TERENO – a Social Science Perspective

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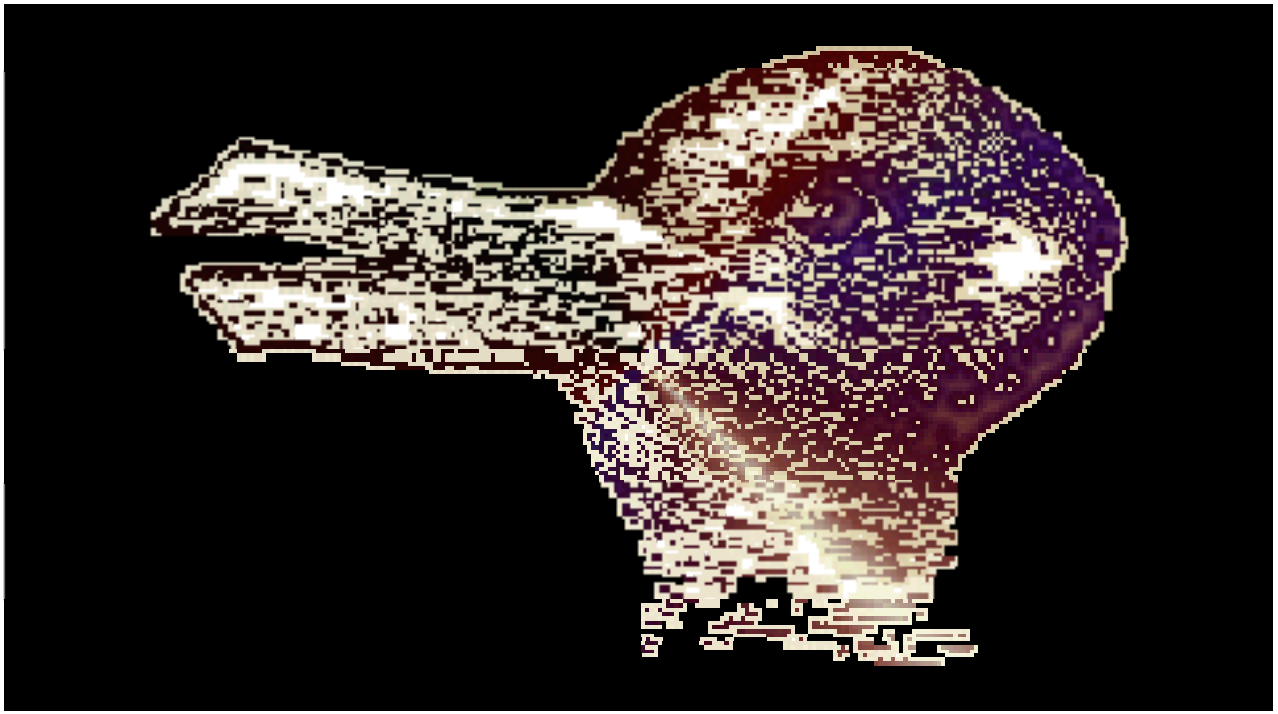
Do we need a social science perspective in TERENO?

Duck or Rabbit - What am I?



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Aim of the observatory

Establish an observation platform linking observatories in different climate and management sensitive regions.

Monitor, analyze and predict changing state variables and fluxes within different environmental compartments.

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Sense and Nonsense of Socio-economic Observatories

Does it really make sense
to integrate natural and social scientists
in a network of observatories
with strictly defined geographical boundaries?

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Background

Climate change and land use changes

are the most important factors of global environmental change

which have to be managed by the society in the next decades.

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Consequence

TERENO needs to support management processes dealing with climate and land use changes.

Disciplinary point of view not adequate – need for integration.

Climate and landscapes are continuously changing due to **both**, **natural and human** induced processes.

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Establishing a Social Science Data Library

Geographical boundaries of the observatories need to allow monitoring of ***crucial*** human activities.

To analyse and predict changes in state variables and fluxes of global environmental concern, observatories should monitor human behaviour in ***different*** sectors of the economy – the primary, the secondary and the tertiary sector.

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Target variables

Human demands for energy, land and water

adapt to shifts in income, lifestyles, population growth and resource availabilities.

Compatibility of societal processes with physical limits of the natural system?

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Need for Integration

Rationale:

Natural scientists do not focus on income, lifestyle etc.

Make no predictions regarding future trends in water, energy consumption, use of natural resources …

Instead – detect the physical limits of the ecosystems.

A **natural and** a **social** science perspective in TERENO

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Advantages of Integration

Improves our capability to predict the impact of changing boundary conditions and effects of related adaptation strategies *in both:* the **social and** the **natural system**.

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Data Acquisition

No duplication of data already available in the national accounts.

Rather – deepening of data base with regard to central aspects of considered issues.

Development of concept for storing *disciplinary* data that enables an *interdisciplinary* use and suits both, the research goals and the management tasks.

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Climate Policy and Renewable Energy Supply

Goal: Increasing quota of renewable energy supply

Project Context: Onshore Wind Energy

2006: roughly 5%; BMU (2006) Scenario: 10% by 2030.

Observation: Regional planning bodies pre-determine decision of private investors by zoning regulations.

Data on wind conditions crucial for site selection.

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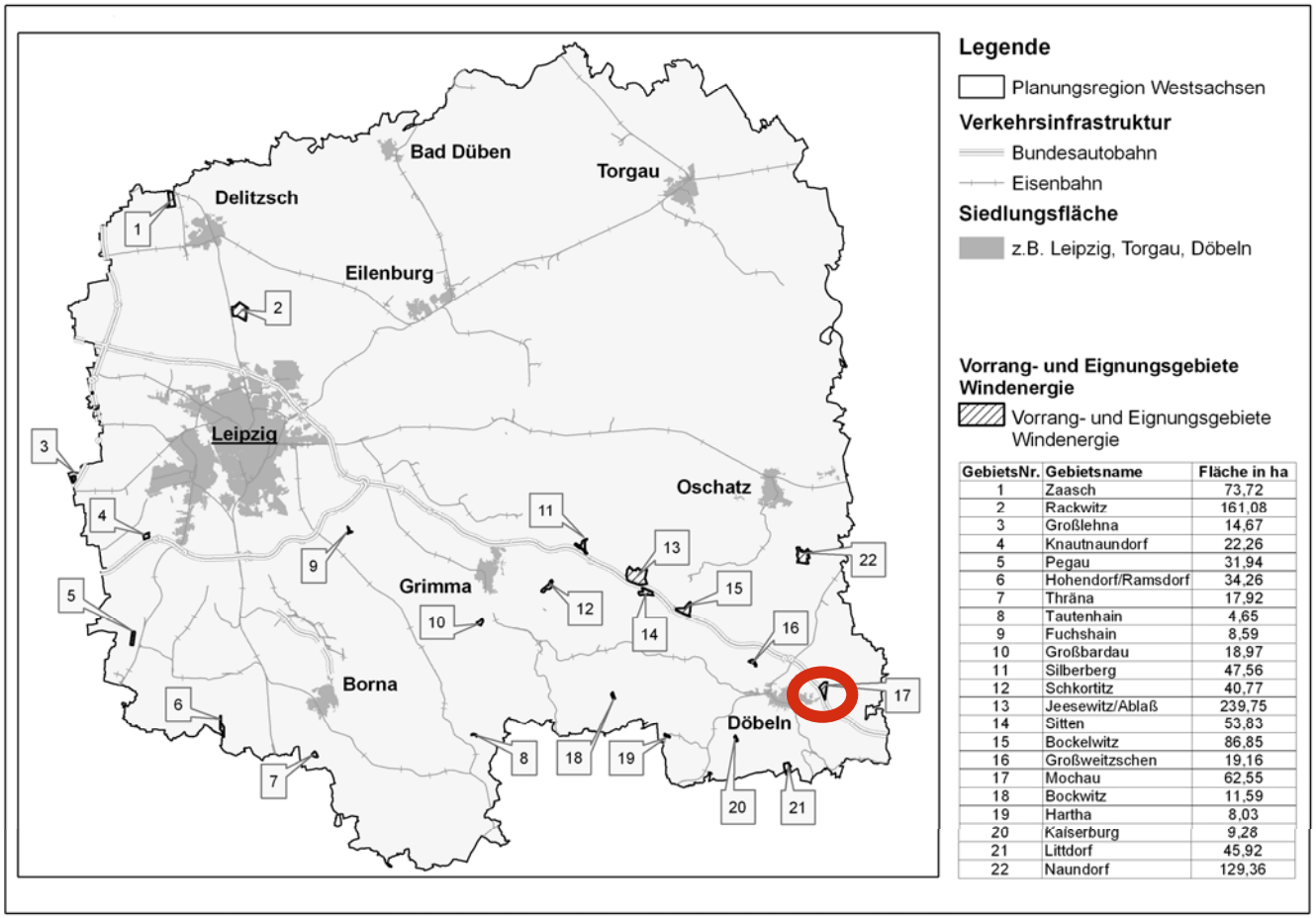
Land Area (1-22) selected for Wind energy supply in West-Saxony



GebietsNr.	Gebietsname	Fläche in ha
1	Zaasch	73,72
2	Rackwitz	161,08
3	Großlehna	14,67
4	Knautnaundorf	22,26
5	Pegau	31,94
6	Hohendorf/Ramsdorf	34,26
7	Thräna	17,92
8	Tautenhain	4,65
9	Fuchshain	8,59
10	Großbardau	18,97
11	Silberberg	47,56
12	Schkortitz	40,77
13	Jeesewitz/Ablaß	239,75
14	Sitten	53,83
15	Bockelwitz	86,85
16	Großweitzschen	19,16
17	Mochau	62,55
18	Bockwitz	11,59
19	Hartha	8,03
20	Kaiserburg	9,28
21	Littdorf	45,92
22	Naundorf	129,36

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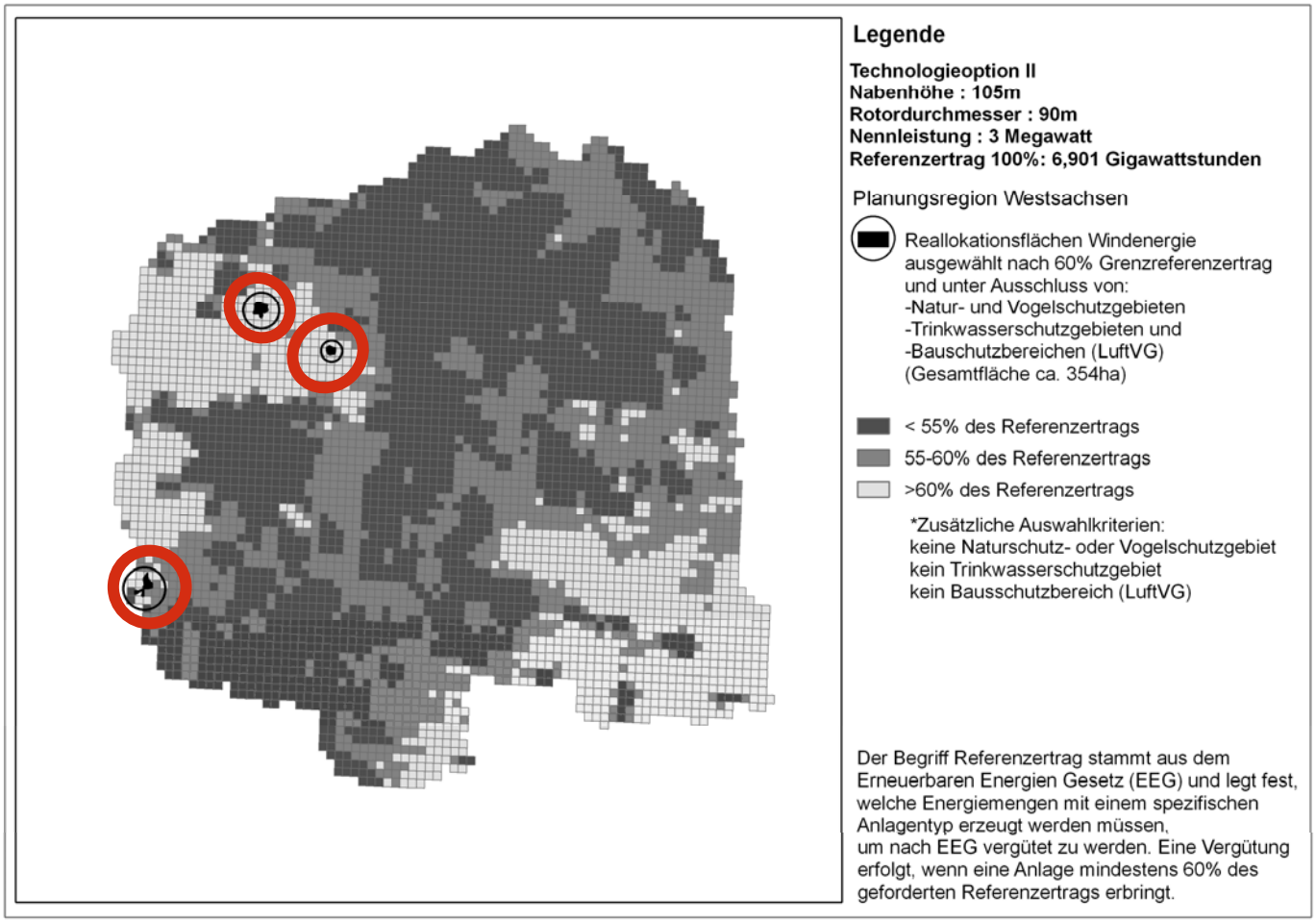
Land Area in West-Saxony – Most suitable for Wind energy supply (HH 100m)



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How to improve the situation?

Regional planning bodies fulfil there tasks if certain percentage of land is reserved for power plants.

Reaching a quota of wind energy requires the erection of more wind mills if supply areas are designated to less favourable places than in case of efficient site selection.

Erection of a greater number of wind turbines leads to higher yields than a lesser number.

Improvements in efficiency and social welfare - out of scope of natural science research.

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Tasks of Social Science Research

Detect deficiencies of societal processes.

Claim for the provision and use of socially relevant data and / or shifts in regulation.

Improve efficiency on the project level and social welfare on the general level.

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Social Science Data Library within TERENO - Pillar I

Most prominent behaviour of mankind – Struggle for income.

Driver of environmental change – Flow of income between humans and sectors of the economy.

Determines use of resources, requirements on human labour, output in terms of goods, services, pollution and waste.

Monitor flows of income and local dependency on *outside* goods and services.

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Social Science Data Library within TERENO - Pillar II

Inventory of public and private investments directed to environmental improvements.

Often based on policies that mediate between natural and social system by restricting undesired / stimulating desired behaviour.

Examples:

Markets emerge spontaneously although disliked, like markets for drugs, nuclear weapons, organs or endangered species.

Markets are desired but no automatism pushes emergence, like market for emission permits - good is disliked by humans.

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How to transfer knowledge

from natural and social science research

to the policy-maker?

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	LOW	MEDIUM / LOW	MEDIUM / HIGH	HIGH
Damage potential				
Probability				
Irreversibility				
Connectedness				
Spatial Scale				
Acceleration				
Persistence				
Time delay				
Invisibility				
Information unavailability				
Mobilization / Attraction				

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Risk Profiles – A Policy-Science Interface

Criteria support identification of

- Management measures in different policy arenas,
- Most suitable governance level and
- Most suitable point in time the measures should be taken.

Criteria should be developed in cooperation with decision-makers.

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	LOW	MEDIUM / LOW	MEDIUM / HIGH	HIGH
Damage potential				
Probability				
Irreversibility				
Connectedness				
Spatial Scale				
Acceleration				
Persistence				
Time delay				
Invisibility				
Information unavailability				
Mobilization / Attraction				

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	Low	Medium Low	Medium / High	High
Damage Potential				
Probability				
Irreversibility				
Connectedness				
Spatial Scale				
Acceleration				
Persistence				
Time Delay				
Invisibility				
Information Unavailability				
Mobilization/Attraction				

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Risk Profiles – A Concept for Data Management

Risk profiles organise data from *both*, natural and social sciences to transfer knowledge to the decision maker.

Comparing profiles of different drivers and pressures allows setting management priorities.

Analysis of most important profiles supports identification of management measures.

Having a network of observatories allows cross-scale analysis of driver and pressure specific profiles at different sites – supports clarification at which policy level measures are best been taken.

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Final Remarks

Important pre-conditions for deploying the strength of *observatory based* social science research:

Geographical boundaries need to allow studying crucial aspects of human behaviour.

Adequate funding of personnel capacity to monitor and analyse the crucial aspects of human behaviour.

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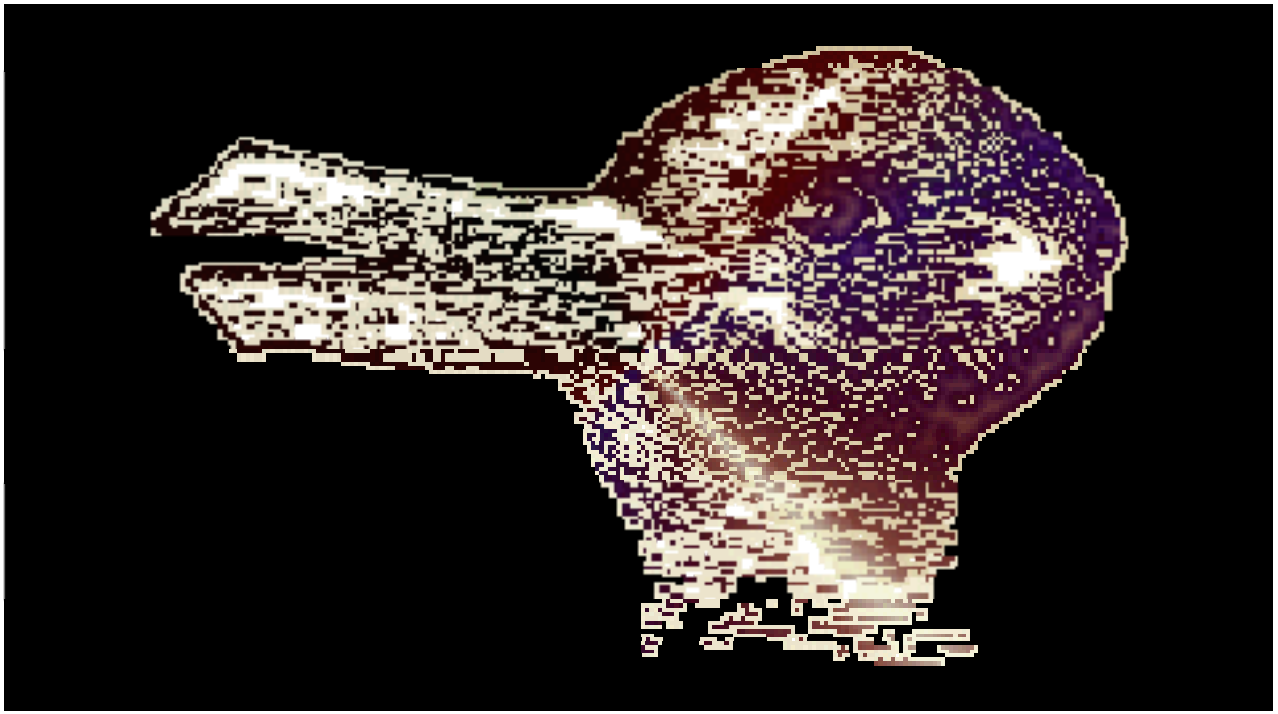
Natural and Social sciences in TERENO

Expanding the View on ***Duck*** **and** ***Rabbit***!



Thank you for Attention!

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