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An Introduction to Environmental Sociology

The origin of discipline, theoretical approaches,
and current research topics

Disclaimer

- The basis of the lecture, including the information about the foundation of environmental sociology as a discipline, contempory theoretical approaches to environmental problems, changes in environmental discourse, and the issue of the role of mass media in social construction of environmental problems, has been extracted from the book ´Environmental Sociology´ (by John Hannigan, Routledge Publishing, Milton Park, Abingdon, 2006). The theoretical basis was supplemented by examples of some current themes and questions solved by the author within research projects at the Department of Environmental Geography, Czech Academy of Sciences.

- This teaching text has not been reviewed or edited. It is intended solely for educational activities within the course "Environmental Economy and Sustainable Development" at the Faculty of Economics and Administration, Masaryk University, Brno, and may not be published as a whole or any part freely on the Internet or otherwise disclosed.

<div align="right">Bohumil Frantál</div>

Structure of the lecture

- Environmental sociology as a discipline in the system of sciences, its origin, development and inspiration in traditional theories

- Contempory theoretical approaches to environmental problems:
  - human ecology and the concept of competing social functions
  - political economy and the ´treadmill of production´ concept

- ´Risk society´thesis and the concept of ´ecological modernisation´

- Social construction of environmental problems

- Ecological modernisation in practice: renewable energy technologies, sociotechnical innovations

Environmental sociology

- focuses on the relationships between society and the environment
- took shape following the environmental movement of the 1960s
- focuses on social factors and phenomena, which cause environmental problems (→ environmentally significant behaviour), the social (socioeconomic) impacts of these problems, and ways to address these problems
- seeks to identify and describe processes through which certain environmental conditions and phenomena are socially defined as "problems" (→ social construction of environmental problems).

Environmental...
Economics – Sociology - Geography

- They have the same object of research (society/environment)
- Differ with their approach (perspective), theoretical-methodological apparatus and the depth how they analyze partial aspects of the problems
- *Economics* – put emphasis on the economic effects of environmental policies
- *Geography* – put emphasis on the role of space → spatial scale of environmental problems
- *Sociology* – put emphasis on the social conditionality of problems → social construction of problems

´Earth Day 1970´

- debut of the modern <u>environmental movement</u> (1970´s -- *Environmental Decade´*)

- a campaign to raise the issue of ecology and environmental issues within the policy frameworks (pollutions, energy efficiency, waste recycling, pesticides)

- sociologists found themselves without any theory or research to understand relationships between society and the environment

Look at a short video at:

https://www.youtube.com/watch?v=XBrnnByieL4

Catalysts of the environmental movement

- **Rachel Carson** (1962): *Silent Spring* (criticism of the uncontrolled use of pesticides, environmental impacts, disinformation campaigns of the chemical industry)

- **Donella H. Meadows et al**. (1972): *The Limits to Growth* (modeling the relationship between growing populations and limited natural resources)

- **Samuel Klausner** (1971): *On Man in His Environment* (the term „environmental sociology" has been used for the first time)
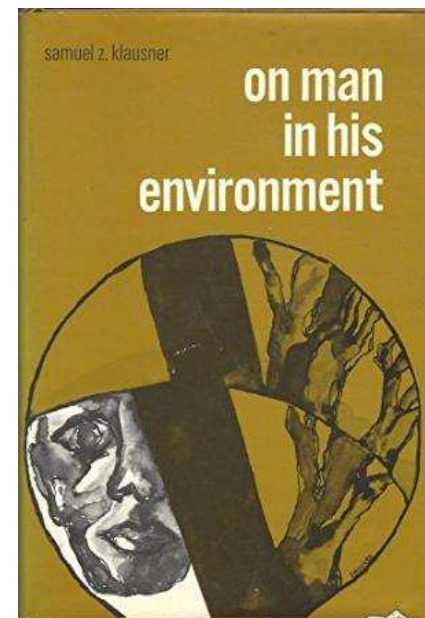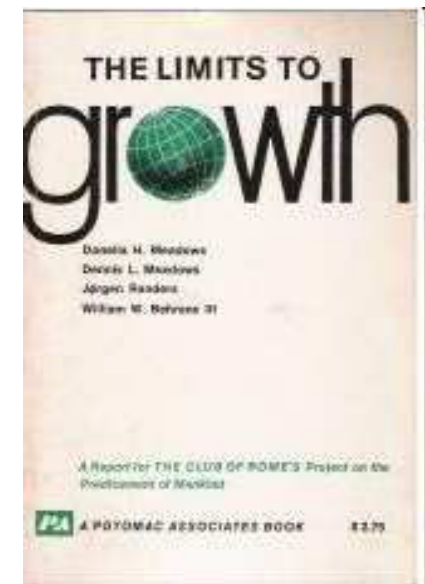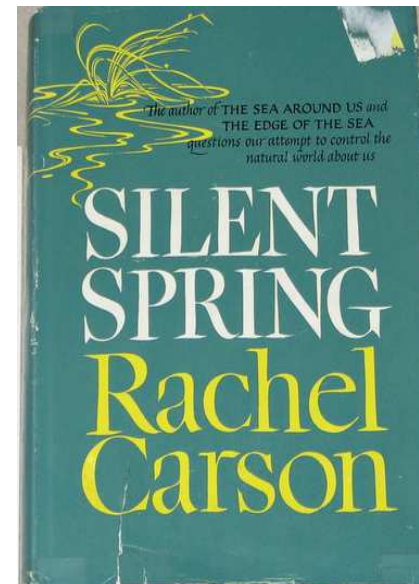
The background:

Classical sociologists as ´hucksters´ of the idea
  of (never-ending) <u>development and progress</u>...

<u>Generally shared premises</u>:

- Human societies are exemptional from ecological principles and constraints that govern other species

- There is a possibility of endless growth and progress via continued scientific and technological development (**--** ignoring the potential constraints of environmental phenomena such as climate change)

- The problems can be solved via technological innovations and further economic development

Human Exemptionalism Paradigm (HEP) – antropocentric approach

→ re-focus sociology on more „ecocentric", holistic approach, which will redefine social processes in the environmental context
  → *New Ecological Paradigm (NEP)*

Emergence of environmental sociology (1970-2010)

- **1st stage**: attention to environmental issues - application of classical sociological concepts in public opinion polls, social movements (social characteristics of activists), strategies and tactics of environmental groups
- **2nd stage**: an attempt to establish environmental sociology as a sovereign academic discipline
- The rise of the popularity of "green" political parties in Europe
- Promoting new partial paradigms and concepts (human ecology, social constructivism, ecological modernization, risk society, environmental justice, actor-network theory, etc.)
- Establishment and development of independent sections, commissions and departments at academic and research institutions and associations
- Increasing number of publications in prestigious journals

Contempory theoretical approaches to environmental sociology

Two (contradictory) views on three key questions:

1) How to explain the emergence of environmental problems?
2) What are the mechanisms to improve environmental conditions?
3) How to approach and solve environmental problems?

1) How to explain the emergence of environmental problems?

-   ## The ecological explanation
    -- model of ´competing environmental functions´
    (Catton & Dunlap, 1978)

-   ## The political economy explanation
    -- concepts of the ´societal-environmental dialectic´
    and the ´treadmill of production´ (Schnaiberg, 1980))

Ecological explanation

- has its roots in the field of ´human ecology´
  (1920´s-1960´s, urban sociology, Chicago´s school, R.Park et al.)
- Concept of the ´web-of-life´ and the ´struggle for existence´
- Human intervention in the form of urban development and industrial pollution artificially broke the ´biotic balance´ and intensified the struggle for existence over an ever-widening area of the habitable world

Processes that create and reinforce urban spatial arrangements (Park, et al.)

3 principles of <u>human ecology</u>:

- Concentration and deconcentration
- Ecological specialization
- Invasion and succession

the City as a territorially based ecological system in which constant struggle over land use produced a continuous flux and redistribution of the urban population
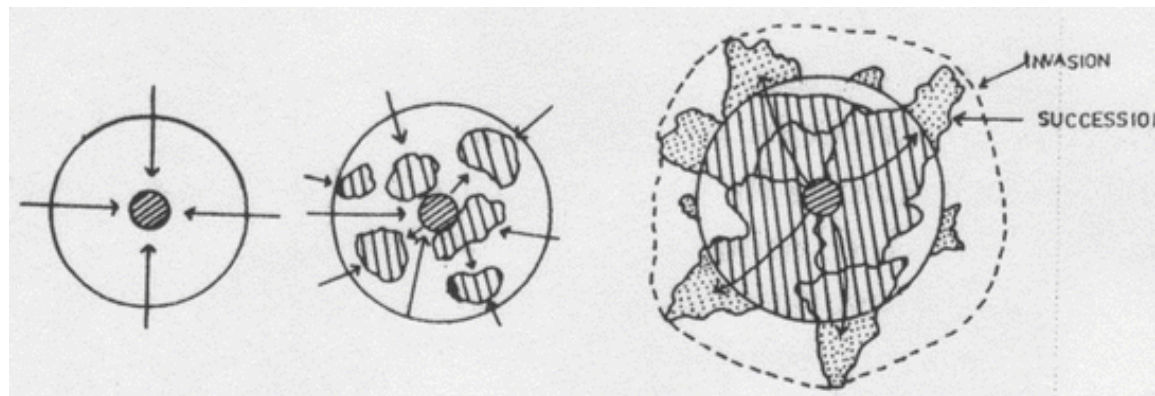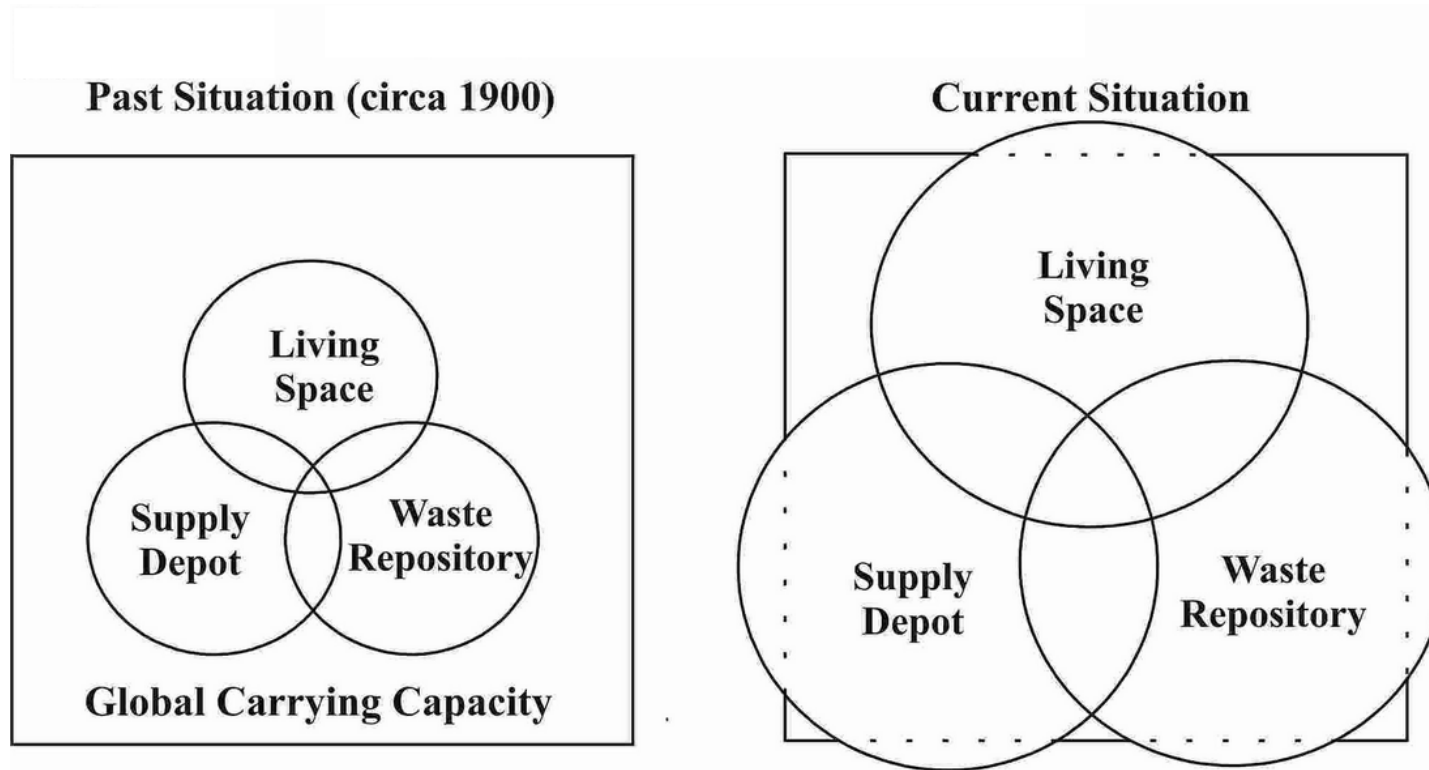

Nucleus of Concentration

Segments of Centralized and Decentralized Location

City Growth through Invasion and Succession

Competing functions of the environment (Dunlap, 1993)

Past Situation (circa 1900)	Current Situation
Living Space, Supply Depot, Waste Repository, Global Carrying Capacity	Living Space, Supply Depot, Waste Repository

- The environment as a living space is home for man and other organisms
- As a supply depot it provides renewable and non-renewable resources essential for living
- As a sink for garbage, sewage, industrial pollution and by-products serves the waste repository function. Health problems from toxic wastes and ecosystem disruption are outcomes of stretching the environment's waste absorption capacity.

Current situation
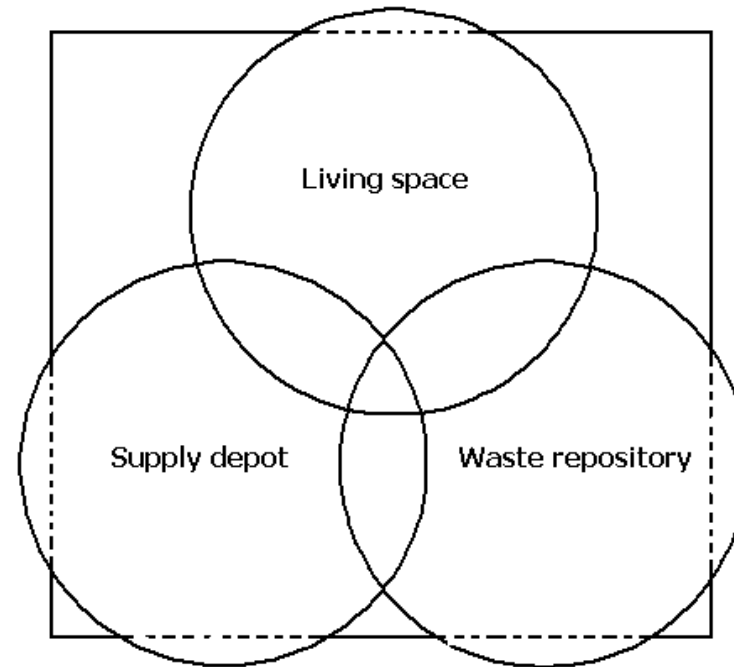
- The conflict between these three functions (dimensions) deepens (grows)
- Conflict arises between all three functions simultaneously and causes new problems (global warming)
- Conflicts between functions at the level of regional ecosystems have implications for the global environment

Political economy explanation: „treadmill of production"

- describes the contradictory relations between economic expansion and environmental disruption
- need of economic system to continually yield a profit by creating (by advertising) consumer demand for new products, even where this exceeds the physical (natural) limits to grow or its „carrying capacity"
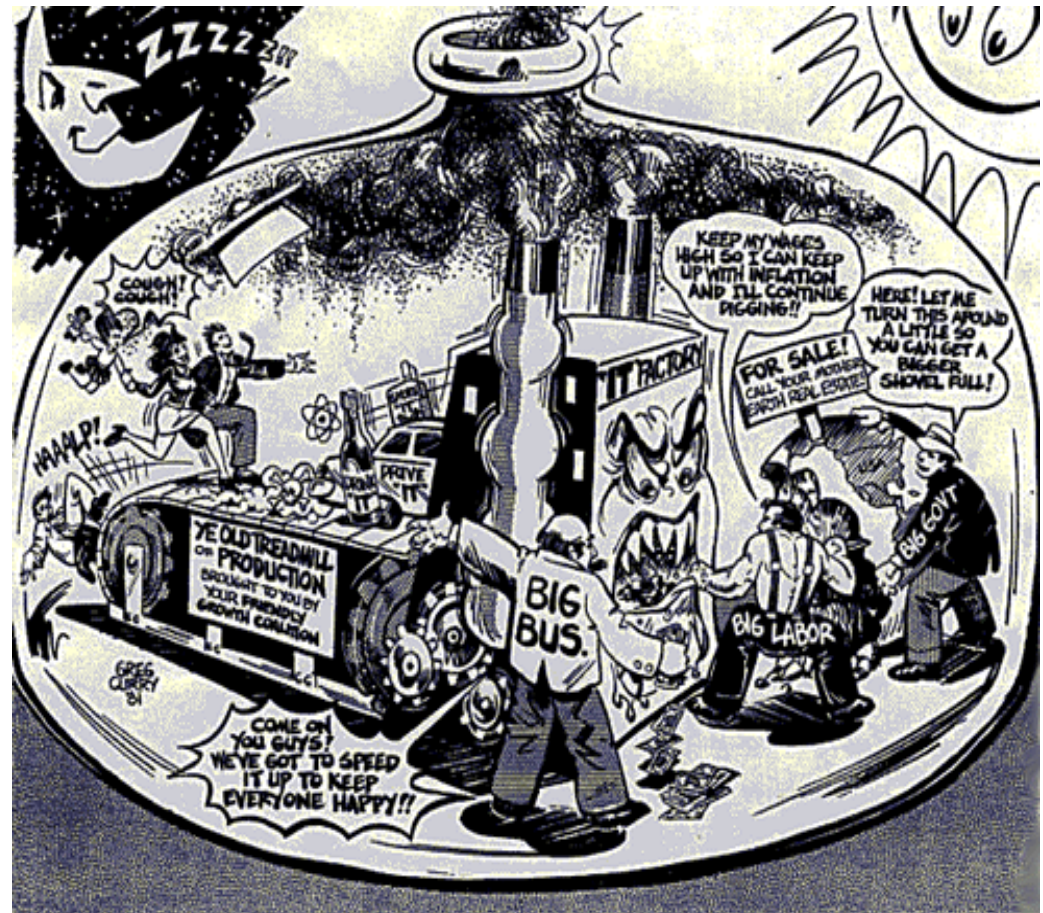
Treadmill of production

- It is a complex self-reinforcing mechanism supported by politicians via mandating policies
- The resource shortages are handled not by reducing consumption or adopting a more modest lifestyles but by opening up new areas to exploitation (e.g., mining)
- the *dialectic tension* between the treadmill of production and demands for environmental protection
- State must increasingly balance its dual role as a facilitator of capital accumulation and economic growth and its role as environmental regulator
- D. Harvey: „creating resource scarcities in order that prices may be kept high" (geographical relocation, plant closure and downsizing, reducing spending on pollution, etc.)

Mechanisms of environmental improvement

Four potential channels (Buttel, 2003):

- *Environmental activism/movements*
- *State environmental regulation*
- *Ecological modernisation*
- *International environmental governance*

´Risk society´ thesis

Ulrich Beck

Beck is famous for proposing the idea of 'risk society' (first published 1986, in German). Risk is 'a systematic way of dealing with hazards and insecurities induced & introduced by modernization'. Because modern living is characterised by decision-making, risk assessment and management also becomes part of the everyday. More recently, Beck has developed ideas about reflexivity and the self in modernity alongside his friend Giddens. Fab.

See www.theory.org.uk and www.theoryhead.com/gender

STRENGTHS: New ideas about modern living

WEAKNESSES: Like Giddens but not quite as readable

SPECIAL SKILLS: Pleasant, brilliant, Europe's finest

- Industrial (class) society has changed into "risk society" („hunger is hierarchical, smog is democratic")
- Instead of redistributing wealth we need to redistribute risks
- The current risks transcend both space and time (Chernobyl accident)
- „Boomerang effect" – risks that are exported abroad inevitably come back to haunt us (plastic waste in seas)
- The past monopoly of sciences on „rationality" has been broken – new „social rationality" rooted in a critique of progress

Theory of „ecological modernisation"
(Spaargaren, Mol, 1992)

- The possibility of overcoming the environmental crisis without leaving the path of modernization („sustainable development")

- Process of ´superindustrialisation´, new sophisticated "clean" technologies, large-scale restructuring of production-consumption cycles, diffusion of innovations

- Ecological modernisation thinkers are between ´catastrophis environmentalists´(no way but de-industrialization) and ´capital apologists (´business-as-usual´approach)

- To reconcile economy and ecology, to re-orientate policy on ´problem prevention´ ("technological optimism„ and „responsible capitalism")

- ´sustainability´ as the guiding concept

How to approach and solve environmental problems?

Basic controversy: realism vs. constructivism

Constructivism:

- Environmental problems are socially constructed (ecological crisis is just another ´grand narrative´)

Critics from the Realism:

- Constructionists reject the idea of scientific knowledge (agnosticism) and ignore the ´reality´of environmental crisis
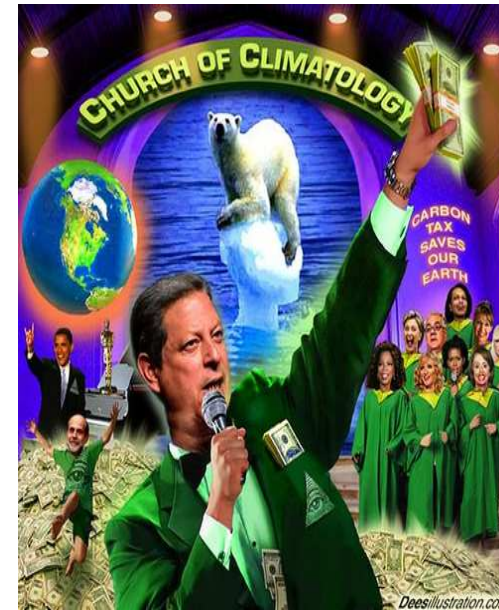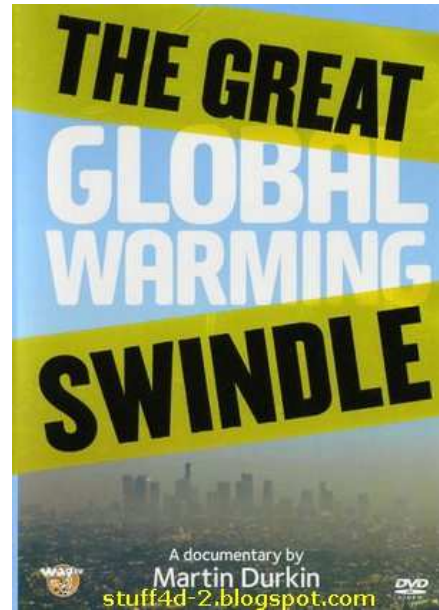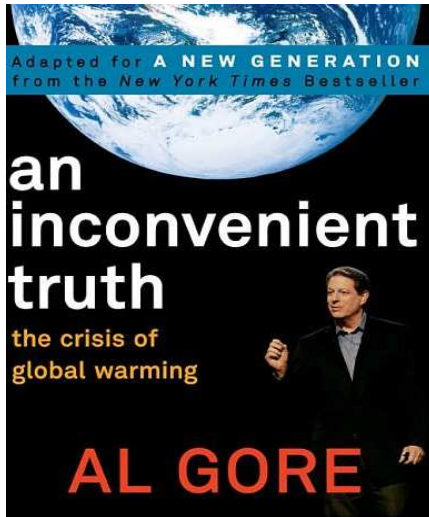- Their rhetoric and relativism is as destructive to nature as bulldozers and chainsaws (Soulé and Lease, 1995)

Understanding Social Constructionism (in less than 4 minutes)

Look at a short video at:

https://www.youtube.com/watch?v=4BDDMByOxJU
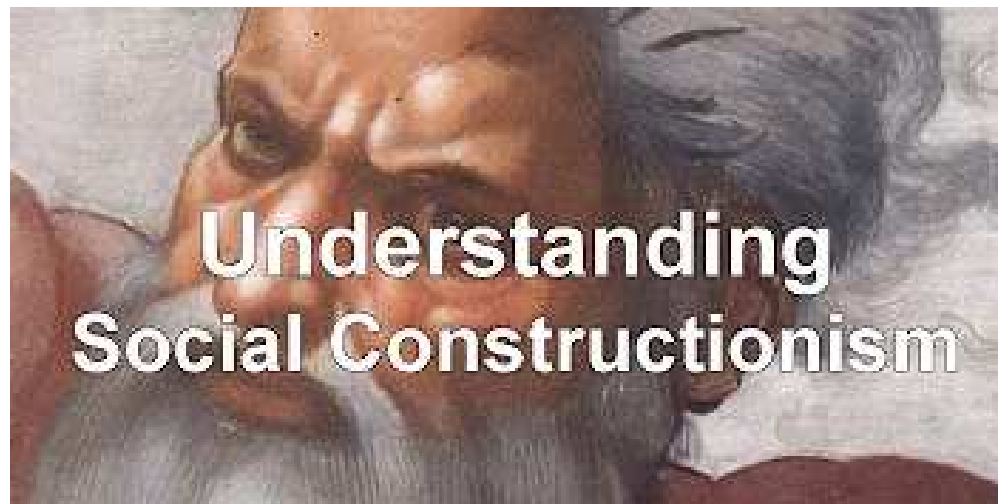
Social construction of environmental problems

The concept of „contradictory certainties"

- Environmental debates reflect the existence not just of an absence of certainty but rather of contradictory certanties: several divergent and mutually irreconcibable convistions about the difficulties we face and the available solutions *(Thompson, 1991)*

- Every "problem" (global warming, economic crisis, homosexuality) can be interpreted in different ways (multiple interpretations)

- If something is socially interpreted does NOT mean it is unreal

▪ The task for scientitists is NOT to document these problems but to demonstrate that they are products of dynamic social process of definition, negotitation and legitimation

Important questions:
- Who makes claims for the existence of environmental problems ?
- Who opposes them and why (social and political contexts) ?

Key contemporary issues in environmental sociology

- Climate change

- Economy and environment (the relationships)

- Energy and environment (-//-)

- Politics, law, and public policy (-//-)

- Social behavior and environment (-//-)

- Inequality and environment (-//-)

Source: Cole, N. L. (2019). An Introduction to Environmental Sociology. ThoughtCo. 31/8/2019.

The third transition

Economic and historical development is related to the changes/transitions in the use of energy sources

The ´third transition – a transition from the fossil fuel-powered age into the post-industrial era, the era being characterized by the scarcity - of energies, natural resources, living spaces… and search of alternative energies
(Tom Whipple, 2011)
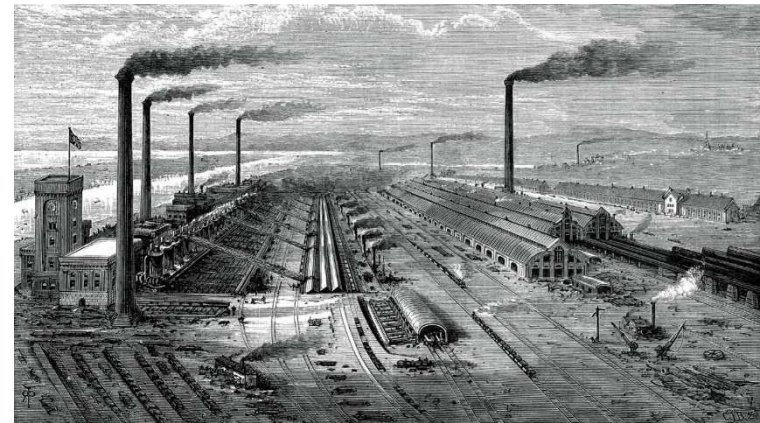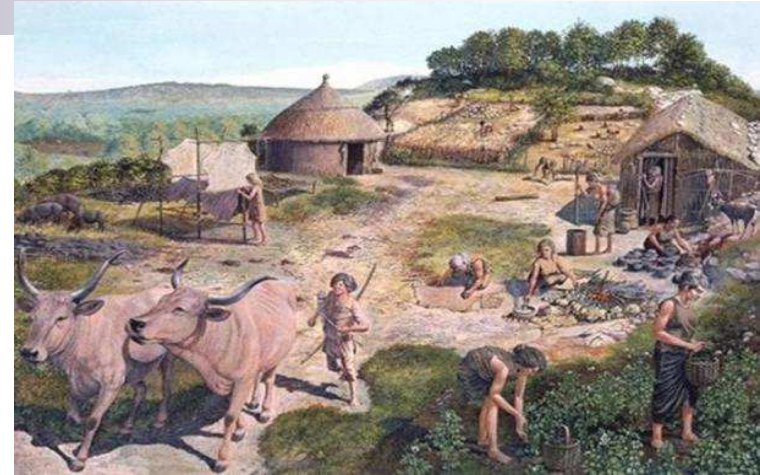
What is Energy Transition ?

Look at a short video at:

https://www.youtube.com/watch?v=dffw4Aj1ZQ0

Wind of change?

„Wind turbines are a scourge to communities and wildlife. They are environmental disasters! … Nobody wants wind turbines, they are failing all over the world and need massive subsidy -- a disaster for taxpayers."
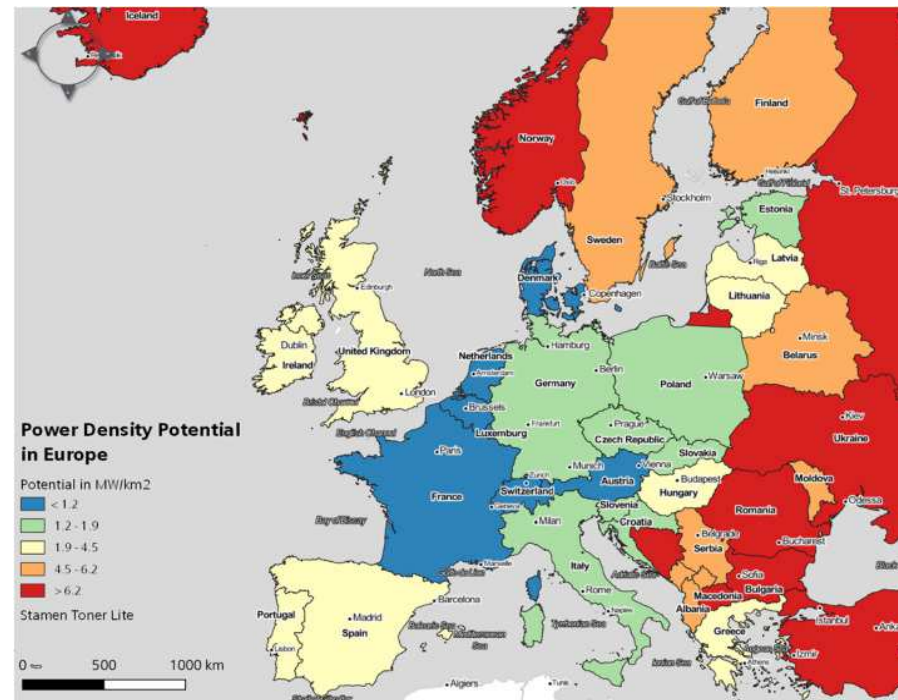(Trump´s posts on Twitter, August, 2012)

"Well, I'm okay with it *(subsidies for wind industry)*... It's an amazing thing when you think -- you know, where they can, out of nowhere, out of the wind, they make energy."
(Trump´s reply on a question from a potential voter in Newton, Iowa, Nov. 4, 2015)

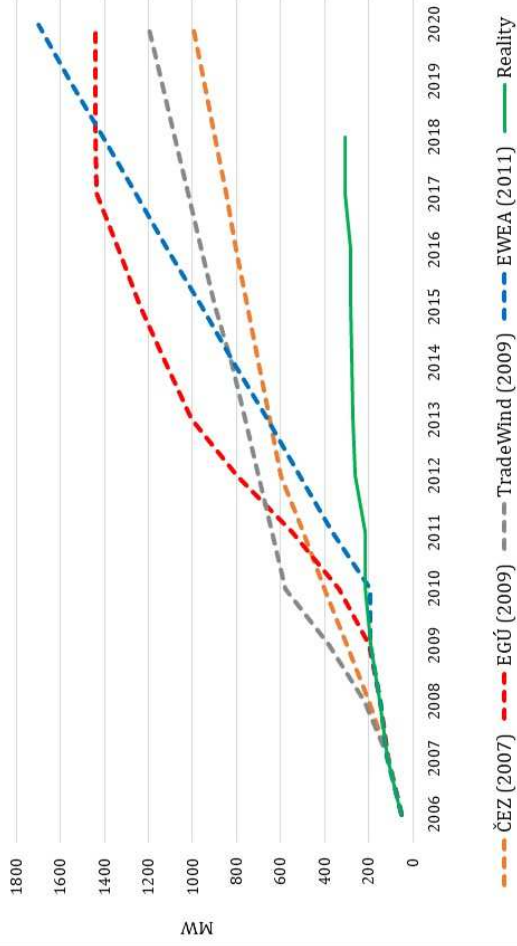# Unfulfilled forecasts of wind energy development in the Czech Republic
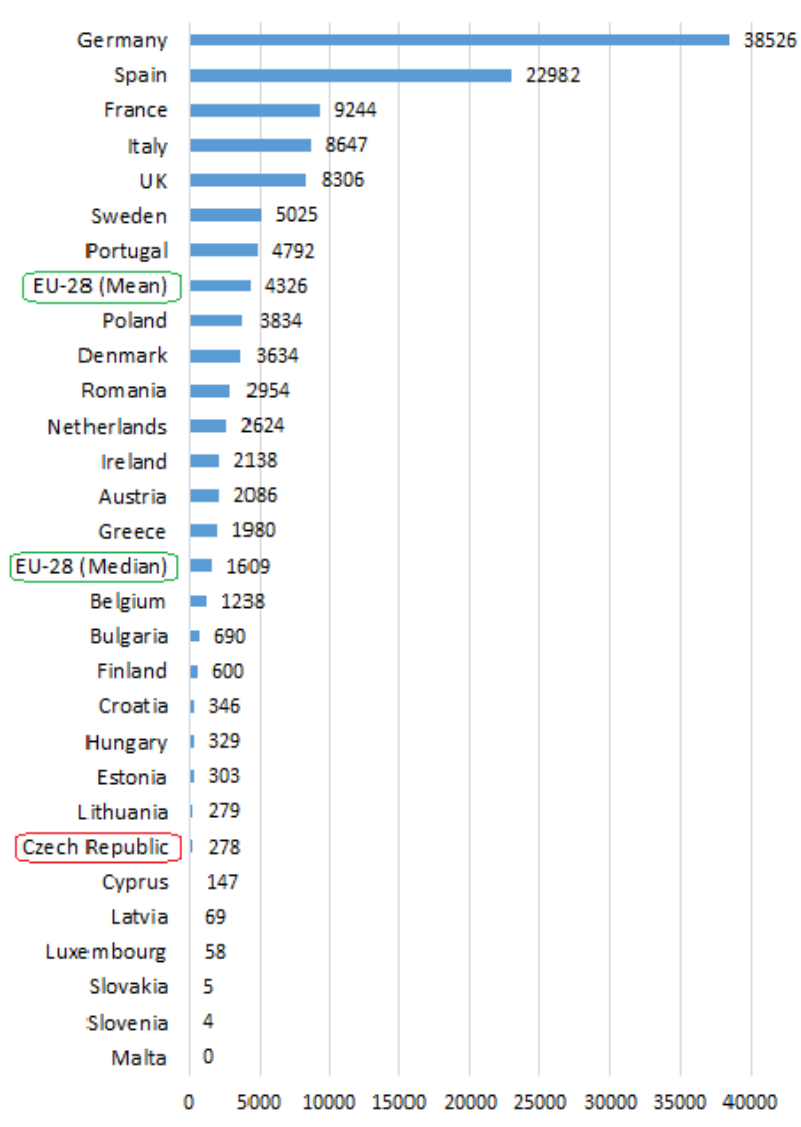
IRENA (2018)

Source: Enevoldsen et al. (2019)

Growth in the installed capacity of wind energy in the Czech Republic

Legend:
- Installed capacity
- Number of wind turbines

Expert forecasts versus reality

Legend:
- ČEZ (2007)
- EGÚ (2009)
- EWEA (2011)
- TradeWind (2009)
- Reality

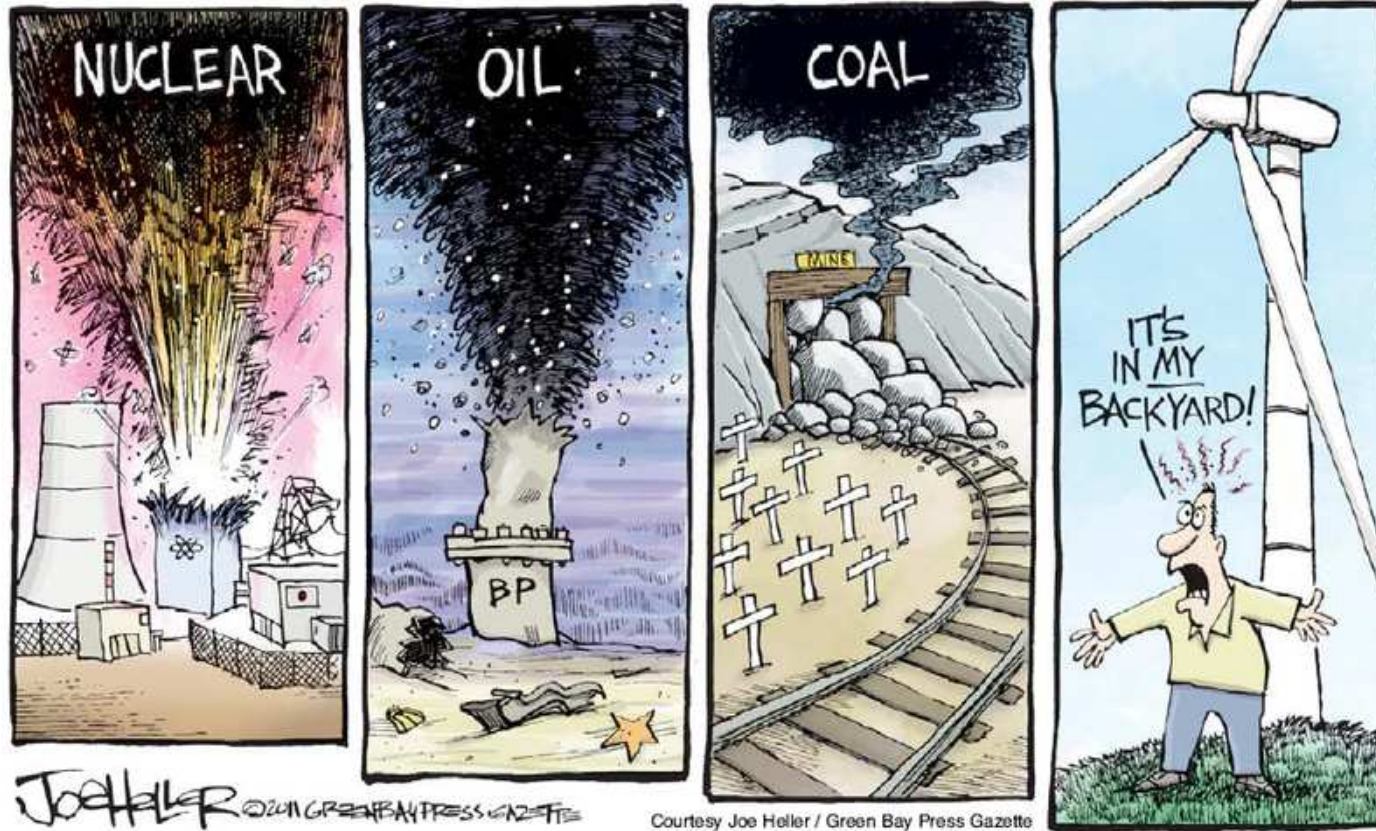Legend:
- 1
- 2 - 4
- 5 - 9
- 10 a více
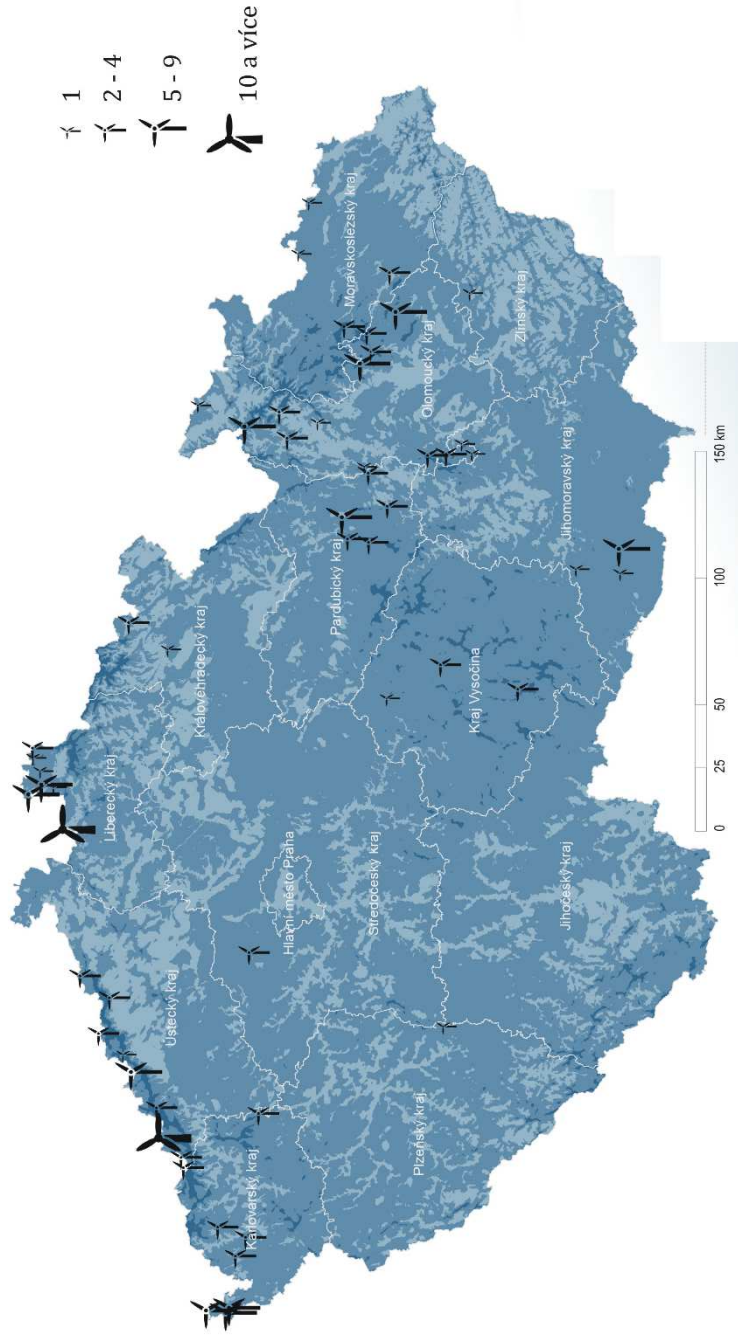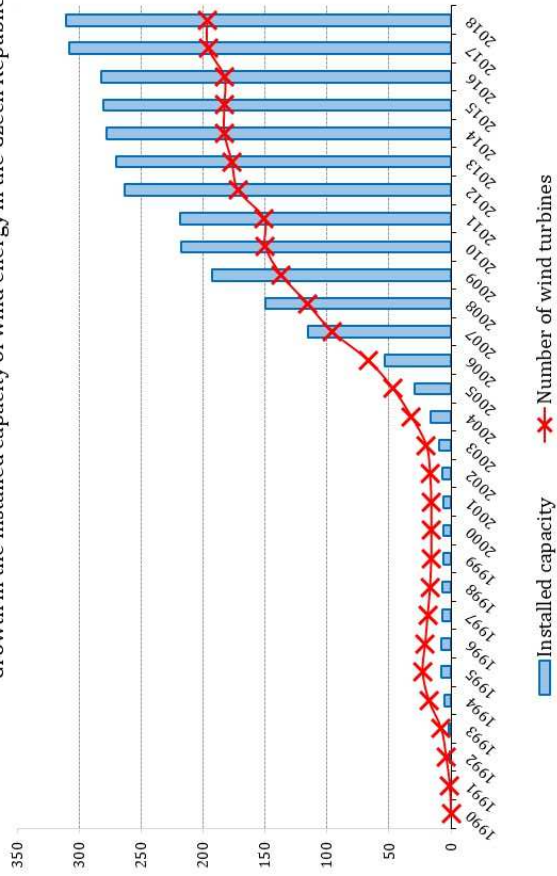
Wind energy development as a spatio-temporal process

- Energy transition, particularly the renewable energy development can be considered as a diffusion of innovations or the process of spreading new ideas transfered into the forms of technologies, products, processes and organizations in space and time (*cf.* Wolsink, 2012)

- Diffusions of innovations are in principle spatially uneven (Hägerstrand, 1968)

- The implementation of wind energy projects is not determined just by physical-geographical and infrastructural conditions (wind resources, landscape protection limits, transmission grid capacity, etc.), but also by political-institutional and socioeconomic factors which affect the level of social acceptance by key stakeholders (local communities).

The system of social acceptance and its key actors

Community Acceptance end users, local authorities, residents → decision making on infrastructure, investments and adapted consumption; based on trust, distributional justice, fairness of process

Market Acceptance producers, distributors, consumers, intra-firm, financial actors → investing in RES-E and DG infrastructure, using RES generated power

Socio-Political Acceptance regulators, policy actors, key stakeholders, public → craft institutional changes & effective policies fostering market & community acceptance

Zdroj: Wolsink (2017)

Courtesy Joe Heller / Green Bay Press Gazette

- Prevailing divergence between generally big support for renewable energy as a general idea and the level of local acceptance of specific projects structuring real landscapes
- „social gap" in attitudes is usually interpreted by the NIMBY theory, which has been falsified (Wolsink, 1994, 2000)

Four global „common themes" (Hall et al., 2013) affecting local acceptance of wind energy:

- Local identity and landscape perception
- Procedural justice
- Trust
- Distributive justice

- The perceptions of and attitudes to wind turbines are dynamic, spatially and socially shaped phenomena
- The 'before and after wind turbine' studies (e.g., Gipe, 1995; Eltham et al., 2008) suggested that the attitudes usually develop along a U-shaped curve – the experience with wind turbines increases positive views through familiarity over time.
- Visual impact (on the landscape) seemed to be the dominant force behind local opposition ('It's the landscape, stupid!' (Wolsink, 2007).
- The impact of visibility on acceptance, however, is not linked just to the physical landscape context but also to socio-economic parameters (Kontogianni, 2014).

- The 'proximity hypothesis' assumed that those living nearer to wind turbines are likely to have more negative attitudes in comparison to those living further away.

- Several studies reported the opposite (e.g., Warren et al. (2005) found a positive effect of distance on the dislike for proposed wind farms but negative effect of distance on the dislike of existing wind farms); the proximity hypothesis has not been definitely falsified, however.

- Devine-Wright (2005) emphasized that 'social distance' and 'location of interest' are usually more important factors than physical parameters like the size of turbines and their physical proximity.

The empirical research

- Repeated <u>surveys</u> of local communities living at locations in the Czech Republic, where wind turbines are operating

Objectives

- **To map the development of perceptions and attitudes in time** (pre-construction -→ post-construction -→ after several years)

- **To explore spatial and social asymmetries of positive and negative impacts** (perceived by the supportive majority and those who oppose wind turbines)

- **To identify factors of acceptance** (of prior projects -→ future develoment -→ repowering projects

Location	Number of turbines	Type	Size rotor/tower (m)	Capacity (MW)	Year of installation
Anenská Studánka	6	2 x Fuhrlander FL250	29/42	5.5	2006
		4 x DeWind D6	64/68		2008
Bantice	1	1 x Vestas V90	90/105	2	2008
Drahany	1	1 x Vestas V90	90/105	2	2006
Protivanov	3	1 x FL-100	21/35	3.1	2003
		2 x Repower MD77	77/85		2005
Pavlov	4	2 x Vestas V52	52/65	5.7	2006
		2 x Vestas V90	90/105		
Odry	2	2 x Vestas V90	90/80	4	2007
Věžnice	2	2 x Repower MM92	80/92	4.1	2009
Vítězná	1	1 x Vestas V112	112/119	3.0	2014

Results:

Increasing (and decreasing) acceptance over time

(U-curve revisited)
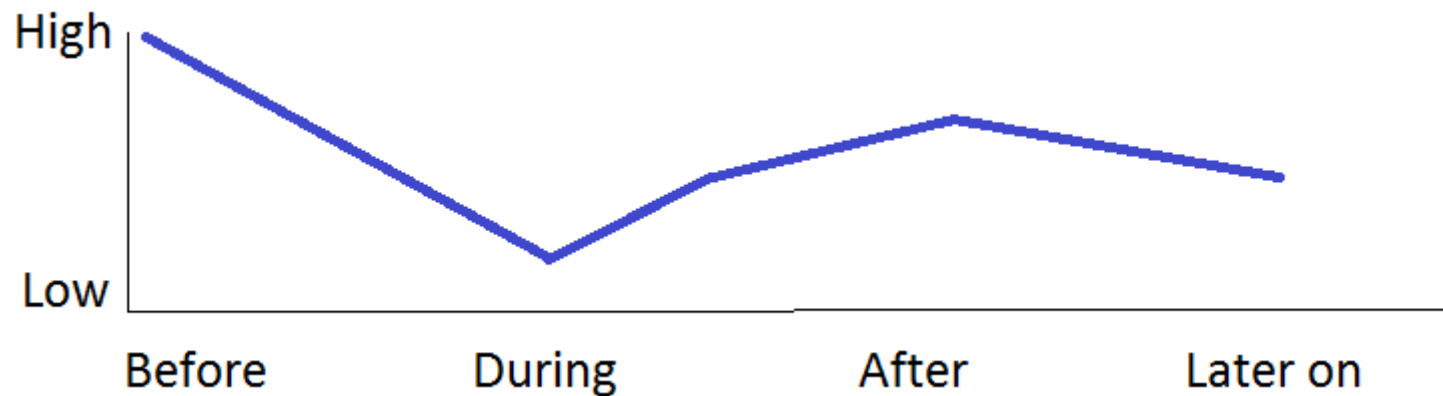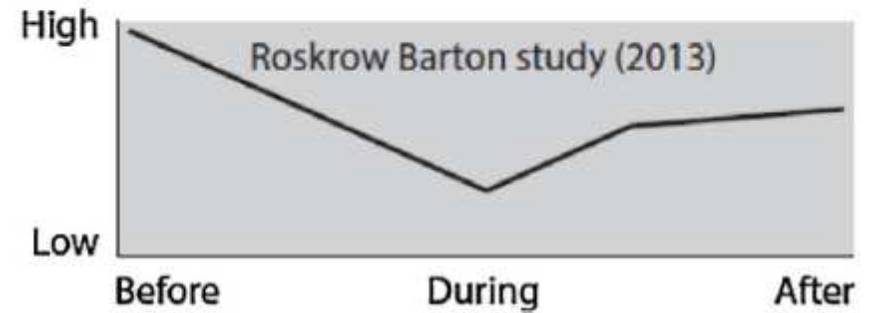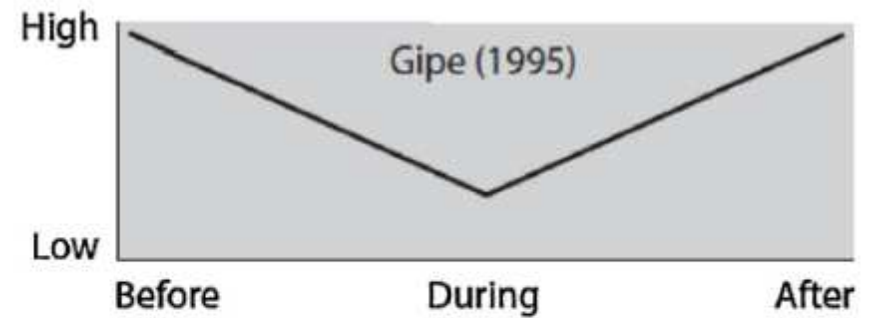
Factors affecting attitudes to projects

- The strongest predictors of opposition are the perception of visual landscape impact, noise annoyance and the fear of falling property prices, while the main predictor of acceptance is the assessment of local economic benefits.

- Almost 58% people think that wind turbines disturbed local landscape. About one third of those perceiving landscape disruption would, however, even so accept projects again (if returned back in time).

- Perceived landscape disruption is not a decisive factor of opposition - it can be outweighed by other factors (particularly perception of the benefits for local community development, etc.)

Spatial distributional injustice
(opposition from neighbouring communities)

Source: own elaboration
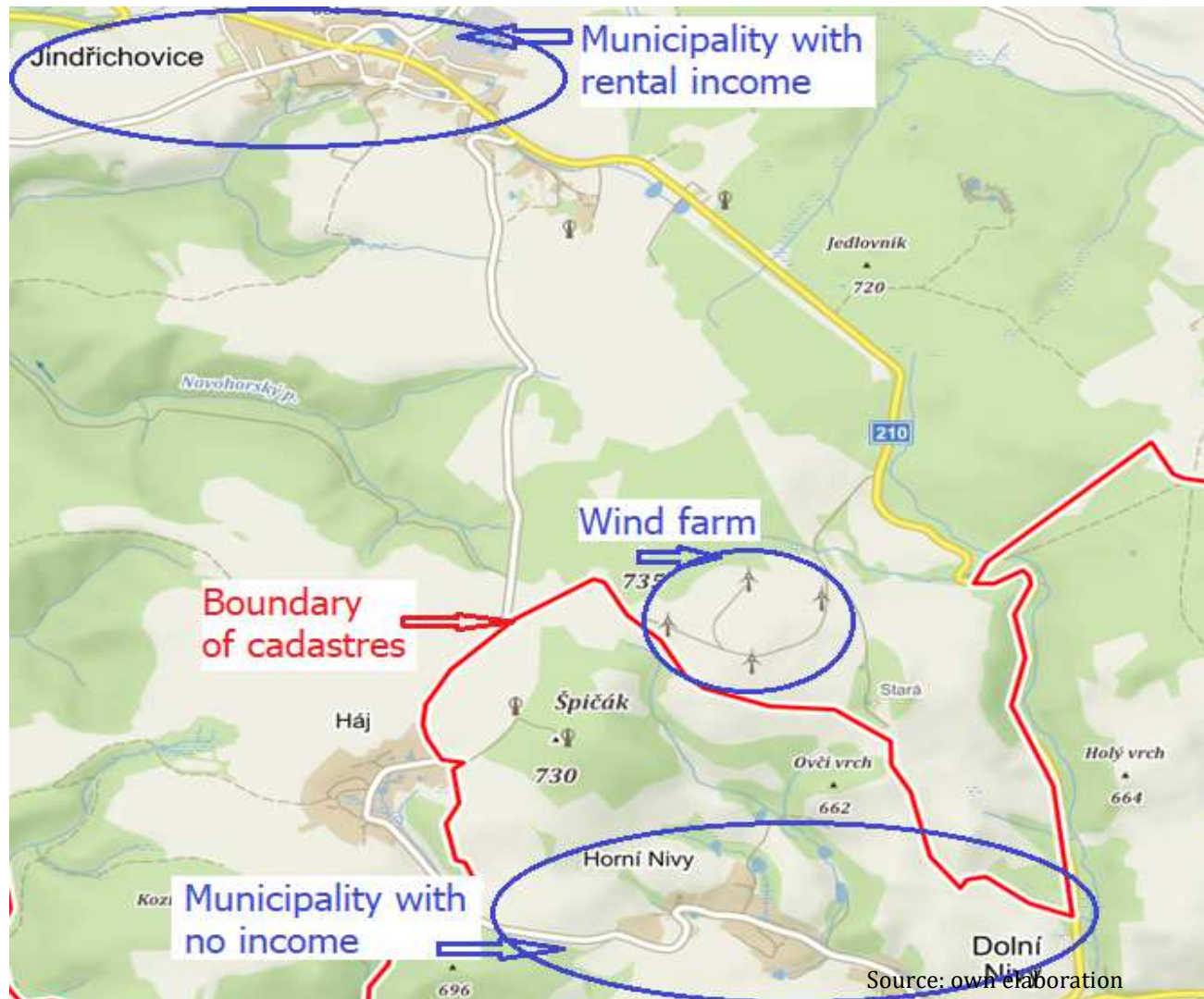
Conclusions and implications

➢ Attitudes (and acceptance) are complex, multi-layered and nuanced depending on individual areas of concern including perceptions of visual impact, noise, property prices and community benefits.

➢ The aspects of clean energy and climate change are not significant predictors of local acceptance of projects in the CR.

➢ More negative impacts and lower acceptance are reported from neighbouring municipalities from where the wind turbines can be seen but do not get any economic benefit from them.

➢ Developers need to calculate and distribute economic compensation much more precisely among concerned communities (and stakeholders).

➢ Local governments should negotiate long-term returns over one-off compensations, and they should try to invest money from wind to projects, which are more „visible" by specific stakeholders

Further reading on Environmental Sociology

- HANNIGAN, J.A. (2006):
  Environmental sociology.
  Milton Park, Abingdon: Routledge.

- GOULD, K. A., LEWIS, T.L. (2009):
  Twenty Lessons in Environmental Sociology.
  New York: Oxford University Press.

- REDCLIFT, M., WOODGATE, G. (eds.): *The international handbook of environmental sociology*.
  Northampton: E. Elgar.