

# MONGOLIA

## ULAANBAATAR CITY



**X2**  
population increase in  
Ulaanbaatar City over last  
10 years

**50 - 80%**  
of existing school buildings  
need retrofitting to address  
seismic vulnerability

**300**  
new schools needed to meet  
current demand

## RECOMMENDATIONS

- Consolidate existing risk, hazard and assessment data into GIS database and disseminate in user friendly format.
- Consolidate building assessments and develop a comprehensive strategy for repair, retrofit and reconstruction to expand capacity through new construction and extensions.
- Strategic opportunity to retrofit numerous schools which are currently being extended due to lack of available land for new school development.
- Develop site selection, planning, design and construction guidance as part of a revised model design package.

# ASSESSMENT

## Hazard Assessment

The critical risk is seismic which is exacerbated by the recently revised magnitude of hazard associated with three active faults around UB City. Public awareness of the seismic hazard is generally good predominantly due to advocacy undertaken by JICA but the hazard level is interpreted differently by national stakeholders and has not been integrated into the building code. Flooding and landslides may pose an increased risk in the future unless they are considered in planning of new education infrastructure.

## Existing Education Infrastructure

The Ministry of Education and Science has overall responsibility for new and existing school infrastructure and reports that there are over 700 schools in UB City of which only 299 are government schools. Since the dissolution of the Soviet Union in 1991, new construction has not kept pace with the urbanisation led increase in demand resulting in severe overcrowding and most schools operating multiple shifts

per day. Eight building typologies encompassing four categories were identified. Schools built up until 1975 (approx. 30% of UB City schools) are most vulnerable and constructed to 'model school' designs of Soviet origin which are thought to have minimal or no seismic consideration. Building extensions are increasingly common due to the limited availability of new land and concerns have been raised about the safety of this practice.

## Implementation Process

The collapse of the Mongolian economy and government institutional capacity post 1991 led to a surge in donors/NGOs funding and building schools. This has resulted in a wide variety of implementation methods. In general, there seems to be little, if any, consideration of natural hazards in determining where schools are located and how those hazards play out locally at a site level. Design and construction contracts are awarded to the lowest bidder rather than on the quality of the technical proposal.

## Regulatory Environment

Mongolia adopted the Russian Design Codes (SNIP) in the mid-20th century but was only partially translated into Mongolian in 1998. In 2006 an illustrated commentary in Mongolian containing typical seismic details was added to the Russian Seismic code. The Construction Development Centre is responsible for design certification and construction monitoring but has insufficient capacity to carry out this mandate.

## Financial Environment

The MoES has a national budget of USD100 million, which is 28% of what the projected need for school construction in UB City alone (USD 352.5million). Donor funded construction programmes have decreased considerably in recent years in response to national economic growth and other factors. There are currently no ongoing donor funded programmes identified but a USD 25 million ADB loan offer is under consideration.



This study was conducted in collaboration with the World Bank and GFDRR as part of the Global Program for Safer Schools to get a rich understanding of the vulnerability of education infrastructure and contributing factors of risk in order to identify entry points to embedding 'safer schools' in Mongolia. It was conducted over a 7 week period which included a 10 day fact finding mission in November 2014. For more information, please contact:

## ARUP INTERNATIONAL DEVELOPMENT

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