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Eawag Seminar Invitation

Smart Water Futures: Decision making under ambiguity

Speaker **Prof. Phoebe Koundouri, Director of Research laboratory on Socio-Economic and Environmental Sustainability (ReSEES), Athens University of Economics and Business, Greece**

When **March 31, 2022, 16:00 – 17:00, CEST**

Where **Online via Zoom, contact seminars@eawag.ch for access details.**

Abstract In this seminar I will present the new European Research Council Synergy Grant on “Smart Water Futures: Designing the Next Generation of Urban Drinking Water Systems” (acronym “Water-Futures”).

World’s cities are expanding. Some 70% of people will live in urban areas by 2050. This growth brings with itself one big challenge: water. New water infrastructures went historically hand in hand with urban development. However, in the past, changes happened often because cities needed to react to crises and immediate needs – not as a result of real planning. Urban water planners were unable to take into account short-term and long-term, deeply uncertain and ambiguous factors affecting urban development and water demand. These factors, together with increasingly uncertain climate conditions, have increased the need for a more holistic and intelligent decision-making framework for managing water infrastructures in the cities of the future

The central focus of this seminar is to study decision-making under uncertainty. I focus on whether a rational agent under uncertainty can exhibit ambiguity aversion (AA). The answer to this question depends on the way the agent forms her probabilistic beliefs: classical Bayesianism (CB) vs modern Bayesianism (MB). We revisit Schmeidler's coin-based example and show that a rational MB agent operating in the context of a "small world", cannot exhibit AA. Hence we argue that the motivation of AA based on Schmeidler's coin-based and Ellsberg's classic urn-based examples, is poor, since they correspond to cases of "small worlds". We also argue that MB, not only avoids AA, but also proves to be normatively superior to CB because an MB agent (i) avoids logical inconsistencies akin to the relation between her subjective probability and objective chance, (ii) resolves the problem of "old evidence" and (iii) allows psychological detachment from actual evidence, hence avoiding the problem of "cognitive dissonance". As far as AA is concerned, we claim that it may be thought of as a (potential) property of large worlds, because in such worlds MB is likely to be infeasible.