Output of the GEM South Asia Workshop on Social Vulnerability to Earthquakes (1st March 2013)

The goal of the GEM South Asia Workshop on Social Vulnerability to Earthquakes was to collate opinions on urban resiliency from representatives of the region. Around 40 participants joined the exercise. The group consisted of mainly technical experts representing seismologists, geologists and earthquake engineers. Five different nations were represented among the participants: Nepal, India, Pakistan, Bangladesh and Bhutan. The participants were asked to group into teams of around 5, based on their respective country and/or city. They were then asked to identify **existing obstacles and future opportunities** for achieving earthquake resiliency in their city. The participants were provided a handbook where a set of guiding questions were used to identify obstacles and opportunities along five key areas of urban resiliency as mentioned in the UNISDR "Making Cities Resilient" Campaign and developed by the Disaster Risk and Resiliency Indicators (DRRI) of the Earthquake Megacity Initiative (EMI):

Critical Services and Infrastructure Resilience: shelter, health, housing, transportation, water and sanitation resiliency
Emergency Preparedness, Response and Recovery Planning: emergency and resource management, logistics and contingency planning
Development Planning, Regulation and Risk Mitigation: vulnerability and risk assessment, risk-sensitive urban development and mitigation
Legal and Institutional Issues: legislative framework and effectiveness of institutional arrangements
Awareness and Capacity Building: training, capacity building, advocacy, public education and awareness

Many of the **existing obstacles** were identified in multiple cities or countries. The assembled outcome is presented in the following table.

	Existing Obstacles
Critical Services and Infrastructure Resilience	- Not enough focus is put onto assessing the structural vulnerability as well as performance capacity of schools and hospitals for the case of a (strong) earthquake - Retrofitting of aforementioned buildings is not performed sufficiently - Road networks are not yet redundant in many rural areas - The supply of water and other lifeline networks need to be retrofitted more
Emergency Preparedness, Response and Recovery Planning	- There is no sufficient training in hazard assessment for engineers - There are very few Emergency Plans at the local or city level in place - Lack of knowledge of coping with seismic disasters in national authorities - There is no legally empowered post disaster building assessment - Transport systems and road networks are not taken into account enough within planning
Development Planning, Regulation and Risk Mitigation	- Risk is often not included in Development Planning - Building damage surveys have not been undertaken sufficiently - Not enough research and education is provided in the field of disaster mitigation

Legal and Institutional Issues	- Building Codes are often not reinforced by local institutions - If Building Codes exist, the responsibilities for implementation are not clearly defined - No bylaws to provide for local implementation - Lack of interaction between Disaster Management and Development Management Authorities - Lack of interaction between government and academic institutions - Existing laws for disaster management and earthquake-safe construction are not well communicated
Awareness and Capacity Building	- Persisting poverty leads to a focus on subsistence rather than risk management issues - Media is very critical of ongoing projects - Lack of formal network to include the private sector - Lack of capacity to check for seismic design amongst building permit authorities - Awareness levels are generally low – if there are projects to enhance awareness there is little feedback on their outcome

For **current and future opportunities**, many suggestions were given by the different cities in different South Asian countries. Below is a summary of the most protruding examples for each country / city.

Bhaktapur: widening of roads to allow for better traffic flow in emergency situations

Kathmandu: Infrastructure retrofit projects, i.e. road from Kathmandu to Bhaktapur

Kathmandu Valley: all open spaces fit as shelter sites are mapped and UN flagship programmes for disaster risk reduction are ongoing

National: risk management strategy is in place

Bhaktapur: Master course in Earthquake Engineering at Khourpa Engineering College

Kathmandu Valley: media is supporting local efforts in raising awareness

Peshawar: The EEC (Earthquake Engineering Center) has drafted a building code as a first step; future opportunities lie in incorporating lessons for successful implementation of codes.

National: Offering authorities training and context of large-scale disasters can be a future opportunity

Gangtok: Future opportunities for achieving risk resilience lie in investing in more resilient infrastructure such as road networks, and legal and institutional measures, such as implementation of a legally authorized post-earthquake assessment team that rates buildings according to their damage level

Ahmedabad: An earthquake hazard map will soon be developed for the city

Ahmedabad: Gujarat State Disaster Management Agency (GSDMA) and Institute of Seismological Research are making efforts in raising public awareness of earthquake hazards

Gangtok: School safety programmes are an area of opportunity that will give the population great gains in achieving resilience

Dhaka: Micro-zonation maps and the opportunity for cities to incorporate earthquake risk is actively pursued through several national and international projects

Dhaka: Working with private consulting companies to help with the correct implementation of the building code – opportunities lie in widening the capacities so that the construction of every single building is supervised

Dhaka: Top-bureaucrats are made aware of key issues related to disaster risk through participatory workshops

The results of this workshop will be utilized to better understand opportunities for earthquake risk reduction as well as to better understand regionally-specific drivers of seismic risk and resilience in order to be able to suggest pertinent factors for integrated risk assessments that account for both physical and social parameters.