United Nations
International Strategy for Disaster Reduction
Secretariat, Geneva

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Consultancy Vacancy with UNISDR	
Date of issue: 26 September 2011	**1SDR/C/25/2011**

Post Title:	Consultant (Risk Modeling)
Duty station:	Consultant is not required to work on UN premises
Duration:	Two months
Deadline for applications:	02 October 2011
Assignments start date:	31 October 2011

United Nations Core Values:
Integrity ● Professionalism ● Respect for diversity

Background:

UNISDR is the secretariat of the International Strategy for Disaster Reduction. It was created in December 1999 and is part of the UN Secretariat with the purpose of ensuring the implementation of the International Strategy for Disaster Reduction.

Governments around the world have committed to take action to reduce disaster risk, and have adopted a guideline to reduce vulnerabilities to natural hazards, the Hyogo Framework for Action (HFA) 2005-2015. Its thrusts are: to make disaster risk reduction (DRR) a priority; know the risks and take action; build understanding and awareness; reduce risk; and get prepared and ready to act. The work of UNISDR supports those objectives, by helping obtain commitment from public authorities to implement disaster reduction policies and actions; stimulating partnerships across disciplines and sectors to expand risk reduction networks; advocate, support public education about risk and risk reduction and stimulate the increase of scientific knowledge about risk and disaster impacts.

The implementation of the ISDR is supported by a secretariat lead by the Special Representative of the Secretary-General for Disaster Risk Reduction. The secretariat main functions are policy coordination, advocacy and information management, at the international and regional levels, to

ensure synergy between disaster reduction strategies and those in the socio-economic and humanitarian fields.

Although Southeast Europe is highly vulnerable to natural disasters, over the last few years there has been a gradual reduction in the ratio of outward reinsurance to the gross volume of insurance premiums written in the country. Despite the rapid growth of the property segment of the non-life insurance market, which is highly exposed to the risk of earthquake, today very few insurance companies buy catastrophe excess of loss reinsurance protection. Whereas those companies that do buy the reinsurance coverage, typically only buy an insufficient limit of the coverage, or transfer the risk to reinsurers without financially reliable international credit ratings. As a result, in spite of the fact that local insurers have been reducing the credit risk of reinsurers' non-payment by increasing the minimal size of their own solvency margin for the sum of the transferred insurance premiums, they can incur substantial losses in case of a default of a single reinsurer because the volume of the transferred responsibility exceeds considerably the sum of the transferred premiums.

Objectives and targets

Today, the country regulators in Albania, Serbia and FYR of Macedonia do not have the technical capacity to adequately assess companies' risk exposures to earthquake risk nor can it evaluate the adequacy and credit quality of their reinsurance programs. Hence, their main interest in the project is based on the expectation of receiving world-class technical assistance in the assessment of underlying catastrophe risk exposures of insurers as well as in the consequent risk-based supervision of their catastrophe risk transfer practices (reinsurance).

1. Specific Functions/Tasks/Duties

The assignment calls for conducting robust analyses that will translate into a stochastically generated dataset of earthquake events (based on the available historic seismic catalogues for Southeast Europe) and respective economic and insured losses caused by these events in identifiable locations (major cities) in the country. The event set will also provide for correlations that may exist between seismic events in different parts of the country. The data set will be presented in the following tabulated format, with a brief description of the methodology and assumptions used by the consultant as well as a summary of the main limitations of the employed approach.

For the purposes of modeling the portfolio expected loss, probable maximum loss (PML) curve, and risk capital; the consultant is expected to use the following format for the presentation of modeling results:

For indicative pricing of individual policies in all major cities of SEE, the consultant will also calculate the insured losses for each of the cities and outside areas for each modeled seismic events for given levels of insurance penetration and the type of insurance products sold by insurers.

The consultant will be then required to provide tables similar to above for residential and industrial assets at risk as well. In the end, the output of risk modeling work shall be presented in the following format:

1. Event id
2. Event location (optional)

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3. Event frequency
4. For each geographic cell specified above:

4.1 residential losses as % of sum insured for policies with deductible d1
4.2 residential losses as % of sum insured for policies with deductible d2
4.3 residential losses as % of sum insured for policies with deductible d3

4.4 commercial losses as % of sum insured for policies with deductible d1
4.5 commercial losses as % of sum insured for policies with deductible d2
4.6 commercial losses as % of sum insured for policies with deductible d3

4.7 industrial losses as % of sum insured for policies with deductible d1
4.8 industrial losses as % of sum insured for policies with deductible d2
4.9 industrial losses as % of sum insured for policies with deductible d3

All estimates of residential, commercial and industrial losses and all combined classes as % of sum insured should be presented in the form of PML curves. Estimates of average annual losses for each class of property and the whole portfolio should be presented as well.

2. Tangible and measurable outputs of the work assignment

The scope of work for this assignment includes the following:

a) Perform probabilistic analyses to develop a stochastically generated dataset of earthquake events (based on the historic seismic catalogues of the selected four countries); for each event, the consultant will provide peak ground acceleration (PGA) and / or intensities for each grid cell (at least a zip code level).

b) Calculate economic losses to all major classes of construction from different seismic events in defined locations, including residential, commercial, and industrial facilities. The final results of the calculations should be presented in the form of PML curves for each construction class. The consultant should supply vulnerability matrices for all chosen building vulnerability classes used in calculating the vulnerability curves for every class of construction, including housing, office space and industrial facilities. The work should result in an Excel modeling tool allowing to modify the replacement cost estimates for different classes of construction.

c) The event set will also account for correlations that may exist between economic losses to different insured property classes from seismic events in different key locations.

d) Develop insured loss estimates for given insurance products (exact deductibles and limits will be provided by the project team at the start of the assignment) for different construction classes in key locations and for the portfolio as a whole. The consultant will provide the tabulated estimates of insured loss for any given level of insurance penetration by location and construction class, as well as the table of correlations between different losses in different locations.

e) The output of the project will be presented in an excel data file containing at least 30,000 loss events; estimates of PMLs for different classes of construction (e.g. residential, commercial and industrial) at above specified locations; a table of correlations between insured losses for different classes of construction in key locations

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Competencies:

Professionalism – demonstrates professional competence and mastery of subject matter; is conscientious and efficient in meeting commitments, observing deadlines and achieving results; is motivated by professional rather than personal concerns

Planning and Organizing - Demonstrate effective organizational skills and ability to handle work in an efficient and timely manner.

Technological Awareness - Keeps abreast of available technology; understands applicability and limitation of technology to the work of the office; actively seeks to apply technology to appropriate tasks; shows willingness to learn new technology.

Qualifications:

Education:	Advanced university degree (Master's degree or equivalent) in Structural Engineering, Earthquake Sciences or related discipline. A first-level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.
Experience:	A minimum of 10 years of progressively responsible experience in reinsurance or related areas.
Language:	Fluency in oral and written English.
Other:	Knowledge of Seismic risk modeling for the global corporate clients and governments.

How to apply

Please email the following documents to the ISDR secretariat at: isdr.vacancies@un.org:

1. Cover letter, explaining why you consider yourself qualified and motivated for this particular assignment.
2. Completed personal history profile form (The P11 form can be downloaded from http://www.unisdr.org/who-we-are/vacancies).
3. It would be appreciated your stating your full name and the ISDR vacancy notice number **(ISDR/C/25/2011)** as the subject in your e-mail of application.

Please note that applications received after the deadline will not be accepted. Applicants will be contacted only if they are under serious consideration

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