

# INTEGRATED FRAMEWORK FOR IDENTIFYING TRANSFORMATIVE ADAPTATION IN AGRI-FOOD SYSTEMS

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## INTRODUCTION

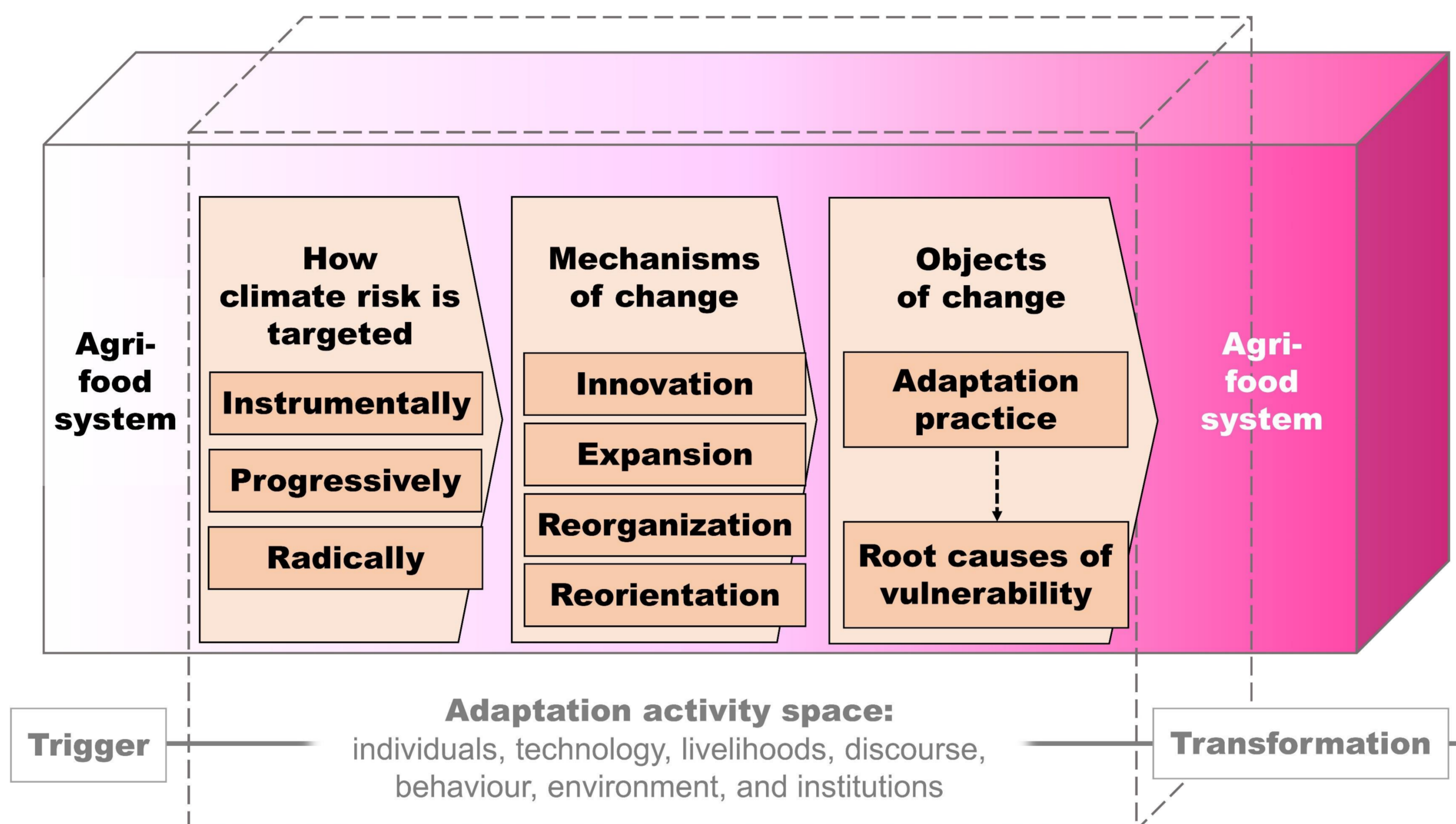
- Securing food production under climate change is expected to require fundamental changes in agri-food systems.
- An understanding of transformative adaptation decision-making processes is essential.
- We present an integrated analytical framework that allows a closer look at transformative adaptation measures and their outcomes and how these are considered in adaptation decision-making.
- We apply the framework in Nordic agri-food system context.

## ANALYTICAL FRAMEWORK

- Enables identification and assessment of the dynamic and contextual decision-making on transformative adaptation measures in socio-ecological contexts (e.g. agri-food systems).

The framework integrates:

- the typology of transformative adaptation features: 1) how climate risk is targeted, 2) what the mechanism of change is, 3) what the primary object of the adaptation response is (Few et al. 2017) and
- the conceptual tool of ‘activity spaces’ by Pelling et al. (2015) to address the social dimension of transformative adaptation decision-making processes. Seven coexisting and interacting activity spaces are introduced.



### Analytical framework to assess transformative adaptation in the agri- food system.

The dashed box illustrates the adaptation activity space that construct the frames for adaptation decision-making.

The transformative change in the agri-food system is indicated with a colour change in the box illustrating the agri-food system before (light pink) and after (dark pink) the transformations and the arrow from the ‘trigger’ to ‘transformation’ and beyond the agri-food system.

Three peachy pointed rectangles illustrate the features of transformative adaptation, The dashed arrow indicates indirect targeting of root causes through changes in practice.

## CASE & METHODS

Case regions: European Nordic countries (Finland and Sweden):

- considered to have relatively strong socio-economic conditions for adaptation
- cross-border impacts & high-end & long-term scenarios currently not considered in national adaptation strategies

The perspectives and experiences of 37 Nordic agri-food production actors were examined:

- pair-wise stakeholder interviews, supported by serious gaming

## RESULTS

Transformative changes through adaptation involve changes that

- (i) have different effects at various temporal and spatial dimensions
- (ii) are often related to drivers other than climate risk: other actors, policies, markets and
- (iii) involve trade-offs (and related negative externalities) with various actors and objects.

## CONCLUSIONS

- There are complexities and dynamics in the relations between different actors and contexts of action.
- Trade-offs, including counteracting rebound effects to mitigation, are not always evident to or considered relevant by the implementing actors.
- Maladaptive outcomes resulting from transformative adaptation may be more complex than those resulting from incremental adaptation.
- Focus from a purely technical problem-solving and systems-based approach to transformation needs to be shifted towards the societal aspects of adaptation decision-making e.g. social drivers for transformative adaptation processes.

### REFERENCES:

- Few et al. 2017. Transformation, adaptation and development: relating concepts to practice. <https://doi.org/10.1057/palcomms.2017.92>
- Käyhkö et al. 2020. Integrated framework for identifying transformative adaptation in agri-food systems <https://doi.org/10.1016/j.envsci.2020.10.002>
- Pelling et al. 2015. Adaptation and transformation. <https://doi.org/10.1007/s10584-014-1303-0>