



Aalto University
School of Arts, Design
and Architecture

Pathways to sustainability

Aalto Creative Sustainability

MUO-E8016 Spring 2019

Eeva Berghlund & Mikko Jalas with Marko Keskinen

Today 22.5.2019

Presentations and discussion

BREAK

Sustainability Science

Pathways and path-dependencies

On assignments

Thinking analytically about knowledge making for sustainability

Binaries, opposites and other kinds of pairs

Local, techno-scientific and other types of knowledge

Problems in society or problems in science/disciplines

Risk, uncertainty

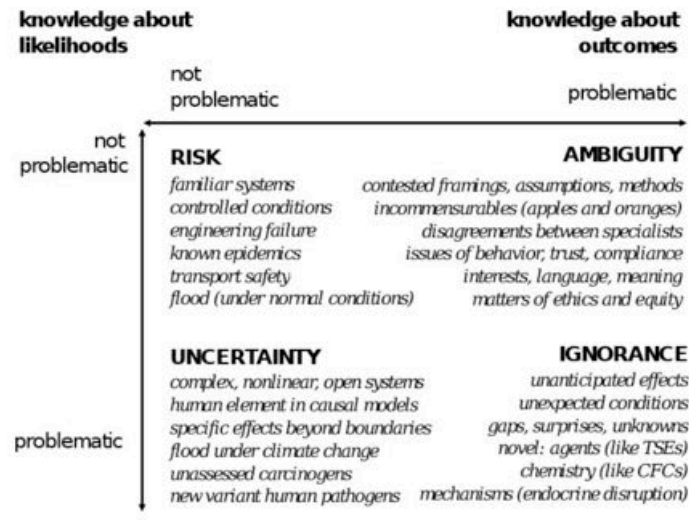
Science, risk and precaution

See e.g. <https://steps-centre.org/> based in UK Social, Technological and Environmental Pathways to Sustainability

Smith, Adrian & Stirling, Andy (2010) 'The politics of social-ecological resilience and sustainable socio-technical transitions', *Ecology and Society*, 15(1): 11 [online] URL: <http://www.ecologyandsociety.org/vol15/iss1/art11/>

Ecology and Society 14(2): 14
<http://www.ecologyandsociety.org/vol14/iss2/art14/>

Figure 1. Contrasting states of incomplete knowledge, with schematic examples.



Knowing about what is sustainable

- Framing or constructing problems: What is to be sustained?
 - *What questions are asked? Who is allowed to speak? Whose norms are followed?*
- There is always also the possibility of producing ignorance
- There is always the possibility that nature or people will 'bite back' despite the best efforts of policy science
- => Pathways through dynamic and uncertain terrain

Sustainability Science



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Normal and mostly disciplinary to post-normal and multidisciplinary

'Post-Normal science has been developed to deal with complex science related issues. In these, typically **facts are uncertain, values in dispute, stakes high, and decisions urgent**, and science is applied to them in conditions that are anything but "normal".

From Bert J. M. De Vries (2013) *Sustainability Science*

Early modern explorers found that knowledge is power

BUT:
Science is not magic

we must study the “concrete work of making abstractions”
centres of calculation and
networks of abstract and
concrete things
that help the centre dominate
the periphery



Laperouse & King Luis XVI – See Latour 1987

Learning from others' learning

History matters, whether of science, technology, technoscience, fashion, politics, society, culture, values, design, architecture, music, landscape, you name it!

Academic research is critical research:

- **"Organised scepticism"**
- **Source critical**
- **Methodologically appropriate**
- **Relates its own conclusions to existing knowledge with honesty**

Mid-20th Century views of science

- **Robert K. Merton, Thomas Kuhn, Michael Polanyi**
- **Science is progressive**
- **Progresses in phases/paradigms (Kuhn)**
- **Practical and theoretical work ALWAYS go together**
- **Scientific research is co-ordinated activity best left to those who are engaged in doing it**
- **Pure science and applied science are different.**

DOI: 10.1080/09697540.2014.900000

'Measurementality' in biodiversity governance: knowledge, transparency, and the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES)

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Abstract Current policies and practices in biodiversity conservation have been increasingly influenced by neoliberal approaches since the 1990s. The authors focus on the principle of transparency as a self-proclaimed basis of neoliberal environmental governance, and on the role of standardized science-based measurements which it purportedly affords. The authors introduce the term 'measurementality' to signify the governance logic that emerges when transparency comes to stand next to effectiveness and efficiency as neoliberal principles and to highlight the connections that are forged between economic, managerial, and technocratic discourses. The example of the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) is used to discuss the role of measurementality in global biodiversity governance. The analysis suggests that IPBES aims to coordinate the science–policy interface in order to optimize the generation of user-friendly knowledge of those elements of biodiversity that are considered politically and economically relevant: at the current economic juncture, these being in essence ecosystem services. Based on these findings, the authors proceed by critically reflecting on the ways in which the measurementality logic of IPBES may not only result in an impoverishment of the biodiversity research agenda, but also in an impoverished understanding of biodiversity itself. To conclude, the authors argue that measurementality is part and parcel of the neoliberal paradigm in which science produces the raw materials for subsequent control and exchange and that, as a result, the intersection of science, discourse, policy, and economics within these governance systems requires sustained critical scrutiny.





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What knowledge do we need? It depends

*SUSTAINABILITY, NOT
SUSTAINABLE YIELD!*





'Measurement knowledge, tra Science-Policy Services (IPBE

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Welcome to IPBES

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is the intergovernmental body which assesses the state of biodiversity and of the ecosystem services it provides to society, in response to requests from decision makers.

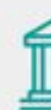
[FIND OUT MORE](#)



Assessments



Policy Support



Capacity



Indigenous and local knowledge



Knowledge and data



Communication
Stakeholder
Engagement

Sustainability science

An emerging field of research dealing with the interactions between natural and social systems, and with how those interactions affect the challenge of sustainability: meeting the needs of present and future generations while substantially reducing poverty and conserving the planet's life support systems.

<http://sustainability.pnas.org/>

- **Searches for socio-technical solutions to known problems**
- **Envisions/pursues sustainable futures**
- **Navigates/facilitates socio-technical change**
 - Find obstacles & opportunities
- **Advance social and institutional learning**



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What is the course about?

Journal of Cleaner Production 179 (2018) 1423–1432



ELSEVIER

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro



Universities responding to the call for sustainability: A typology of sustainability centres



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ABSTRACT

Universities worldwide are experiencing a growing trend to respond to the need for sustainability. Sustainability centres are one key aspect in the sustainability transitions of universities. Until currently, these centres have been relatively neglected by research. This exploratory study makes a solid contribution to the scholarship and understanding of the various means by which universities are responding to the societal challenge of sustainability by analysing a sample of 44 sustainability centres across the world to increase understanding of the characteristics and roles of these centres in contributing to sustainability. Furthermore, the study identifies four types of centres differing in their goals, objects, scope and scale of research, knowledge production and outreach activities. The typology of the centres can be applied for example when new centres are established or when centres identify or redefine their profiles. The authors suggest further research concerning sustainability centres, given their central role as nodes of sustainability research, education and co-creation in sustainability transformation.

Early 21st C views of research on human-environment interactions

Universities as a whole are undergoing change

**See Soini, Katriina, et al.
"Universities responding to the call for sustainability: A typology of sustainability centres." *Journal of Cleaner Production* 170 (2018)**

Early 21st C views of research on human-environment interactions

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"Universities responding to the call for sustainability: A typology of sustainability centres." *Journal of Cleaner Production* 170 (2018)**

- **Descriptive-analytical work may not be enough. Ideal types of sustainability science aim to:**
 - 1. Sustain development**
 - 2. Innovate technologically**
 - 3. Build resilience**
 - 4. Transform society for sustainability**

Politics
Abstract knowledge
My Back Yard

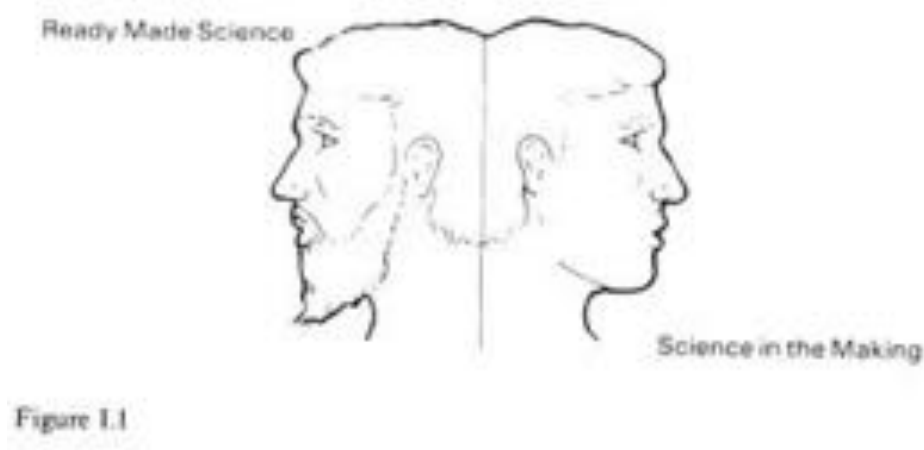
None of these are Bad Things!



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Many peculiar things about science

See e.g. Bruno Latour *Science in Action*



Opening up the 'black box' of technoscience

- See Henke and Gieryn 2008
- Why should we care about how research unfolds?
- In what ways is research disciplined?
- How is it linked to politics?
- Where do its values come from?



Opening the black box of 'sustainability'

**Between the tragedy and the genius of the commons
Ignoring scientists' "early warnings" form the Renaissance to today**

- **what does the absence of evidence of harm mean?**
 - *Fish stocks, radioactivity, asbestos, etc. but also smoking*
 - *Harm to what and whom? The average person?*

Using sustainability arguments to sustain a status quo

- **arguing over what is (more) green**
- **"green" gentrification, eco-chic, greenwashing etc.**

On the need to be sceptical as well as reflexive about knowledge claims – Science and Technology Studies event in Tampere next month

STS in a Post-Truth Age

Wednesday 12th June, 16.15-17.15, Tampere University Main Building, D10a

Abstract: In a time of growing skepticism toward expert rationality, some have been tempted to suggest that STS's intellectual direction needs to be altered, moving away from deconstruction of science's authority toward more exposés of corrupt practices within the sciences that, in effect, betray science's search for truth. Drawing on my own experiences in building STS in the US, and also internationally, I will suggest that this is not the time to abandon skepticism. Rather, we should refocus our field's critical energies on the links between power and knowledge that account for the problematic texture of modernity. This means widening the lens of STS to include more domains of knowledge-making and adopting a stance of symmetry that is unafraid to question the epistemic foundations of authority in all its guises. I will propose some neglected avenues of research that could prove especially valuable in this time of technological as well as political upheaval.

All are most welcome to join this talk!

Participation is free of charge.

For more information on Nordic STS 2019 Conference, please visit: <https://events.uta.fi/nordicsts2019/>

Pathways

Making knowledge

Constructing futures



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‘Environmental’ governance

Legislation and other regulation

- to maintain ‘Beauty, Health and Permanence’
- usually land, water & public health

Multilateral commitments and agreements

- Voluntary actions can be significant
- Ideological trends – fashions in ‘green’ thought
 - *Principled attitudes, e.g. precautionary principle; voluntarism*

Incentivization

- Market mechanisms
- Regulation
- Nudges

Experimentation and (Grassroots) innovation

Globalization and the sources of Global Environmental Governance

Modernist (post-war) ideals of rational planning

UN-supported ideas of world society

- 1972 Stockholm Conference on Human Environment, 1992 Rio Earth Summit
- Sustainable development
- Treaties and panels on specific pollutants and other problems

Eco-modernization and free-market optimists

- Protecting the economic environment



Figure 5. This photo of 'Earthrise' over the lunar horizon was taken by the Apollo 8 crew in December 1968, showing Earth for the first time as it appears from deep space. NASA.

Is globalism in crisis?

Globalization and current political events

Localization, glocalization and other alternatives to the totalizing vision are significant

Historically innovation and creativity have often overcome limits and other challenges

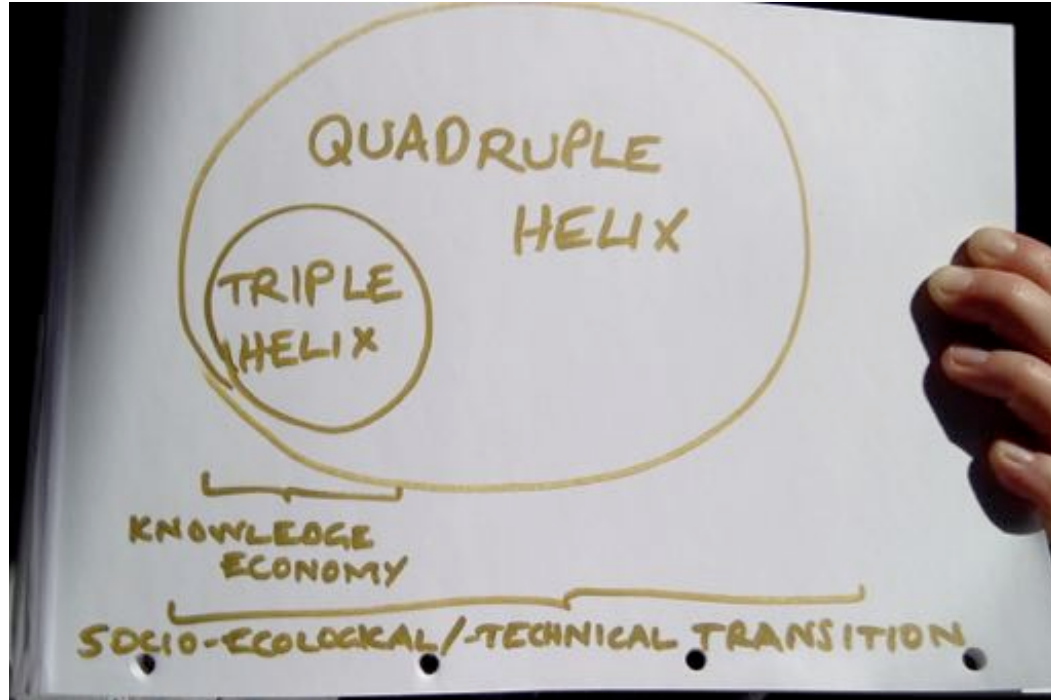
- Note significant contributions of 'backyard idealists' to environmental solutions

The totalizing vision (global perspective) may itself be parochial

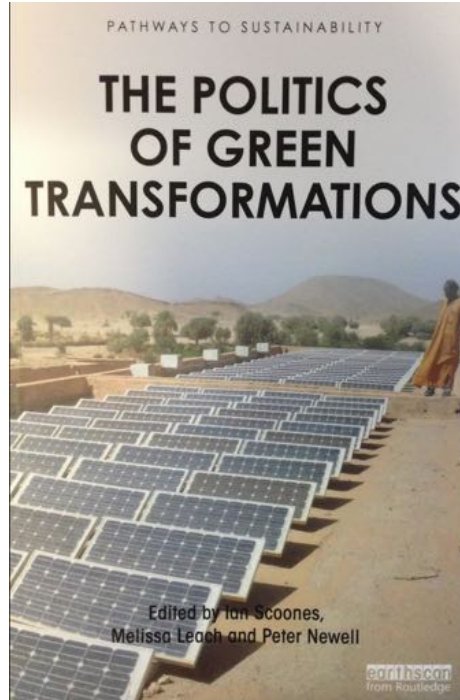
- Marked vs. unmarked categories
- Standards can make the non-standard invisible and less valued



Who and what is involved in knowledge making?



Between global environmental governance and multiple pathways



Pathways – multiple and hybrid

Institutions, interests, ideas

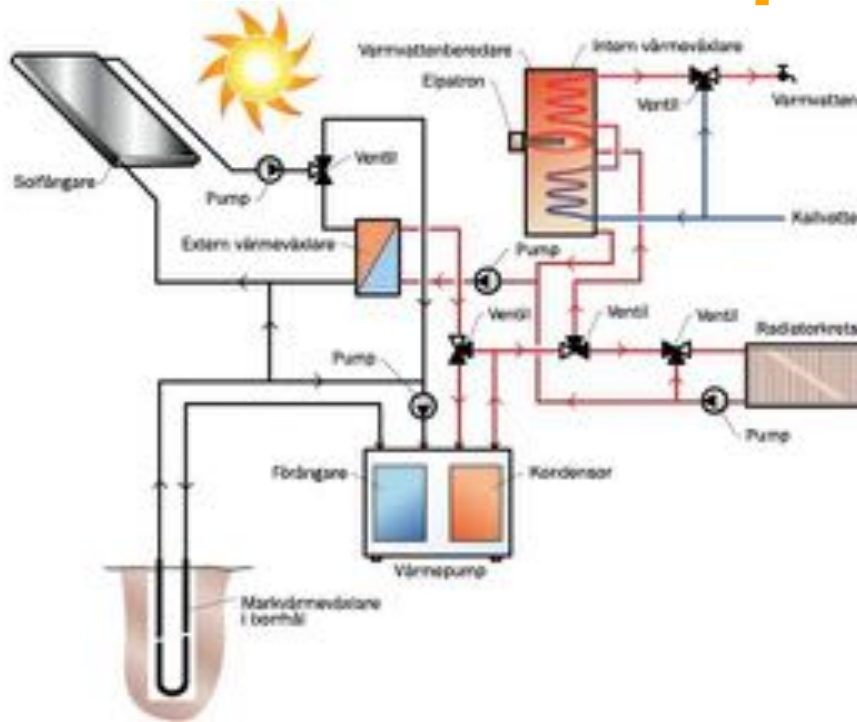
Direction, distribution and diversity of innovations

Plus “architects of social change” – community-oriented, but often draw on state and market supported expertise/knowledge

Note ENGOs are rarely (any more) grassroots actors

Ely, Adrian; Adrian Smith; Andy Stirling (2013) ‘Innovation politics post-Rio+20: hybrid pathways to sustainability?’, *Environment and Planning C: Government and Policy*, vol. 31

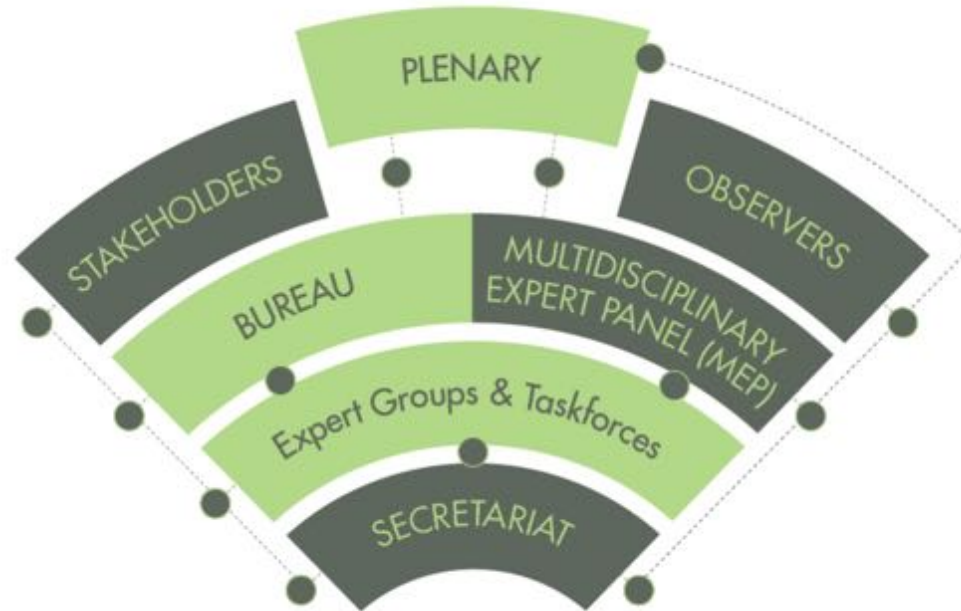
Re-presenting



How IPBES is structured

Multi- and even transdisciplinary

How is IPBES structured?



On assignments



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Our norms: Academic / scientific / scholarly research should

- Contribute to existing debates within relevant communities of practice, at least *potentially*
 - *Research is not the same as solving problems*
- Like science in general, specific research should aim for universalism, openness ('communism'), disinterestedness, organized scepticism – the classic *Mertonian* ideals
- Be creative but disciplined
- Be clearly and appropriately presented – ideally in many different registers/ways

Learning passport – submit by midnight 31.5. in MyCourses

- 1) Label the document with the relevant identifying information**
- 2) Write a commentary on the two doctoral defenses you have attended.**
 - *See 'Assignments' menu in MyCourses for detail on doctoral defences*
 - *Write up to 600 words about anything you can reasonably understand under the heading 'knowledge making for sustainability'*
- 3) Write a short reflection of a few hundred words about what the course readings have given you. Add a list of references used, formatted in the correct way (see feedback on assignment 1 if you are unsure)**

Questions?



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