

Contents

Acknowledgements	1
Summary	2
Key Words	2
Zusammenfassung	3
Schlagworte	3
List of figures	4
List of tables	5
1. Introduction and overall research goal	11
2. Theoretical background, gaps and research questions	13
2.1. Sustainability transitions and resilience thinking	13
2.1.1. Transitions research in socio-technical systems	13
2.1.2. Resilience research in socio-ecological systems	15
2.2. Studying societal effects of transdisciplinary sustainability research	16
3. Conceptual approach	19
4. Overview on methodology and research process	21
4.1. Theoretical conceptual approach – re-thinking and combining theories on resilience and sustainability transitions (P1)	21
4.2. Empirical approach – analysis of sustainability research projects (P2, P3, P4)	21
4.2.1. Meta-analysis of ongoing sustainability research projects (P2 and P3)	21
4.2.2. Ex-post self-reflection (P4)	23
5. P1 – The resilience of sustainability transitions	24
5.1. Introduction: understanding sustainability transitions	24
5.2. Theoretical Background	25
5.3. Methods	26
5.4. The Resilience of Sustainability Transitions (RST) Concept	28
5.4.1. Sustainability transitions from a stability landscape perspective	28
5.4.2. Transition progress	29
5.4.3. Stability	32
5.4.4. Adaptability	36
5.5. Discussion	38
5.5.1. RST and transition phases	38
5.5.2. Trade-offs within the RST concept	40
5.6. Conclusions and further development	41
6. P2 – Uncovering pathways to societal effects: Utilizing mental models to integrate research and practice perspectives	43
6.1. Introduction	43
6.2. Theoretical framework	44
6.3. Methods	45
6.3.1. Explorative analysis	46
6.3.2. In-depth analysis	47
6.3.3. Comparative analysis	47
6.4. Results - The pathways to societal effects	48
6.4.1. Project case I: Improving established practices through learning effects	48
6.4.2. Project case II: Facilitating sustainable urban development through a variety of interventions	53
6.4.3. The three additional project cases – food production, mobility, and communication technology	58
6.4.4. Comparing pathways to societal effects and influence factors	59
6.5. Discussion	64
6.5.1. Relevance of the of the practice context for achieving societal effects	64
6.5.2. Mental models as an integrative and systemic approach to uncover pathways to societal effects	65
7. P3 – Effects of participation in transdisciplinary sustainability research: a systems-based analysis of researchers’ and practitioners’ perceptions	67
7.1. Introduction	67
7.2. Material and Methods	68
7.3. Results	71
7.3.1. Diversity of pathways linking participation and expected effects	71
7.3.2. Observed effects of participation	78
7.4. Discussion	81
7.4.1. The role of arenas for analyzing expected and observed effects of participation	81
7.4.2. Diversity of participation-effect pathways	82
7.4.3. Diversity of perspectives, expectations, and goals	83
7.4.4. When to analyze effects of participation in TD research?	83
7.4.5. Limitations and future research	84
7.5. Conclusion	84
8. P4 – The reality of transdisciplinarity: A Framework-based Self-reflection from Science and Practice Leaders	86
8.1. Introduction	86

8.2.	Conceptual approach and methods	88	A7 – Additional models for project cases III, IV and V	153
8.2.1.	Conceptual approach	88	A8 – Description of clusters of effects associated to participation	156
8.3.	Methods	89	A9 – Comparing expectations and observations	157
8.4.	The case study	90	Information on the author of the thesis	158
8.4.1.	The study area	90		
8.4.2.	Project setting and projects design	90		
8.5.	Results	98		
8.5.1.	Product-related effects	98		
8.5.2.	Process-related (intangible) effects	102		
8.6.	Discussion	103		
8.6.1.	Product- and process-related effects	103		
8.6.2.	Lessons learned from the TD process	104		
8.6.3.	Utility of the framework applied	106		
8.6.4.	Further Research	106		
8.7.	Conclusion	107		
9.	Integration and discussion of results	109		
9.1.	Summary of key insights	109		
9.2.	Integrating insights from the three analytical levels	112		
9.2.1.	RST-concept as a theoretical conceptual frame to contextualize societal effects of sustainability research	112		
9.2.2.	Focus on participation to add depth to pathways to societal effects	115		
9.3.	Critical reflection on the research process and methods applied	116		
9.3.1.	Interactions between researcher and “the field”	116		
9.3.2.	Effects of institutional setting of the research	117		
9.3.3.	Methodological lessons learnt	118		
10.	Conclusion and further research	120		
	References	122		
	Appendix	136		
	Supplementary material	136		
	A1 – Operationalization of the RST concept	136		
	A2 – Interview outline for explorative data collection (German)	137		
	A3 – Interview outline for in-depth interviews with project leaders (German)	142		
	A4 – Interview outline for in-depth interviews with practitioners(German)	146		
	A5 – Codesystem for explorative analysis	150		
	A6 – Codesystem for in-depth analysis (German)	151		