

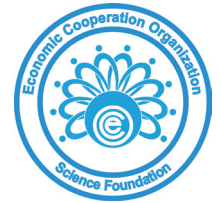
REVERSE LINKAGE

DEVELOPMENT THROUGH SOUTH-SOUTH COOPERATION

EARTHQUAKE SEISMOLOGICAL RESEARCH



IsDB 
البنك الإسلامي للتنمية
Islamic Development Bank



 **PAKISTAN (RECIPIENT)**
 **TURKEY (PROVIDER)**

ENHANCING THE
CAPACITY OF PAKISTAN
TO DETECT AND MONITOR
EARTHQUAKES

THE CHALLENGE

Pakistan is one of the most disaster-prone countries in Asia, due to its geographic location. It lies at the junction of the Indian, Eurasian, and Arabian tectonic plates. The plates that constitute Pakistan's crust are in constant movement, resulting in devastating earthquakes. Thus, nearly two-thirds of the country is prone to earthquakes.

The country's infrastructure is not fully earthquake resistant. High population density in major cities makes the damage of any earthquake very significant. For example, more than 88,000 people died in the 2005 Kashmir earthquake, the 13th deadliest in history.

Currently, the Pakistan Meteorological Department (PMD) is responsible for detecting and locating earthquakes, monitoring seismic activities, and sharing earthquake information. These responsibilities require collecting and analyzing vast amounts of seismological data across Pakistan, conducting analysis, and communicating findings to decision-makers. However, because of its limited infrastructure, systems, and human resources, the PMD is unable to fulfil its crucial responsibility.

THE SUPPLY

Established in 1984 under TUBITAK Marmara Research Center, the Earth and Marine Science Institute (EMSI) plays an essential role in Turkey's ability to deal with earthquakes. EMSI conducts advanced research across the earth sciences, including seismology, and operates four local seismic networks with 110 stations. It boasts seismologists with extensive experience using earthquake travel time, receiver functions, surface wave, and moment tensor data to study Turkey's deep crustal structure and develop accurate velocity models.

It is the leading institute in Turkey using the Global Positioning System (GPS) to monitor crustal deformation, caused by the motion of earthquake faults.

Since the devastating 1999 Izmit earthquake, EMSI has been producing site condition maps for major cities in the Marmara region of Turkey. It has completed site classification and seismic hazard maps for two major provinces in the Marmara region, and is widely recognized for excellence in seismic site classification studies, having extensive capacity in both instrumentation and human resources.



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THE MATCHMAKING

The Islamic Development Bank (IsDB) recognized that an accurate earthquake catalogue is essential for saving the lives of Pakistanis and guiding infrastructure development, one of the pillars of the IsDB-Pakistan Member Country Partnership Strategy.

Aware of Turkey's robust system of dealing with earthquakes, the IsDB initiated discussions with the Government of Pakistan about improving the country's capacity in the field.

In June 2014, the IsDB signed a Memorandum of Understanding with the Turkish Cooperation and Coordination Agency (TIKA) and the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) to support capacity development in member countries.

Taking into consideration the needs of Pakistan and the capacities available in Turkey, the IsDB connected the two organizations, mandated to detect and monitor earthquake activity in the two countries. It then coordinated and funded a peer-to-peer consultation process to design solutions for addressing the PMD's capacity gaps, while benefiting from the relevant expertise of EMSI.

THE PROJECT

GOAL

The project aims to enhance Pakistan's capacity in detecting and monitoring earthquakes and assessing their risks.

MAIN ACTIVITIES

- Introducing the GPS technology in PMD, and mastering its use for monitoring Pakistan's active faults.
- Expanding the National Seismology Network to improve the accuracy of locating earthquakes in Pakistan.
- Upgrading the central software system for processing seismological data to ensure it is highly available and reliable.
- Providing theoretical and practical training to the PMD staff on advanced methods of analyzing earthquake data.
- Introducing the practice of site classification and training to the PMD staff on its uses, to produce reliable seismic risk assessment and land-use plans.



- Training on use of Geographical Information System (GIS) databases for sharing seismological data within Pakistan and between Pakistan and Turkey.
- Sharing the project's experience with stakeholders in Pakistan and raising awareness about the importance of earthquake monitoring.

DURATION

Three years, from 2017 to 2020.

MONITORING AND EVALUATION

Two project coordinators, one each from both Pakistan and Turkey will handle the day-to-day work of the project. A joint coordination committee, composed of representatives from all the project's partners will be established. It will meet every six months to review and compare progress, against the expected results and propose corrective actions, if needed.

THE WINS FOR ALL

The project will make significant changes in the PMD's capacity in terms of infrastructure, systems, and human resources. It will introduce three new areas of knowledge, namely GPS, site classification, and establishing a GIS database. It will also strengthen the PMD's seismological research knowledge. This will enable it to produce timely information on earthquakes, undertake the accurate assessment of earthquake risks and better inform other organizations about those risks.

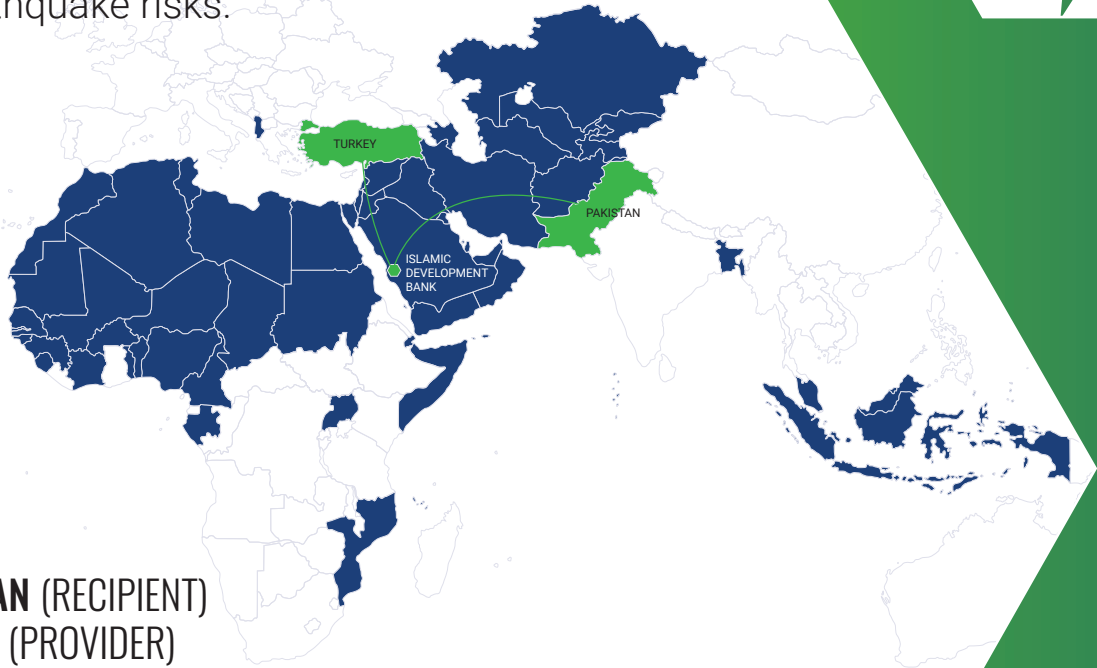
EMSI will gain technical benefits, dealing with the earthquake data of another country. Having access to Pakistan's seismological data sets and undertaking fieldwork will strengthen the analytical skills of the EMSI team. The project will also generate visibility for Turkey's advanced capacity in monitoring and assessing the earthquake risks.

The IsDB 10-year Strategic Framework recognizes capacity development as an essential cross-cutting strategic pillar that underpins economic and social development. The project, which is fully in line with this pillar, will build Pakistan's capacities in seismological research, helping saving people's lives.



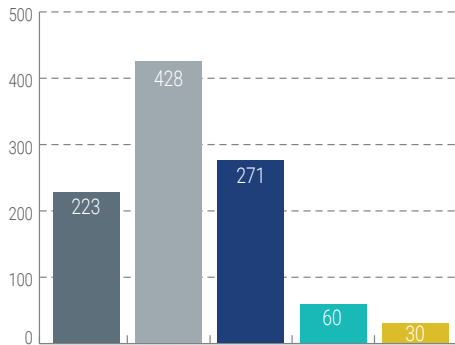
**THE PROJECT WILL
MAKE SIGNIFICANT
CHANGES IN THE PAKISTAN
METEOROLOGICAL
DEPARTMENT'S CAPACITY IN
TERMS OF INFRASTRUCTURE,
SYSTEMS AND HUMAN
RESOURCES**

The IsDB is matching the Pakistan's challenge with Turkey's experience so that the two countries will cooperate to improve Pakistan's capacity to assess earthquake risks.

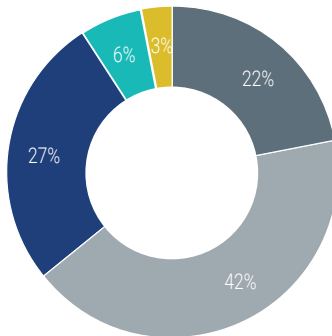


 **PAKISTAN (RECIPIENT)**
 **TURKEY (PROVIDER)**

CONTRIBUTION (US\$ THOUSANDS)



PERCENTAGE (%)



 GOVERNMENT OF PAKISTAN  GOVERNMENT OF TURKEY  THE ISDB  SESRIC
 ECONOMIC COOPERATION ORGANIZATION SCIENCE FOUNDATION (ECOSF)

THE PROJECT
 COMMENCED IN
2017
 AND RUNS UNTIL
2020

It is at the center of the IsDB's mandate to promote cooperation among its member countries.

In 1981, the Makkah Declaration of the Third Islamic Conference Summit called the OIC member countries to strengthen collaboration, to utilize and foster their talents, skills and technological capacities. The Bank responded and launched its Technical Cooperation Program in 1983. This has then been scaled up via what we call Reverse Linkage.

The structured skills swap under Reverse Linkage helps the recipient country diagnose and analyze a problem while the provider country shares its proven knowledge and expertise to find a solution.

The idea that all partners have something to gain from cooperation lies at the heart of Reverse Linkage.

The learning process is reciprocal, knowledge transfer is in both directions, and benefits are mutual.

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