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Social Tipping Dynamics

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and our possible path to a decarbonised society

Introduction

Based on "The global risk report 2022 (17th Edition)" the risk of failure to deal with climate change is both the most probable as well as the most dangerous risk for humanity to maintain. Equally probable but less dangerous are the loss of biodiversity, collapsing ecosystems, man made environmental disasters and extreme weather events (McLennan & Group, 2022).

- Our impact on the environment is extremely dangerous also for us humans
- Still the emissions of CO2 are increasing year by year (IPCC 2022)
- It takes time for people to change lifestyle
- Human behavioural changes can be rapid

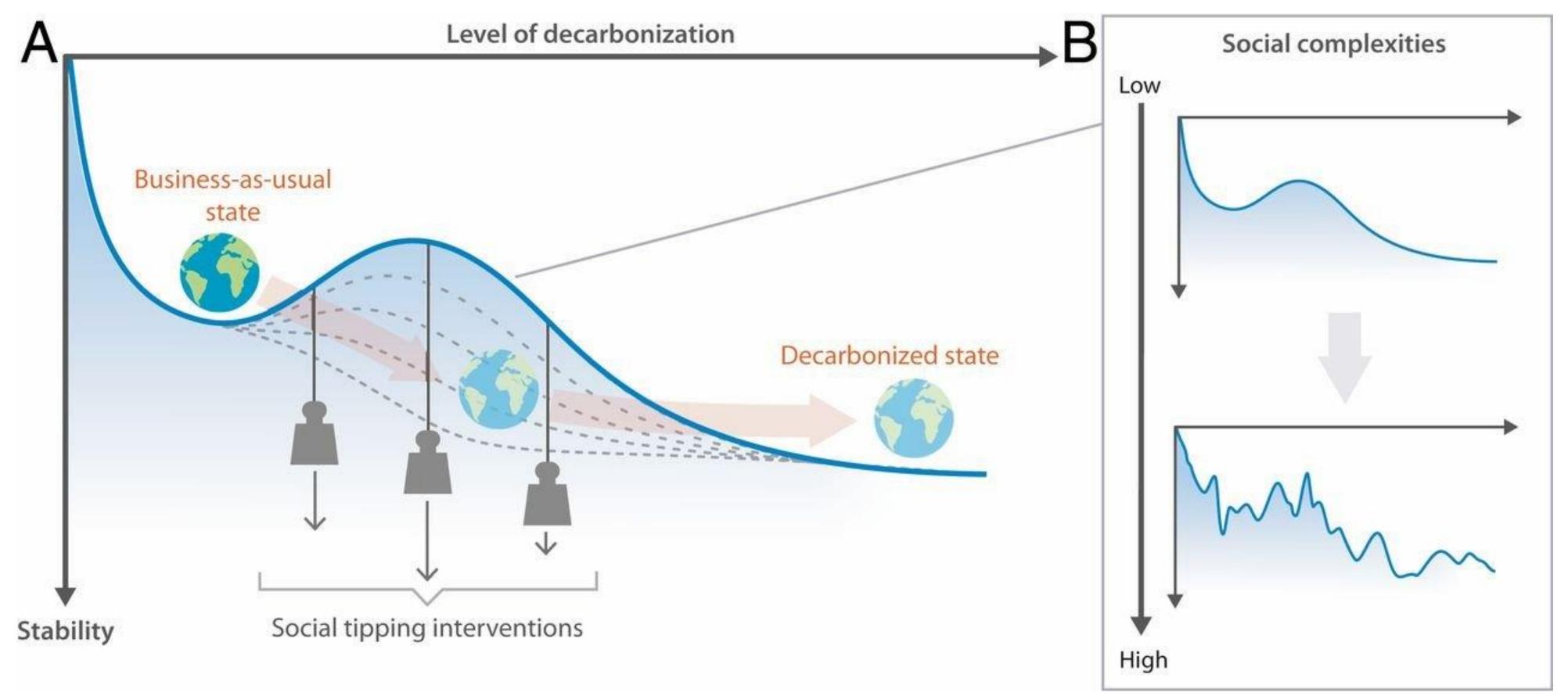


Figure1: Social Tipping Points drive social Tipping Elements over Social Tipping Points to change the systems state

For the needed changes tipping Interventions (STI) are necessary. Once we overcome certain thresholds (STP) we stay in this new state of the socioeconomic system (STE).

Social Tipping Interventions (STIs)

- Lead to structural reorganization in their STEs
- Activate contagious processes rapidly spreading
- Multiple STIs enhance each other

Social Tipping Points (STPs)

- Driven by self-reinforcing positive-feedback mechanisms
- Exceeding leads to a change in the social system
- Points at which small quantitative change triggers a non-linear change

Social Tipping Elements (STEs)

- Subdomains of the socioeconomic system
- Require disruptive change
- Changes in the STE can lead to large changes at the macroscopic level

Conclusion

Tipping points in combination with climate change are often considered as something bad that we should not reach. This is true for tipping points in our climate system.

Paradoxically Social Tipping Points (STPs) are points that we have to reach in order not to pass environmental tipping points.

Social Tipping Interventions (STIs) are needed to shift Social Tipping Elements (STEs) over a certain threshold and to pass the STPs.

Once exceeded positive feedbacks will keep the system in the new state. This poster illustrates 8 STEs and explains STIs for each of them to reach STPs.

Social elements that lead to exponential change STE: Norms & values system STE: Financial market STE: Human settlement STIs: Recognition of the immoral character of fossil fuels STE: Land use STIs: Divestment of fossil fuels STIs: Carbon neutral cities STP: Revealing the moral implication STIs: Sustainable agricultural model STP: 9% of investor divest from fossil STP: fossil free technology became the of our lifestyle fuel assets to reinvest first choice for construction STP: Externalities are priced in Sustainable agriculture becomes more productive STE: Meat consumption STIs: Plant-based diet across the board STE: Energy production & storage STP: STIs: Pricing of environmental Removal of fossil fuel subsidies damage in meat production. Decentralized energy production Plant-based alternatives replace meat STE: Education system STP: \$ Return clean Energy > \$ Return fossil based Energy STE: Information feedback STIs: Climate education and STIs: Emission information disclosure engagement ||| దిదిది STP: Number of products and services Time needed STP: climate educated generation disclosing their emission to trigger enters job market tipping Very Slow Slow Very Rapid Rapid (10-30 years) (5-10 years) (<1year) (10-30 years)

Figure2: Connections between STEs in combination with their STIs and STPs on a time axis

IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press.

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