Professor Maria Paola Scaparra
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Time and location: 11:00 a.m.-12:00 p.m. on Friday, April 22th, 2022 in Zoom (contact qihang-lin@uiowa.edu for the link)

Title: How can analytics support the Sustainable Development Goals? A real-life example in Vietnam

Abstract: Analytics offers an ideal set of tools to tackle sustainable development challenges. This talk summarises the findings of a series of workshops run in South East Asia to identify key development challenge areas that can be tackled using analytics. These include urban planning, transport infrastructure development, waste management, and flood disaster management.

The talk then describes a specific project run in Vietnam to minimise the impact of floods on urban road networks in Hanoi. The project uses optimisation blended with tools from other disciplines (e.g., hydrology, meteorology, transport economics) to identify a schedule of flood mitigation measures (e.g., lake rehabilitation and construction of manholes) over a discrete planning horizon and considering different future flood scenarios. The problem is formulated as a multi-period, bi-objective mixed-integer linear programming model and solved using a Greedy Randomized Adaptive Search Procedure (GRASP). Results on a set of randomly generated instances are presented. The proposed approach is then used empirically for investigating cost effective ways in which flood disruptions can be mitigated in the City of Hanoi.

Biography: Maria Paola Scaparra is a Professor of Management Science at the University of Kent Business School, UK. Over the years, Paola held several leadership roles within the school, including Associate Dean of Research and Innovation, Head of the Management Science Group and Programme Director for the MSc Business Analytics. Paola holds an M.S. in Management Science and Engineering from Stanford University and a PhD in Mathematics Applied to Economic Decisions from the University of Pisa, Italy. Her primary research interest is on the development of mathematical models and optimization methodologies for solving intractable challenges in developing countries and contributing to the achievement of the UN Sustainable Development Goals. She has led several international, multi-disciplinary and consultancy projects, including projects funded by the British Academy, the Engineering and Physical Sciences Research Council (EPSRC) and Innovate UK. She is also a member of the General Council of the UK OR Society, Education and Research Committee.