



**Munich Re  
Foundation**  
From Knowledge  
to Action

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## **2015 RISK Award Top 20: First-hand news and certificate**

Dear Max,

Please find enclosed the first-hand news together with the certificate for your valuable contribution to the 2015 RISK Award. On this occasion, we would like to congratulate you that the project from your organization has been chosen by the Jury as one of the top 20 in this year's RISK Award.

Thank you for your interest and support.

Yours sincerely,  
Munich Re Foundation

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Thomas Loster



2015 Risk Award Top 20  
Disaster risk reduction –  
people centred,  
sustainable and innovative

The project:

REAL Nepal

of the organisation:

International Centre for  
Earth Simulation (ICES)

was amongst the top twenty projects of  
the 2015 Risk Award.

The Risk Award partners UNISDR, GRF Davos and  
Munich Re Foundation thank the applicant for  
the valuable contribution to help improve disaster  
risk management.

On behalf of the jury:

Margareta Wahlström  
UNISDR

Walter Ammann  
GRF Davos

Thomas Loster  
Munich Re Foundation



The 2015 RISK Award jury members are:

Walter Ammann  
President and CEO of Global Risk  
Forum GRF Davos, Switzerland

Haresh Shah  
Professor Stanford University,  
Founder and Senior Advisor of Risk  
Management Solutions, Inc., India



Susan Cutter  
Professor University of South  
Carolina, Hazards and Vulnerability  
Research Institute, USA

Margareta Wahlström  
Special Representative of the  
UN Secretary-General for Disaster Risk  
Reduction (UNISDR), Switzerland



Thomas Loster  
Chairman of Munich Re Foundation,  
Germany

Sandra Wu, Wen-Hsiu  
CEO of Kokusai Kogyo Co., Ltd,  
Japan

Hon. Maria Mutagamba  
Minister of Tourism and Wildlife, Uganda



## Openstreetmap crowd-sourcing as a tool for gathering world-wide data for the risk assessment of natural hazards (OSMREX)



The world awaits the next earthquake disaster with hundreds of thousands injured buried beneath the rubble of buildings. However, the locations of hospitals, schools and critical facilities in developing countries are not known to the rescuers.

The great need for global data concerning the built-up environment (dwellings, offices, industrial plants) and for critical facilities to assess the risk posed by natural disasters of all kinds will be addressed. This will harness the enthusiasm of the many contributors to the crowd-sourced OpenStreetMap (OSM) project ([www.openstreetmap.org](http://www.openstreetmap.org)) by teaching a new community of mappers how to gather useful information for risk estimates and mitigation. This is a new idea and bound to revolutionise and accelerate the collection of data on the attributes of the built-up environment, especially in developing countries.

**“Understanding earthquake risk through participating in crowd sourcing building-stock information in one’s own community will motivate the residents of earthquake-prone regions to strengthen their dwellings.”**

The OSMREX Team

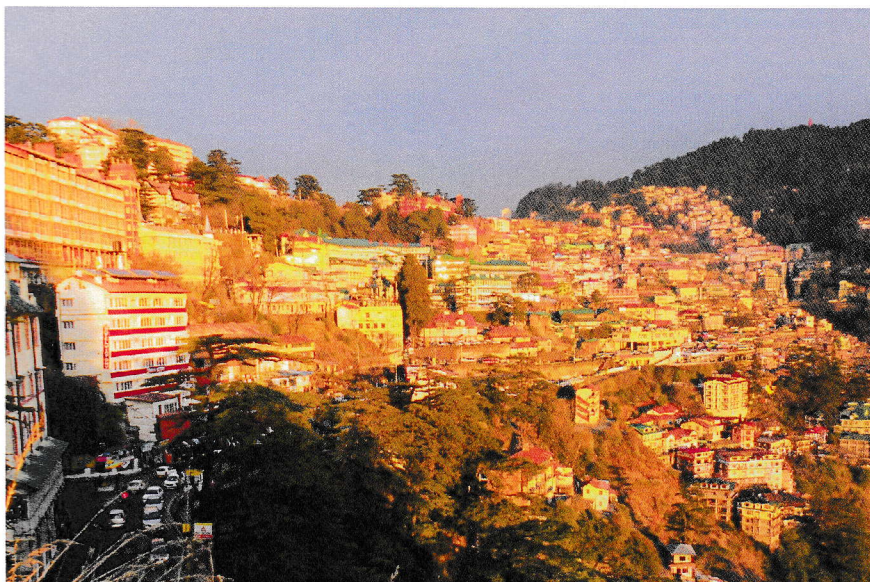
OSM, the rich and constantly growing geographical database, is an ideal foundation for this project. More than 2.5 billion geographical nodes and 130 million building footprints (growing at a rate of ~100'000 per day) and a plethora of additional information on schools (~800'000), hospitals (150'000) and other critical facility locations allow us to exploit this dataset for risk-related computations. We will harvest this dataset by collecting exposure and vulnerability indicators from explicitly provided data (e.g. hospital locations), implicitly provided data (e.g. building shapes and positions) and semantically derived data, i.e. interpretation applying expert knowledge. Using this approach, we can increase the resolution of existing exposure models from fragility classes distribution via block-by-block specifications to building-by-building vulnerability.

Additional goals are to:

- Encourage communities to understand their risk by thinking about the mapping
- Identify the distribution of high-risk buildings for civil protection and first responders
- Enable mitigation measures by identifying structures requiring modernisation
- Help individuals to understand their risk and compare it with other communities
- Help communities to conduct independent risk assessments
- Spread risk-assessment techniques to nearby communities

Loss scenarios, including the estimated numbers of fatalities and injured, will be calculated for the two target cities of Shimla in India and Athens/Piraeus in Greece. These cities have been selected to provide examples for best procedures in a developing and in an industrialised country. We will use the already existing data together with the data gathered in this project, and the results will be discussed with the local participating crowd to augment local awareness of the earthquake risk.

This project is bound to snowball into a worldwide effort of crowd sourcing in which participants will become increasingly skilled in the provision of data on the built-up environment that are relevant for the mitigation of natural disasters.



Example of data in OSM: in Piraeus, Greece, not only can critical infrastructure (here schools, universities, and hospitals) be identified but also predominant land use can be captured thus allowing the assessment of building occupancy types.

Shimla is a city in acute danger of being devastated by an M8 class earthquake that is inevitable as a result of the collision of India with Eurasia. The regional estimate of people injured in such an event exceeds one million, but the locations and capacities of hospitals are not known, thus hindering efficient rescue efforts. Moreover, the locations of schools and their resistance to strong tremors is not known.



International Centre for Earth Simulation (ICES)  
 GFZ Helmholtz-Centre  
[www.icesfoundation.org](http://www.icesfoundation.org)  
[www.gfz-potsdam.de](http://www.gfz-potsdam.de)