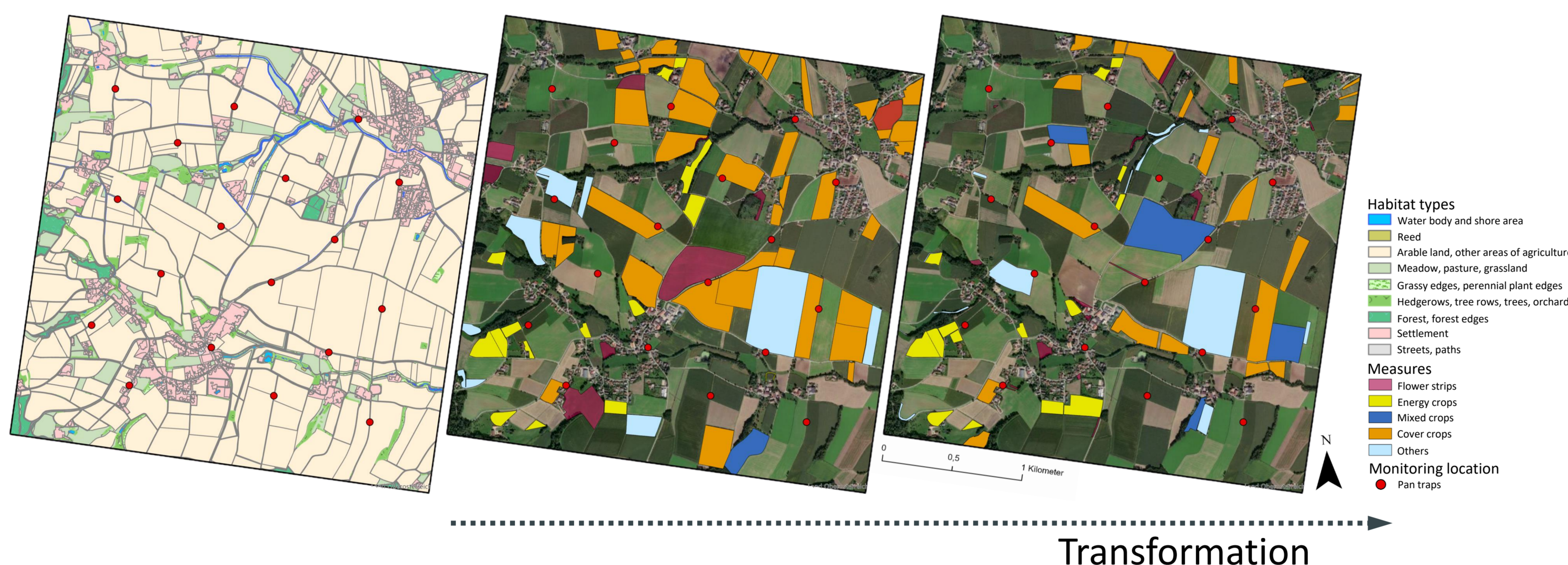


# FInAL - Facilitating insects in agricultural landscapes: a project to demonstrate the impact of landscape transformation on biodiversity and socio-economic aspects with agroecosystem living labs in Germany

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In FInAL, we develop, establish, and evaluate innovative measures together with regional farmers to achieve an insect-friendly and economically sustainable agroecosystem.

## Background and Objectives

Insects are of great importance for agriculture. Nevertheless, they are in strong decline.

To create insect-friendly agroecosystems, long-term transformation on a landscape scale is needed, addressing diversity of landscape structure and cropping systems to provide insects with year-round supply of food, other resources, and a habitat network.

In the short-term, innovative measures include integrated cultivation of renewable resources, implementation of alternative cultivation systems, and amelioration of landscape elements. Their combination unfolds its impact in a multi-annual transformation process.

Accordingly, long-term monitoring of insects and ecosystem services is needed.

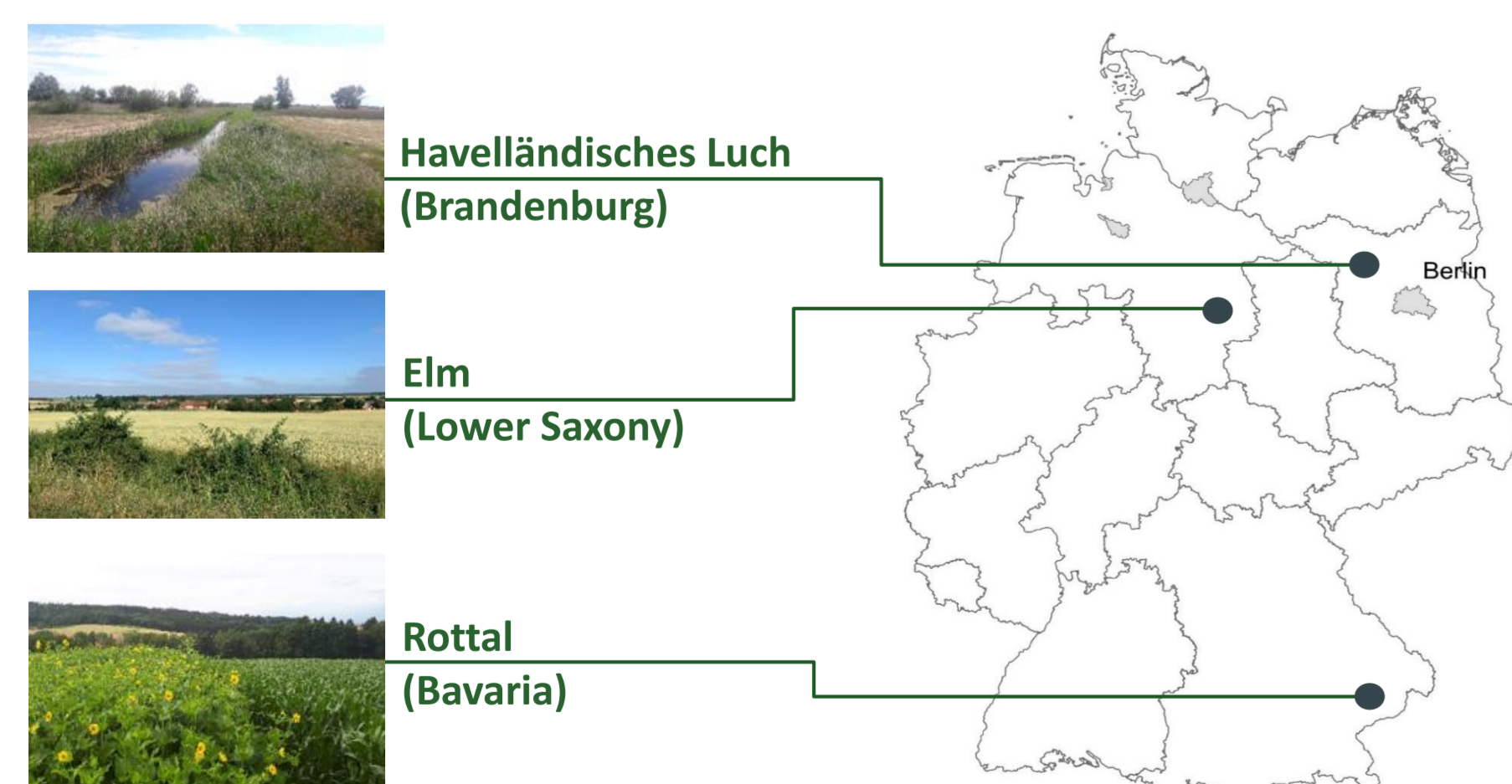


Fig. 1: Three Agroecosystem Living Labs, organized as landscape labs (3 km x 3 km), serve as innovative research and co-design environment in different regions of Germany.

We apply a landscape lab approach with a co-design process to support the agroecological transformation in the respective regions.

## Design and Implementation

- establish landscape labs and reference landscapes
- landscape analyses, ecol. potentials for insects
- co-design und co-learning: development, planning, implementation of lab-specific transformation paths and measures (Fig. 3)
- developing methods for monitoring at landscape scale of insects, vegetation, ecosystem services (BACI design, ecological modelling; Fig. 2)
- calculation of overall cost-effectiveness and transformation costs (Fig. 4)
- reflect on the implemented measures and the transdisciplinary process itself
- multicriterial evaluation of the transformation

## Significance for policy and practice

- transferability of developed measures, monitoring and analyses methods including spatio-temporal approach
- transfer of knowledge regarding co-design, developed analyses
- assess obstacles for and achievable degree of transformation
- develop basis for fair ecological and economical system comparison

## Accompanying research, monitoring

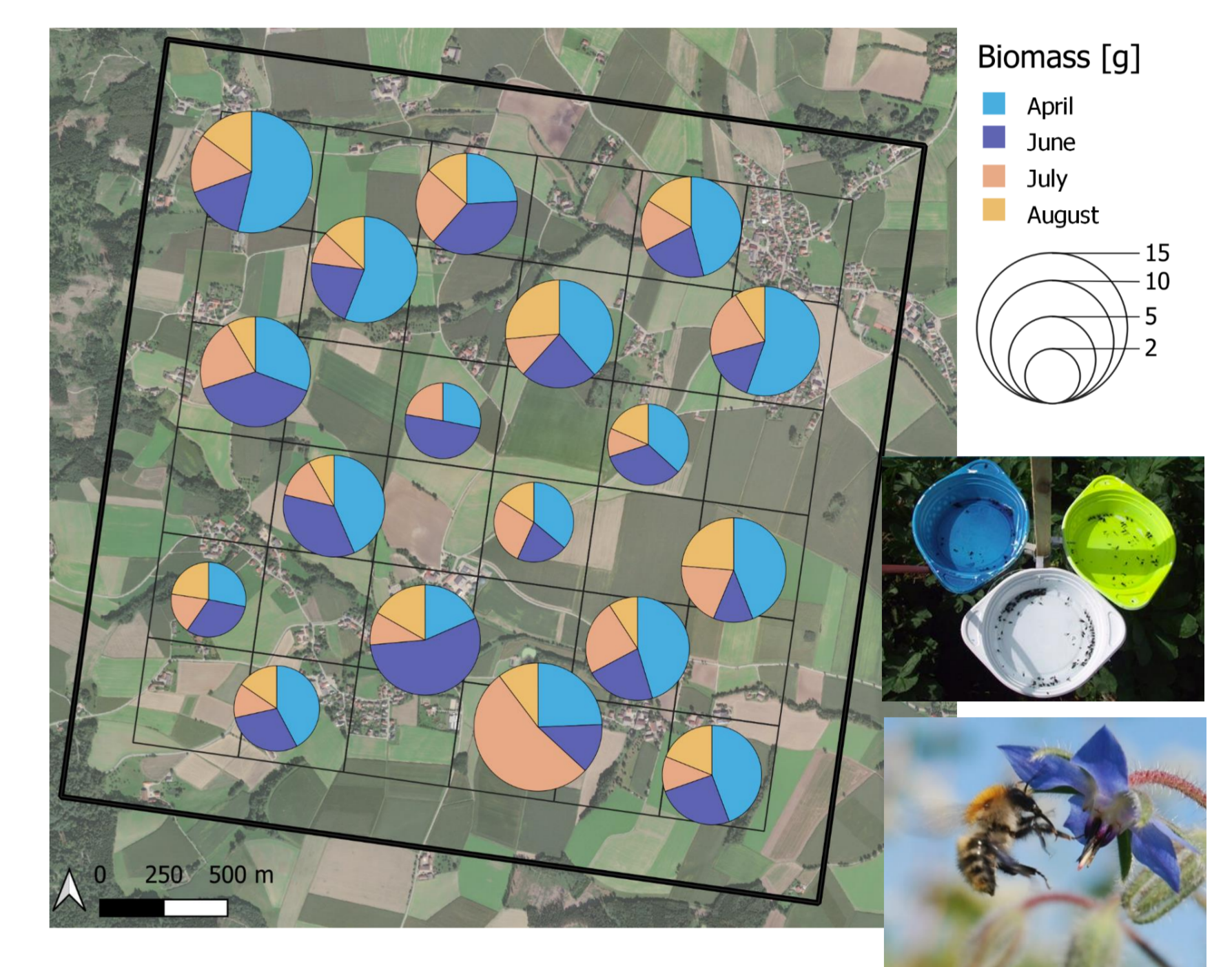


Fig. 2: Monitoring of the entomofauna. Species range and biomass of flying pollinator insects from pan traps are analysed interannually as well as before and during the transformation.



Fig. 3: Co-design of lab-specific measures with farmers, researchers, and local lab coordinators, also serving co-learning (above, center). Cup plant replacing corn in the landscape lab Rottal, Bavaria (below).

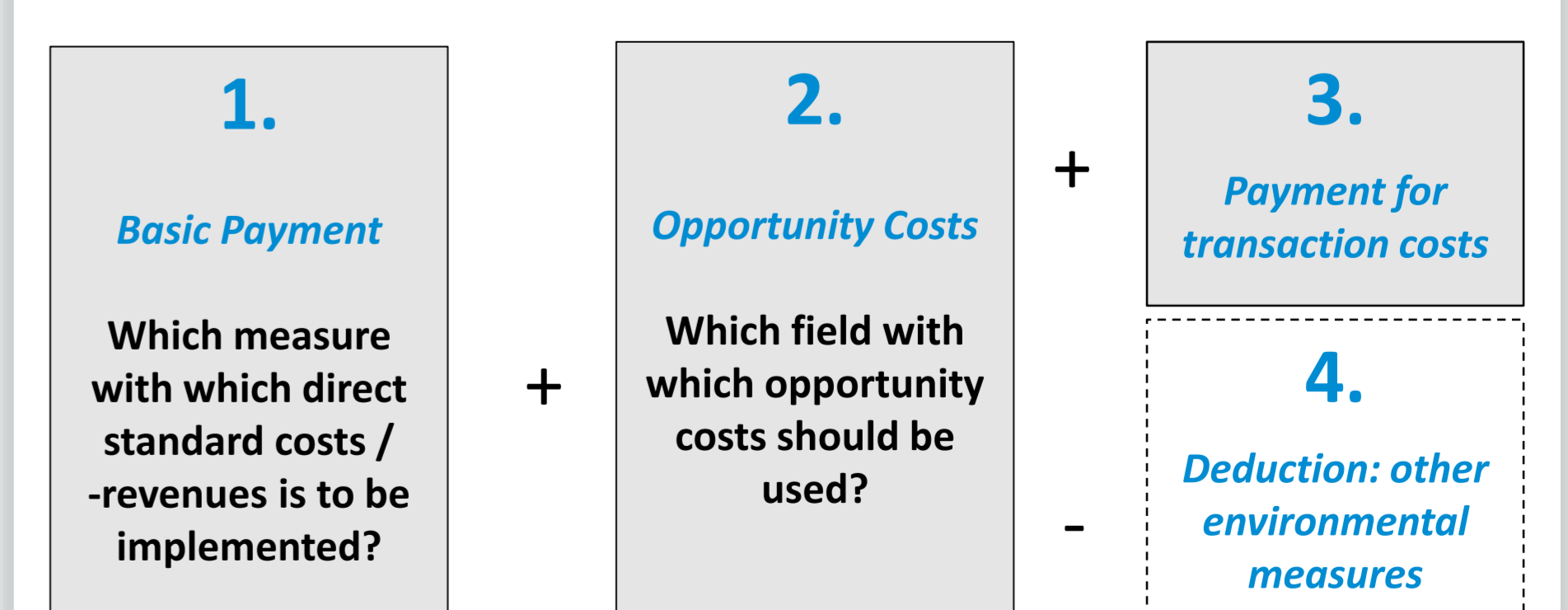


Fig. 4: Schema of compensation payment. Beside practicality a cost-covering remuneration is crucial for the acceptability of measures.