Civil society involvement & sustainable technologies

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Outline

□ Some remarks on sustainable technologies and STS perspectives on innovation processes

□ Some examples of civil society involvement
 ▪ User innovations – solar thermal, wind, heat pumps

□ Changing roles of civil society and NGOs in transforming energy system

Environment – Technology - Society

- Our society's relations with the environment are to a large extent mediated through technology
  - Basic societal functions like mobility, energy, communication, housing are closely interwoven with technological systems
  - ‚societal metabolism'; material flows produced by human activities

- Social and technological structures are ‚co-produced'

What are sustainable technologies?

- Frequently used categorisations (e.g. Kemp 2998):
  - pollution control technologies;
  - waste management;
  - clean technology;
  - recycling;
  - clean products;
  - clean-up technology; and
  - monitoring and assessment technology
- End-of-pipe vs integrated environmental technologies
- Sustainability without social context?

Innovations for Sustainability

- Focus often on new technologies
- Companies as core-actors of innovation activities
- State-centred innovation policies to provide institutional infrastructure for innovations

- Sustainable development requires new kinds of production-consumption-systems (technical, behavioral, organizational, cultural, institutional)
  - Innovation as a core issue for sustainable development
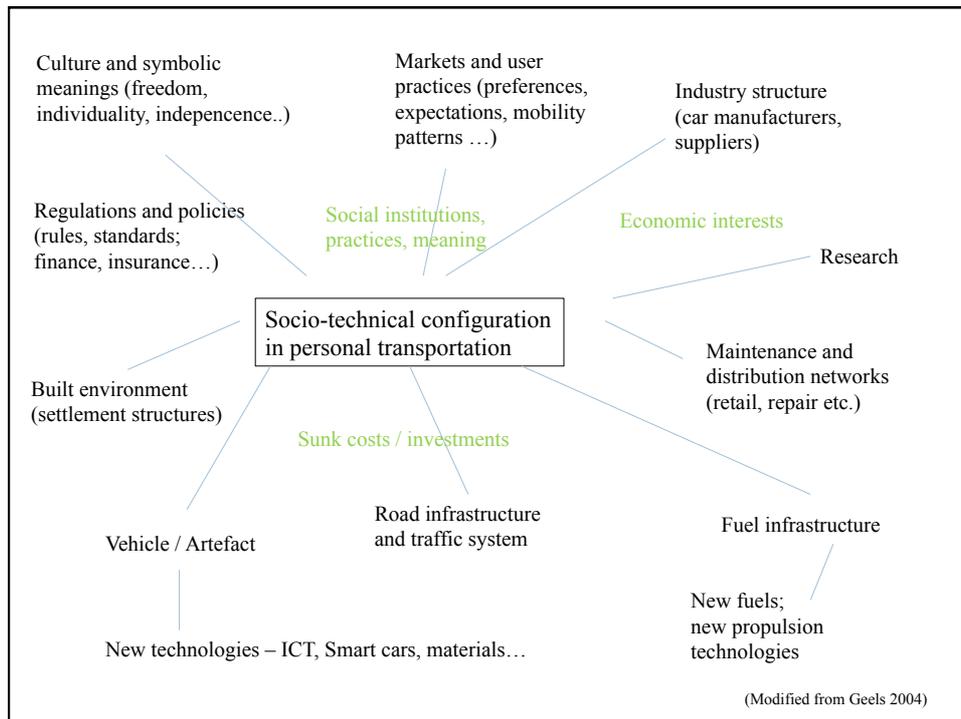
Socio-technical systems perspective

- Not isolated technologies or products, but socio-technical systems and configurations
- Technological artefacts are embedded in organisations, cultural traditions, legal frameworks, social practices, actor interests...
  - Importance of expectations, use practices, values, infrastructures etc.
  - Systemic perspective
  - Highly distributed processes; users / civil society important
- E.g. current energy system: fossil fuels, centrally organised ...

Broadening sustainable innovation

- Developing technologies also means shaping socio-economic and institutional contexts
  - System building / heterogeneous engineering
- Sustainable innovation as transformation of socio-technical systems
  - Aim of shaping environment – society relations

- Sustainability requires radical innovations
  - Systemic innovation processes
  - Long-term, multi-actor, multi-level

- Sustainability transitions, multi-level model
  - Interaction between niches, regimes, landscapes

The car as a socio-technical system

- Is it just a technology?
- Which social, cultural and technical elements stabilise our car-based system of mobility?
  - Technological-material structures
  - Values, meaning
  - Social structures (actors, institutions)
  - Economic dimension
- How are cars entrenched in our society? Why is this so difficult to change?

Culture and symbolic
meanings (freedom,
individuality, indepencence..)

Markets and user
practices (preferences,
expectations, mobility
patterns …)

Industry structure
(car manufacturers,
suppliers)

Regulations and policies
(rules, standards;
finance, insurance…)

Social institutions,
practices, meaning

Economic interests

Research

Socio-technical configuration
in personal transportation

Maintenance and
distribution networks
(retail, repair etc.)

Built environment
(settlement structures)

Sunk costs / investments

Vehicle / Artefact

Road infrastructure
and traffic system

Fuel infrastructure

New fuels;
new propulsion
technologies

New technologies – ICT, Smart cars, materials…

(Modified from Geels 2004)

A socio-technical perspective

- ☐ Technologies are produced and used in particular social contexts, and the processes of technological change are intrinsically social

- ☐ Technologies function as such in an immediate setting of knowledge, use practices, skills, meanings and values, problems and purposes, and objects which they act on

- ☐ Technologies in many applications are best considered to operate as sociotechnical systems or configurations

- ☐ Technological change is always part of a socio-technical transformation – technology and social arrangements are co-produced in the same process

And sustainability?

- Brings in goal-orientation of socio-technical change
  - However, sustainability is itself contested concept

- Innovations are not neutral!
  - ‚Re-politisation ' of technology development
  - „Shaping technology, building society"

- Socio-technical change is shaped by different discourses and visions
  - Controversies, negotiation, politics

Discourses of sustainability

- Sustainability can mean different things to different groups of people
- Sustainability may change its meaning over time
- Different discourses of sustainability
  - Discourses give meaning to physical and social realities
  - They provide ideas, concepts and categories to comprehend the world
  - Important how these discourses are translated into practice / congeal in materiality

Example: Sustainable Buildings

- Guy/Farmer 2001: Competing logics of sustainable architecture
  - eco-technic, eco-centric, eco-aeshetic, eco-cultural, eco-medical, eco-social
- Each discourse implicates different technologies, building images, concepts of place etc.
- Not one singular optimal technological pathway but different voices striving to frame the debate
  - Aim should be enlarged context for more heterogeneous coalitions of practices

Interim summary

- 'Sustainable technologies' depend much more on social contexts than technology-centred views suggest
- Processes of technological change / innovations highly distributed and contingent
  - No top-down planning is possible; no 'outside perspective'
- Users, civil society organisations etc. as active participants in change processes
  - User appropriation; grassroots innovations

Grassroot innovations – a different type of sustainable technologies?

- Grassroots innovations widely neglected in research and policy making
  - Networks of activists and organisations generating novel bottom-up solutions for sustainable development
  - Innovations at site of usage, non-commercial, community-based etc.
  - Might be particularly relevant for sustainability innovations
  - Rather incremental than radical
  - More focus on embedding in use-practices, everyday life?
- Distributing power structures compared to other innovation types?

Examples of grassroots innovations

- Various cases where grassroots initiatives shape innovations for sustainable energy technologies
  - Social movement for self-building of solar collectors in Austria – results in one of highest collector dissemination rates and market leadership
  - Cooperatives and wind energy development in Denmark – shapes technology learning and upscaling; high dissemination and market leadership
  - Social innovation of car sharing in Switzerland
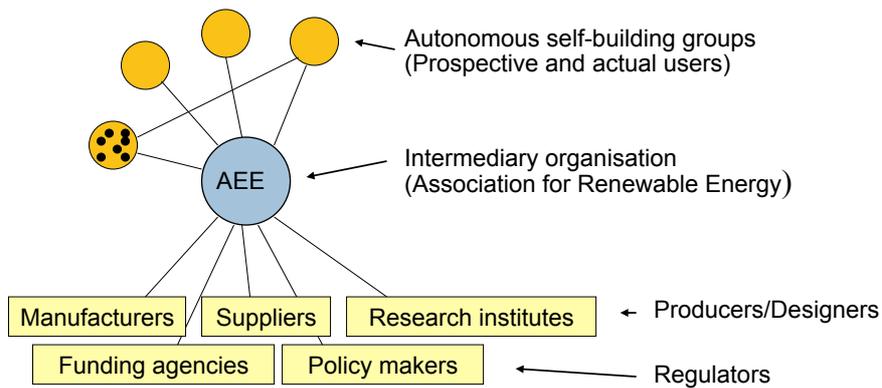 - Social media platforms for user innovations in heat pumps in Finland

Example: Development of solar thermal systems by self-building groups in Austria

History of self-building movement

- 1983: first self-building group established
- 1986: more than 50% of all solar systems installed by self-builders
- 1988: foundation of the Association for Renewable Energy (AEE)
- 1997: more than 40.000 solar systems installed with this strategy
- Positive effects for commercial producers
  - reliable self-built collector, improved reputation
  - better visability of solar collectors
  - users of self-built collectors were satisfied promotors
 - information about solar technology was spread by self-building groups

New organisational arrangements

Autonomous self-building groups
(Prospective and actual users)

AEE

Intermediary organisation
(Association for Renewable Energy)

Manufacturers | Suppliers | Research institutes ← Producers/Designers

Funding agencies | Policy makers ← Regulators

Various processes of learning

- ☐ Within social movement
  - ▫ Self-building and assembling method for groups
  - ▫ New technological configurations:
    - ▪ Solar combisystem for space-heating
  - ▫ Know-how transfer: lectures, seminars, conferences
- ☐ Institutionalisation of movement
  - ▫ Professionalisation; creation of research intermediary
  - ▫ Transfer to more market driven processes
- ☐ Imortant new player in Austrian solar energy policy
  - ▫ Lobbying, know-how, public awareness, system building
  - ▫ Integrated in policy making processes / regulation

**Market for Solar Thermal Systems in Austria
Self-Build and Commercial Installations**
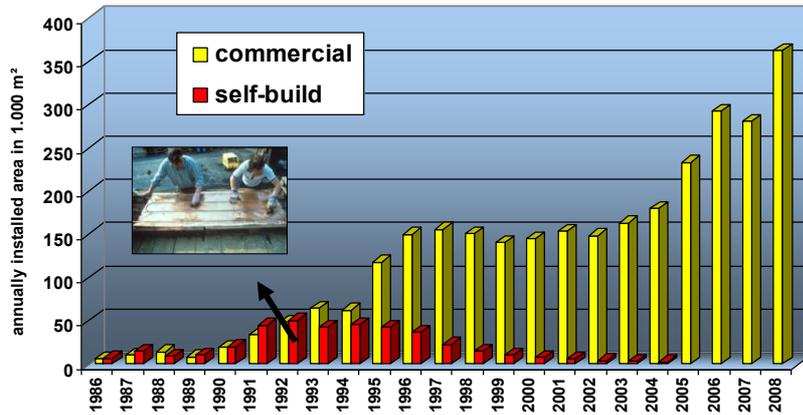
Source: Biermayr/BMVIT, 2009

Comparison with other examples:

	Wind Turbines	Solar Collectors	Car Sharing
Geographical area	Denmark	Austria	Switzerland
Main time period	1974 till 1985	1983 till 1992	1987 till 1997
Landscape factors	'Oil crisis'	'Oil crisis'	Public discourse on forest degradation (*Waldsterben*)
	Danish nuclear power policy	Tradition of neighbourly help in rural areas	Practice of private car sharing
	Long tradition of windmill development	Large number of old-fashioned heating systems in rural households	Long tradition of cooperatives in Switzerland
	Long tradition of local cooperatives		Urban context (public transport, lack of car parking, traffic jams)
Main motives of activists	Demonstrate practical alternatives to nuclear power	Ecological motives	Economic motives
	Show 'arrogant nuclear power representatives' how things are done (differently)	Enhance personal comfort	Environmental concerns (reduction of local emissions and oil demand)
	Contribute to national education	Gain cost-effective solar collectors	Entrepreneurial motives
	Entrepreneurial and economic motives	Mission-oriented motivations (e.g. support renewable energy in general)	

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	Wind Turbines	Solar Collectors	Car Sharing
'Innovation' construction activities	Promotion of alternative energy visions Rediscovery of traditional windmill designs Practical experiments with small-scale wind turbines Construction of the world-wide largest wind turbine Taking quality control measures Recommendations, e.g. regarding technology improvement, grid connection standards Organization of local wind cooperatives	Construction of solar collectors in informal working groups Organisation of bulk purchase of materials and equipment Implementation of design improvements (improved collector type, roof-integration, small-sized combi-systems, etc.) Public lectures on solar technology	Foundation and development of the first organised car sharing cooperation in Europe Initial phase: early users provided financial resources, expertise, voluntary work (billing, reservation, maintenance, recruiting of new members, etc.)
'Niche' construction activities	Organisation of informal meetings to enhance mutual learning Linking-up of different actor groups Formal establishment of interest groups (OOA, OVE, Wind Mill Owners, etc.) Establishment of research centres Interaction with politics and wind industry Lobbying for local wind cooperatives	Organisation of informal meetings to enhance mutual learning Large number of do-it-yourself groups stimulated social learning processes Establishment of stable relations to main suppliers Establishment of formal organisation to better coordinate group activities (AEE) Fundraising Interaction with politics and commercial actors	'Object' and 'niche' developed in close interconnection Active involvement of a large number of users enabled learning Establishment of formal organisation (ShareCom, Auto Teilet Genossenschaft) Merger of the founding cooperation's

Outcomes & impact

- Wind turbines
  - Influence on energy policy
  - Influence on design principles of wind turbines
  - Facilitated the development of a national wind industry
  - Support of market introduction of wind turbines in Denmark

- Solar collectors
  - Major influence on the design of solar systems
  - Main driver of the diffusion of solar systems for more than ten years (40,000 do-it-yourself units)
  - Introduction of small-sized combi-systems

- Car sharing
  - Development and enforcement of a new mode of transport
  - Organised car sharing as business model

Some questions…

- Are these technologies different from commercially developed technologies?

- Are they connected to different types of power relations?

- Are such innovation processes becoming more important in the future?

- Can they be used as a blueprint for future support of technology development?

- Other examples of grassroots innovations?

Sustainability transitions and civil society initiatives

□ Transformative change processes towards more sustainable energy, transport etc. systems requires more than new technologies

  ▪ Changing institutions, social practices

  ▪ Involvement of various actor constituencies

□ What is the role of civil society – social movements, NGOs – in such change processes?

  ▪ More than grassroots innovations?

  ▪ Is role of civil society increasing? How is civil society action shaped by cultural, political contexts? Is this empowerment or new form of co-option?

Civil society as an agent of social change

□ A multi-faceted concept

  ▪ Arena of interaction situated between the state, market, and individual citizens – third sector

  ▪ Formal and informal non-state organisations, groups and associations that form part of the voluntary sector

  ▪ In a normative way referring to values linked with participation and cooperation

□ ‚Liberal democratic approach' (small government) vs Gramscian perspective – resistance, discursive hegemony

Growing importance of NGOs

- Remarkable changes and growth of civil society organisations during past decades
  - Global 'associational revolution' – fuelled by ICT, globalisation, neoliberalism, complexity of policy challenges and changing role of nation-state
- NGOs "engaged, directly or at the margins, in the transformation of national, international and transnational political space." (Bach&Stark 2004)
  - New forms of governance and participation ('sub-politication')
  - Changing modes of civic engagement ('monitoring' policy; commodification of activities, professionalisation..)

Increasing action repertoire of CSOs

- Influencing politics and incumbents
  - Advocacy, protest / boycott, pressure on regime actors
    - 'Traditional' repertoire of NGOs
  - Monitoring policy implementation, accountability
    - New type of strategy – see Kyoto and other targets
- Information, knowledge creation and awareness
  - Shaping discourses / creating visions / re-frame problems
    - counter-weight to discourses often driven by short-term and particular economic interests
  - Awareness & knowledge creation, research
    - NGOs as new sites of research / incubators

Facilitators and Intermediaries

- Changing markets / creating niches and industries
  - providing services (e.g. labels); political consumption
    - fair trade organisations, organisations to label green electricity
  - experimenting and developing innovative products
    - driven by long-term and normative considerations and thus potentially more flexible and able to take risks
- Coordinating systemic change
  - system builder / change agent (e.g. energy regions)
    - act as intermediary and coordinate actors to facilitate learning processes and socio-technical change
  - Participation in global governance
    - capacity to connect global issues with local activities, coordinate international cooperation and facilitate solutions

Multiple levels of engagement

- Energy transitions can be supported by civil society organisations at various levels:
  - at the level of creating new socio-technical niches (experimentation and innovation, market development, learning across niches etc.),
  - at the level of regimes (putting pressure on incumbents and policy; delegitimise current structures; facilitate new institutions; shape discourses)
  - at the landscape level by shaping values (environmental values, international solidarity and social justice, participation and democracy)
- No substitute of state-led policies but as a (partially) new and additional layer of governance

A note of caution

- Despite these actual and potential contributions of CSOs to more sustainable energy systems, their roles are more ambiguous and heterogeneous
  - Decentralisation of responsibilities and participation of civil society organisations may also lead to new forms of control (Swyngedow 2005)
  - Outsourcing of certain services to the community level along with an emphasis on performance monitoring may "depoliticise partnerships and mainstream participation as a technical rather than a political process" (Taylor 2007)
- Anti-environmentalist social movements, initiatives against wind mills, motorist organisations are also CSOs

CSOs and social learning

- Learning may take place at different levels
  - Governance learning as increased capacity to deal with these more distributed and polycentric constellations
  - Policy learning as development of new strategies to 'neutralise' and integrate CSOs
  - Learning within the 'third sector' – about new forms of action, between (local) initiatives etc.
- How do NGOs see their position in changing energy systems?
  - Part of a project about pre-conditions and broader basis for energy transition in Austria

Expert Panel with Austrian CSOs

- Panel of various CSOs active in changing energy system in Austria (Greenpeace, research intermediaries, Association for Renewable Energy, community organisations etc.)
  - Various positions between state-market-civil society
- Dilemma I: Self-perception: main focus on changing laws and investment projects
  - Orientation crisis, not adequate any more
- Dilemma II: engagement and role of civil society also depends on legal frameworks, policy cultures
  - at the same time radical visions of alternatives emerge at the fringes of civil society; in opposition to existing policies
- Which conditions would civil society require to play a greater role in energy transitions?

Preconditions for a greater civil society involvement

- Democratisation of society
  - Participation trap: "If they ask you to participate, you know there is nothing more to decide"
  - More transparency of policy decisions; strong position of major interest groups – Austrian Social Partnership
  - Independent and critical media
  - Better formal regulations for participation; financial support
- Re-localisation of environmental and climate policy
  - More support and professionalisation at local level
- New forms of communication / re-organisation of NGOs
  - "Expertise and specialisation makes you part of the system"
  - New forms of action, organisation, networking
  - Not policy change – system change

Questions

- Grassroots innovations, civil society involvement as new mode of governance
  - How relevant? What are the downsides?
- Is this more appropriate in face of challenges we face with respect to climate change, resource depletion etc.?
- Does this go along with a change in social power structures? (or depend on preceding changes)
- Is there still too much focus on technologies / environmental dimension of sustainability?

Thank you for listening!