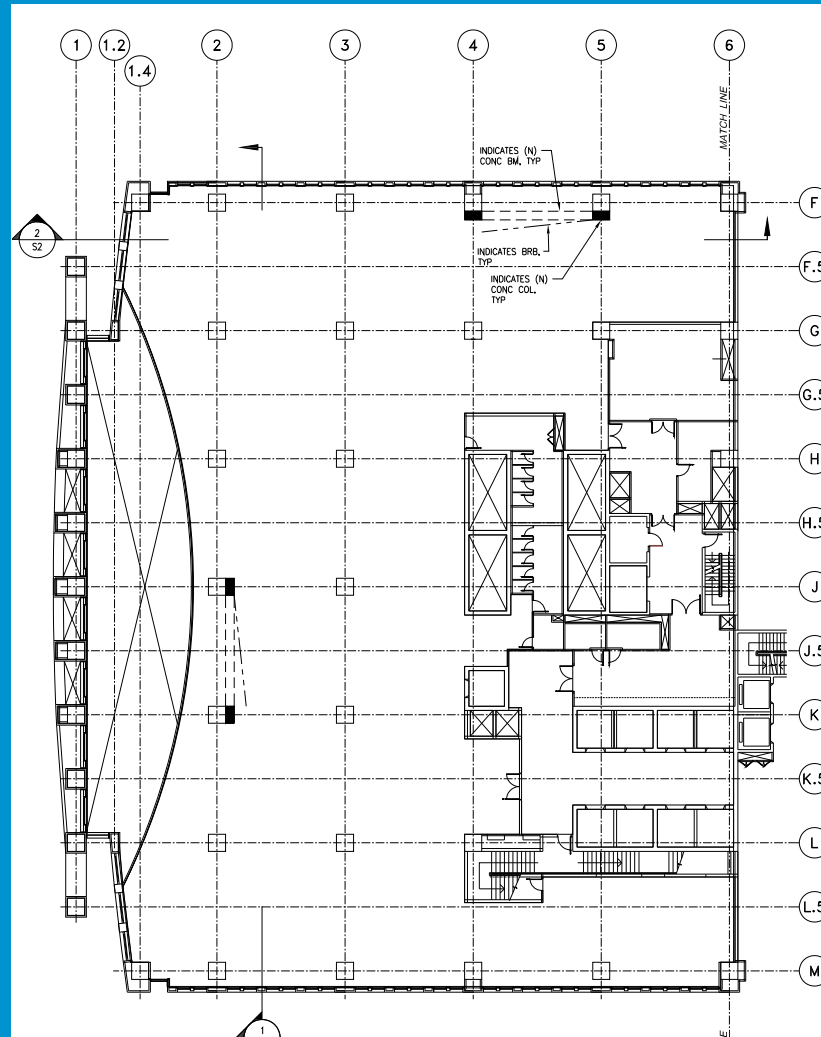


*Figure 1: Twelve regional seismic source zones (A-L) and epicenters of earthquakes during 1910 - present*

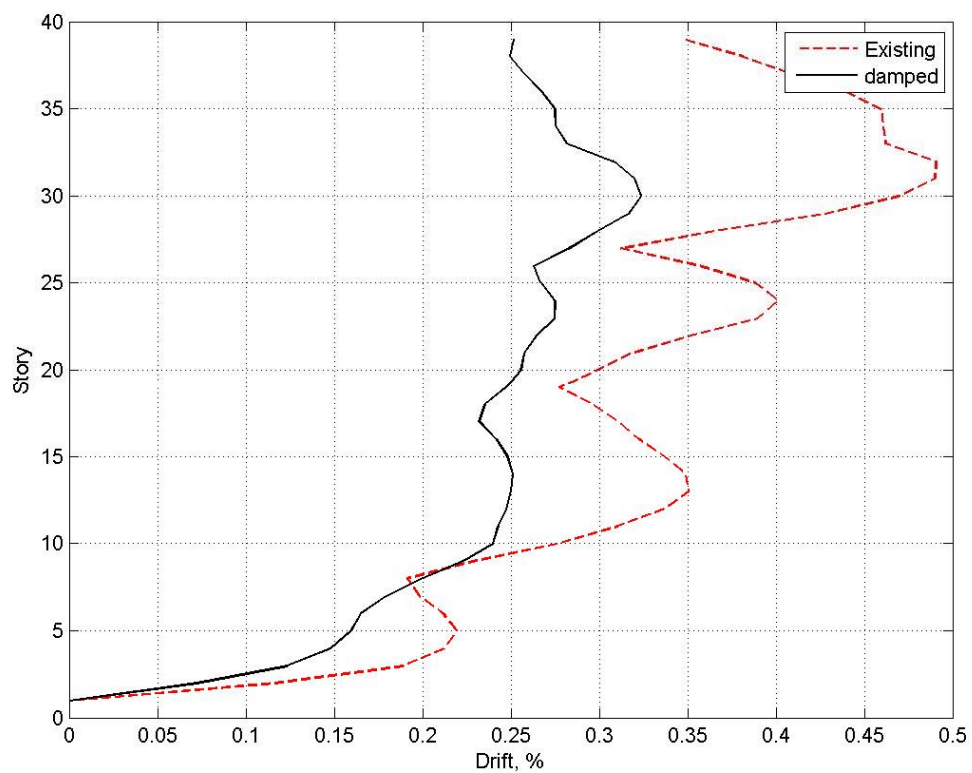


Ref: Walter Mooney









# Return on Investment

- Adverse effect was reduced and controlled
- PML is reduced from approx. 30% to less than 10%
- Cost: \$1.5 mill
- Benefit: \$8 million plus 6 months profit (\$150 mill)
- Cost Benefit ratio is better than 1/100

# Building Resilient Communities

- Increase broader public awareness via media
- Retrofit critical structures by cost effective measures
- Develop professional capacities in developing countries
- Make sure to have good ROI for private sector
- Develop reconstruction strategies before disaster



Make the world a better place