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ENABLING DISASTER RISK REDUCTION (DRR) KNOWLEDGE BY WORKING TOGETHER: LEARNING FROM ISTANBUL

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Despite increasing accumulation of knowledge on natural hazards and vulnerability assessment in recent decades, human and economic losses due to disasters continue increasing. Projections prepared by several institutions also forecast further increase in losses due to trends such as an on-going concentration of human activities in risk-prone areas and the projected effects of global warming (Know-4-DRR del. 1.2). At this point, disaster risk reduction (DRR) and adaptation policies gain importance and attract even more the attention of various actors.

DRR policies to be effective require the collaboration and co-operation of various actors among them scientists, decision-makers and practitioners from the private sector, the public sector and the civil society. In addition they call for a better employment of knowledge for decision making and implementation. In practice, however, knowledge even if available, is often fragmented within and among these groups and not adequately integrated in decisions on DRR and the further implementation of risk reducing measures.

This work discusses how knowledge could promote DRR policies and their implementation. For this it combines results of two FP7 EU funded research projects: ENSURE and KNOW-4-DRR. Istanbul is used as a case study to apply and examine the outcome of the two projects.

ENSURE project (www.ensureproject.polimi.it) provided an operational tool for the assessment of vulnerability to natural disasters. According to the ENSURE methodology, matrices structured by systems to be assessed (represented in the rows grouped by colours) and by parameters related to aspects describing components of different systems, are elaborated (Table 1). Parameters are identified by their main target (to be found in the column labelled “aspect parameter”) and by the key criteria to be adopted for assessment (the column “criteria for assessment”). The application of the ENSURE multi-scale vulnerability framework as described above on Istanbul Metropolitan area resulted in a diagnosis of vulnerability that provides a knowledge basis for advancing DRR policies and implementation by different actors.

However, the application of knowledge is not automatic as there are barriers and pathways in the process of employing the previously gathered knowledge. It is a complex and complicated process involving multiple levels and scales, as well as a wide range of stakeholders and competencies dealing with constantly changing risks. Using existing knowledge more effectively is the focus of KNOW-4-DRR project (www.know4drr.polimi.it).

KNOW-4-DRR in its first work package provided a thorough analysis of main knowledge fragmentation issues within and across the four stakeholder groups identified by the consortium: scientists, public sector, private sector, and civil society and identified a range of barriers and pathways in knowledge production, sharing maintenance and usage.

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Table 1. General structure of matrices of ENSURE integrated multi-scale vulnerability framework (Source: Ensure consortium)

System	Component	Aspect	Aspect parameter	Criteria for assessment	Comments/ case study
Natural environment	natural hazards	existence and quality of mapping and monitoring	Specific parameters to permit assessment of the aspects that have been identified as relevant	Criteria may range from binary (yes/no) to degree (corresponding to judgements) or to more physical measures (for example related to time needed for ecosystems to recover)	Specific parameters to permit assessment of the aspects that have been identified as relevant
	enchained events	assessment of hazards triggered by other hazards			
	ecosystems	fragility to hazards and to mitigation measures			
Built environment	residential buildings	existence and compliance with codes and land use planning regulations	Specific parameters translating into measurable factors the aspect to be assessed	Criteria for multiple measurement modality are provided; they also depend on the scale at which the assessment is carried out	Building codes exist for some hazards (particularly seismic) and not for others; nevertheless research in the field of resistance assessment to various types of stress has evolved in the last decades
	public facilities	existence of vulnerability assessment and their consideration on mitigation strategies or in emergency plans			
Infrastructure and production site	critical facilities	existence of strategies addressing the interdependency and the functioning of critical facilities under extreme conditions	Parameters to specify conditions at which crucial lifelines and utilities cna keep functioning are provided, as well as to address the potential for na-tech	Criteria for assessment are provided; proposed criteria reflect the need to address the interaction across spatial scales of such facilities	Critical facilities and production sites are clearly part of the built environment. Nevertheless a specific group of rows have been dedicated to them because of their relevance.
	production facilities	existence of plans and procedures to maintain production in safe conditions given the possibility of an extreme event			
Social system (agents)	people/ individuals	weaknesses versus preparedness of individuals	Most of those are qualitative parameters to assess the general level of preparedness and recovery capacity (or lack of) to traumas and discomfort provoked by potential disasters	Criteria for evaluating the parameters are provided, taking into consideration the different spatial scales at which individuals, institutions and economic agents act	Whilst the previous groups of systems relate more to the "physical environment", clearly this one embeds the results of decades of social sciences research in the field of risk and disasters studies
	community and institutions	weaknesses versus preparedness of organisations and institutions			
	economic stakeholders	preparedness and recovery capacity (or lack of) economic stakeholders			

Our aim is to use the case of Istanbul as a testing lab for trying the findings of KNOW-4-DRR work in progress. Istanbul is an especially relevant case study for this. Not only there is knowledge from the application of the ENSURE multi-scale vulnerability assessment, but also a huge amount of knowledge on hazard and vulnerability assessments. Moreover, there are a number of newly introduced policies, and working relationships among a wide range of actors and competencies dealing with urban development and constantly changing risks.

As barriers and pathways are context depended, it is believed that the analysis in Istanbul will feed the on-going KNOW-4-DRR work which focuses on developing a knowledge management framework for DRR in integration to Climate Change Adaptation.

REFERENCES

KNOW-4-DRR Disaster Risk Reduction Knowledge, Enabling knowledge for disaster risk reduction in integration to climate change adaptation. Analysis of main fragmentation issues within different stakeholder groups. Deliverable n.1.2, 19.12.2013.

WEBSITES

www.ensureproject.polimi.it
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