

Haiti (LEDC) Earthquake – January 12, 2010

Country Economic Info. (Use CIA Factbook):

GDP per capita: \$1,300 (2009 est.)

GDP (composition by sector):

- Agriculture: 28%
- Industry: 20%
- Services: 52% (2004 est.)

Labour Force by Occupation:

- Agriculture: 66%
- Industry: 9%
- Services: 25% (1995)

Local Time: 16:53 on January 12, 2010 (Just before 5 PM in Haiti)

Magnitude: 7.0

Epicentre (relative location and absolute location): 25 km west-southwest of the Haitian capital city of Port-au-Prince; near the town of Léogâne (18.457°N, 72.533°E).

Focus Depth: 13 km

Duration: 30-40 seconds

Dead: 222, 570

Injured: 300,572

Homeless and / or Buildings Destroyed (specify):

- 1,500,000 people live in the camps
- 604,215 people left Port-au-Prince and the West Dept.
- 188,383 houses destroyed or badly damaged
- 80 percent of Port-au-Prince schools destroyed or damaged
- 60 percent of hospitals in the affected region destroyed or damaged

Damage: \$7.2 billion to \$13.2 billion

Source(s): <http://www.mirror.co.uk/news/top-stories/2010/01/18/leogane-a-lost-town-at-the-haiti-earthquake-epicentre-115875-21975452/>

<http://news.bbc.co.uk/2/hi/americas/8455629.stm>

<http://www.cbc.ca/world/story/2010/01/13/f-haiti-earthquake.html>

<http://unpan1.un.org/intradoc/groups/public/documents/Other/UNPAN037626.pdf>

Cause of the Hazard Event:

- Haiti sits on a large fault that has caused catastrophic quakes in the past, but this quake is considered to be the worst in the past 200 years. The Caribbean is not usually considered a seismic danger zone, but earthquakes have struck there in the past.
- The fault is similar in structure to the San Andreas Fault that slices through California. Earthquakes that occur here at strike-slip faults result from the

- build-up of excessive pressure and stress as the plates slide past each other.
- However, the earthquake rupture did not reach the surface – unusual for an earthquake this size. There was, nonetheless, a large amount of vertical motion during the quake.

Source(s): <http://www.nytimes.com/info/haiti-earthquake-2010/>
<http://www.sciencedaily.com/releases/2010/02/100209152237.htm>

Preconditions to the Disaster

What was the local perception of the hazard risk?

(Note: See "Hazards and Disasters – Risk Assessment and Response" Packet for information about Risk)

- Some information on the threat level was available before the event, but the overall risk was poorly quantified and not accounted for in building codes, land-use planning, or emergency procedures.
- Efforts to communicate and mitigate earthquake risk were far from the scale necessary to face the threat. In addition, the educated workforce on earthquake science and engineering in Haiti is small, and earthquake hazard awareness among the public or decision- or policy-makers is low.
- Therefore, better public education and scientific technologies were required to fully comprehend the extent of the risk due to earthquakes in the area. The majority of the buildings were poorly constructed and unequipped to deal with earthquakes, and the public was generally unaware of the posed threat.

Source(s): http://web.ics.purdue.edu/~ecalais/haiti/documents/seismic_program_DRAFT.pdf
<http://www.nytimes.com/info/haiti-earthquake-2010/>

Short-Term Socio-Economic, Environmental, and possibly Political Impacts

(days and early weeks after the initial event):

- The day after the quake, Haiti's president, René Préval, called the destruction "unimaginable." The quake left the country in shambles, without electricity or phone service. Governments and private groups from Beijing to Grand Rapids pledged assistance, but the extent of the destruction — and Haiti's shaky infrastructure before the quake — meant aid efforts faced steep obstacles. Power was still out and telecommunications rarely functioned.
- Most medical facilities had been severely damaged, if not levelled. Supplies of food and fresh water were dwindling. Ships could not bring their cargos of supplies into Haiti's damaged port; the airport was functioning with severe limits; roads were blocked not only by debris but also by people with no safe shelter to retreat to.
- With little food and water to be had, thousands of residents of the capital, Port-au-Prince, where the destruction was centered, fled the city to seek refuge with relatives in the countryside.
- Despite scattered looting, the city remained relatively calm in the aftermath of

the quake, but there was little evidence that the central government was able to function. Months later, many government institutions had yet to resume operation.

- Thousands of people were sitting in the streets with nowhere to go. There were people running, crying, screaming. People were trying to dig victims out with flashlights.
- As Haitians begin to turn their attention to rebuilding a crippled economy after the earthquake, the country experienced a rapid surge in prices of crucial products.
- The nation's main port was knocked out of operation, hobbling exports. The banking system, largely shut down because of fear of robberies, is struggling to restart. The earthquake destroyed the finance ministry and part of the central bank, and killed senior financial officials, including Jean Frantz Richard, director of the tax collection agency.

*Source(s): <http://www.nytimes.com/info/haiti-earthquake-2010/>
<http://news.bbc.co.uk/2/hi/americas/8455629.stm>*

Mid and Long-Term Socio-Economic, Environmental, and Political Impacts

(several months and years after the initial event):

- By May 2010 the hope that a more efficient, more just Haiti might rise from the rubble was giving way to stalemate and bitterness. Haitians complained that the politically connected were benefiting most from the scant reconstruction work and that crime was returning. Meanwhile, unproductive politicians and aid groups struggled with temporary refugee camps that looked more permanent every day.
- Parliament was essentially disbanded; power was in the hands of Mr. Préval, his cabinet and a reconstruction commission led by the Haitian prime minister and former President Bill Clinton. United Nations officials calmly predicted that elections would take place by the end of 2010, but no clear alternative to Mr. Préval had emerged.
- Weak before the disaster and further weakened by it, the government has been overwhelmed by the logistical complexities of issues like debris removal and the identification of safe relocation sites.
- Haiti owes an estimated \$1 billion to foreign lenders and international banks; the interest on the loans has long been a drag on Haiti's feeble finances. As it is too early to foresee the upcoming events, it will be interesting to see how long it takes Haiti to repair up to the point of where it was before the quake, where the majority of the population didn't even have running water or electricity. It is clear, however, that the already weak economy was devastated and it will require a long time to rebuild.
- The government has barely begun the cleanup process. Roads in the center of

the city are still blocked by debris. And some experts predict that it could take up to 20 years to remove all of it.

Source(s): <http://www.nytimes.com/info/haiti-earthquake-2010/>

http://www.miamiherald.com/2010/01/25/1445926_p2/world-leaders-look-at-long-term.html

<http://www.cnn.com/2010/WORLD/americas/07/12/haiti.six.months.later/index.html>

Local Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

Short Term:

- The local community first and foremost focused on rescuing trapped survivors from underneath the ruins of collapsed buildings. Furthermore, rehabilitation and reconstruction were difficult because of the extent of the disaster and Haiti's previous conditions economically and socially.
- Due to the tremendous amount collapsed rubble, the majority of Haitians set up shelters in large, "tent cities." Therefore, rehabilitation was not truly possible due to the collapsed buildings, and reconstruction was not undertaken right away.

Mid to Long-Term:

- There were no major changes in the mid-term situation, as the Haitian communities continue to live in shelters, although some have left Port-au-Prince to live with family members in the country.
- Due to the short time period between the present and the occurrence of the earthquake, no major changes in rehabilitation or reconstruction have been made. Also, much of the rubble from the quake still remains on the streets of Haiti – posing a large problem for transport into and out of Port-au-Prince.

Source(s): <http://www.nytimes.com/info/haiti-earthquake-2010/>

<http://www.cnn.com/SPECIALS/2010/haiti.quake/>

National Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

Short-Term:

- Along with its many other dire problems, Haiti soon faced a crisis in leadership. Foreign nations sent hundreds of millions of dollars in assistance, only to find the government too weak to harness it.
- Virtually every symbol of the country's political system vanished into the rubble. Parliamentary elections were postponed. Radio programs became soap boxes for opposition leaders to strike the government while it was down. A nation that had been looking forward to a rare, peaceful transfer of power experienced familiar — albeit faint — rumblings of chaos and coups.

- In the eyes of many, Mr. Préval initially seemed incapable of pulling himself together, much less this deeply divided society. Several weeks after the quake, he began to take steps to reassert his authority and restore his government, but given Haiti's turbulent and unforgiving politics, the damage may have been done.
- Weak before the disaster and further weakened by it, the government has been overwhelmed by the logistical complexities of issues like debris removal and the identification of safe relocation sites.

Mid to Long-Term:

- The reconstruction of Haiti, especially in Port-au-Prince, has been extremely slow, and many people argue that there have been no noticeable changes in the infrastructure since the earthquake, raising questions about how the money given to Haiti is being managed.
- People are still living in tents and the streets are still littered with rubble. Although the national government is attempting to clean up and reestablish Haiti's already weak economic state, 'it's been said it would take a thousand days and a thousand trucks to clear out all the rubble.'
- Therefore, this disaster will require lots of time and patience – not to mention funding – in order for Haiti to fully recover and surpass its previously bleak economic state.
- Furthermore, Wyclef Jean, a Haitian-born hip-hop, was made a roving ambassador to promote the troubled country's image abroad and raise funds to aid Haiti in its reconstruction process.

Source(s): <http://www.cbc.ca/canada/montreal/story/2010/07/09/haiti-reconstruction-questions.html>

<http://www.nytimes.com/info/haiti-earthquake-2010/>

<http://today.msnbc.msn.com/id/16459449>

International Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

Short-Term:

- On Jan. 13, as Ban Ki-Moon, the secretary general of the United Nations, warned of a humanitarian disaster, President Obama promised that Haiti would have the "unwavering support" of the United States.
- But while world leaders pledged hundreds of millions of dollars and thousands of troops, delivering on these promises was a logistical nightmare. In the days after the quake, aid was arriving only in a trickle to those thought to need assistance.
- For weeks, relief came in the form of food giveaways that resembled a Darwinian sport — with biscuits and bottles of canola oil or biscuits thrown like footballs from the backs of trucks to masses of men jockeying for position.

- At the end of January, a new United Nations system of food distribution began, with coupons being handed out that qualify their recipients -- primarily women -- for 55 pounds of rice. The new approach eased the confusion surrounding aid, though by some estimates only a third of those who need it were receiving food.

Mid to Long-Term:

- At a conference in New York on March 31, donors promised Haiti \$5.3 billion over the next 18 months. Two weeks later, although questions about giving up control to foreigners arose, the Parliament approved the creation of an interim reconstruction commission to be led by former President Bill Clinton, the United Nations special envoy to Haiti, and Jean-Max Bellerive, Haiti's prime minister.
- Six months after the earthquake, only 28,000 of the 1.5 million Haitians displaced had moved into new homes, and the Port-au-Prince area remained a tableau of life in the ruins.
- The Canadian Red Cross alone raised some \$200 million, while the federal government has pledged \$600 million for reconstruction efforts. However, the reconstruction work has been extremely slow to non-existent -- leading to questions about how this money is being used.
- In addition, the current international response has slowed in comparison to the initial response, but non-governmental organizations have also contributed significant amounts of funding to the cause.

Source(s): <http://www.nytimes.com/info/haiti-earthquake-2010/>

<http://www.cbc.ca/canada/montreal/story/2010/07/09/haiti-reconstruction-questions.html>

<http://www.cnn.com/SPECIALS/2007/impact/index.haiti.html>

Vulnerability

From your research, how vulnerable were the people of this area to this hazard event and its impacts? Explain. (*Note: See "Hazards and Disasters -- Risk Assessment and Response" Packet for the definition of Vulnerability and Factors Affecting It*)

- According to the research, the people of Haiti were extremely vulnerable to the hazard event due to the general lack of knowledge amongst the public about earthquakes.
- Furthermore, the economy was already extremely weak, and this catastrophe dealt a major blow to a previously struggling area. The government was not well-equipped to handle the impacts of this disaster either, shown by the lack of improvements up to present day of the housing and cleaning rubble off of the streets to allow better transportation of goods into Port-au-Prince.
- The buildings were also poorly constructed and could not withstand the earthquake. In addition, no real early warning system existed and the lines of communication were not sufficient. In general, the nature of the Haitian society (immense poverty and its consequences) increased the vulnerability.

Adjustments

What measures have been taken to reduce the risk of a future earthquake event?

Note: RISK = Hazard + Vulnerability

(Note: See "Hazards and Disasters – Risk Assessment and Response" Packet for further information)

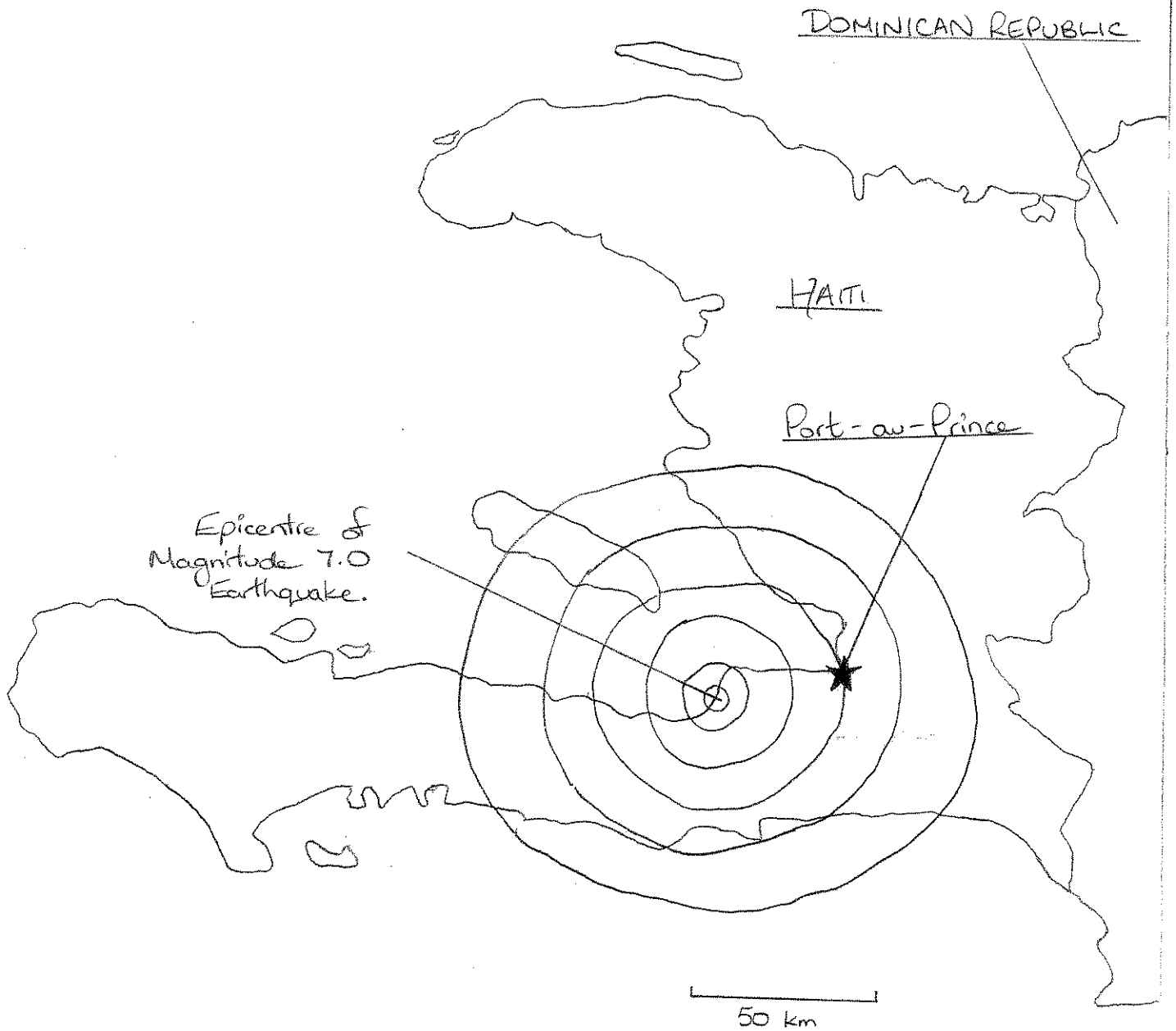
- As of present day, no real drastic changes have been made during the rough 8-9 month period from the earthquake. However, in the near future, several key things should be implemented in Haiti to avoid duplicating this catastrophe.
- First of all, the buildings should be reconstructed out of a material that will be more resistant to shaking. These buildings should also be designed in a way that they will not collapse easily. For example, older buildings could be reinforced with steel, or new earthquake-proof sites could be built. The issue, here, however, would be money and time.
- It is crucial that Haiti attempt to rebuild the country as soon as possible, and hence, the rubble must be lifted off the streets.
- Furthermore, public education and awareness of natural disasters such as earthquakes must be increased to allow for better response to these disasters. It is also important to begin monitoring seismic waves near the regions with dangerous faults in order to perhaps be prepared for a disaster beforehand.
- In addition, this earthquake, although disastrous, will show the public the true effects of such a disaster and hopefully allow them to realize that they must be better prepared. Given Haiti's economic state, however, it will be difficult to recover from this disaster, let alone take implementations to reduce the risk of a future earthquake, without going into financial turmoil.

Source(s): <http://www.voanews.com/english/news/science-technology/earthquake-engineering-21Jan10-82279807.html>

➤ Some recommended sources –

- Relevant handouts and video resources utilized in class
- CNN
- BBC
- CBC
- New York Times

Location of Earthquake in Haiti



- compass?

Mr. Mleziva

Sept. 25th, 2010

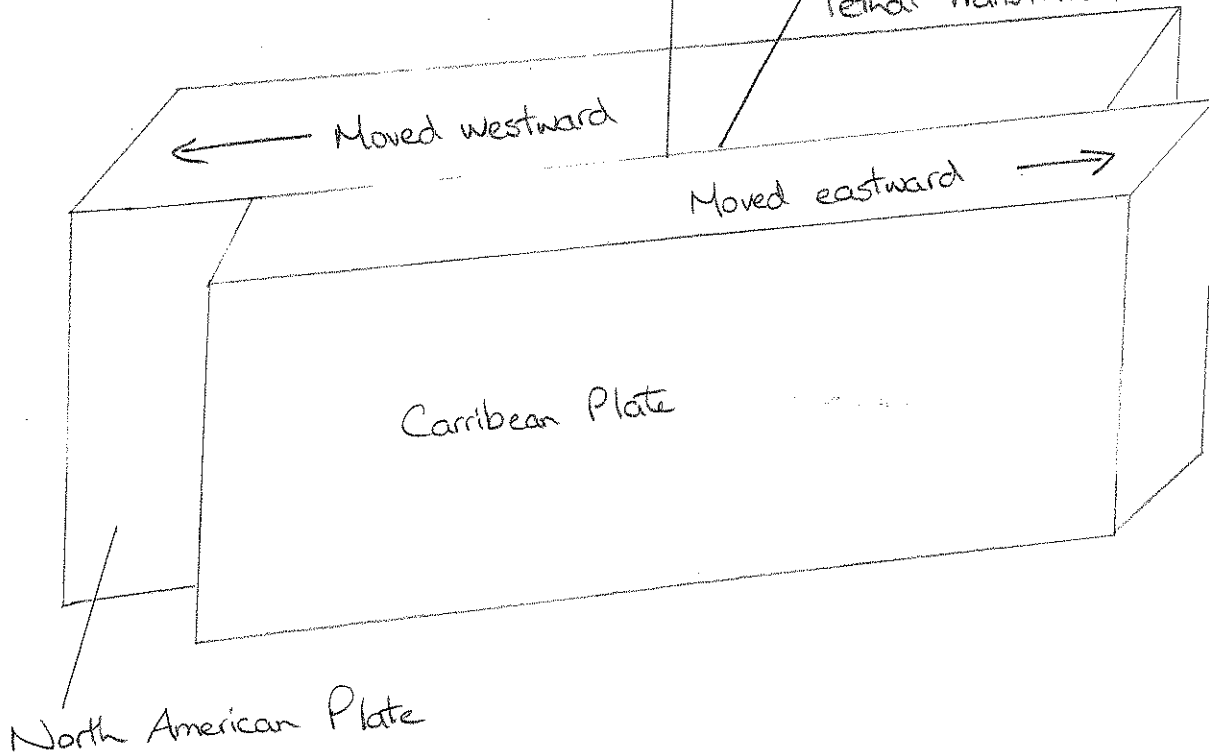
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MR. MLEZIVA

Cross-Section of Transform Fault During Haiti Earthquake

As the two plates moved suddenly past each other, slipping, the **shear stress** built up in the Enriquillo - Plain Garden fault zone was released in the form of a massive earthquake.

Haiti is situated above this lethal transform fault.



Michael L. L...

Sept. 25th 2010

IB GEOGRAPHY 12

MR. MLEZIVA

Part B**Sichuan Province, China (NIC) Earthquake – May 12, 2008****Country Economic Info. (use CIA Factbook):****GDP per capita:** \$6,600 (2009 est.)**GDP (composition by sector):**

agriculture: 10.6%

industry: 46.8%

services: 42.6% (2009 est.)

Labour Force by Occupation:

agriculture: 39.5%

industry: 27.2%

services: 33.2% (2008 est.)

Local Time: 2:28 PM**Magnitude:** 7.9**Epicentre (relative location and absolute location):** Wenchuan County, 80 kilometers (50 mi) west-northwest of Chengdu, the capital of Sichuan; 31.021°N 103.367°E**Focus Depth:** 19 km**Duration:** close to 120 seconds**Dead:** 68,712**Injured:** 374,000**Homeless and / or Buildings Destroyed (specify):** at least 15 million homeless, 80% of buildings destroyed.**Damage:** \$20 billion**Source(s):**[http://www.nytimes.com/interactive/2008/05/12/world/05132008_CHINA_MAP.html?ref=sichuan_province_china,](http://www.nytimes.com/interactive/2008/05/12/world/05132008_CHINA_MAP.html?ref=sichuan_province_china)[http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.html,](http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.html)<http://earthquake.usgs.gov/earthquakes/eqinthenews/2008/us2008ryan/#details>**Cause of the Hazard Event:**

-The Sichuan earthquake of May 12, 2008, occurred as the result of motion on a northeast striking reverse fault or thrust fault on the northwestern margin of the Sichuan Basin.

-The earthquake may have been triggered by the weight of 320 million tons of water in the Zipingpu Reservoir less than a mile from a well-known major thrust fault (the Longmenshan Fault). This coincides with a new finding by Chinese geophysicists that the dam caused significant seismic changes before the earthquake.

Source(s):[http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.htm,](http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.htm)<http://earthquake.usgs.gov/earthquakes/eqinthenews/2008/us2008ryan/#summary>

Preconditions to the Disaster

What was the local perception of the hazard risk?

(Note: See "Hazards and Disasters – Risk Assessment and Response" Packet for information about Risk)

The Sichuan population was not forewarned of the earthquake; Chinese officials ignored warnings from five eminent seismologists that a strong earthquake would strike, including one forecast that almost exactly predicted the date of the earthquake. However, earthquakes were frequent in China, and the people were aware of the disasters that an earthquake could bring. Pre-quake, Sichuan was given little to no media attention, and thus perceptions of a hazard was low.

Source(s): <http://www.timesonline.co.uk/tol/news/world/asia/article4039973.ece>

Short-Term Socio-Economic, Environmental, and possibly Political Impacts

(days and early weeks after the initial event):

- A month on from the Sichuan earthquake, Chinese officials imposed tight security in some of the damaged areas, apparently to prevent protests.
- The government ordered its departments to cut spending so that funds can be allocated to reconstruction efforts. China's Olympic Games organizers said that they would scale down the route of the torch through the country
- A strong sense of national unity was injected with volunteers from all over the country pouring into disaster areas to work alongside soldiers and rescue teams.
- 391 dams were damaged.
- Millions of livestock and a significant amount of agriculture were destroyed, including 12.5 million animals, mainly birds.
- As a result of the magnitude 8.0 earthquake and the many strong aftershocks, many rivers became blocked by large landslides, which resulted in the formation of "quake lakes" behind the blockages; these massive amounts of water pooled up at a very high rate behind the natural landslide dams and it was feared that the blockages would eventually crumble under the weight of the ever-increasing water mass, potentially endangering the lives of millions of people living downstream.
- It is estimated that 80 percent of panda habitat in Sichuan was damaged in the quake; this is significant as Sichuan houses the primary reserves for Pandas in China.
- One of the biggest environmental issues in the immediate weeks after the earthquake was contaminated drinking water. Hazardous material spills from ruptured tanks and pipes of factories had the potential to leak into water supply.
- Temporary water supply to some remote areas had been limited because of the difficulty of transportation (Most highways in and leading to Sichuan had been damaged).
- The direct provision of aid by the Chinese military was a key element in the emergency response phase

Source(s): <http://news.bbc.co.uk/2/hi/asia-pacific/7449814.stm>,
http://news.xinhuanet.com/english/2008-05/28/content_8265651.htm,
<http://earthtrends.wri.org/updates/node/316>

Mid and Long-Term Socio-Economic, Environmental, and Political Impacts

(several months and years after the initial event):

- During the cleanup and disposal of debris from fallen buildings, the government had provided temporary housing for citizens.
- The agricultural system was severely damaged and is still threatened.
- The irrigation system was damaged and will need a long time to repair. Agricultural land was vulnerable as reconstruction began, as this land was taken over by temporary settlements or repurposed for rebuilding towns.
- China was acclaimed by the international community for their rescue efforts.
- The long process of reconstruction required prolonged funding and, in order for it to be accomplished with minimal environmental impact, a strong intentionality toward sustainable development.
- Because much of the country's money had been spent on the Olympic games, China and Sichuan had to lend themselves heavily to aid until the Olympics had happened and they had received money back from it.
- As Sichuan was a lesser-developing city in China, its development was hindered as its funds had to be used for rebuilding after the earthquake.
- Sichuan was a centre of agriculture and herding; its collapse led to a food shortage problem in China and put great pressure on inflation.
- Several badly affected counties and cities were "twined" with other Chinese provinces and municipalities. These partnerships aimed to assist affected areas with resources, personnel and moral support for recovery.

Source(s): <http://earthtrends.wri.org/updates/node/316>,

<http://www.slideshare.net/cheergalsal/sichuan-earthquake-2753173>,

<http://www.odihpn.org/report.asp?id=3008>

Local Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

Short Term:

- Relief activities were partitioned along the lines of the cluster approach, with the formation of working groups roughly corresponding with government agencies. (Rehabilitation)
- Affected populations worked to reconstruct markets and establish a home in their government-issued tents, while awaiting further instructions from the local authorities. (Reconstruction)
- The Ministry of Housing and Urban-Rural Development (MHURD) delivered the mandate of the State Council to the provinces that 1 million sets of transitional houses should be constructed within three months. (Reconstruction, Rehabilitation)
- Motorola immediately evacuated more than 400 of its staff at the Chengdu branch

and mobilized resources to offer the desperately needed communications support. Emergency communications systems and radio equipment were also rushed down to Sichuan's earthquake-hit areas. (Rescue)

-Surviving citizens worked day and night in an attempt to rescue those still stuck in buildings. (Rescue)

Mid to Long-Term:

- Mothers across the region were pregnant or giving birth again, aided by government medical teams dispensing fertility advice and reversing sterilizations. (Rehabilitation)

Source(s): <http://www.odihpn.org/report.asp?id=3008>,

http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.html,

<http://archrecord.construction.com/community/editorial/archives/0807.asp>

National Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

Short-Term:

- The response to the earthquake was dominated by the Chinese government; the Chinese state-led response to the Sichuan earthquake has generally been characterized as efficient and comprehensive.

- The state-led response focused on efficiency in providing resources and services to the largest number of people possible. (Rehabilitation)

- Mitigation strategies included an immediate emphasis on controlling infectious disease through widespread medical care and surveillance, the provision of tents for shelter (albeit insufficient in number at the outset and eventually upgraded to temporary, prefabricated structures), maintenance of security and the rule of law through substantial police and military deployments, traffic and supply-chain management at the regional and local level, as well as the triage of patients, the deployment of qualified volunteers and the efficient management of in-kind donations. (Rehabilitation and Reconstruction)

- The Chinese government welcomed relief assistance from all countries throughout the world with an open attitude, invited and arranged foreign support to disaster relief in China, and offered direct access for materials contributions and equipment to the disaster areas with flexible policies. (Rehabilitation and Reconstruction)

-The Government had allocated \$772 million for earthquake relief by 16 May 2008. (Rehabilitation)

Mid to Long-Term:

-Several badly affected counties and cities were "twined" other Chinese provinces and municipalities. These partnerships aimed to assist affected areas with resources, personnel and moral support for recovery. (Rehabilitation)

- Most parents whose children died took a payment of about \$8,800 from the local

government. (Rehabilitation)

- The Government of China announced an eight-year reconstruction plan, which targets 2008-2010 for immediate recovery and 2011-2015 for long-term economic reconstruction. (Reconstruction)

Source(s): <http://www.odihpn.org/report.asp?id=3008>,
http://topics.nytimes.com/topics/news/science/topics/earthquakes/sichuan_province_china/index.html,
<http://www.ilo.org/public/english/region/asro/beijing/whatwedo/earthquake.htm>,
<http://archrecord.construction.com/community/editorial/archives/0807.asp>,
<http://www.adb.org/Documents/TARs/PRC/42150-PRC-TAR.pdf>

International Response to the Event (where possible differentiate between rescue, rehabilitation and reconstruction):

-Very little international assistance was provided; instead, the response was very largely state-led

Short-Term:

-On 16 May 2008, rescue groups from the Republic of Korea, Japan, and Singapore among others arrived to join the rescue effort. (Rescue)

-The United Nations Children's Fund (UNICEF) procured \$430,000 worth of emergency supplies, including 1,000 tents, 15,000 blankets, and 60,000 school kits. (Rehabilitation)

-16 May 2008, the PRC had received \$457 million in donated money and goods for rescue efforts, including \$83 million from 19 countries and 4 international organizations. (Rescue and Rehabilitation)

-Response to the Motorola donation drive was overwhelming as employees voluntarily donated blood and torches, amongst other necessities. (Rehabilitation)

Mid to Long-Term:

- With support from the Red Cross Society of China and a range of international Red Cross Red Crescent partners, hundreds of schools, hospitals and clinics in the worst affected provinces have also either been finished or are nearing completion. (Reconstruction)

Source(s): <http://www.adb.org/Documents/TARs/PRC/42150-PRC-TAR.pdf>,
<http://www.ifrc.org/what/disasters/response/sichuan-earthquake/index.asp>

Vulnerability

From your research, how vulnerable were the people of this area to this hazard event and its impacts? Explain. (*Note: See "Hazards and Disasters – Risk Assessment and Response" Packet for the definition of Vulnerability and Factors Affecting It*)

The people of Sichuan were extremely vulnerable to the earthquake and its impacts. The province was situated extremely close to the epicenter. For one, Sichuan is a developing province in a NIC, which meant that it had limited access to resources in the case of a disaster. It was mainly an agricultural province and had no means of supporting a rehabilitation/reconstruction program on its own. It had a rapidly growing population, which exposed many people to the hazardous event. Many schools in Sichuan were poorly built (and destroyed), as construction styles and building codes were not followed. As Sichuan was a poorer country, many citizens did not have insurance cover and had poor quality in their housing; some cities were completely flattened during the earthquake. Because China had a one-child policy in effect, families in Sichuan were especially vulnerable to loss. In addition, the Sichuan population was not forewarned of the earthquake; Chinese officials ignored warnings from five eminent seismologists that a strong earthquake would strike, including one forecast that almost exactly predicted the date of the earthquake.

(<http://www.timesonline.co.uk/tol/news/world/asia/article4039973.ece>)

Adjustments

What measures have been taken to reduce the risk of a future earthquake event?

Note: RISK = Hazard + Vulnerability

(*Note: See "Hazards and Disasters – Risk Assessment and Response" Packet for further information*)

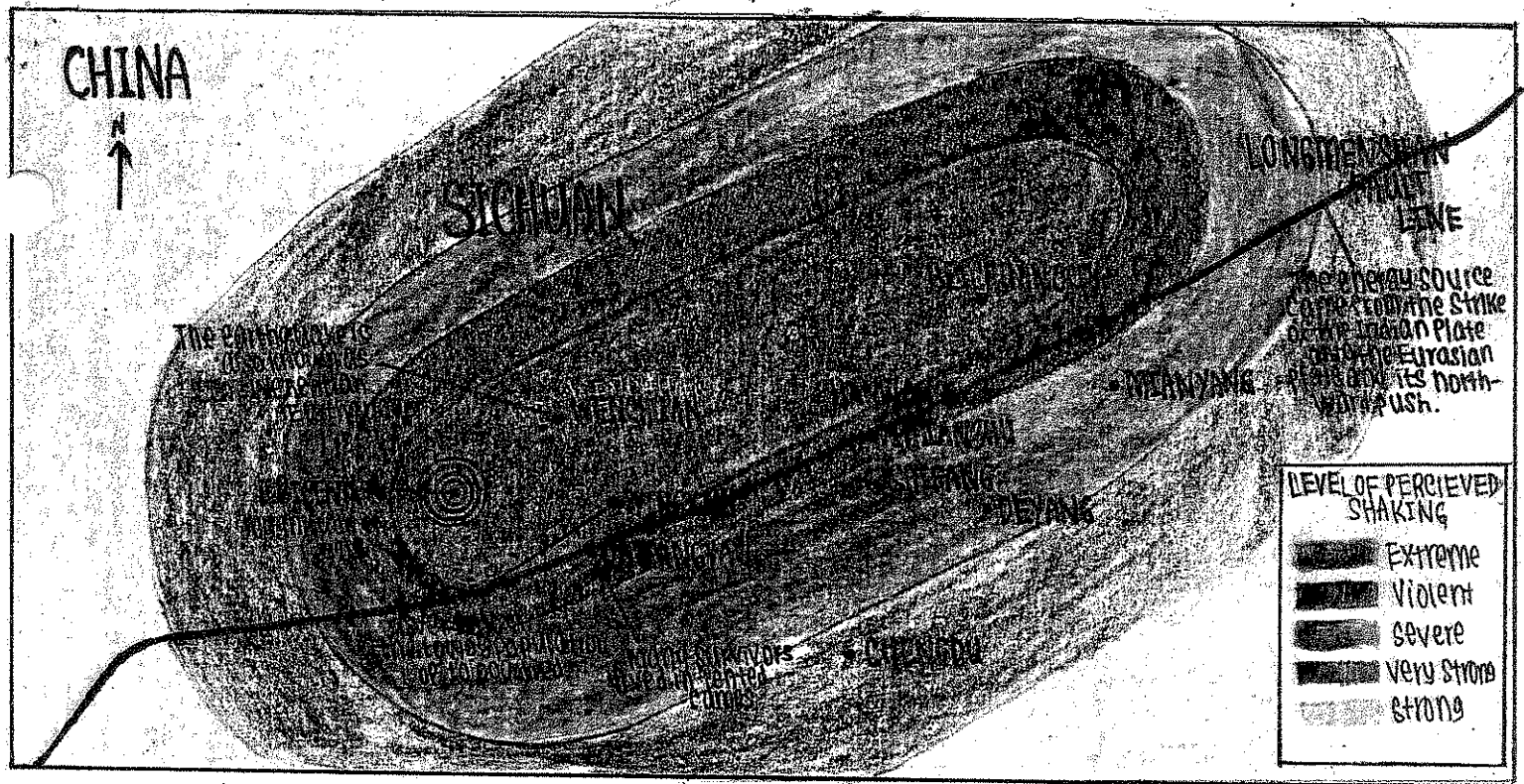
Because of the direct impact on the Sichuan earthquake and the disastrous results that it had, many new measures were taken to ensure against extensive damage of future earthquakes. In the two years since the quake, China has invested 654.5 billion yuan (96.3 billion dollars) in reconstruction in the quake zone, building 1.45 million homes and about 3,000 schools under much stricter building regulations. The Chinese Government has declared May 12 as "Disaster Prevention and Reduction Day". This is a great step to raise awareness in China of the continued dangers that the country faces from natural disasters and to educate the Chinese people that the reduction and prevention of future disasters is equally important as rebuilding. Over 50 fifth-graders from one of the earthquake-affected counties took part in an interactive class on disaster risk reduction by their teacher as part of a broader program being implemented by The Asia Foundation to support recovery and rural housing rehabilitation. The SCAE (School of Architecture and Environmental Science of Sichuan University) traveled to over 100 villages/sites to assess rural rebuilding models, and developed a safe rebuilding manual which aims to help government

officials understand rural rebuilding process, and serves as a step-by-step guide to rural residents on how to build a low-cost and earthquake-resistant house.

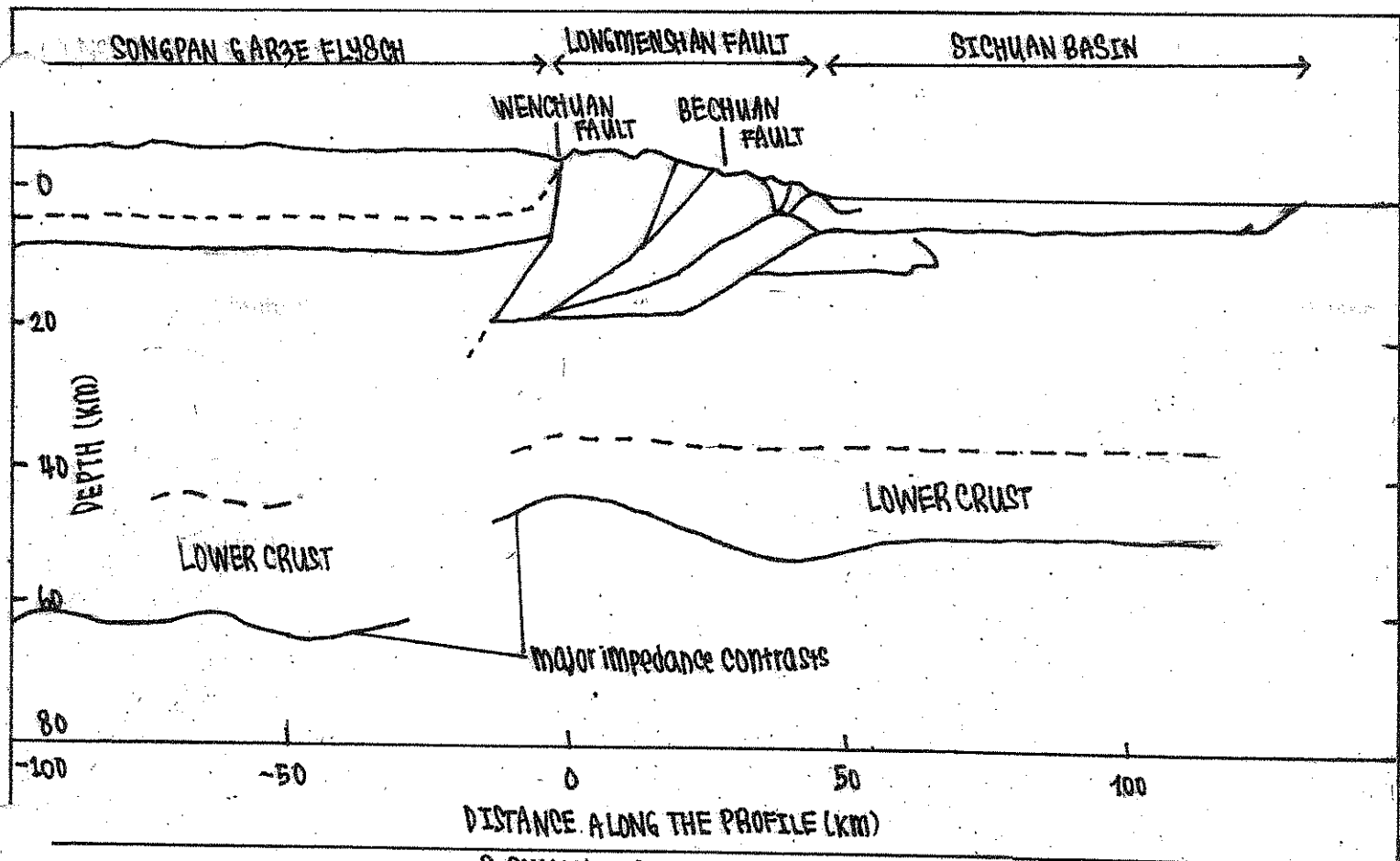
Source(s):

http://www.google.com/hostednews/afp/article/ALeqM5hIqPdcMzjP_a5hNdq1oyQiWNBM7A,

<http://www.asiafoundation.org/news/?p=4484><http://blogs.worldbank.org/eastasiapacific/node/2563>



SICHUAN EARTHQUAKE ZONE



SICHUAN EARTHQUAKE CROSS-SECTION