



Society for Risk Analysis New England Chapter

2016-2017 Event Series

MEETING ANNOUNCEMENT

Tuesday, December 6, 2016

Refreshments: 5:30 pm – 6:00 pm

Presentation: 6:00 pm – 7:00 pm

Discussion: 7:00 – 7:20 pm

RISK AND RESILIENCE: R^2 OR 2R

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UNIVERSITY OF LISBON, PORTUGAL

With introduction by

IGOR LINKOV, PHD

US ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER

Location

Industrial Economics, Inc
Henderson Carriage Building, Fourth Floor
2067 Massachusetts Avenue
Cambridge, MA

Please RSVP by Friday, December 2nd to Sonja Sax (ssax@ramboll.com) or Jeff Cegan (Jeffrey.C.Cegan@usace.army.mil).

Space is limited, so reserve your seat today. For more information on SRA-NE, please go to: www.sra-ne.org



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RISK AND RESILIENCE: R^2 OR 2R

Risk-based approaches have been used to predict global change and mitigate consequences associated with changing environment. Risk assessment requires quantifying the risk of each component of a system and its associated uncertainties. Quantification's goal is to identify each component's contribution to the overall risk to ascertain if one component poses substantially more risk than the others. If so, that component becomes the basis for developing a quantitative benchmark, which becomes the de facto risk-based standard. The rapid technological evolution, unprecedented nature, and extent of emerging threats defy us to enumerate the potential hazards, much less estimate reliable probabilities of occurrence and the magnitude of consequences. Thus, a comprehensive approach to protecting the nation's critical infrastructure, economy, and well-being must be risk based—not risk exclusive—and it must not end at risk assessment but rather provide a way for decision makers to make their organizational systems resilient to a range of threats within specific cost and time restraints. This points towards an emerging concept of resilience. In contrast to the definition of risk, resilience is focused on the ability to prepare and recover quickly from threats which may be known or unknown.

Whereas risk involves the identification and assessment of threats acting on or within a system, resilience can be thought of as a property of the system itself. Managing for resilience requires ensuring a system's ability to plan and prepare for a hazard, and then absorb, recover, and adapt to the hazard. This, coupled with a systems view (in which systems are defined as containing components across physical, information, cognitive, and social environments in which the system exists) is the basis for resilience. Decision analytical tools and network science approaches can be used to quantify resilience, and help explain the potential cascading effects that certain actions may have upon improving or destroying the resilience of various systems such as with the natural environment or critical infrastructure. Such a view offers a more accurate view of the uncertainty and widespread consequences that may affect such systems on a regional or national scale, and help key stakeholders gauge the various shocks and stresses that challenge the ability of these systems to remain efficient and robust in their service delivery and regular function.

This presentation will review history of risk assessment and management and discuss emergence of resilience management and its role in Global Change research and critical infrastructure management. Case studies in the areas of coastal infrastructure, cybersecurity, supply chain, and disease epidemics management will be discussed. Specifically, summaries of the two recent workshops on Risk and Resilience (Aspen 2015 and Azores 2016) will be presented and the International Risk Governance Council (IRGC) Guidebook on Resilience released in Davos in August 2016 will be introduced.



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ABOUT THE PRESENTERS

Jose Palma Oliveira is Professor of Environmental Psychology and Risk Perception and Management at the University of Lisbon. His research has been extended for many areas having as background the interaction between human and environment. In this context developed a model of environmental stress and works actively in the consequences of noise and environmental stimuli. In this area is working with communities for two decades and have a 100% record in solving the so-called (erroneously) NIMBY (Not In My BackYard) problems. The work with communities has been connected with a large array of problems from protected areas to industrial projects. He specializes in analysis, perception and risk management (mainly environmental). He is a consultant (risk manager) and board member of Ambimed Stericycle Portugal (hazardous hospital waste), in Secil Portugal, Brasil and Tunisia (co-incineration of alternative fuels and dangerous RIB and coordination of the science policy), and is the Chairman of "Parks of Industrial Ecology" (waste treatment compounds). Was the Chairman of Quercus, (one of the most active environmental NGO in Southern Europe). He was a member of the National Water Council. He was president of the Board of the Foundation for the Protection of the Salinas Samouco between 2001 and 2008. Had a very intense intervention on environmental and risk policy in Portugal and in the EU. He was board member of the European Federation of Transport and Environment (Brussels) from 1997 to 2010 He is past President of the Society for Risk Analysis - Europe and a fellow of the SRA International. He was an invited expert in the preparation of EU directives such as air quality and noise and of the EU ECOSOC (EU Socio Economical Committee). In helped to install the structure of the hospital waste treatment compounds in Portugal, the co-processing of Refused Derived Fuels (including from hazardous waste) in the cement production, developed and installed Ecological Industrial Parks for integrative recycling and processing of industrial waste, and a new way of treating urban waste with the higher percentage of recovering in the literature.

Dr. Linkov leads the Risk and Decision Science Team and Focus Area at the US Army Engineer Research and Development Center, he is also Adjunct Professor of Engineering and Public Policy at Carnegie Mellon University. Dr. Linkov has managed multiple risk assessments and risk management projects in the areas of resilient infrastructure, cybersecurity, nanomaterials, environmental management, climate change, energy, and systems vulnerability. He is currently leading several projects implementing resilience management for cyber systems, critical infrastructure, energy and environment. He has published widely on environmental policy, environmental modeling, and risk analysis, including thirteen books and over 250 peer-reviewed papers and book chapters. Dr. Linkov has organized more than twenty national and international conferences and continuing education workshops, including workshops on Risk and Resilience in Berlin (2014), Aspen (2015) and Azores (2016) and 2015 World Congress on Risk in Singapore. He has served on many review and advisory panels for DOD, DHS, FDA, EPA, NSF, EU and other US and international agencies. The Governor of Massachusetts has appointed Dr. Linkov to serve as a Scientific Advisor to the Toxic Use Reduction Institute. He served as 2013 US Embassy Fellow in Berlin and will serve at the US Mission at OECD in 2017. He is recipient of two Army medals for outstanding civilian service. He is the recipient of the 2014 Society for Risk Analysis (SRA) Outstanding Practitioner Award, 2005 SRA Chauncey Starr Award for exceptional contribution to Risk Analysis, SRA Fellow award and was an elected SRA Councilor (2009-2013). He is Fellow with the American Association for Advancement of Science (AAAS) elected for his "efforts on behalf of the advancement of science or its applications [that] are scientifically or socially distinguished." Dr. Linkov has a B.S. and M.Sc. in Physics and Mathematics (Polytechnic Institute) and a Ph.D. in Environmental, Occupational and Radiation Health (University of Pittsburgh). He completed his postdoctoral training in Risk Assessment at Harvard University.



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GETTING TO THE EVENT

Directions to Industrial Economics can be found at: <http://www.indecon.com/iecweb/findus.aspx>

From the MBTA Subway (on foot):

Take the [MBTA Red Line](#) to Porter Square. Exit the T Station to the right and cross the street. Turn left and proceed northwest along Massachusetts Avenue, keeping the Porter Square Shopping Center to the right. Continue northwest approximately 0.2 miles to the Henderson Carriage Building, which is located at the corner of Massachusetts Avenue and Hadley Street. IEC is on the fourth floor.

By Bus:

The [77 and 83](#) bus routes stop in front of the building. Other bus routes that stop nearby include the 88, 87, and 96.

Driving Directions:

From I-95 / Route 128: Take Exit 29 for "Route 2 East - Cambridge." Follow Route 2 East approximately 6.4 miles to the first set of lights, located at the intersection of Route 2 and Routes 3 and 16. Bear left at the intersection onto Route 3 North/Route 16 East, following the signs for Arlington and Medford. Proceed approximately 0.3 miles to the next set of lights. Turn right onto Massachusetts Avenue/Route 2A and proceed southeast approximately 0.9 miles, to the intersection of Rindge Ave. and Massachusetts Ave. Continue on Massachusetts Ave. through the Rindge Ave. intersection, then take the first left onto Russell Street. The entrance to the Henderson Carriage Building parking lot is between the second and third private residences on the right, approximately 50 yards down Russell Street.

From Harvard Square: Follow Massachusetts Ave. north approximately 1.1 miles to the Porter Square T Station. Continue on Massachusetts Ave. another 0.2 miles to the Henderson Carriage Building, which is located at the corner of Massachusetts Avenue and Hadley Street. Turn right onto Hadley. The entrance to the Henderson Carriage Building parking lot is on the left, immediately behind the building.

Parking: Parking is available behind the building. There are special designated IEC parking spaces that we encourage you to use, but you can park in other spaces as well.