

Climate Change Governance, Cooperation and Self-organization

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When attempting to avoid global warming, individuals often face a social dilemma in which, besides securing future benefits, it is also necessary to reduce the chances of future losses. Unfortunately, individuals, regions or nations may opt to be free riders, hoping to benefit from the efforts of others while choosing not to make any effort themselves. Moreover, nations and their leaders seek a collective goal that is shadowed by the uncertainty of its achievement. Such types of uncertainties have repeatedly happened throughout human history from group hunting to voluntary adoption of public health measures and other prospective choices. In this talk, I will discuss a population dynamics approach to a broad class of cooperation problems in which attempting to minimize future losses turns the risk of failure into a central issue in individual decisions. Our results suggest that global coordination for a common good should be attempted by segmenting tasks in many small to medium sized groups in which perception of risk is high. Moreover, whenever the perception of risk is low as it is presently the case we find that a polycentric approach involving multiple institutions is more effective than that associated with a single, global one, indicating that a bottom-up approach, setup at a local scale, provides a better ground on which to attempt a solution for such a complex and global dilemma. Finally, I will discuss the impact on public goods dilemmas of uncertainty in collective goals, heterogeneous political networks, obstinate players and wealth inequality, including a distribution of wealth representative of existing inequalities among nations.