

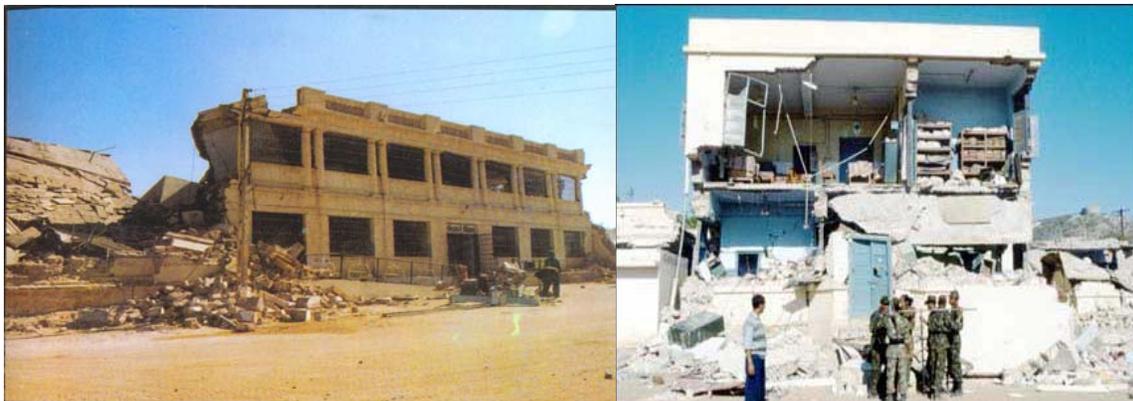
**Regional Consultation of SEAR Member Countries on
Keeping Health Facilities Safe from Disasters
15-17 April 2008, New Delhi, India**

Safe Hospital Initiative in the aftermath of the 2001 earthquake in Gujarat (India)

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New G.K. General Hospital, Bhuj, View from west end



The old G.K. General Hospital Building (built in 1956) collapsed in the 2001 earthquake

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1. Background:

This report basically explores and narrates the nature of the steps taken and the sequence of responses that followed the massive earthquake which shook the lifeline and health system of about two-thirds of the population of India's Gujarat state in 2001. The earthquake on 26 January 2001 had affected in particular all the western districts of the state including the entire population of Saurashtra as well as Ahmedabad city, where health facilities became a conspicuous and direct casualty of the catastrophe. The district hospitals, community health centres, primary health centres, sub-centres and thousands of *Anganwadi* centres in the affected districts were either damaged or entirely destroyed and rendered non-functional.

2. Earthquake scenario:

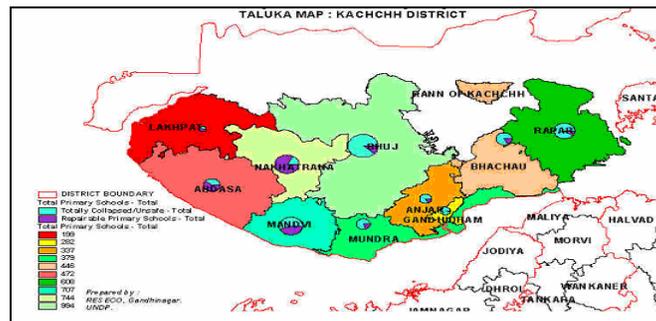
26 January 2001 was a "black Friday" for Gujarat and in the annals of natural disasters and catastrophes. At 08.46 that fateful morning most citizens of Gujarat were barely sipping their morning cuppa on a national holiday (India's Republic Day) with the day's newspapers spread in front of them. Still others were dressing in their best to participate in the Republic Day celebrations while many had begun their regular household chores. At that instant, without warning, the earth shook calamitously and the roofs swayed and walls bent or collapsed in an instant. The world had rarely seen scenes of devastation and death of such magnitude in recent memory. The earthquake claimed more victims among women and children. Nearly 14 000 people were killed and thousands more were injured, maimed or rendered homeless and destitute.



3. Impact

The earthquake struck with all its fury in Kutch (also known as Kachchh) District of Gujarat in the Republic of India. The epicentre was located 20 kilometres north-north-east of the district headquarters of Bhuj City in a village named Lodai along a fault extending from Bhuj to Ahmedabad (the capital of Gujarat province). The magnitude of the earthquake was recorded at between 6.9 and 7.9 on the Richter Scale. Aftershocks in subsequent days measured up to 4.8 on the Richter Scale. The earthquake was the largest recorded tremor in India at the time, the biggest since the great Calcutta earthquake of 1737 which claimed 300 000 lives.

Kutch district



It was estimated that the earthquake affected 37.8 million people. Housing, schools, roads, communication systems and power-lines were either destroyed in their entirety or severely damaged, resulting in a colossal loss of life and livelihood with severe financial implications. Apart from the obvious and immediate cost in terms of human life and property and the injuries caused, the damage to houses, roads and lifeline systems (such as electricity, water and telecommunications) also hindered the immediate response, relief, restoration and rehabilitation measures in the aftermath of the disaster, a time when they were needed the most.

4. Summary of health sector challenges:

- The biggest challenge for the health sector in the immediate aftermath of the Gujarat earthquake was to meet the basic public health needs of about four million people spread across five towns and more than 9000 villages in Kutch district and other sparsely populated areas.
- Of the recorded toll of 13 811, 12 221 dead were from Kutch district alone. The number of injured was estimated at 166 036; of them 17 000 sustained orthopaedic, head and other serious injuries and had to be admitted to various hospitals in Gujarat and neighbouring states.
- A higher percentage of mortality was noted in the town population as against rural dwellers, possibly due to the multitude of highrise dwellings and earthquake-vulnerable buildings dotting congested lanes/bylanes in the cities and towns.

- The earthquake completely destroyed 1813 health facilities including two district hospitals, 20 community health centres. Another 3812 other health facilities sustained partial damage and were rendered partly or wholly inoperative at a time when their services were needed the most.
- Health professionals in the worst-affected district of Kutch were themselves suffering from trauma on account of the death of family members and friends and loss of property sustained. Besides the impact on the health infrastructure, many health workers themselves were killed in the earthquake. Many more left Kutch in the aftermath out of fear of aftershocks.
- Orthopaedic injuries and infection-linked cases dominated the medical charts.
- The large number of casualties quickly triggered a spiralling and acute shortage of hospital beds, linen disposables, disinfectants, stretchers and other basic medical equipment. Lack of water and electricity supplies further impeded management of trauma cases — both minor and major surgeries included.
- There was a great and pressing need for orthopaedic doctors. The State Health Control contacted the Indian Medical Association and requested private doctors to leave their clinics and camp at the relief sites with their teams.
- In the absence of standard operating conditions, asepsis was neutralized, bringing about an alarming rise in post-operative infection cases.
- Additionally, factors such as poor communication facilities in Kutch district, cascading and serial breakdowns of vehicles on the damaged roads and absence of modes of long-distance travel prevented the transport of these essentials to the earthquake-hit areas until the fourth day following the disaster. However, HAM radio teams were positioned everywhere to network with agencies at work for local coordination, including executing health commands.
- The key approach to Kutch district (comprising several townships) was snapped at the Surajbari bridge (the gateway to the district), delaying the arrival of the much-needed specialist care by at least four to five days.
- Subsequently, this district experienced the influx of a large number of specialist teams from other less-affected/ unaffected areas of Gujarat as well as from other parts of the country. These teams operated in shifts. However, the presence of such a large number of medical teams led to shortages of drugs and equipment for a brief period initially.
- To meet the artificial shortage of drugs and equipment that was accentuated by overcrowding at Bhuj airport, damaged approach roads and disrupted rail facilities, the provincial health sector control room started dispatching specific and select supplies to Kutch district via Bhuj, the district headquarters. These supplies included debridement equipment, plasters, implants and other necessary equipment. Since the Bhuj Hospital had collapsed; post-earthquake public health care was organized from a local college compound located about a kilometer from the destroyed district hospital, where prefabricated structures were later erected. Critically injured patients

were transported to faraway hospitals in the unaffected hospitals for the first few days.

- Only one out of the two major hospitals was functional, and a temporary hospital had to be established where both private practitioners and government doctors carried out emergency medical relief. The destruction of the core district health facilities led to a near-total interruption in the provision of health services at existing facilities. During the immediate post-earthquake period, the injured were housed in temporary shelters.

5. Summary of emergency response

5.1 National response:

- The response to this tragedy from the government, civil society and the private sector was overwhelming. Over 200 agencies, both national and international, rushed to Kutch with help. Of these nearly 63 specialized in health services. Aid poured in from almost every region of the country, and thousands of volunteers offered their personal services.
- While external relief arrived within hours, the administration responded instantly. The combined efforts of the military, the police and the administration saved many precious lives in the immediate aftermath. There are many tales of heroic deeds and efforts on the part of the service-providers and the victims themselves. The Gujarat earthquake also created new equations between the government, civil society and the private sector, some of which continue to remain while some others were phased out.
- Though the main centre of relief activity was based in the Kutch district headquarters of Bhuj, actual relief distribution was conducted through the village committee under the supervision of officials at five sub-district headquarters. The Relief Commissioner in Bhuj established a mechanism for coordinating relief activities by a large number of Indian NGOs. The Kutch Nava Nirman Abhiyan (KNNA) was identified and tasked to coordinate the relief efforts of all Indian NGOs by the government authorities.
- The Group of Ministers in charge of the Union Cabinet's response to the Gujarat earthquake asked the state government to start putting together a comprehensive reconstruction and rehabilitation plan. In the state, the Gujarat State Disaster Management Authority (GSDMA) was set up following the earthquake to coordinate the relief and rehabilitation. It subsequently undertook the task of facilitating long-term planning for disaster mitigation that involved various departments.
- The Government of Gujarat (GoG) established an executive committee to coordinate the national efforts at the request of the UN field level initiative. The executive committee set up at Kutch district had representatives from each sub-committee for the purpose of coordination. There were sub-committees set up for:

- Health
- Watershed management
- Education
- Livelihood sector and crafts
- Child protection and the disabled
- Housing sector
- Nutrition
- Legal sector

There was a coordinating agency appointed for each of these sub-committees. Of 210 such agencies, 63 were involved in health-related activities.

5.2 International response:

NGOs:

More than 63 health-sector NGOs and INGOs and agencies rushed to Kutch after the earthquake. These included the Government of Gujarat, other Indian state governments, small and large nongovernmental organizations (NGOs), international organizations, corporate groups and medical associations. Each one of them diligently undertook to do whatever they could perceive to be the immediate need. It took some time to list these organizations and take note of what they were doing. Initially there was plenty of duplication of effort. Coordinating the efforts of 63 organizations was a Herculean task.

UN response:

- Post-earthquake UN response, including WHO, during the emergency phase was primarily meant to assist the state government and the local district administration to enhance the speed and efficacy of the rescue, relief, restoration efforts and subsequently facilitate the rehabilitation, rebuilding and disaster preparedness efforts of the government.
- The UNDMT (United Nations Disaster Management team) in India prepared a comprehensive report on the United Nations System Response to the Gujarat earthquake.
 - A UN On-Site Operations and Cooperation Centre (OSOCC) was established in Bhuj. The OSOCC soon became a focal point for the international relief community, providing a centre for collecting, analyzing and sharing information from UN agencies, international NGOs and international visitors.
 - At the same time, to ensure coordination between the various actors, improve manageability and avoid duplication, each UN agency developed an action plan to be coordinated under the aegis of the UN System as a whole.
 - The World Health Organization (WHO) was designated as the focal agency for the health sector response and a cooperating agency for water and sanitation as well as food and nutrition.

- WHO responded rapidly to the earthquake by sending experts in emergency and humanitarian action to Ahmedabad and Bhuj on 27 January, the morning after the earthquake. In addition, Poliomyelitis Eradication Surveillance medical officers (20 in total) who were already in Gujarat, two tuberculosis (TB) control medical officers and one water and sanitation expert from the WHO India Country Programme were mobilized to provide technical assistance. By March, WHO had deployed 18 public health experts to Ahmedabad and Kutch districts (Bhuj).

6. Joint health sector response:

- In the health sector, Emergency Medical Relief — a constituent of the Central government's apex mechanism at the National Capital — played an active role in channelling and providing the necessary resources to the state.
- The Health Ministry of the Government of Gujarat and its offices were the key responders as is the case with any disaster. They christened their post-earthquake operations in Kutch “Operation Health Kutch”.
- Under the “Operation Health Kutch” special mobile teams were mobilized and deputed by the GoG from other districts of Gujarat. At a given point of time, there were about 400 health staff from other districts who were present in Kutch. These mobile teams continued for nearly 15 months after the earthquake. State coordinators at the level of directors, additional directors, and Chief District Health Officers headed the teams. These leaders also changed every week. There were efforts made to decentralize decision-making and, therefore, special block-level offices were set up for the relief and rehabilitation operations. Special powers were given to the State Liaison Officers at the level of additional director to purchase equipment and supplies and take spot decisions based on local needs.
- Within three days of the tragedy, the health sector's presence was visible in almost all the affected areas. The Government of Gujarat assigned the responsibility of the health sector's coordination to Dr Bipin Verma of WHO, who was placed in Bhuj as the focal point for Emergency Humanitarian Action (EHA).

7. Best practices in health sector response:

At the end of the response phase, an external team conducted an evaluation in April of the UN response to the Gujarat earthquake. In this evaluation, WHO was exclusively commended for providing an immediate response with high visibility and effective coordination. The response and recovery efforts after the earthquake in Gujarat in 2001 have been the subject of considerable discussion and evaluation, and a number of best practices to improve public health security have been documented.

The “best practices” in the health sector during the post-earthquake may be grouped into two phases of post-earthquake operation:

- During the emergency, relief and restoration phase
- During the rehabilitation and reconstruction phase.

During the emergency, relief and restoration phase: Of a number of successful features, a few are mentioned below:

I. Successful health sector coordination:

As part of the joint initiatives by the Government of Gujarat and the UN, WHO facilitated the establishment of an effective coordination system between the Government of Gujarat, other UN agencies, and bilateral, national and international NGOs. Regular meetings of the Health Sector Coordination Group were held until the end of 2001 in which 63 organizations participated. The successful coordination between health-related sectors and within the health sector facilitated the development and timely execution of the health sector response with no overlapping of activities and resource allocation, and ultimately ensured that health sector resources were utilized in a more equitable manner. The health sector coordination emerged to be so effective that, based on demand, WHO continued to lead regular coordination meetings well into the rehabilitation phase.

II. Effective partnership of Government, private sector, NGOs and UN agencies:

Effective partnership during the emergency phase led to joint initial damage assessment, linkages with the existing health delivery activities, joint preparedness activities and satisfactorily meeting the health needs of the trauma patients and affected communities.

III. Joint planning for resource needs including medical supplies.

Planning for resources for the response was conducted jointly with Government, NGOs and international agencies.

IV. Integration of vertical health programmes:

The available government staff, together with the WHO medical teams under programmes such as the National Polio Surveillance Programme (NPSP) and the Revised National Tuberculosis Control Programme (RNTCP) and the like were brought into a common pool for the health sector emergency operation. What was achieved in the process was integration of vertical health programmes with routine disease surveillance, water quality surveillance and epidemic surveillance. It also meant creating a common platform for the fullest participation of NGOs, the private sector and all government officials for a common end.

During the rehabilitation and reconstruction phase:

I. Systemic survey of health facilities:

A survey of the health facilities was organized to ascertain the extent and nature of damage caused to such public utilities. It was also realized that most of the casualties were sustained not due to the earthquake per se but due to the poor quality of building material used in the construction and also the inept emergency response orientation among victims.

II. Vulnerability and impact analysis of health facilities:

It was realized that poor quality buildings or buildings with the poor foundations collapsed randomly and extensively during the earthquake. A few of these were

totally destroyed. A vulnerability and impact analysis was quickly undertaken to come out with a list of structures needing repair and/or replacement.

III. Rehabilitation of health facilities:

The Department of Health, in consultation with the then newly-constituted Gujarat State Disaster Management Authority, accepted the funding offer of the European Commission as a part of the corpus of the post-earthquake health facility rehabilitation in Gujarat. This assistance which was finalized after two to three rounds of discussions aimed at an early restoration of health sector activities and also a permanent rehabilitation of the health facilities through the following approaches:

- Repair
- Strengthening
- Totally new construction as per new revised norms of quake safety finalized after the earthquake
- Retrofitting.

IV. Planning for building health facilities and retrofitting:

- The revised guidelines in respect of all buildings, according to earthquake seismic zones, were formulated under the chairmanship of a renowned National Seismic Adviser in 2001. This was the result of several rounds of discussion, technical sessions and workshops involving several experts, institutions, engineers from the Indian Institutes of Technology and private consultants.
- A memorandum of understanding (MoU) for 42 million Euros was signed between the European Commission, Government of India and Government of Gujarat for a health sector rehabilitation plan meant for 1885 health facilities spread over 13 districts of Gujarat.
- Rehabilitation and reconstruction of health facilities in Gujarat during the post-earthquake period began with the appointment of consultants for supervision and monitoring and establishment of an exclusive Project Implementation Unit (PIU) that is responsible for maintaining quality of construction as elucidated in the new building codes.
- The State Project Implementation Unit established a similar structure at the *taluka* (sub-district) and district levels comprising suitable technical staff who were responsible for finalizing the design of the health facilities; preparation of tender documents; invitation of bids for screening; coordination among the contactors; consultantations with Government agencies followed by workshops and technical sessions to explain the important issues for execution; liaising with the local population on matters of utility, standards and quality; and keeping tabs on and auditing the progress made in specific periods of time.

V. Disaster preparedness and mitigation measures:

a. Seismic zoning of the state of Gujarat:

The Gujarat Seismic Belt was classified into Zones 1-5 with Zone 5 designated as the most vulnerable and Zone 1 as not vulnerable.

b. Linkages established with the departments for creating awareness and training about safe building practices and mitigation measures:

A capacity enhancement and awareness programme relating to building safety was also simultaneously carried out by all the line departments including panchayat, revenue, home and transport and others as an integral part of future earthquake mitigation in the future.

c. Launching of joint community-level awareness programme:

This initiative that followed a few months after the earthquake led to the launching of a UNDP-supported initiative to document various steps to raise the general awareness levels among the community, including the organizing of group training programmes for both affected and unaffected areas.

- In addition to the health safety initiatives for creating the requisite disaster-proof health structures it was also felt that the local population must be involved and mobilized in the disaster preparedness process so that they can be galvanized into action whenever disaster struck. The community involvement initiatives in disaster preparedness received an added impetus subsequently from the Government of India and the UNDP – Disaster Risk Management (DRM) programme. Initially the DRM Programme was planned for 13 select districts in Gujarat that were viewed to be vulnerable to multiple hazards. The overall goal of the Programme was sustainable disaster risk reduction and it had as its objective the involvement of the community in areas of disaster mitigation, preparedness, and developing rehabilitation avenues by bolstering response capacities. All this was executed in consultation with the local self-government authorities and government officials were also appropriately sensitized to the same.
- Under the DRM Programme, manual guidelines and standard operating procedures (SOPs) were developed, including IEC (information, education, communication) material on floods, first aid, and a compendium of “dos and don’ts” to face and survive disasters. Several relevant sets of Disaster Mitigation Plans (DMPs) were also prepared, to include the principles of the Institutional Command System (ICS), role of NGOs, Emergency Medical Resistance Teams, local self government, responsibilities of medical professionals and related issues.

d. School training and mock drill:

The Disaster Mitigation Plans were later distributed as a part of school training kits and put to use while conducting mock drills in which students and villagers were asked to enact their desired roles in the rescue efforts following an earthquake. A large-scale training programme with the help of the International Committee of the Red Cross (ICRC) was conducted to include different groups of functionaries encompassing also sectors such as injury management and disease control — such as control of diarrhoea, malaria, cholera and multiple injuries — to bolster confidence-building and create awareness. This initiative was also meant to establish linkages of the Community-Based Disaster Preparedness (CBDP) with health safety initiatives as part of initiatives towards holistic and sustainable development.

8. GOOD PRACTICES — A RECOUNT FOR THE FUTURE

An evaluation of several initiatives, efforts made and actions undertaken by various stakeholders during the earthquake and post-earthquake period does throw up several clues about the nature and extent of the internal and external capacity-building that has been ensured. All these capacity-building measures have ultimately helped bring about positive health-safety initiatives and ensured that these are given paramount status in health planning and disaster preparedness. A table containing initiatives taken and the status of various interventions prior to the earthquake vis-à-vis the new measures introduced are illustrated in the tabular statement hereinafter.

Conventional practice (CP)	Limitations of CP/Barriers	Good practices to overcome barriers	How the barriers are overcome
1) Hospital location			
The exact location of hospitals or health centres was never an issue of overriding importance. These were usually located outside the villages or away from large clusters of human settlement.	The distance/non-reachability factor and the ability of the hospital premises to withstand seismic shocks was not given due importance.	All new locations must be chosen nearest to the community, and endeavour to ensure practical involvement of the community and provide knowledge about the facilities designed and built with seismic-resistant design inputs.	Health centre to become a reliable reference point in times of emergency and offer a platform for community health activities and for the people to congregate for community health promotion.
2) Hospital design			
No specific designs were framed keeping in mind safety aspects.	Unsafe	More space provided in the designs for seismic movements. Soil testing for building and the uniform application of building codes must be ensured.	Safety levels assured and displaced population enabled to avail of health centre services.
3) Structural safety			
No structural quality parameter for repairs or new construction was followed.	Levels of safety get compromised when structural detailing was absent. Safety of patients ignored.	Care taken at the foundation and plinth stage to safeguard against possible hazards. Easy access routes introduced and quality of material used checked intensively.	Possible cracks, fears of hazards and irregularities in plan and elevation drawings eliminated.
4) Non-structural concerns			
Non-structural items such as electricity telecommunication, water supply, medical equipment, linen equipment, laboratory appliances were never accorded special or due attention.	These services are invariably always affected if electrical lines are unsafe, telecommunication systems unprotected, water supply not assured and sufficient medical laboratory	Separate electrical circuits and higher-capacity could meet the demand. Proper lighting provided in critical areas. Lightning conductors, proper telecommunication	All problems relating to irregular water storage, protection of electricity and telecommunication systems and inadequacy of medical and laboratory items have

Conventional practice (CP)	Limitations of CP/Barriers	Good practices to overcome barriers	How the barriers are overcome
	equipment unavailable.	cabling connections, sufficient water storage capacity for a 15-day storage plan for all medical laboratory items have been kept in mind while planning the reconstruction.	been addressed.
5) Hospital services			
A general apathy towards hospital services when not solicited was observed	Hospitals did not provide for participation of the people, did not have the scope for emergency operation services and did not include protocols designed for triage and emergency services.	All the health centres now have an operations plan for hazards, including the provision in place for essential medicines, emergency procedures and delegation of powers executed with compulsory inclusion of epidemiologic surveillance data This throws open the available services for the people.	Vulnerability analysis and health mapping by each health centre has now been made a primary task. The staff are now trained for handling emergencies and drawing up a list of NGOs in their area for seeking possible support over transportation, logistics, ration supplies, etc. in the event of a disaster. Emphasis on mock trial strategy has also restored confidence among those who live in disaster-prone areas.
6. No weightage given to simulation exercises and real-time problems.	This creates problems in contingency plan operations and also for framing preventive and restoration measures.	Simulation exercises have been conducted for each health centre. Formulation of contingency plan, identification of all agencies for contact and communication and a plan of action for procuring medicine, and sourcing suppliers and equipment in an emergency were also completed.	All promotional and preventive steps relating to preparedness, planning of resources, and funds and interactions with other stakeholders who were never thought of before have now been included.
7. Emergency of all types handled by health/medical centres without an umbrella legal framework.	It does not assure timely support by all; makes coordination among various agencies difficult, particularly in the absence of pre-defined roles and	Soon after the earthquake, the Gujarat state Disaster Management Act, 2003 was promulgated. It created an authority which devolves power	All problems relating to undefined roles and responsibilities of various stakeholders have been resolved and accountability introduced.

Conventional practice (CP)	Limitations of CP/Barriers	Good practices to overcome barriers	How the barriers are overcome
	responsibilities.	and responsibility to functionaries at district headquarters, state-level local authorities, police and also to the community and the private sector to act in the event of a disaster. It also has scope for acquiring the financial muscle to undertake all relief actions in an emergency. It also grants powers of entry and also provides protection for officials and agencies.	
8. Disaster incidents were handled with no specific sector-wise preparedness plan.	Such a situation does not define roles and responsibilities as well as SOPs at different levels.	A Health Action Plan for preparedness was initiated for the state by the Department of Health supported by UNDP. Every health centre now has to notify the health manager who has to know of possible hazards and identify partners for logistical, medical and other support. Each unit is now assigned tasks and functions with detailed procedure for all operations.	Health-related facts, exposure to operative procedures, coordination with partners along with the list of responses and roles in emergency situations have been clarified. This eventually avoided non- action, lack of coordination and confusion.
9. Community linkage never did exist in preparedness plans, particularly for risk mapping or hazard assessment.	The community gets distanced from the government in respect of health concerns while issues important to them never get highlighted. As such, their inputs, as stakeholders are missed out.	A mitigation plan involving particulars of emergencies and preparedness levels required for dealing with such circumstances, has been put in place, through the UNDP's efforts in all the vulnerable regions. Appropriate training with provisions for role clarity, cooperation and accountability have now been addressed and rehearsals have	A sense of lack of preparedness and non-involvement which had hitherto prevailed has been done away with. It is accepted by all that the community can no longer ignore the risks or remain inert and unconcerned.

Conventional practice (CP)	Limitations of CP/Barriers	Good practices to overcome barriers	How the barriers are overcome
<p>10. Any kind of pre-hospital emergency medical care, including advanced life support systems, was never a part of the Base Hospital.</p>	<p>The Base Hospital remains devoid of all the facilities needed for providing/arranging life support and pre-hospital care system.</p>	<p>also been conducted. A legal framework for introducing this pre-hospital emergency medical care has been introduced with the enactment of the Gujarat emergency Medical Services Act, 2007 to handle all emergency prior to stabilization. This is now under the jurisdiction of the Base Hospital.</p>	<p>The required standards of care to be followed by part of paramedics, medical teams and nurses along with necessary logistics and equipment have now been put in place by the enactment of law. Now with training, mock drills and participation of the local city council in the functioning of the Base Hospital improvements in ambulatory care have been brought about. All this has provided new linkages and done away with non-responsive and archaic modes of hospital care.</p>
<p>11. Advocacy and awareness measures were never important for meeting with an emergency.</p>	<p>This never helped to define the role and responsibility of the community and stakeholders while information was blocked, preventing ideal preparedness levels to emerge.</p>	<p>Advocacy materials on (a) emergency preparedness, (b) epidemiology work, (c) disaster warning, (d) safety measures have been copiously printed, published and distributed with the help of NGOs, WHO, the state govt., UNDP, and community volunteers following the earthquake.</p>	<p>Simple information about what is risk; how to recognize it and how to make schools and curricula to prepare for such risks have been provided. The earlier situation of non-advocacy and no-information about the what, why, when, where and which of emergency was leading to poor responses. This inadequacy has now been addressed.</p>
<p>12. Once the disaster and its aftermath blows away and things return to normalcy, the resources and capabilities used for handling the emergency situation are forgotten or</p>	<p>This never helps documentation, the capacity of the people for coping with future disasters gets reduced and the chances of building expertise to deal with such hazards more efficiently are lowered.</p>	<p>The Regional Training Centre and District Training Centre with the help of technical institutes, bilateral bodies and global institutions have begun rendering training on a regular basis. This has had a</p>	<p>This has injected greater confidence and helped make health managers more mature, meticulous and systematic.</p>

Conventional practice (CP)	Limitations of CP/Barriers	Good practices to overcome barriers	How the barriers are overcome
abandoned.		favourable impact in improving skills and building capacity among all health-related medical, paramedical and non-medical functionaries to deal with all kinds of emergencies.	

9. Conclusions:

From a health point of view,

- Public health security meant for the disaster-vulnerable community is seriously jeopardized when hospitals, primary health-care clinics and health posts are damaged, equipment destroyed and staff of these are themselves killed, injured or otherwise affected.
- Ongoing preventative health programmes are at best slowed down or interrupted for a time and most, if not all, resources are relocated in efforts to provide immediate help to the victims.
- The health safety initiative should not encompass measures involving mere bricks and mortar but also ways to make such centres integral to the future health and medical needs of the vulnerable population. It has, therefore, to meet the needs of accessibility, approachability, reliability and also sustainability in situations of calamity which might recur in future. All these factors warrant the necessity for active liaising with local institutions, groups of locally available professionals, right-minded architects and designers. Routine cosmetic repairs have to be accorded less importance than the quality, safety, sanitary and hygiene aspects of health and other institutions. This has to be the new touchstone for rehabilitation. Operation theatres, laboratories and X-ray units within such premises have to be upgraded and each building must be made as user-friendly as possible for injured survivors to make the best use of.