



University of Stuttgart

ZIRIUS - Stuttgart Research Center for
Interdisciplinary Risk and Innovation Studies

Designing synergetic and sustainable policy mixes – a new methodology

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How to achieve policy coherence for sustainability? (e.g. Nilsson/ Weitz 2019)

Academic debates

- SDG trade-offs and synergies (e.g. ISCU 2017, Weitz et al. 2018, Nilsson et al. 2016)
- Policy design (e.g. Capano/ Howlett 2020, Rogge/ Reichhardt 2016)

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Practical challenges

- Complex environmental management issues
- Example: TRUST: (latent) water use conflicts in the Río Lurín catchment, Peru



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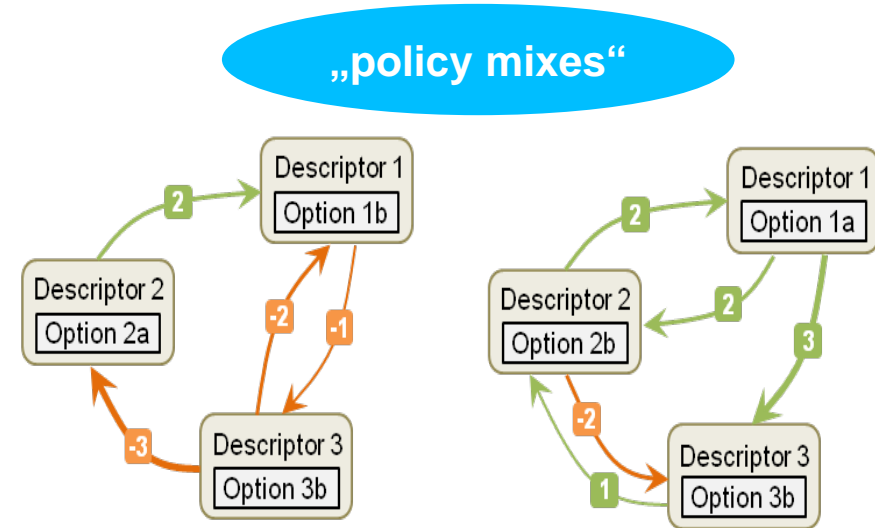
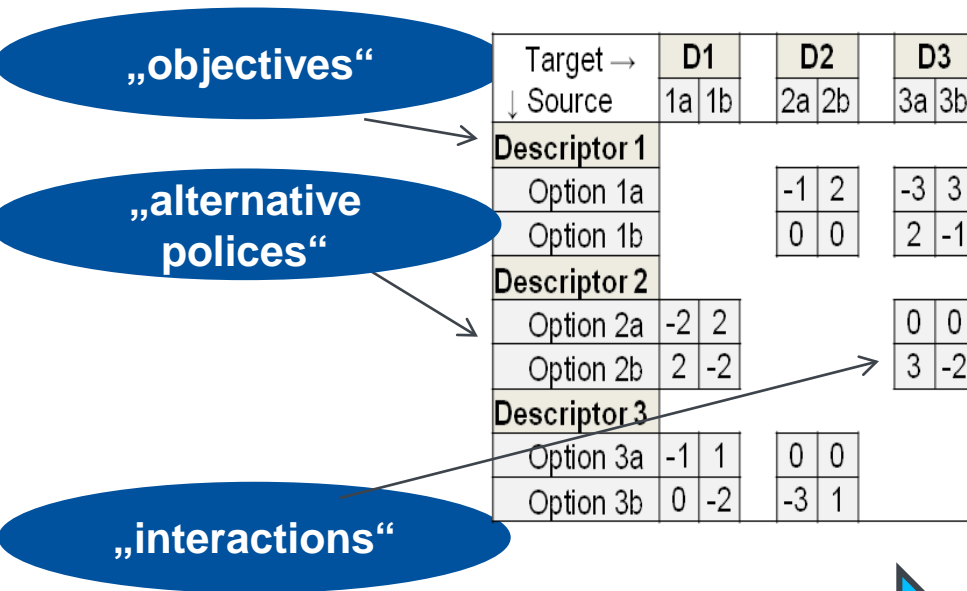


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Question: How to build policy strategies that reach multiple (interrelated) goals?

Contribution: A methodology to design synergetic, consistent and sustainable policy mixes

Using Cross-impact balances CIB (Weimer-Jehle 2006) to build and analyze a policy-interaction (PI) model



CIB measures

„synergetic?“

„consistent?“

Adding contexts and criteria

„robust?“

„sustainable?“

Example for a CIB PI-model (Kosow et al. 2020 in prep.; v. 1.0) (Implementation inspired by Weitz et al. 2019)



Verbal justifications for all impacts stored in the matrix:
13a: “The disposal of poorly treated household wastewater into the Pacific (10a) inhibits the effectiveness of the discharge of industrial wastewaters too, when these are discharged into the communal treatment plants, as these plants only carry out primary treatment”.

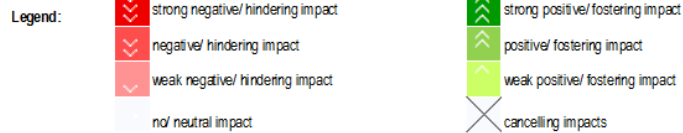
14 objectives with in total n= 47 policies

N= 10 cross-impact interviews

Assessing impacts on effectiveness of policies

Impact scale -3 to +3, 0= no impact (Weimer-Jehle 2006) extended by cancelling impacts – 99 (Nielsson et al. 2016)

contexts



Analyzing inconsistencies within the status quo policy mix



„Inconsistent policy“ = does not follow the networks impact logic (more arguments for alternatives)

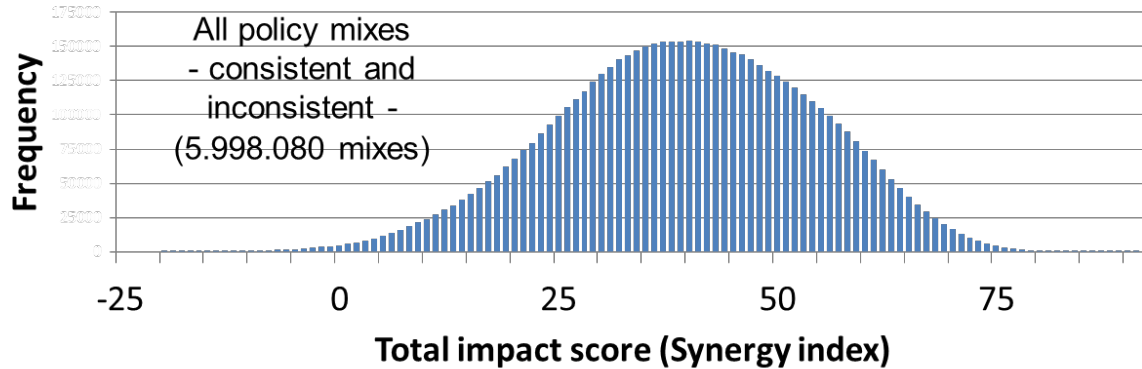
Measured by CIB impact balances

Distance to policy alternative with highest impact score:

1-3

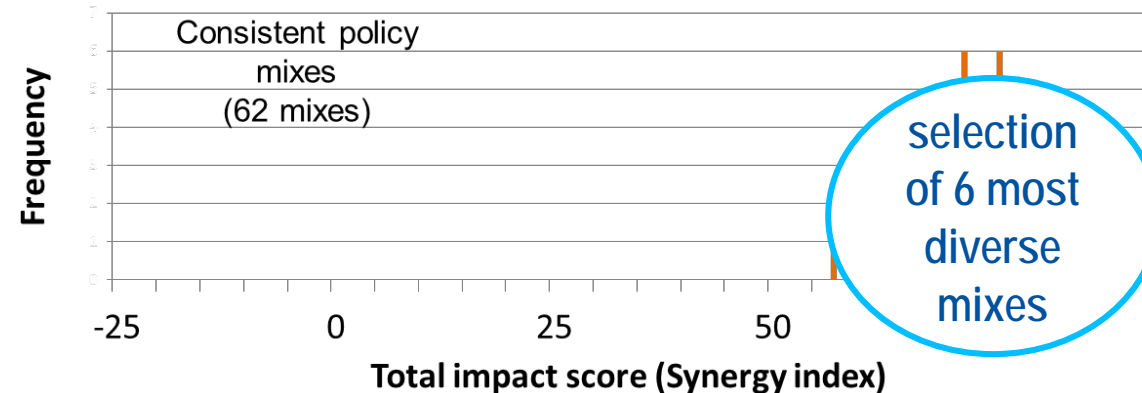
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Identifying synergetic and consistent policy mixes



„synergetic mix“ = many fostering relations, avoiding hindering relations between policies

*Measured by net value of impacts
(Total Impact Score TIS)*

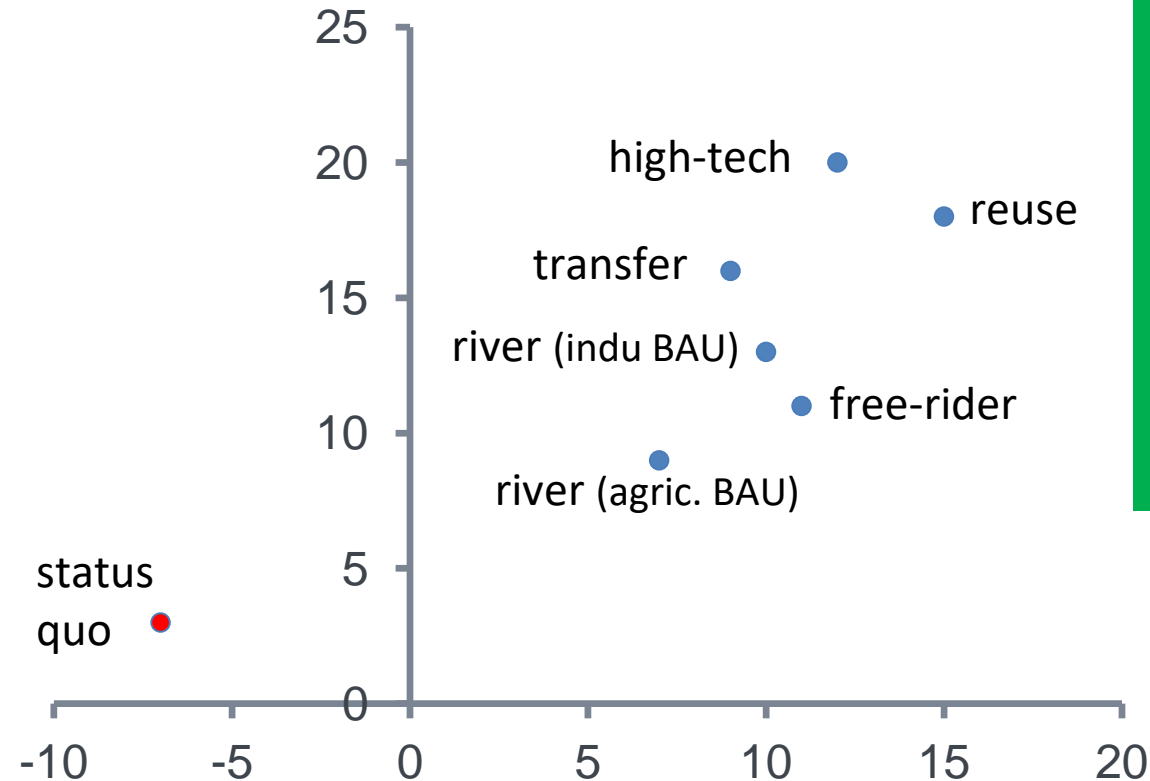


„consistent mix“ = contains only internally consistent policy choices (Nash-equilibria of the PI-model)

Measured by CIB (in)consistency score (based on CIB balance algorithm)

Identifying sustainable policy mixes (sample of 6 most diverse fully consistent mixes)

SDG 6.1 safe drinking water for all

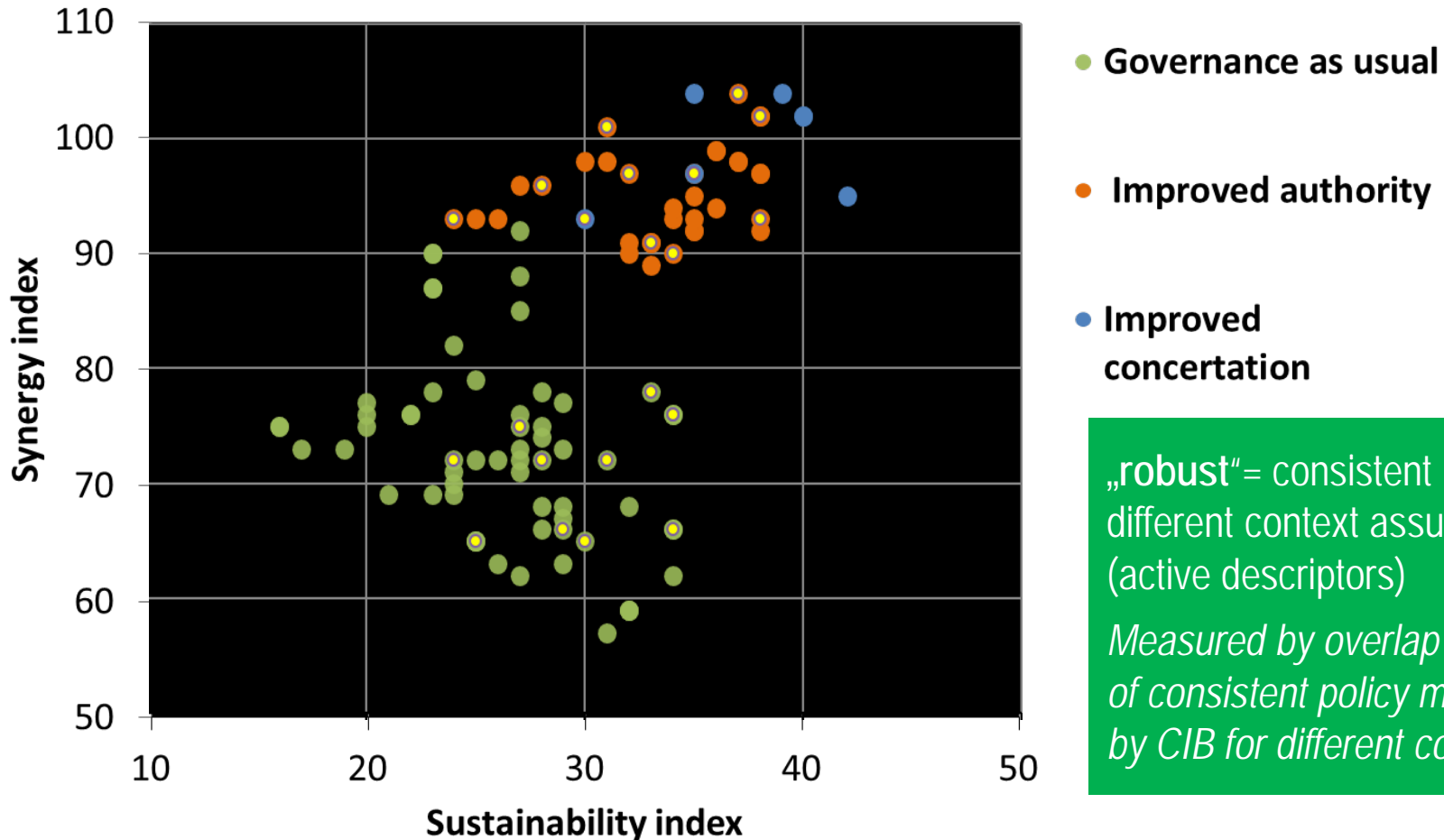


„sustainable mix“ = high performance regarding sustainability criteria/indicators

*Measured by impact score of a policy mix on each criterion
→ index summing up impact scores of different criteria, including assumed interaction effects between criteria*

SDG 6.6 conserving water related ecosystems

Assessing context sensitivity and robustness of policy mixes



„robust“= consistent under different context assumptions (active descriptors)

Measured by overlap between list of consistent policy mixes derived by CIB for different contexts

Future applications



General

- Complex environmental management issues (goal conflicts)
- Strategic planning
- Sustainability assessment procedures
- Intersectoral/ nexus issues
- ...

SDG

- Assess policy mixes by including SDG in more detail (indicator level) and/ or bandwidth (number of targets)
- Analyze synergies and trade offs between SDG not on the level of targets but on the level of policies to reach these
- ...

Summary

- A new methodology to systematically consider **interactions** between policies
- New form of using semi-quantitative **CIB** cross-impact balances: conceptual policy-interaction modelling
- Allows analyzing existing policy mixes and designing new **policy mixes**
- Provides easy operationalizations and measures for **synergy** and **consistency** of policy mixes
- Supports assessing **SDG performance** of alternative policy mixes
- Supports assessing **robustness** of policy mixes under different context scenarios

Thank you very much for your attention!



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