SESSION DESCRIPTION

H3 Innovative indexes and frameworks for assessing urban vulnerability

Presentations

Date: Saturday, May 31, 2014
Time: 14:30-16:00
Rooms: S01-02

Language: English
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Organized by: ICLEI

OBJECTIVE

In order to develop appropriate and effective adaptation strategies, cities rely on tools and frameworks that allow a comprehensive and tailored assessment of local vulnerabilities and resilience. While a growing amount of information and data on this is available, methodologies have to be developed that recognize and quantify vulnerabilities based on relevant variables. They should also integrate and utilize different data formats, and communicate the results in a way that satisfies the requirements of different stakeholders at the local level, including a non-expert audience.

This session will present several innovative indexes and frameworks aimed at supporting countries and cities in assessing their vulnerability to climate change and their individual level of resilience. The first presentation will take a broader perspective by looking at the Notre Dame Global Adaptation Index which ranks more than 175 countries based on their vulnerability to climate change and preparedness to adapt, and then discuss different plans for downscaling the index to the city-level. The second presentation will specifically focus on the local level and introduce the evidence-based City Resilience Framework, which identifies both current resilience gaps and future pathways for action. Following this, the HAZUR methodology which has been applied in several Spanish case studies will be presented. The methodology assesses the vulnerability and resilience of infrastructure and urban services supply by exploring and visualizing their interdependencies. The final presentation will explore the potential of high performance computing to efficiently capture and communicate the structures and processes that affect the urban realm, and will present three different ways to achieve more realistic risk and vulnerability assessments.

OUTCOMES

- The participants will learn about innovative indexes and frameworks for assessing urban vulnerability and measuring their city's resilience;
- They will deepen their understanding of the complex variables, interactions, and interdependencies that shape urban risk; and
- They will be able to take this knowledge with them to apply in their own cities and countries.

METHODOLOGY

- The facilitator will provide an overall introduction to the session topic and contributors. **(5 minutes)**
- Each presentation will be allotted 10 minutes. **(4 x 10 minutes)**
- The facilitator will manage questions and answers. **(40 minutes)**
- Closing remarks by the facilitator. **(5 minutes)**

CONTRIBUTORS

Facilitator — *Holly Vaughan, Adaptation & Resilience Planner, ICLEI Canada Office, Toronto, Canada*

Presenter — *Joyce Coffee, Managing Director, ND-Global Adaptation Index, Chicago, USA*

Measuring vulnerability and readiness to accept public and private investment with the Notre Dame Global Adaptation Index

This presentation will introduce the Notre Dame Global Adaptation Index (ND-GAIN) which ranks more than 175 countries based on their vulnerability to climate change and their preparedness to adapt. The open source index informs strategic and operational decisions by providing crucial information for policymakers, the private sector, and non-profits. Various plans for downscaling the ND-GAIN index to the city-level will be discussed and broader questions addressed related to the future trends of tools and how they can inform decision making processes.

Presenters — *Braulio Eduardo Morera, Associate, Arup International Development, London, UK*

The City Resilience Framework: A tool to assess city resilience and inform future pathways for action

This presentation will outline the current status of the City Resilience Framework – a new tool developed by Arup, in collaboration with the Rockefeller Foundation, to support cities in assessing their resilience. Building on primary evidence gathered in seven cities world-wide, this tool aims to help city governments and other actors define a trajectory of resilience, by identifying both current gaps and future pathways for action. It will conclude with a critical reflection on how an evidence-based tool can help to articulate a more holistic framework to understand and assess the resilience of cities.

Presenters — *Luis Fontanals, Associated Professor, IQS School of Management, Barcelona, Spain*

Lorenzo Chelleri, PhD, Barcelona Autonomous University (UAB), Spain

Exploring the vulnerability and resilience of urban infrastructures and services supply: evidences from case studies using the HAZUR method

This presentation will discuss how the HAZUR methodology can be used to assess and visualize the interdependence of infrastructure and urban services supply, to reduce their vulnerability. It will be argued that exploring and mapping these interdependencies is key in order to i) raise awareness of potential cascade effects ii) develop integrated planning strategies and specific projects aiming at the reduction of urban vulnerability and iii) introduce a systemic and cross sector vision for urban resilience management. The method has been applied in a number of case studies in Spain. The outcomes from these studies will be shared and the applicability of the method to other cities will be discussed.

Presenters *Maria-Cristina Marinescu, Research Staff Member, Barcelona Supercomputing Center, Spain*

Jorge Garcia Vidal, Professor, Computer Architecture Department, Technical University of Catalonia (UPC), Barcelona, Spain

Harnessing the power of high performance computing to assess and predict risks and vulnerabilities

The aim of this presentation is to explore the potential of high performance computing to efficiently compose, simulate, and visualize the structures and processes that affect the urban realm. Three directions that help achieve more realistic risk and vulnerability assessments will be discussed. These are: data integration, as an opportunity to access data of different formats in a uniform way; simulation including agent-based modeling (ABM), to analyze the complexity of human interactions; and visualization, as way to optimize the communication of quantitative data to a non-expert audience.

Further recommended reading

Notre Dame Global Adaptation Index
http://index.gain.org

City Resilience Framework
http://www.arup.com/cri