[**Lessons from Turkiye**](https://www.dawn.com/news/1737430/lessons-from-turkiye)

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SO far, over 40,000 people are reported to have died in the massive earthquake of Feb 6 that caused huge devastation in primarily Turkiye and Syria. Millions have been injured and left without a home in the harshness of winter. Rescue teams are beginning to lose hope of finding more survivors under the rubble.

Over 3,500 buildings have collapsed in Kahramanmaraş, Gaziantep and surrounding locations. Many more structures, damaged in the quake, may need to be demolished. Video clips of the event have exposed pre-existing structural flaws in buildings.

Turkiye lies in an area of considerable seismic activity. Three tectonic plates constantly grind beneath the earth’s surface. Poor building design and construction are being blamed for the magnitude of the tragedy.

Due to real estate and housing demands of the local middle class, overseas Turks and investors, builders and developers in Turkiye have availed multiple lucrative opportunities to build and sell real estate in many urban locations. Often, they’ve escaped mandatory scrutiny of their projects.

Turkish authorities have issued arrest warrants for several builders accused of violating building codes and procedures.

Pakistan is no stranger to earthquakes. The qua­ke of Oct 8, 2005, in AJK and KP resulted in at least 87,000 casualties. Millions were displaced. Quakes also caused damage and fatalities in Zia­r­­at (2008), Awaran (2013), Chitral (2015) and Mir­p­­­ur (2019). After the 2005 quake, the regime initiated steps to deal with future quakes.

The Earth­q­uake Reha­bi­litation and Reconstruction Authority was created to address the needs of the affected people and lau­nch complex reconstruction works. The Natio­nal Di­­saster Management Authority (NDMA) at the federal level and similar outfits at the provincial level were also established. Apart from preparing for quake damage, these agencies respon­d­­ed to oth­er disasters, such as the 2010, 2011 and 2022 rains and floods. A disaster mitigation plan was pre­pared and periodically updated by technocrats.

A significant move was the preparation and notification of the Building Code of Pakistan in 2007. Many technocrats and senior engineers contributed to the effort. The code was forwarded to the concerned departments and agencies for adaptation and incorporation in regulatory practices.

The document includes detailed provisions on the qualification of seismic hazards, relationship of the building design to site considerations, soil and foundation design challenges, structural design requirements, structural tests and inspections and matters pertinent to structural guidelines and masonry, mechanical and electrical systems.

There have been multiple building collapses in densely populated neighbourhoods in Karachi and other cities.

Fire-safety provisions were added in 2016 under the auspices of the NDMA and Pakistan Engineering Council. Housing, town planning, zoning and building control have become the responsibility of the provinces since devolution in 2010.

Therefore, provincial departments and agencies have also revised building bylaws and regulations in many cases. Despite these steps, the built environment of cities, smaller towns and rural habitats remain at risk.

Most buildings and structures in Pakistani cities are self-built by the people, without any architectural and structural design. Only rudimentary advice by masons or petty contractors is taken. Shoddy techniques are employed in building, with limited essential inputs; these buildings become death traps if disaster strikes.

Indeed, there have been multiple building collapses in densely populated neighbourhoods in Karachi and other cities. On investigation, it was found that no technical advice was followed during construction.

Many multistoried buildings in otherwise planned locations also display design and construction flaws. Most were built in connivance with greedy, unscrupulous personnel in building control authorities. Permission to construct high-rises along major corridors, unchecked densification in inner city areas, rampant violation of building regulations, impulsive twists in land use and lease grant conditions, and inappropriately laid down infrastructure, particularly gas and electricity conduits/ wiring, are standing dangers.

For instance, Karachi’s sea front is touted as a choice location for upmarket condominiums and other real estate ventures. It may be remembered that Karachi was struck by a tsunami in November 1945, which caused substantial damage.

For a scientific response to the earthquake threat in high-risk zones, appropriate action must begin straight away. Stock-taking of buildings and structures in various localities is the first stage.

The buildings must be analysed for their occupancy and utility; structural stability; safety provisions, including fire escapes, exits and firefighting systems; and potential hazard points, such as electricity boards, gas installations and storage. Parking lots and the overall micro environment in which the building is located must also be assessed.

Standards must be developed for minimum conditions of survival and safety after undertaking a comprehensive inventory. Similarly, appraisal of under-construction buildings and plans needs to be carried out.

On a district-level scale, information pertinent to hazardous activities must be obtained. It is usual for hazardous activities to penetrate our urban neighbourhoods. Storage of gas cylinders, chemicals and other flammable material and the like must be carefully noted and dealt with according to safety regulations.

High density high-rise structures across our major cities experience a shortage of gas. Many households depend on LPG cylinders as cooking fuel. Routine safety audits must be commissioned by concerned building controllers to keep a check on inhabited buildings.

In the present economic meltdown, important priorities, such as planning for disasters, have tak­en a back seat. Some critics blame governments for using catastrophes to gather aid from wherever possible. This approach does not always deliver. When struck by a calamity, the government, alrea­­dy hard-pressed to balance other essential expend­itures, fails to invest in rehabilitation and redevelopment.

To avoid such situations, mock exercises and simulations must be carried out to see how low-cost and resource-efficient options can be implemented.

In some cases, quake disasters strike in the po­­orest locations, such as Awaran in 2013. A district with negligible essential infrastructure, Awaran was nevertheless fortunate to have a useful reconstruction programme under the district administration.

With technical inputs from engineering university professors, mason training initiatives were launched that up-scaled the skill base of local workers with few resources. Such efficient models must be critically examined for incorporation in our usual policies for disaster mitigation.

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