



## **Exposure to climate change hazards: A challenge in a risk analysis framework**

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Most part of quantitative climate change risk assessments developed at the urban and sub-urban scales rely on the availability of accurate information on potential climate change hazards. This information is usually derived from General Circulation Models that are regionalised by means of dynamic or statistical downscaling techniques. On this basis, hazard information at the local level can be expressed through impact studies (pluvial, fluvial flood and flood derived by storm surge and sea level rise, UHI ...). This information, together with vulnerability estimates of the exposed assets, allows the quantification of the expected risks linked to specific climate change threats.

However, the underlying data needed to produce risk assessment of climatic events are not always available at the required spatial and temporal resolution neither at the required form. There is a clear need to integrate the vulnerability assessments with climate information into broader risk analysis frameworks in order to provide tools for the decision making process. The variable that does the nexus between climate information (hazard) and socio-technical and socio-ecological system analysis (vulnerability) into the risk assessment is the exposure component.

Under the WGII AR5 framework (IPCC, 2014) exposure remains a core component of risk and it characterizes the degree to which cities' population and assets could be directly affected by climate change-driven threats. The way in which the climate data are elaborated and the impact assessment is done (how the multi-model ensembles outputs are presented and used in impact studies) conditioned the exposure analysis. The present work discusses some experiences related to how exposure is expressed according to different contexts or studies. To answer the specificity of each study several exposure indicators are defined and some combined exposure indices to hazards are presented.