

# Influencing individual and collective adaptation: a diagnostic framework for identifying adaptation governance challenges

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# Outline

- Objective
- State of the art in adaptation governance research
- Approach taken here
- Results – A diagnostic framework for identifying adaptation governance challenges
- Case – Adaptation to droughts in Serbian agriculture
- Conclusion

# Objective

- To develop a diagnostic framework for identifying adaptation governance challenges (GC)
  - Diagnostic framework based on the medical analogy of identifying symptoms and prescribing further tests or treatment (Ostrom 2009; Moser and Ekstrom 2010).
  - To support the application of appropriate adaptation research approaches and governance approaches or policy instruments through a series of diagnostic criteria
- Problem-oriented
  - Interested in identifying approaches that contribute to advancing adaptation in practice

# State of the art

- Governance research addresses barriers to adaptation or institutional analysis:
  - Cognitive barriers and risk perception (Patt and Grothmann 2005, Wolf et al. 2010), or cultural barriers, i.e. undervaluation of non-market outcomes (Agder et al., 2009)
  - Adaptive management and adaptive governance for social learning (Armitage et al. 2008; Huiteima et al. 2009); institutional fit in social-ecological systems (Cash et al. 2006; Ekstrom and Young 2009); social capital (Pelling et al. 2008)
- Institutional and governance dimensions are under-researched; lack of social science framing of adaptation
  - Physical, impact-analytical and economic framing dominates adaptation discussion; there is an emphasis on decision-analysis and information provision
  - Terminology is imprecise: decision making frameworks = adaptation governance?
  - The wrong problems may be addressed: cognitive and institutional barriers to adaptation (Moser and Ekstrom 2010)
- There is a need for a language for a more differentiated debate on which approaches are applicable to which challenges

# Approach

# Approach (1)

Governance is understood as an “effort to craft order, thereby to mitigate conflict and realize mutual gains” (Williamson 1996).

Diversity of adaptation situations give rise to very different adaptation governance challenges involving public and private actors:

- Private adaptation situations:
  - A farmer deciding on which crop variety to plant
  - A private company climate-proofing infrastructure investments
- Public adaptation situations:
  - An agricultural extension service that wants to influence the crop variety that farmers plant
  - A co-operative deciding on the use of a communal forest
  - River riparians co-ordinating water use under changing temperatures and hydrological conditions

# Approach (2)

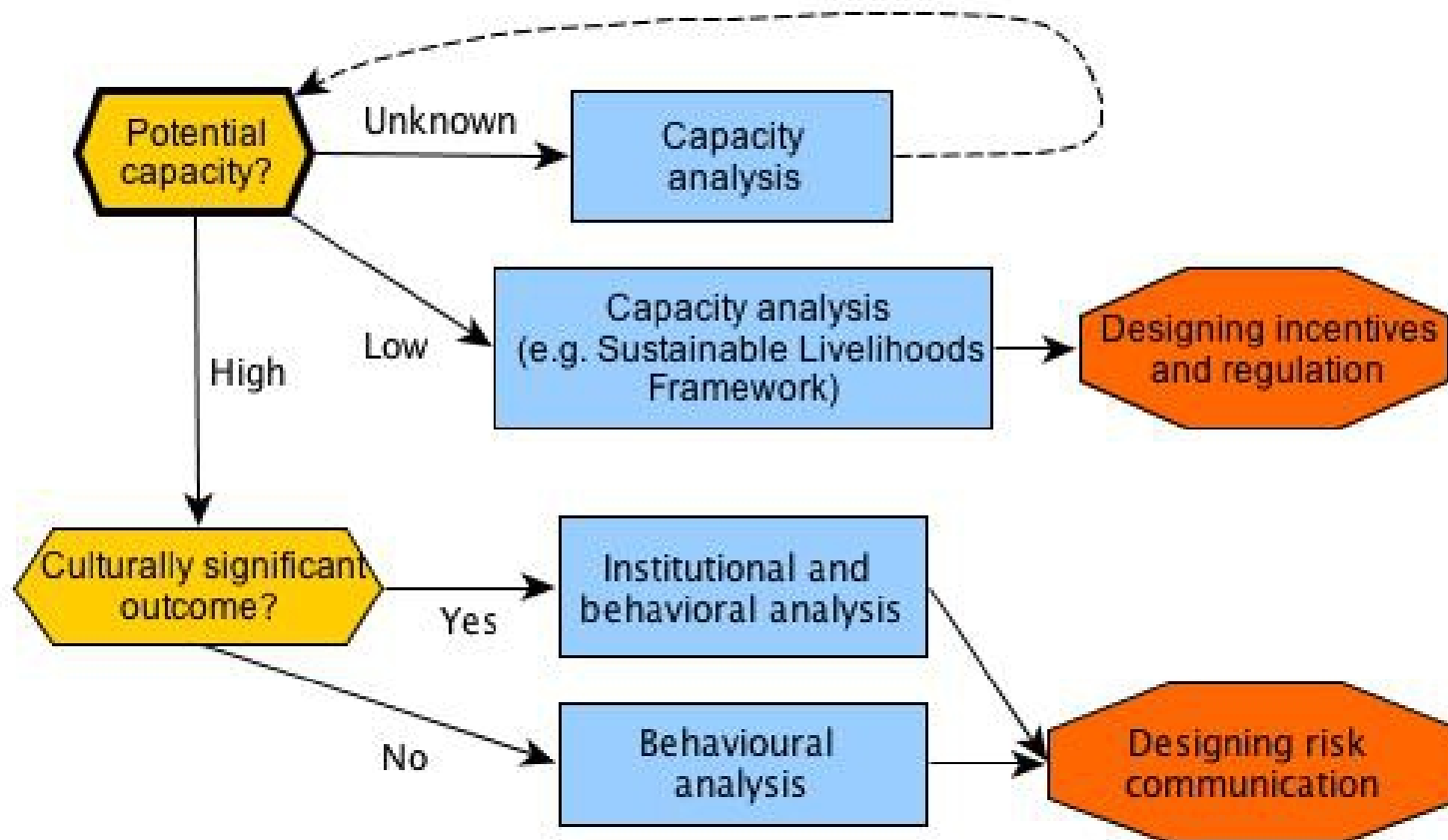
- Question
  - How to characterise adaptation governance challenges?
  - How to identify governance approaches “meaningful” for addressing a given adaptation governance challenge?
- Adopting the perspective of a public actor – aiming to influence the adaptation of others
- Go beyond current typologies by:
  - i) considering the wider context of barriers given the diversity of adaptation contexts; and
  - ii) mapping barriers to the diversity of research and governance approaches that may be applied for understanding and overcoming these

# Results

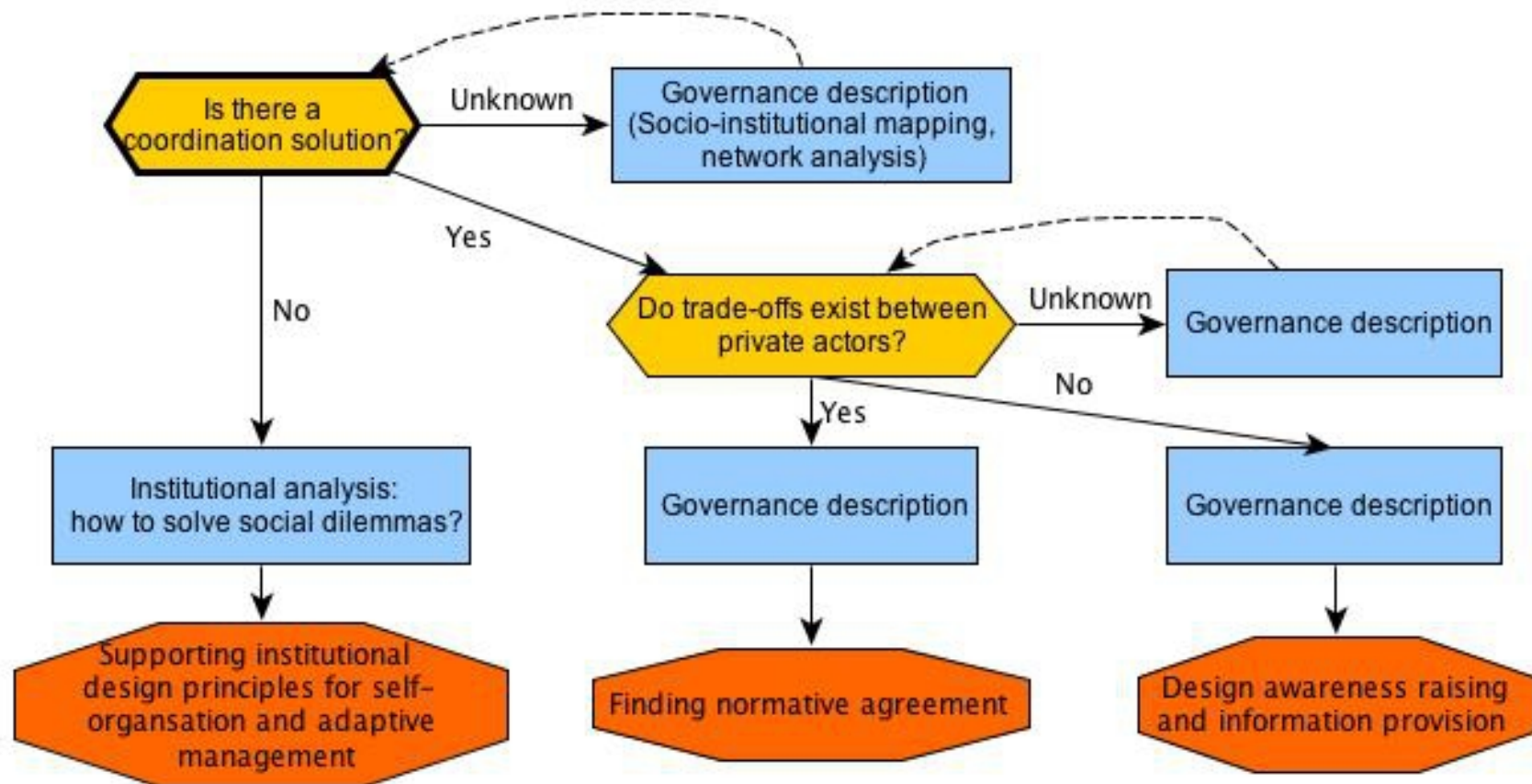
- A series of diagnostic questions (decision trees) for identifying governance challenges for a public actor and research approaches and policy instruments appropriate to addressing them
- Decision trees:
  - Blue rectangles indicate **research approaches**, orange hexagons indicate **governance approaches**
- Top level distinction between governance challenges arising from influencing individual adaptation and from influence collective adaptation
  - Interdependence of the adapting actors is at issue



# Influencing individual adaptation – low interdependence of actors



# Influencing collective adaptation – high interdependence of actors



# Classifying collective governance challenges

	Co-ordination without conflicts	Co-ordination with conflicts	Social dilemma appropriation	Social dilemma provisioning
<b>Number of Nash equilibria</b>	2	2	1	2
<b>Number of social optima</b>	2	1-2	1	1
<b>Stability of social optimal</b>	High	High	Low	High
<b>Governance approach (GA)</b>	Information provisioning.	Normative agreement.	Solving prisoner's dilemma.	Solving assurance game.
<b>Case example</b>	N/a	Transboundary river management. Rhein salmon policy (van Slobbe et al. 2013)	Irrigated agriculture and ground water extraction in the Guadiana (Varela et al. 2013).	Adaptation to droughts in Serbian agriculture

Case

# Case – Adaptation to droughts in Serbian agriculture (1)

- Climate change projected increase temperatures and change precipitation to Serbia. Droughts that have negatively impacted farmers
- Smallholder farmers are disproportionately affected due to their lack of access to irrigation infrastructure and lack of resources for investment in agriculture production (Khovanskaia et al. 2011)
- Adaptation requires restoration of irrigation canals
- **Governance challenge** is that of collective good provisioning GC – Social dilemma: capital and labour investment of one farmer affect the outcomes of other farmers
- Common studies and natural resource governance approaches:
  - Scale of the investment required is too large for an individual small-holder
  - Protection against drought losses is a weakest link collective good; break down in part of the irrigation system reduces water reaching farmers further along

# Case – Adaptation to droughts in Serbian agriculture (2)

## Research approach

Institutional analysis of farm level decisions to access government support (expert and stakeholder interviews)

## Results

- Description of the institutional context influencing farm level decisions regarding access to government support
- Barriers to the proper functioning of property rights to land:
  - lack of clear ownership rights obtain due to land not being properly registered
  - Multiple claims to land often exist
- Barriers to access to government support:
  - farms are not registered and thus not able to access the government support for on-farm investments
  - Registration prerequisite for access to public funds for crop-loss compensation and agricultural modernization support
  - Settled accounts with the pension and disability funds required from registered farms.
  - Subsidies for farm inputs in 2009 used on only about a quarter of arable land
- Improved policy instruments should take account of these barriers

# Conclusions

- Identifying the relevant GC is both important and non-trivial, as different governance challenges imply the application of different research approaches and policy instruments
- Decision analysis framing of adaptation governance tends to ignore governance challenges of influencing collective action
  - Serbian case: providing rationale for social investments in agriculture in terms of impact reductions leads to different research approaches than those that consider interdependence explicitly
- Adaptation governance can benefit significantly from making use of commons scholarship and collective action research for the relevant governance challenge

# Outlook

- A diagnostic framework for supporting the methodological choices to be made. (Bisaro and Hinkel, in preparation)
- These serves as a component in two products
  - PROVIA guidance on assessing climate change vulnerability, impacts and adaptation
    - UNEP based Programme of Research on Climate Change Vulnerability, Impacts and Adaptation ( [www.provia-climatechange.org](http://www.provia-climatechange.org))
  - MEDIATION integrated methodology (Methodology for Effective Decision-making on Impacts and AdaptaTION)
    - Will be available online
    - Together with cases from research, policy and practise that illustrate the approaches taken in diverse adaptation situations



# Thanks for your attention!

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