Designing policies for transformative recovery and adaptigation after systemic shocks

Seebauer, S., Thaler, T., Mitter., H., Steiger, R., Dreisiebner-Lanz, S., Ellmer, H.P., Winkler, C., Friesenecker, M., Kropf, B., Gorbach, T., Posch, E.

Build Back Better, ACRP 13th call, C163295
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Austrian Climate Day 2023

Research question

Climate change will likely pose shocks to social, economic and ecological systems

How can we build back better instead of just bouncing back after shocks?

Transformation
Build back better

- Promote adaptigation (mitigation + adaptation)
- Resilience to indirect consequences

Maladaptation
Build back short-sighted

- Remedy pressing problems with quick fixes
- Insufficient to accommodate future shocks

Backfire
Build back worse

- Undermine adaptigation
- Rebound effects

Inaction
Build back as before

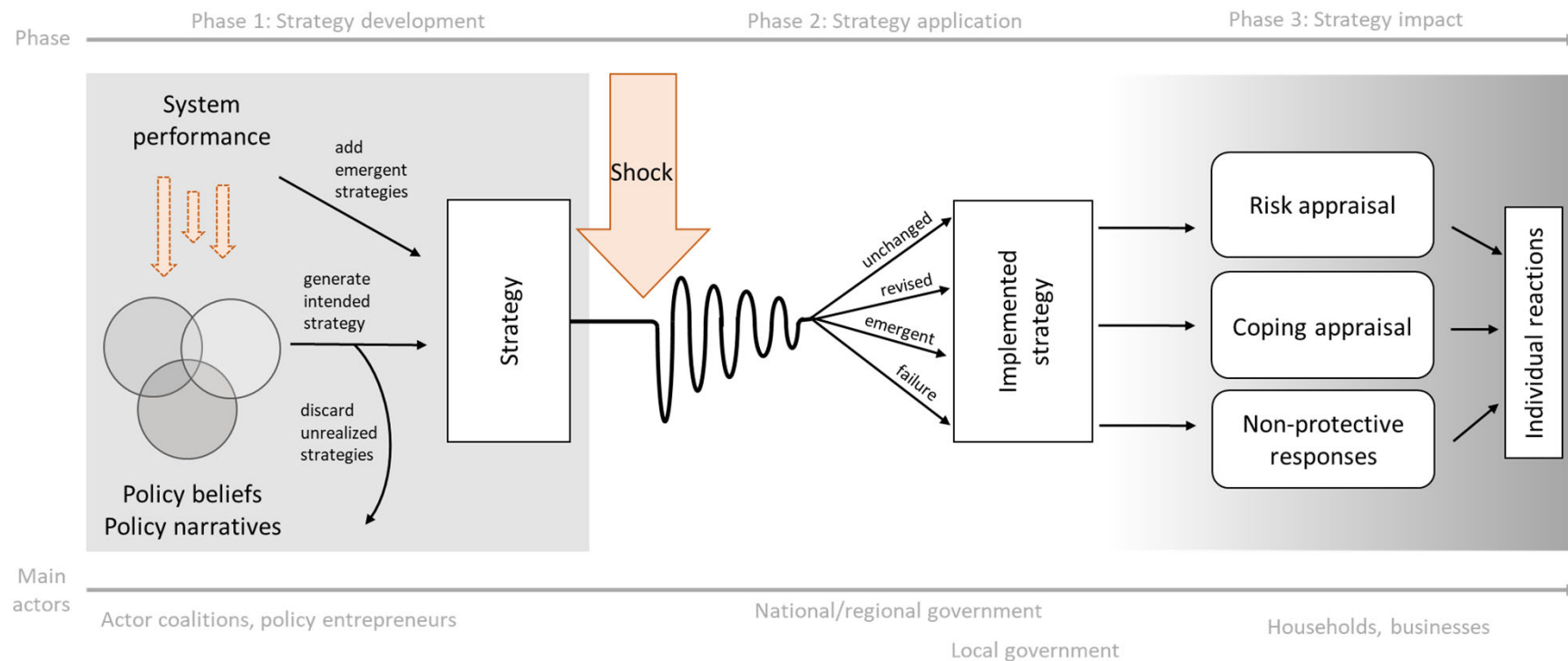- Not take or postpone actions
- Continue business-as-usual

13 CLIMATE ACTION
Reactions to climate shocks

11 SUSTAINABLE CITIES AND COMMUNITIES
Case study driven research

16 PEACE, JUSTICE AND STRONG INSTITUTIONS
Policy implementation

Strategy Shock Implementation Reaction Framework

- Shocks as policy filters: do not just enable and accelerate, but create and modify actions by governments, households and businesses

- Currently under review at *Environmental Innovation and Societal Transitions*

Case Study Riverine Flooding in the Eferding Basin

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Shock	Damaged residential buildings after the 2013 Danube flood
Core implemented strategies	• Damage compensation payments of the Catastrophe Fund • Voluntary relocation programme • Subsidies and consulting for insulating buildings and changing heating systems • Standards for newly constructed buildings
Methods completed	• Policy document analysis • „Over-the-fence" coding of 123 buildings, 30 survey questionnaires • Interviews with 17 households • Interviews with 11 stakeholders

Flooding: Preliminary results

Reactions	Exemplary explanatory factors
Transformation e.g. rebuild more energy efficient	Strict efficiency standards for new buildings
Maladaptation e.g. expand the existing building	Pre-flood building permits cannot be revoked Farmers may build outside designated zones, oversized buildings to fulfill agricultural functions
Backfire e.g. rebuild with bigger floor area	Compensate the emotional loss of the previous residence by building the perfect home Future domestic needs of <10 years considered
Inaction e.g. repair damages	Municipal actors need to compensate the lack of policy integration on higher governance levels Catastrophe fund payments preclude improvements

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Case Study Multi-Seasonal Droughts in Seewinkel

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Shock	Yield and income losses after droughts in 2003, 2013, 2015, 2018 and 2022
Core implemented strategies	• Subsidized drought insurance • Austrian agri-environmental programme ÖPUL • Subsidies for acquisition of irrigation equipment • Revision of the regional water strategy *(ongoing)* • *Under discussion:* External water supply
Methods completed	• Analysis of policy documents and funding guidelines • Interviews with 20 farmers • Interviews with 12 regional stakeholders

Multi-Seasonal Droughts: Preliminary Results

Reactions	Exemplary explanatory factors
Transformation e.g. adapted soil management	Possibilities and costs for mechanisation Drought resistance of cultivated crops/varieties
Maladaptation e.g. maintain irrigation intensity	Ongoing use of already existing irrigation systems No improvement of irrigation systems due to lack of planning certainty
Backfire e.g. intensified irrigation	Short term perspective on currently high market prices for crops with high water demand Yield maximisation
Inaction e.g. rely on drought insurance	Irrigation technically not feasible in case of dispersed, small plots Subsidies for drought insurance

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Case Study Post-Covid Tourism in Tyrol

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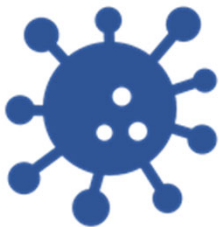© GeoNames, Microsoft, TomTom

Shock	Collapse in revenue and customer retention due to SARS-CoV-02 travel restrictions
Core implemented strategies	• Compensation schemes / fixed cost subsidies • Subsidies and subsequent funding for investments • Additional Investments for greening the tourism sector (*Ökologisierung*)
Methods completed	• Policy document analysis • Interviews with 5 hotel owners • Interviews with 10 regional stakeholders

Tourism: Preliminary results

Reactions	Exemplary explanatory factors
Transformation e.g. energy efficient adaptation of hotels	Energy-efficient modernization and diversification of tourism products Twice the amount for green investments
Maladaptation e.g. expand hotel infrastructure and keep business as usual	Adaptation measures not politically encouraged, not a focus of subsidies, not considered necessary by hotel owners
Backfire e.g. new offers but not energy-efficient	Rushed implementation of subsidies and subsequent funding for investments that create energy-intensive new offers
Inaction e.g. investment without strategic vision or energy efficiency	No clear overview and guidance through the jungle of existing subsidies and financial aid schemes Time lag for granting green investment subsidies

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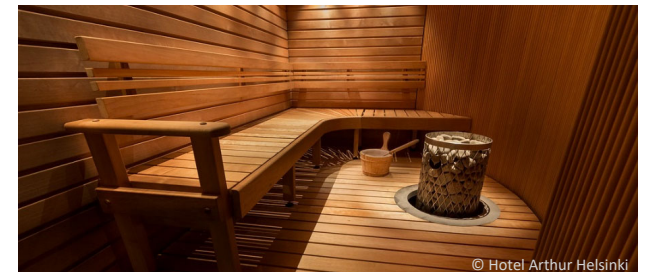
Discussion

Difficulties encountered during the project

- General policy strategies address several topics and need to be disentangled

- Data availability (paid out subsidies, existing building stock, ...)

- Partly selective samples because of reluctance to participate in interviews

Overarching findings

- No awareness and/or integration of mitigation and adaptation

- Shocks indeed function as policy filters, but strategies are unaffected by shocks (except: droughts)

- High divergence between worldviews of policymakers and affected households/farmers/hotel owners
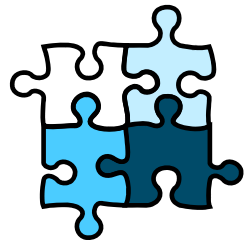
Thank you for your attention!

https://buildbackbetter.joanneum.at/

Journal articles and working papers

Kropf, B., Achs, T., Schmid, E., Mitter, H. (2022). A Qualitative Behavioral Systems Map for Analyzing Farmers' Intended and Actual Drought Adaptation. Schriften der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues e.V., Bd. 58.

Seebauer, S., Posch, E., Thaler, T., Winkler, C., Mitter, H. (under review). Designing policies for transformative recovery: The Strategy Shock Implementation Reaction (SSIR) framework. Working Paper, submitted to Environmental Innovation and Societal Transitions.

Conference presentations

Thaler, T., Posch, E., Seebauer, S., Winkler, C. (2022). Leveraging the transformative potential of shocks: a conceptual framework to reach the adaptigation goal. Geophysical Research Abstracts, EGU22-11380. European Geosciences Union General Assembly, 23-27 May 2022, Vienna.

Kropf, B. (2022). Motive österreichischer Landwirt*innen für und gegen die Umsetzung von Anpassungsmaßnahmen an Dürre. 20. QIA Workshop, 1-3 July 2022, Velden.

Kropf, B., Achs, T., Schmid, E., Mitter, H. (2022). A Qualitative Behavioral Systems Map for Analyzing Farmers' Drought Adaptation. 62. Jahrestagung der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaus, 7-9 September 2022, Hohenheim.

Kropf, B., Schmid, E., Mitter, H. (2022). Exploring farmers' reasons for drought adaptation. 32nd annual conference of the Austrian Society of Agricultural Economics, 22-23 September 2022, Ljubljana.

Seebauer, S., Posch, E., Thaler, T., Winkler, C., Mitter, H. (submitted). Designing policies for transformative recovery: The Strategy Shock Implementation Reaction (SSIR) framework. 2023 Radboud Conference on Earth System Governance.

Winkler, C., Seebauer, S., Posch, E., Dreisiebner-Lanz, S., Kropf, B., Ellmer, H.P., Gorbach, T., Mitter, H., Thaler, T., Steiger, R. (submitted): Implementation of policy strategies after systemic shocks: Tracking individual reactions to flood, drought and Covid-19 in Austria. International Sustainability Transitions Conference IST 2023.

Posch, E., Gorbach, T., Steiger, R. (submitted): Shocks as opportunity for transformation in tourism? Consumer Behaviour in Tourism Symposium (CBTS) 2023.

Posch, E., Gorbach, T., Steiger, R. (submitted): Die Pandemie als Chance zur Transformation im Tourismus? Eine Fallstudie aus Österreich. Deutscher Kongress für Geographie 2023.

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