

## Ahmedabad

High rise buildings have collapsed. Many of the people blame contractors who cut corners.



Children receive counseling to deal with their experiences.



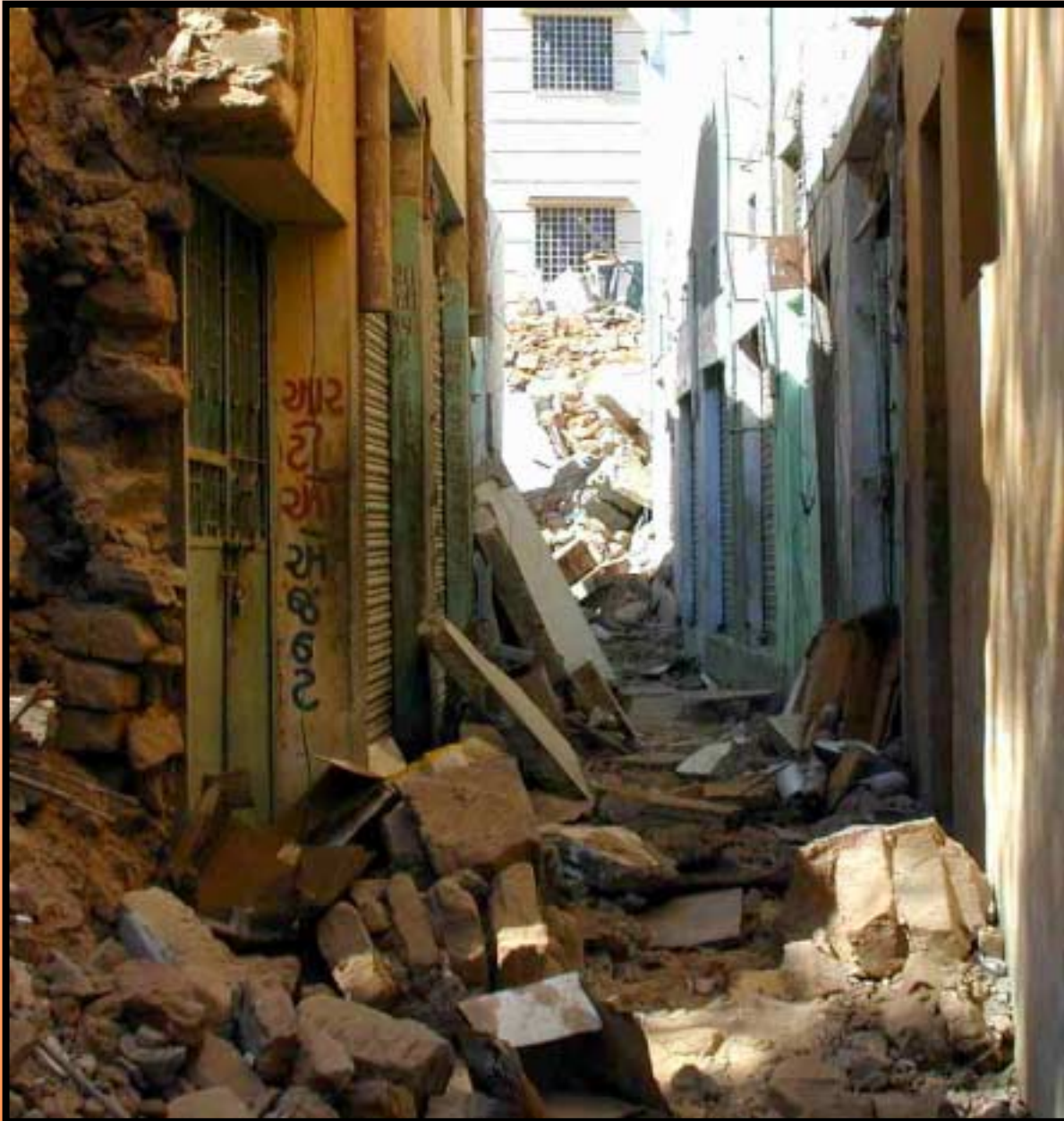
A child's picture of what she saw

This girl's school in Bhuj collapsed completely. Fortunately, no one was inside. The school, along with many other schools, has already reopened in a tent.



The old, walled city of Bhuj has been almost completely destroyed.





The old city of Bhuj. The lanes are so narrow that it is difficult to remove the rubble and debris.

Bhuj Outskirts -  
Even many of the  
buildings that  
have been left  
standing have  
serious damage,  
and will have to  
be demolished.



People surveying what used to be their home.



Small enterprises were also affected, as seen here in Rapar --  
Old City



## A destroyed temple in Bhachau



In towns and villages, people are removing rubble and debris, and trying to salvage their belongings.





In the villages, people are trying to get on with their lives. They are cooking and living outside. Getting shelter before the hot weather and the monsoon is essential.

# Gujarat Multi-Hazard Disaster History

- Cyclones: 1850, 1881, 1893, 1896, 1897, 1903, 1917, 1920, 1933, 1947, 1948, 1961, 1964, 1975, 1976, 1978, 1981, 1982, 1983, 1990, 1993, 1996, 1998, 1999
- Drought/Heat Waves: 1987, 1998, 1999, 2000
- Floods: 1980, 1989, 1991, 1993, 1994, 1996, 1997, 1998
- Earthquakes: 1819, 1845, 1847, 1848, 1864, 1903, 1938, 1956, 2001
  - Gujarat is located in the Himalayan collision zone, where the Indo-Australian tectonic plate slides under the Eurasian plate, 1-2 cm / year
  - Kutch is classified as Zone V, the highest risk zone

# Assessment of Damages

- Asset losses (direct damages): the value of stocks of buildings, equipment, inventory, and other property losses
- Output losses (indirect damages): the value of the flows of goods and services lost as a result of the asset losses and other disruption caused by the earthquake
- Fiscal costs (secondary effects): the net additions to the fiscal deficit as a result of lost revenue and additional expenditures due to the earthquake

# Assessment of Damages

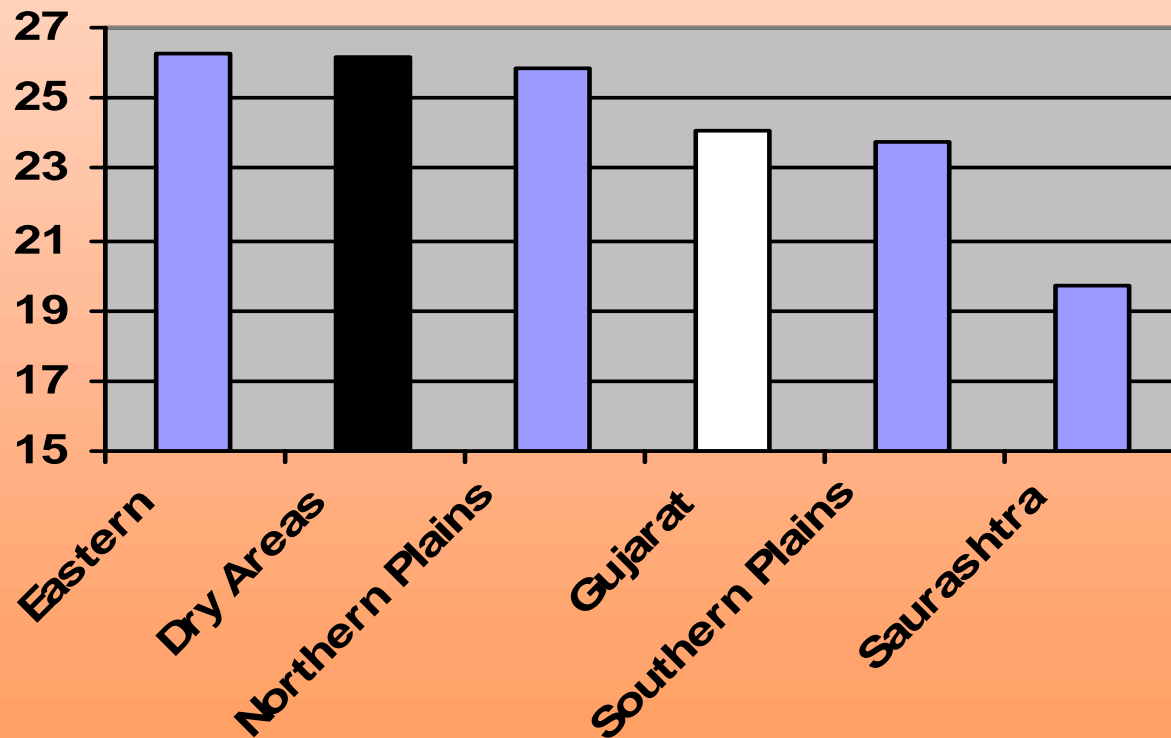
- Asset losses: \$2.1 billion
  - private: \$1.6 billion
  - public: \$0.5 billion
- Output losses: \$0.5 to \$0.7 billion
- Fiscal impact: \$2.2 billion

# Preliminary damage estimate and reconstruction costs (US\$Million)

Estimate as of February 23, 2001

<b>Sector</b>	<b>Losses</b>	<b>Reconstruction</b>	
Housing	1,111	1,107	
Health	47	60	
Education	144	180	
Irrigation	40	90	
Rural water supply	50	97	
Municipal infrastructure	30	45	
Public buildings and monuments	73	95	
Power	40	98	
Transport	69	77	
Ports	21	26	
Telecommunications	11	26	
Agriculture and livestock	117	74	
Industry	73	44	
Services	250	200	
Environment	55	55	
<b>TOTAL</b>	<b>2,131</b>	<b>2,274</b>	

# Percentage of Gujarat Households Below the Poverty Line



The earthquake zone is primarily in the "Dry Areas".

# Expected Government Expenditure on Rehabilitation

<b>Sector</b>	<b>US\$ million</b>
Housing	1,107
Health	60
Education	180
Irrigation	90
Rural water supply	97
Municipal infrastructure	45
Public buildings and monuments	95
Power	98
Roads and bridges	55
<b>TOTAL</b>	<b>1,827</b>

# Environmental impacts

- Debris and rubble disposal: 25-50 million metric tons
- Potential impacts on aquifers and groundwater, and longer term disturbance to ecosystem
- Damage to industrial facilities: No catastrophic collapses, but important to address potential impacts:
  - release of polluting or hazardous substances
  - risk of industrial accidents caused by damaged equipment and machinery
- Indirect impacts:
  - poorer sanitation and waste management practices
  - increases in industrial pollution
  - changes in land use

# Emergency response

- Government quickly rallied, starting emergency rescue operations, restoring communication links, electricity, water supply.
- Large scale relief and rescue, aided by community groups, voluntary organizations from India and abroad, and the UN system and other donor agencies. UNDAC team established On-Site Operations Coordination Center



Support from the private sector:  
Donation of equipment and funds, offer to "adopt" villages and towns

The Government and the UN coordinated relief activities and tried to keep track of the various agencies involved. The international community has responded rapidly and efficiently.



Agencies involved include:

- International NGOs like Action Aid, Oxfam, American Jewish World Service, Baptist World Aid, CARE, Red Cross; working with local organizations
- Bilateral agencies like USAID, Netherlands, British DFID
- Multilateral agencies like the World Bank, the Asian Development Bank, WHO, UNICEF, UNDP, World Food Program

# Recovery strategy

- Immediate priorities
  - temporary shelter
  - restoration of public services
  - restoration of livelihoods
- Key principles
  - revival of the economy through wage employment
  - empowering individuals and the community
  - affordability, private sector participation and equity
  - decentralization, community-driven recovery
  - communication and transparency
  - prioritize and phase investment carefully to meet immediate and long-term needs in each sector

# Social and economic resources

- Strong social capital:
  - While Kutch is poor, its business community has networks in other parts of India and abroad.
  - A strong NGO community, that has collaborated well with the Government in the relief phase.
- Important to keep the momentum generated during the rescue and relief phase
  - continued involvement and collaboration between government and NGOs
  - scaling up and building capacity at the local level



Consultations with  
NGOs -- in the field  
and in Ahmedabad



When asked if they want to relocate or rebuild their homes in the old location, almost all people say they do not want to relocate. "This is where we are staying", say these men.



# Why communities should be actively involved in planning and implementation of the reconstruction effort:



- Participation reduces trauma
- Solutions are more culturally and socially acceptable
- People are suspicious of outside agencies
- Increased transparency and accountability
- Employment opportunities
- Access to and utilization of services
- Equity

# The need for communication and information dissemination



A community meeting. People shared their problems and ideas on what to do

- Information dissemination
- Community consultation and participation
- Building local technical capacity
- Coordination among partners, including addressing external stakeholders and audiences
- Transparency
- Independent monitoring and grievance redress

