

The Ecological Modernization Capacity of Advanced Industrial Countries: Japan & Germany in Comparison

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Status & Research Questions

- Japan and Germany have pledged to integrate ecological considerations in their overall policies and in low-carbon oriented climate policies
- But the development paths became quite different in the areas of climate change, nuclear energy and renewables
- What are the main differences?
- Which factors can explain the differences?
- What kind of political, economic, historical, cultural, institutional and technological factors played a role with respect to the ecological modernization capacity and capability, policy learning and policy change?

Research Framework

Modernization Capacity & Policy Areas

Modernization Capacity Policy Area	Weak BAU	Middle Innovations	Strong Structural change
Transport	Reduction of exhaust gases by catalytic converter etc.	Alternative drive systems and components: Hybrid, Electrical drive engineering	New transport concepts
Renewable Energy sources	RE as niche technology	Energiewende	100% RE supply Zero Emission
Nuclear Energy & NW management & disposal	Higher security Temporary storage of spent fuel in pools	Stepwise phase-out No reprocessing Temporary dry storage	Phased-out NPPs socially accepted final disposal of NW
Rare Earths	Extension and diversification of production capacities	Recycling Recycling friendly products	Alternative raw materials

Results for the 4 Policy Areas

Modernization Capacity Policy Area	Weak Business As Usual	Middle Innovations	Strong Structural Change
Energy Renewable Energy	JAPAN	GERMANY	
Nuclear Energy incl. Waste Disposal & Decommissioning	JAPAN	GERMANY	GERMANY
Automotive Industry / Transport	GERMANY	JAPAN	
Rare Earths	GERMANY	JAPAN	

Detailed Results for 4 Policy Areas

Modernisation Capacity	Weak Business As Usual	Middle Innovations	Strong Structural Change
Policy Area			
Automotive Industry/Transport	D: No general speed limit Reduction of exhaust/ GH gases by catalytic converter, Diesel tech	J: Alternative drive systems: Hybrid, E-cars and fuel cells	
Energy/Renewable Energy	J: Conventional PP plus abatement tech RE tech-push (PV) after Fukushima, E efficiency	D: Nuclear & (Coal) Phase-out Energiewende	D: local developments
Nuclear Energy / Waste Disposal & Decommissioning	J: Temporary storage of spent fuel in pools, closed nuclear fuel cycle vision	D: Stepwise phase-out No reprocessing Temporary dry storage Decommissioning started	D: NPPs phased-out in 2022
Rare Earths	D: REE as part of EU Raw Material Initiative	J: Recycling strategy and Urban Mining	

Explanation by Capacity-Approach

Focus on Energy Transition

„Political Fallout/Paradox“ of the Fukushima Disaster:

- GERMANY: Phase-out of nuclear energy/paradigm shift/energy transition
- JAPAN: Phase-in of an outspoken pro-nuclear government/path dependence

Capacities for Ecological Modernization:

- SIMILAR: institutional, technological, economic-financial, scientific capacities
- DIFFERENT: cognitive-strategic capabilities of transition agents to change a path (lock-in)/strategic „will & skill“ stronger in Germany
- Japanese actors did not succeed in penetrating/eroding the „nuclear village“ as German actors did (weathering out several ups & downs in about 50 years)