

Co-producing urban resilience to climate change: Innovation for integrated risk management



GLOBAL URBAN RESEARCH COLLABORATIVE

Adaptation to climate change and building resilience

The three levels of adaptation to risks (Pelling, 2011)



RESILIENCE

In which the functional integrity of a system is maintained, and the status quo is preserved. Existing practices are improved, but the underlying assumptions in the system are not questioned and unjust practices may continue

TRANSITION

Where incremental changes in governance are made by altering rules and decision-making, but the overarching norms, principles and socio-political regime are unchanged;

TRANSFORMATION

Involving a regime change in which the root causes of vulnerability and deprivation are addressed, and the underlying values of the system are questioned, from individual behaviour to the structures and mechanisms of the system's economy.

Collective action – Participation – Co-production

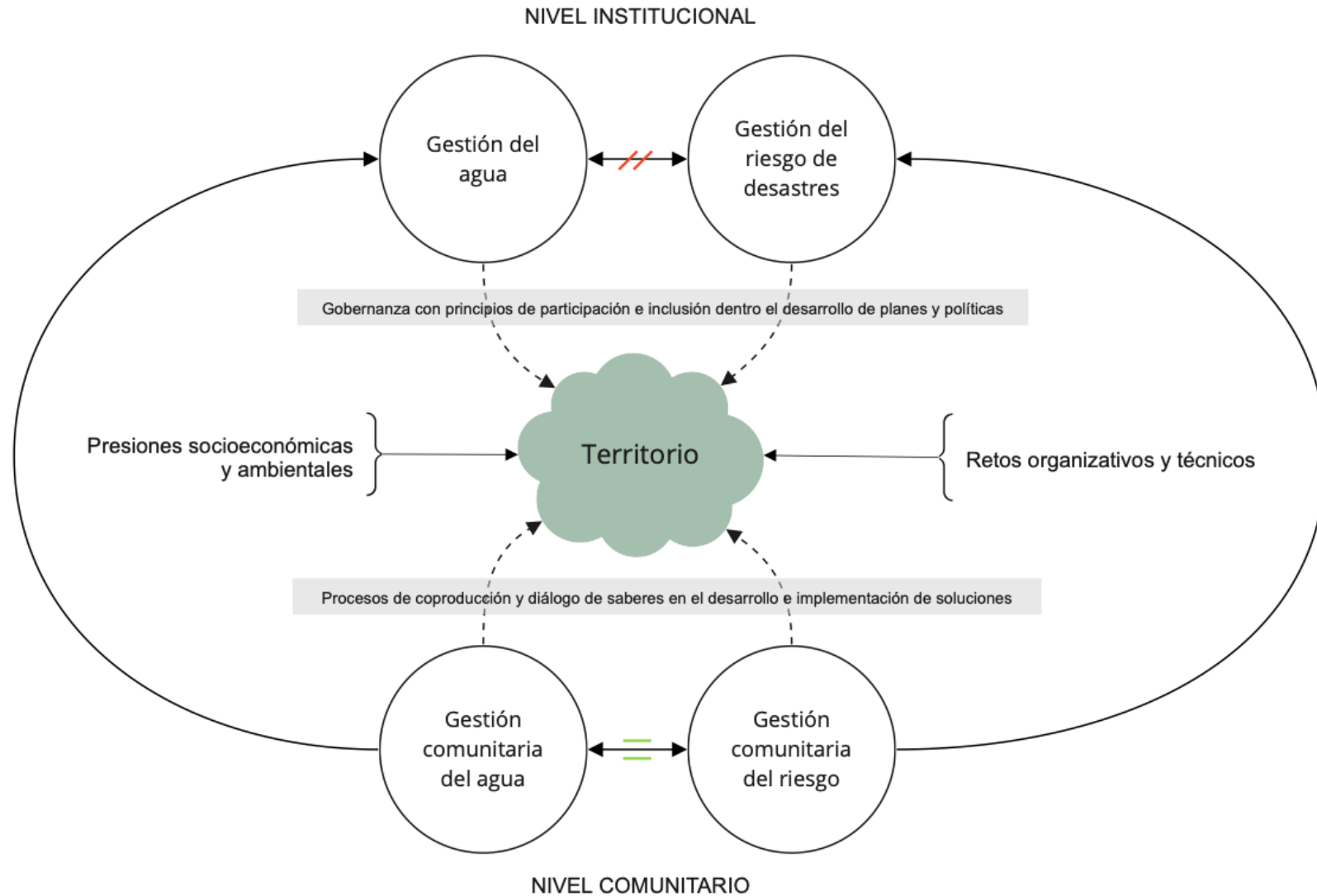
GOVERNANCE & CO-PRODUCTION

- **Co-production represents an innovative and inclusive approach to governance as it recognises the knowledge and expertise of the multiple stakeholders involved in the process.**
- **Relation between co-production, citizen participation and resilience:** the understanding and evaluation of risks, such as climate change-related risks, and their impacts can be enriched by leveraging information and knowledge provided by those who are directly exposed and affected at a local level, allowing for more informed decision-making (Bennett et al., 2014)

Towards Transformation


OPPORTUNITIES FOR
TRANSFORMATION OF THE
PLANNING SYSTEM FOR
INTEGRATED RISK
MANAGEMENT

**HOW CAN THE CITY'S URBAN
GOVERNANCE SYSTEM
INFORM TRANSFORMATIVE
ADAPTATION TO SUPPORT
RISK REDUCTION?**



Radical change must come from people and communities at risk who collectively push for social and political reform

Innovation in flood risk management: An 'Avenues of Innovation' analysis

Rebecca Guerriero¹ | Edmund C. Penning-Rowsell² 

¹School of Geography and the Environment, The University of Oxford, Oxford, UK

²Flood Hazard Research Centre, Middlesex University, London, UK

Abstract

Innovation in flood risk management (FRM) is a driver for change. Research, however, is sparse in this area, and innovation itself appears to be left largely to chance. This paper uses a 'systems of innovation' approach, defining 'ave-

Avenues of Innovation in Risk Management

Following Guerriero and Penning-Rowsell, 2020

- **Flood risk management (FRM)** has undergone 'a major paradigm shift', beyond simply dealing with floodwater as a hazard, approaching it in a more strategic, holistic and long-term manner, which has opened the potential for innovation
- **Innovation can appear in many forms:** "Something original, effective, or revolutionary that has been introduced into and then acknowledged by a market or system" (Salter & Alexy, 2013 cited in Guerriero et al., 2020).
- **Avenues of Innovation:** Discrete evolutionary pathways; not solutions in themselves, rather broad routes of progress and evolution based on constant learning and feedback.
- Together, these avenues form the components within the **Systems of Innovation (SI) framework**, and constitute the system itself, in its ability to transform distinct innovations in a specific area into innovation of the larger system.
- **With interactions** within and between the different avenues.

The Five Avenues of Innovation

Following Guerriero and Penning-Rowell, 2020

Case studies can be examined using the Systems of Innovation (SI) framework, which identifies five interrelated areas where innovation can be promoted:

Measures: This includes structural technologies (traditional engineered flood defenses with dams, levees, by-pass channels that modify the probability of flooding) and non-structural alternatives seeking to manage flooding's consequences with warning systems, spatial planning and insurance arrangements;

Information technologies: the use and development of data and other technologies, including their availability and reliability, to create solutions toward monitoring and estimating flood risk;

Governance and politics: the interplay between local and centralised decision making for funding and planning to modify flood risk;

Resources: skills and capabilities, and also investment and insurance mechanisms that serve to commodify the risks associated with flooding;

Framing and communication: the use of specific terminologies, mental models and discourses as resources to describe and communicate flood risk to professionals and the public.

Source: Guerriero and Penning-Rowell (2020).

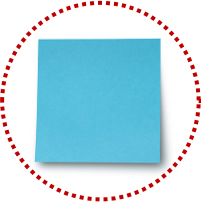
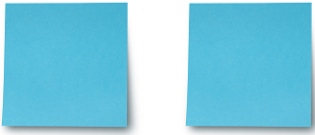
Interactive Board on Miro – Reflections on Innovation in Case Studies

Color-coding post it notes according to *each avenue*.

Structural/Non-structural measures



Governance & Politics

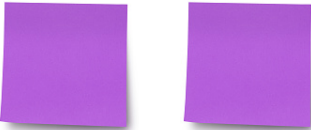


Participants are asked to note their reflections on where innovation lies within the five avenues for each of the cases presented

Information Technologies



Resources



Framing & Communication



Other Forms of Innovation



Additional space is designated to allow participants to refer to any other forms of innovation revealed in the presented cases, which might not be captured in the presented framework

Interactive Board on Miro – Tracing Innovation in Presented Cases and ongoing research

- Please follow the link in the Zoom chat to access the board on Miro:

https://miro.com/app/board/uXjVOBYo4Ok=?invite_link_id=163912637273