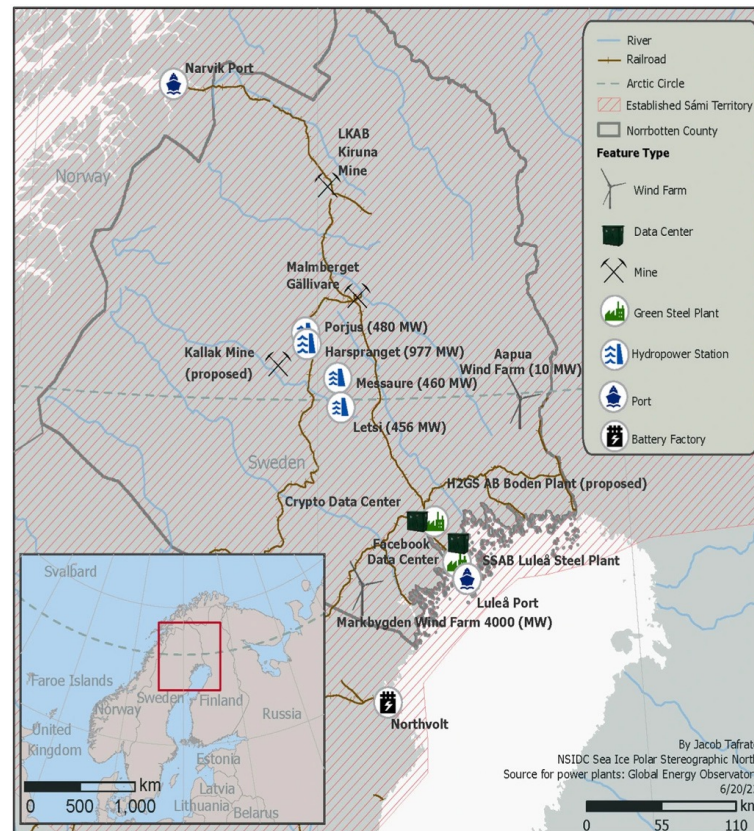


The Green Transition in Norrbotten, Sweden

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Industrial and energy developments in North Sweden



Source: Garbis et. al. 2024

A (very) brief background to the green transition in Norrbotten

- Reliable access to renewable energy (mainly hydropower, provided by state-owned Vattenfall, distributed by municipal/private energy companies)
- The region has long exported energy to southern Sweden – connected to national and EU energy grid/market
- Long tradition of partnerships between municipalities and industries to provide district heating systems from waste heat
- Currently the hub of a rapid green transition, moving from fossil-based to electricity-based production and transportation simultaneously
- Norrbotten and neighbouring Västerbotten needs 100.000 new citizens in the coming decade to work in the green industries and sustain societal services to a growing population
- The transition brings many challenges, both technological and social

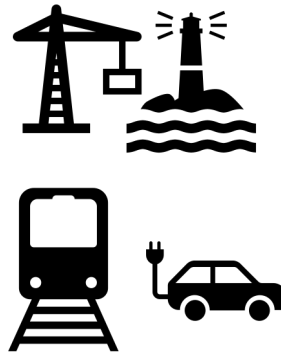
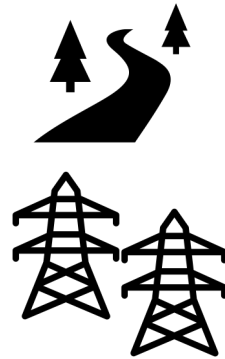
The green transition as a technical project



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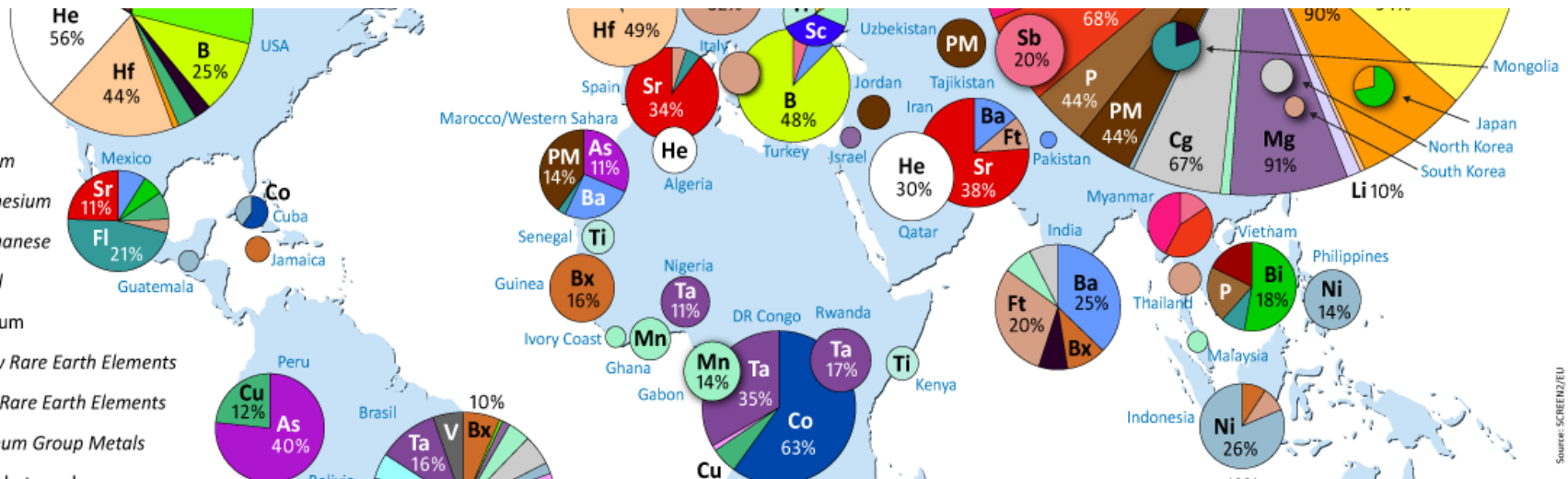


The green transition from a social science perspective: 4 interlinked aspects

1. Much broader than industrial/technological change
 - Societal transformation: jobs, housing, infrastructure, behavioural patterns and practices
 - Slow (policy) processes: is society ready? Can it become ready?
 - Coordination and cooperation among actors is key – how?

Critical and strategic raw materials included in the EU list

Sb Antimony	Li Lithium
As Arsenic	Mg Magnesium
Bx Bauxite	Mn Manganese
Ba Baryte	Ni Nickel
Be Beryllium	Nb Niobium
Bi Bismuth	HREE Heavy Rare Earth Elements
B Borate	LREE Light Rare Earth Elements
Cg Natural gas	PGM Platinum Group Metals



The green transition from a social science perspective: 4 interlinked aspects

2. Energy production and raw materials use activates conflicts

- Land-use is central: often a *multiple-users/multiple-uses* dilemma
 - Priorities among (national) interests: How? By whom? Who has a say?
 - Environment vs. environment; culture vs. growth; global vs. local; urban vs. rural...

The green transition from a social science perspective: 4 interlinked aspects

3. Goals, decisions, and implementation must happen in coordination, on several levels and in several sectors at the same time

- How do we handle this: which actors are/should be involved? How do the policy processes work? What, or who, determines outputs and outcomes?
- Policy- and goal conflicts: several agencies and sectors involved, lack of coordination, decision-making silos
- *The translation-problem* in a multi-level system

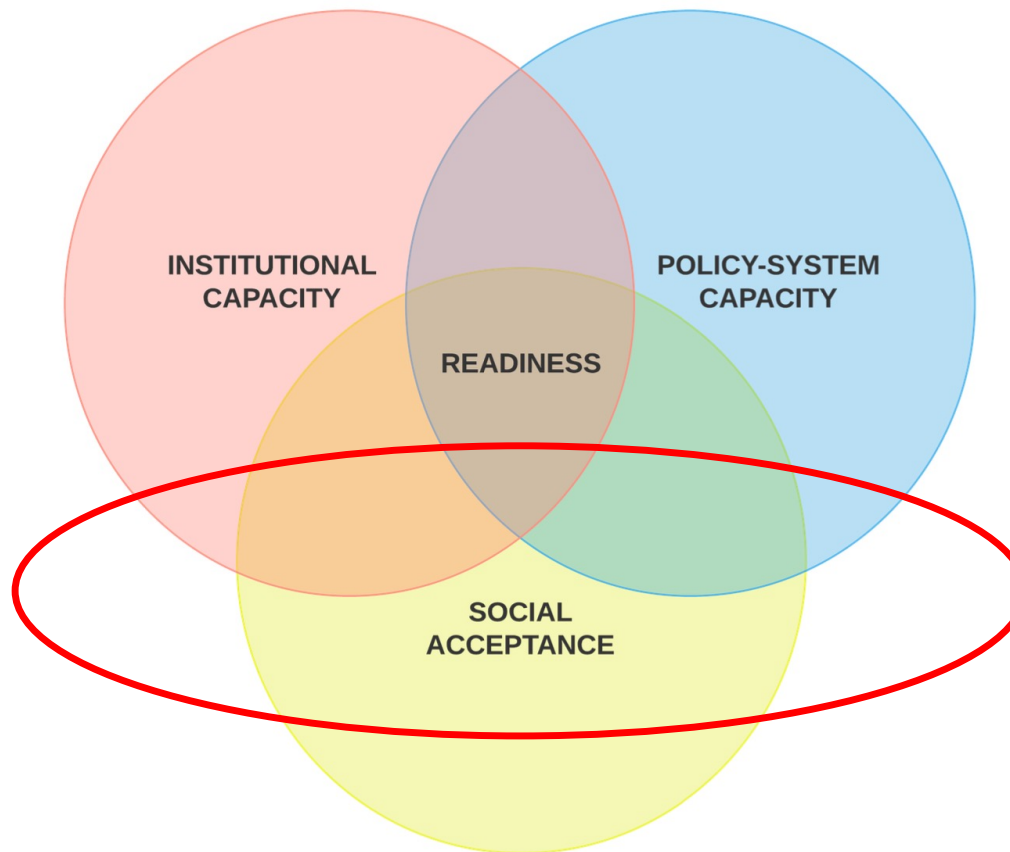
The green transition from a social science perspective: 4 interlinked aspects



4. Legitimacy, acceptance, and justice

- For both policy-decisions and for new projects, in the short- and the long-term
- What is not supported, by whom, and why?
- How to handle a lack in acceptance – and who should? Compensation? Consultation? Legal processes?
- A *fair* outcome: what would that entail? For whom? Who is responsible?

When is a (fair, democratic) green transition possible?



A green transition – or a transformation?

- The current developments may better be conceptualized as a green transformation
- Although a technical project at first glance, the green transformation raises many other questions as well – social science is needed to address the societal challenges stemming from ‘The Ketchup Effect’
- We need to pay attention to the order, timescales, agendas, and actors - which shape the priorities, possibilities and justice of green transition outcomes
- Considering both the capacity of existing (institutional- and policy-) systems, and the presence of social acceptance is necessary to better understand challenges and opportunities
- The green transformation in North Sweden raises both empirical questions on the viability of political projects, and theoretical questions on democracy, power, justice and legitimacy

Thank You for Your attention

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