



# JPI CLIMATE Future Research Leaders Forum

## Session Reports

Sustainable Transformations of Society  
in the Face of Climate Change:

Promising Research Directions

**17 - 18 June 2013**

Pre-Conference Event to the Oslo Transformation Conference 2013

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# Introduction

## Shaping the European Research Agenda

Given the multiple interrelations between societal responses to climate change, other global change processes as well as additional societal and environmental mega-trends, research on sustainable transformations of society is an inherently interdisciplinary endeavour. Given the normative underpinnings of the formulated need for sustainable transformations, transdisciplinary research and action is needed to understand, develop and implement social and economic responses to climate change.

Setting a European Research Agenda for better understanding societal transformations under a changing climate calls for the active participation of decision-makers and knowledge-users in society, international research leaders and in particular the *research leaders of tomorrow* in order to contribute their insights, visions and promising ideas.

This **Open Space workshop** aimed to contribute to the priority setting in the strategic research agenda of JPI CLIMATE as a basis for future pan-European research programmes in the field of climate change research.

The workshop has been organized by JPI CLIMATE in cooperation with the Oslo Transformation Conference 2013 and supported by the Norwegian Climate and Pollution Agency and the Research Council of Norway.

### Aims and scope of the workshop

The workshop brought together selected junior researchers who are active on the interface of social sciences and humanities (SSH) and climate change research and who – as Future Research Leaders – are considered to shape SSH transformation research. The workshop aimed to achieve the following objectives:

- to **define research priorities** at the interface of SSH and climate change research, including views of researchers working on the interface of natural sciences and SSH;
- to **identify innovative and promising research directions**, including ideas and approaches, and
- to **facilitate networking and community building** among the research leaders of tomorrow.



Figure 1: Open Space Technology

## Institutional background

The event is part of a series of agenda-setting workshops organized by the European Joint Programming Initiative 'Connecting Climate Knowledge for Europe' (JPI CLIMATE), which represents a network of European research funders that currently comprises 15 member and observer countries, several observer institutions and the European Commission. Joint programming is one core initiative, introduced by the European Commission and aimed at implementing the European Research Area (ERA).

By connecting science and decision making processes, JPI CLIMATE helps to meet the challenge of making European development both climate-friendly and climate-proof. JPI CLIMATE is based upon a Strategic Research Agenda (SRA) consisting of four inter-connected thematic modules (and associated working groups):

1. Moving towards decadal climate predictions (WG1)
2. Research for climate service development (WG2)
- 3. Understanding sustainable transformations of societies under climate change (WG3)**
4. Climate change decision support methods and tools (WG4)

The Future Research Leaders Forum, organized by JPI CLIMATE WG3, provides important contributions to the identification of research priorities and pathways for implementing the SRA of JPI CLIMATE and therefore for transformation research in Europe and beyond.



# Session Reports

How do macro and micro factors hinder and facilitate change?

## Convenor

- Tor Håkon Inderberg

## Participants

- Karianne de Bruin
- Fabio Eboli (JPI)

## Key messages on promising research directions

- Bottom-up and top down factors should not be analysed in isolation as they work in different ways and influence each other. While regulatory change is important for change, so is aggregated micro behaviour and they need to be understood together in order to align relevant measures if change is to be induced.
- Both formal regulatory influence and the cultural (understood as norms and values) basis of a socio-technical system needs to be understood (and aligned if change is likely to happen). There is a significant lacking in understanding the cultural and formal regulatory aspects of human systems in relation to top-down and bottom-up perspectives.

## Discussion and recommendations

From an economic point of view there is a micro and a macro model, and there is a challenge to tie them together and link it to micro economic. This needs to be nuanced. Micro can be individual instrumental behaviour and also the cultural aspects of 'the grassroots'.

Does the macro level political decisions make things happen at the micro level? Flows between the macro and micro level. Levels of decision makers on different levels and are there conflict and is it possible to make it work? OR will it never work because the framing is wrong? Does i

If they come up with a policy it needs to be culturally embedded, and aligned with interests – and norms and values outside of the direct political sphere. The alignment of the top-down and the – bottom-up is therefore important and often this is not just about the direct outcome, but about the legitimacy of processes and decisions.

- Linking micro and macro, is an endogenous critique of top down? Can individual decisions direct in direct way the macro decisions?
  - Depends what the topic is. Mitigation?
  - If the people vote they mean something, if they don't they are basically happy?

- I think it's not just interests or culture in consumer and voter behaviour, but the alignment between this and the political level. They speak to each other, in mysterious ways and a task should be to look into what ways it happens and
- What do you think of the EU commission opening a consultation, what do you think of this for participatory approach?
  - It is not useless, I think that it could be good to get some participation, and that can get the grassroots perspective in. But it depends on who actually participates. Will it be an elite participation?
  - I think there are two factors: One is legitimacy and one is the 'quality' or type of decisions made. I think that for people to respect the decisions made it has to be a real element of influence and willingness for compromise.
- To what degree is there a need for a well-educated public to have a 'competent' level of expertise to ensure good bottom-up processes?
  - In the UK there is a big scare for people this eco-friendly, there is a big group of people who are not doing that.
  - People tend to be short time gain oriented in buying products, and this is a problem. Companies in Europe need to create a good image in order to survive and this will be an important asset for European companies to survive.
  - Who has the right to tell ME what I am doing? What competence needs to be in place in the public in order to be able to be able to create 'good' processes? Inequalities, is that a problem for bottom-up influence on the state level? Independent facilitators are important and being able to quench the "un-doers". There is a need to
  - Citizenship is important – but how well established is this notion? Spatial/regulatory planning is important for example for creating space for water in the Netherlands – and there has been a change in paradigm in the way this is handled, a large change from technical barriers for the water, to the open-space for water to have space around the rivers.
- Technical issues are easier to handle than paradigm/regime change?
  - Does the bottom up processes and the foundation of the 'bottom' need to be different for transformative processes when compared to the more technical within-regime changes and adaptations that are just 'implemented'.

### Convenor

- Tor Håkon Inderberg

### Participant

- Carolina Adler

### Key messages on promising research directions

- In European research calls (e.g. FP7 and Horizon 2020) there is often a strong focus on the direct application of research results, thence gearing research proposals towards emphasising research that can show utility of their research results.
- Given the expressed need for change in socio-technical systems such a focus on direct application may be likely to be a hinder to change in itself, since the application and utility of research results will be likely to be useful for the already established system, hence disfavouring less established interests and epistemic communities, and more uncertain or long-term results.
- A large emphasis of research result utility is also likely to lead to research proposals that artificially emphasise utility of results also where it is not natural.
- Reducing the requirements for direct application and utility of results is one apparent measure that can be taken. Gain can be increased by focusing for instance on knowledge sharing.

### Discussion and recommendations

- Two recurring themes from this group are: **Utility/application requirements** and **scientific independency**
- **Utility/application requirements:** European research calls seems increasingly driven by utility and application of research results. This poses a problem in sum, because many applications are uncertain and in the long run, and for other types of (social science) results' applicability can be more unclear, at least in the long run. That research results' applicability are not obviously applicable to a given entity (policy or commercial) does not necessarily mean that it is not useful – either for society on the whole, or in terms of bringing the research front forward that in the next round may (or may not) be directly useful.
- The discourse has changed because previously we were doing research we were less concerned about the direct practicability of the findings. We tend to lose out now because the relevance is overemphasised. This is not just a question of basic research against applied research, but something larger. It is no such thing as 'science for science' anymore, it's more about applying business models, it's 'science for government' or 'science for business. Shifting trends is also a factor for shifting conditions: The pot is getting smaller and that forces us to create these layers of justification. The amount of GDP invested in research is diminishing. The ability to pose critical questions is reduced, and the benefits of science is measured by a market thinking. Then we come to the benefit. Benefit for who? Benefit for either policy and government

- Our problem as social scientists is that we are not vocal enough in this setting to be able to question the utility paradigm.
- Also the monumental challenges that are to be managed through Horizon 2020, such as transformation and climate change, need a long life-cycle, and on-going questioning of business as usual, rather than direct use and optimisation for business or policy. As social scientists we are not very good at arguing against the 'utility paradigm'. All the talk about transformation and radical change is hitting the wall against the inertia and
- Time-perspective is important here. The lag is important. The 'utility paradigm' requires usefulness or demonstrating likelihood of usefulness in the foreseeable future.
- In the group there are some experiences where around 50 per cent of the of the evaluation criteria of one of the applications are about utilization - for policy and for commercial activity
- Horizon 2020, for example is very directed at marked value and market ability and "growth" in an economic sense. This is very worrying and how can science that question these basic assumptions get funding? Critical research, which may be very important to challenging the current paradigm, can struggle to secure funding within a 'utility-thinking' order, as it can be in contradiction to the utility measures that would necessarily be utility for the 'business as usual'. In particular when we need co-funding from other sources that is very consolidating to the current paradigm, and when everybody is thinking about transformation of society this seems at times very contradicting.
  
- Another theme that came up is the ***independency of research***, given the financing structures and requirements for co-funding
  - Getting for example large energy corporations on-board as co-funders for example for smart grid research we lose our independence and we feed them with ammunition – the funder here are representative for a sector that may lose out and being so close to them raises
  - In some experiences with the evaluation of research proposals there are often categories such as societal utility. This is difficult to measure unless it is in the very short term, and very direct.
- One alternative approach could be to evaluate proposals by use of *knowledge sharing* rather than the utility and product sharing. For some calls it would be relevant and fine, but not for all. Some of the less application-oriented topics are dependent on a more fuzzy process.
  - The calls that for example early warning system for storms – utilisation is obvious. Technical specific utilisations is fine, for
  - Social science projects can also fit into this structure in some cases and for some applications, but often it becomes forced and can in some cases even be false in terms of utilisation for society/corporations/the market.
  - Universal epistemic values do not always fit between problem-oriented approaches and these need to be evaluated on different terms than application oriented projects.
  - How will you evaluate and can you be transparent about it?

- The system needs to look after transparency and how research proposals are evaluated. The criteria needs to be developed further, because they are insufficient as they are now. Interdisciplinarity is one thing, but the evaluation needs to be done by social sciences. This is not about 'good research' and 'bad research'.
- Reflexivity does not need to be falsification, it can for example be contextualization.
- For small energy cooperatives I cannot ask them to be co-funders because they don't have the money. Then I have to go to the bigger actors, who have a set preferential structure and are generally biased towards status quo.
- You need to be very careful about setting the requirements to the calls, because they set a certain standard, and in some cases they also lead to fraud because researchers adapt to the research factors. The ethics and integrity gets under pressure.
- State interests and potential biases connected to questions asked are not necessarily less biased or soaked with interests than privately funded questions! We need a plurality – there needs to be a redundancy in the system instead of one big source for
- The philanthropist financing of research seem often to be less utility focused and less strings attached. Perhaps we need a broader base for research funding, higher level of plurality. Or perhaps JPI as one of many research financiers should seeks to reduce the requirements for direct use a little.
- Early career researchers struggle to build a track record. If JPI is serious about supporting the younger and future researchers they should be serious about a) providing some particular support for younger researchers with the goal of career building, and b) reduce the utility focus in order to open up for interesting ideas and academic career building for young and future research leaders.



### Convenor

- Romano Wyss

### Participants

- Andries Richter
- Michelle Bonatti
- Gabriela Beblo

### Key messages on promising research directions

- Understand social-ecological drivers of change from an evolutionary perspective
- Extend resilience assessments of socio-ecological systems with a time dimension
- Understand the evolution of social practices and behaviour with respect to environmental change
- Development of integrated methodologies to understand the dynamics of socio-ecological change while taking into account leverage points and threshold effects

### Discussion and recommendations

- Combining evolutionary thinking from different perspectives, e.g. economics, geography, agricultural sciences or biology
- Develop methodologies and (conceptual) understandings of how to assess/measure resilience of social ecological systems
- Conceptual issues on how to deal with change in the social and the ecological sphere of social ecological systems
- Drivers of social and ecological change, direct and indirect effects of environmental change and perception of change factors by stakeholders and stakeholder groups

### Convenors

- Meg Parsons and Gabriela Beblo

### Participants

- Candice Howarth Tor Håkon Inderberg, Chris Lyon, Andries Richter, Manuel Gottschick, Nicky Phear

### Key messages on promising research directions

- Change is endemic to cultures.
- Cultures should not be seen as static, however they are very difficult to influence (steer).
- Socio-cultural changes are often incremental and take place very slowly.
- Changes in the social structures can result from both top-down and bottom-up processes, which are not mutually exclusive and can in fact be regarded as complementary!
- Because societies are highly heterogenous changes (transitions) in the cultural values, norms, and practices will have different patterns and should be addressed individually.
- Social-media can play an important role in propagating the diffusion of new ideas, values etc.

### Discussion and recommendations:

Social, cultural, economic, scientific and political processes can facilitate, but also impede social changes. These processes occur across temporal and spatial scales from global to local and vice versa. Unfortunately, the social dimension of these changes involving the values and commonly accepted norms is often underestimated. This can be partially explained by the fact that socio-cultural changes take place slowly. Attitudes, values, norms, and cognitive perceptions are deeply embedded within existing cultural systems which are resistant to change, unless the established system becomes unstable. However, once the change begins within a society or community it can build over time and have a snowballing effect leading to considerable changes in the existing regime. If the new norms become a part of the socio-cultural system ("rules of the game") then they are easily adapted on a broad scale with many people following it unconsciously. An important research question is how do we trigger, accelerate and embed such processes of change. Since societies are highly heterogenous, we believe that this issue needs to be addressed on the individual basis taking into account prevailing cultural values, norms, and practices in a given community/country. As a result of these differences we are most likely to experience a "patchwork of transitions" rather than one huge global transition towards sustainable society. The discussion was nicely illustrated by the examples provided by the participants (change in the energy system "Energiewende" and the recycling culture in Germany, individualism and the narrative of freedom in the USA, culture of denial in the UK).

### Convenor

- Maja Göpel

### Participants

- Fabio Eboli, Eivind-Hoff-Elimari, Meg Parsons

### Key messages on promising research directions

- The increasing economization of the way we manage our societies brings with it a worldview of individualization and separateness of single units, competitiveness and winner-looser judgments, and a growth means good rational in all the areas addressed. This worldview and its embodiment in the institutions and incentives of running our economies drive the continued overproduction and –consumption even in rich society that inhibits climate-compatible lifestyles. It also brings an almost exclusive focus on products and widely ignores the effects of the processes behind them (in terms of impacts on the environment, human capacities and social relations).
- Both, ecological system analysis and wellbeing research provide us with a different view on how nature and people thrive and that the general idea of more material goods bringing about more happiness is not valid once the basic needs of survival are reliably satisfied. Yet, our most influential measures like GDP calculations and purely financial calculations of returns on investment and business success ignore the environmental and human characteristics in the processes. Also, high financial return expectations drive the externalization of environmental and social costs in order to satisfy shareholder or investor interests, and investments for a restructuring of the value chain towards long-term environmental pollution reduction are almost impossible under quarterly reporting.
- Additionally, the expression in purely monetary terms allows for all the hard worked for added use value of the productive economy to be dissolving in the sea of fictitiously created “wealth” of speculation and “financial products” that have no use value at all any more for humans but through their expression in the same money form translate into exactly the same claims to real goods and services. This leads to a continuous concentration of wealth and with this too-big-to-govern (too big for democracy) power relationships, as the financial sector becomes the decision-making unit to what can be produced under which conditions.
- Proposals forward: shift the frame so the economy is not a master but a servant in satisfying human needs within the capacities of our planet so that this is secured for the long term (Brundtland definition of sustainable development) and expose conflicts of increased monetary growth (productivity and GDP) with wellbeing goals (people wishing for more time, worry about their health and social relationships, miss meaningful interaction in work environments and do not find the space for environmentally conscious consumption styles) and the possibility to meaningfully engage in governance.

- Research possibility: Define measures and scenarios with which to capture the resource intensiveness of need satisfaction so that the full value chain processes become visible: for example Manfred Max-Neef's matrix of 9 dimensions of needs and different possible satisfiers to meet these (see graph below) and measuring how resource intensive each of them are (e.g. Total Material Requirements, TMR, for an Input-Output Model). With these benchmark different solutions, including business models, and discuss which institutional reforms would make the promising ones more likely/successful (view of system innovation along entire value chains, including consumer needs/satisfaction). If GDP grows then would be not the question anymore, but politically designed market mechanisms could be scrutinized for their support or inhibition of the most promising solutions and reform proposals derived and communicated with a direct relevance to people (taking away the fear from non-GDP-growth).

Fundamental Human Needs nach Max-Neef (1991)

Need	Being (qualities)	Having (things)	Doing (actions)	Interacting (settings)
subsistence	physical and mental health	food, shelter, work	feed, clothe, rest, work	living environment, social setting
protection	care, adaptability, autonomy	social security, health systems, work	co-operate, plan, take care of, help	social environment, dwelling
affection	respect, sense of humour, generosity, sensuality	friendships, family, relationships with nature	share, take care of, make love, express emotions	privacy, intimate spaces of togetherness
understanding	critical capacity, curiosity, intuition	literature, teachers, policies, educational	analyse, study, meditate, investigate,	schools, families, universities, communities,
participation	receptiveness, dedication, sense of humour	responsibilities, duties, work, rights	cooperate, dissent, express opinions	associations, parties, churches, neighbourhoods
leisure	imagination, tranquility, spontaneity	games, parties, peace of mind	day-dream, remember, relax, have fun	landscapes, intimate spaces, places to be alone
creation	imagination, boldness, inventiveness, curiosity	abilities, skills, work, techniques	invent, build, design, work, compose, interpret	spaces for expression, workshops, audiences
identity	sense of belonging, self-esteem, consistency	language, religions, work, customs, values, norms	get to know oneself, grow, commit oneself	places one belongs to, everyday settings
freedom	autonomy, passion, self-esteem, open-mindedness	equal rights	dissent, choose, run risks, develop awareness	anywhere

## Discussion and recommendations

- It would be good to also have concrete project/communities to look at how it can be done differently and measure there if the idea of resource-light quality of life really is a trend there and which barriers they are confronted with in terms of .
- Directly address drivers of the idea that only with more material goods one can have a good life and that not having the most recent trendy stuff will lead to being left behind – in particular all the marketing messages addressing the fear of basic needs like recognition and participation to remain unsatisfied if you do not have certain products and amounts of money. This is measured as positive under GDP but is actually having negative social and environmental impacts.
- Possibly check with the few businesses that are already embracing a non-growth strategy and work towards Peak Sustainable Performance (e.g. Patagonia or SMEs with Gemeinwohlökonomie balance sheets) – but how do we ensure that multiple cool solutions in their aggregate stay within the carrying capacity?
- See how we can improve the connection urban-rural more consequently, so that there are promising lifestyles for young people and families instead of the old people being left behind there in the urbanization trends – how can we define a good size so that the diversity of what is going on and the value chain are sufficient for people to feel they can lead holistically satisfying lives? Which role to cultural projects play in this?

### Convenors

- Gabriela Beblo and Andries Richter

### Key messages on promising research directions

- Is it possible to disentangle and formalize our understanding of the social norms? To what extent are social norms habitual or due to a convenience, and what is particularly social about them? Investigate the role of the positional goods, the desire to “keep up with the Joneses”, but also the enforcement via peer pressure?
- What is the relationship between individual behaviour and the systemic structure (e.g. the socio-economic system) when it comes to preferences and values?
- How quickly do values, preferences, and norms change? To what extent do norms co-evolve with the environment?
- Investigate the role of the norm supportive structure - how does governmental policy facilitate social norm changes? Rather than trying to change social norms directly the government could provide the necessary infrastructure that could facilitate certain behavior and make it more attractive. Is there a potential for policy action to act as tipping points that may make a social norms widely accepted and enforced?
- Are there also possibilities where governmental intervention may crowd out positive social norms (e.g. by emphasizing financial incentives?)
- Investigate to what extent social norms can facilitate or inhibit change?

### Discussion and recommendations

- There are different story lines concerning how the world in 50 years will look like (e.g. a society that collapsed vs. a technological fix.) It would be interesting to analyze how these perceptions change our life-styles. Or do people “choose” the story line that fits their lifestyle?
- A lot can be learned from historical societal transformations (e.g. enlightenment). However, climate change is special as it will come with a huge time lag and it is essential to understand the any societal transformation in its context.
- It may be very interesting to investigate the context of transformation specifically, for example by analyzing how “spaces for change” can act as catalyst for transformations.
- How do values turn into social norms?
- What is the mapping between values, preferences, and social norms?
- Is the environment a luxury good?
- What is the role of social media in spreading social norms?

- Take into account that individuals are myopic or boundedly rational and self-regulate? For example by setting an alarm-clock out of reach (to avoid snoozing) or buying a yearly subscription to the gym. What are the implications for environmental policy?

### **Convenors**

- Romano Wyss and Manuel Gottschick

### **Participants**

- Michelle Bonatti, Carolina Adler, Lisa Almesjö, Armin Kratzer

### **Key messages on promising research directions**

- Different understandings of inter- and transdisciplinarity
- Different traditions (of reflection) of research practices in the social and natural sciences as a barrier to cooperation
- Shared conceptual approaches and possibly methods as a possibility to bridge the gap between the social and natural sciences
- Importance of the starting phase (ca. 20%) and the finishing phase (ca. 20%) of a project to find a common (conceptual) ground (definition of the wicked problems) and the enhancement of research results within transdisciplinary projects (searching for clumsy solutions).

### **Discussion and recommendations**

- Multidisciplinarity versus inter- and transdisciplinarity; and maybe a combination of it.
- Dominance of (research) languages - both literally and in terms of discipline based dialogues
- Interdisciplinary collaboration based on people versus cooperation based on competences
- Trade-offs and threshold in a systems context
- Governance of social systems and agenda setting – link to knowledge creation and uncertainty
- Role of institutions and funding in the context of interdisciplinary research

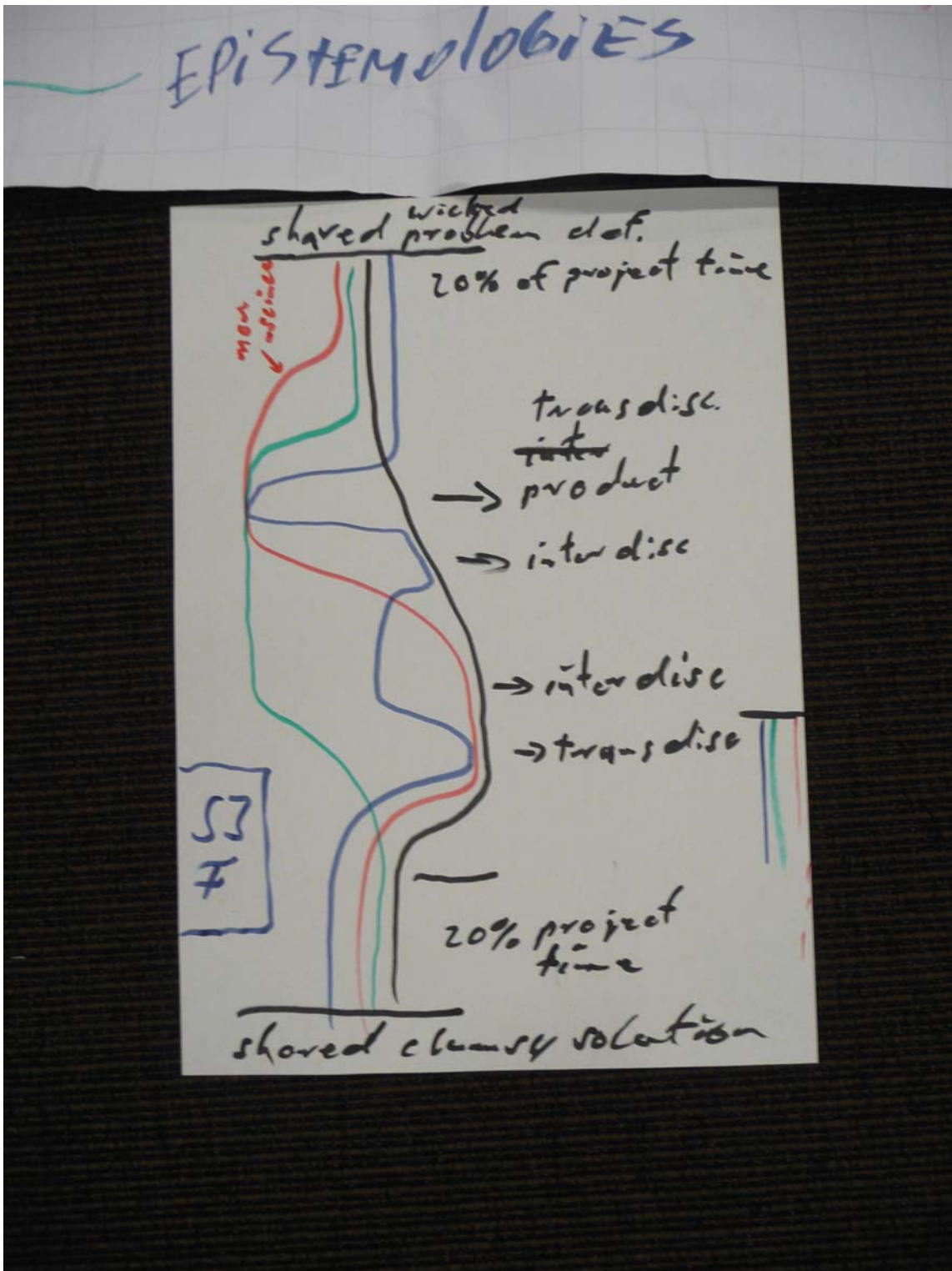


Figure 2: Photo documentation 'Investigative transdisciplinary research' 1/2



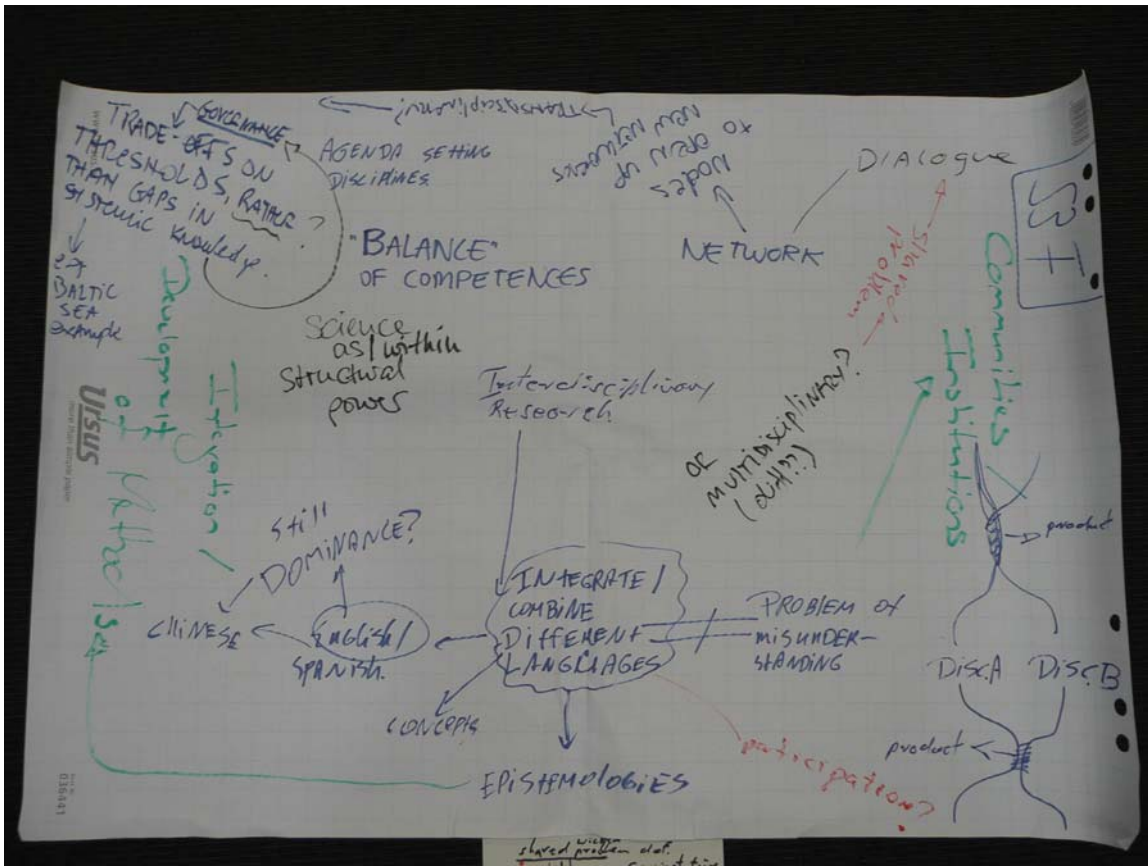


Figure 3: Photo documentation 'Investigative transdisciplinary research' 2/2

### Convenor

- Carolina Adler

### Participants

- Carolina Adler, Dries Hegger, Susanna Lidström, Romano Wyss, Karianne de Bruin, Lisa Almesjö and Peter Driessen.

### Key messages on promising research directions

- As a group, we acknowledged that there are multiple implicit frames of reference and values that influence on how we evaluate the quality of inter- and transdisciplinary knowledge. However, being 'aware' of this reality, and its significance and/or consequence for research practice, is not in itself sufficient to bring about transformation for better appraisal of knowledge. A large gap still exists on characterising values in the evaluation of climate change knowledge, for example:
  - Which values (epistemic and non-epistemic) play a role in the process of evaluation?;
  - By whom and how are these values applied?; and
  - How could the evaluation process be better structured to accommodate for the plurality of epistemic values in a given context? (epistemic frames).
- Question posed: What are the rewards in engaging in this type of knowledge co-creation, if the evaluation process on quality is vague, context-specific (it changes depending on who evaluates) and inconsistent in its application?
- Key issue of power and who "owns" the knowledge created and its usefulness;
- Research funders and their expectations, assessments and evaluation processes on research quality – systematic and comparative analysis on practice, "what seems to work" and under what conditions;

### Discussion and recommendations

- That, generally speaking, private foundations appear to be more 'flexible' or less stringent (than government funded programs) with respect to applying traditionally technical disciplinary standards for research quality;
- That, overall, standards for evaluating quality of research appear to be appraised in terms of norms or threshold levels, but not on the actual indicators (epistemic values) applied – often 'borrowed' from disciplinary basic research. Is it fair/appropriate/wise to apply to inter-transdisciplinary research? How should indicators themselves be appraised?
- Evaluating the evaluation criteria – experiences from Sweden: assessing "societal value" proved challenging, eventually this evaluation requirement was discontinued, unlike experiences from the UK and Australia where such measures for societal impact are being introduced. What are the implications for inclusion and exclusion of such indicators?;

- Different experiences/examples presented on how projects are evaluated across different stages of their 'life-cycle'. Criteria and standards applied at the proposal level, but inconsistent application at the project implementation and/or completion stage (issue of capacity and resources cited for this shortfall);
- Issue of time lag between project completion and apparent "value" or impact, often requiring 5-10 yr time span to evaluate real impact. Long time spans miss opportunities to address shorter term policy or decision-makers' need for key relevant information;
- Issue of trust and how that shapes perceptions on quality, reputation and research integrity. Care should be taken when designing standards and incentives as part of an evaluation process, as these have consequences for research practice (shaping researchers' behaviour, career choices and research priorities);
- It is difficult for young researchers to prove their ideas in an environment that expects a track record – even harder for inter- and transdisciplinary, where that track-record is even more difficult to establish or difficult to showcase and publish in high tier journals;
- Communicating evaluation processes proves difficult (legitimacy), when multiple and often divergent interpretations of like terms emerge in a given context.

### Convenor

- Karianne de Bruin

### Participants

- Armin Kratzer
- Charles Travis
- Carolina Adler

### Key messages on promising research directions

- Difference between dealing with uncertainty related to extreme events and uncertainty about the gradual change
- Scale of uncertainty; individual and decision-makers deal and react differently
- Communicating uncertainty related to future climate change

### Discussion and recommendations

- Interesting case from Switzerland; where the government has decided to accept a certain level of damages occurring from natural hazards. The government will not take measures to avoid these damages. It is not completely clear how the plan is set up; who or how the threshold is defined, what they will pay and what not (monetary vs. non-monetary damages). Focus is on infrastructure damages caused by natural hazards.

## Recurrence of situations and processes: How can pattern analysis and addressing scale issues support transformations in face of climate change?

### Convenor

- Diana Sietz

### Participants

- Timos Karpouzoglou, Romano Wyss, Michelle Bonatti

### Key messages on promising research directions

- Identification of similarities and differences of conditions and dynamics facilitates reasoning and understanding of transformations.
- Pattern analysis of underlying conditions of transformation pathways (e.g. similarities and differences) supports the transfer of adaptation options and enables the scaling-up of successful innovations.
- Scales are important:
  - At what scale do processes operate, e.g. global climate, local governance.
  - Requirements and consequences of scaling-up of opportunities.
  - Uncertainties of knowledge
  - Cumulative effects need to be considered
- Flexibility needed in inter-disciplinary approaches and methods
- Visualisation\ illustrations greatly support communication

### Discussion and recommendations

- Comparison of insights can facilitate understanding situations in other contexts or locations. Insights or conclusions may be transferred between similar contexts
- How to address transferability?
  - Identify similarities and differences. Hypothesis: similar situation would require similar approaches to foster transformation
  - Find newly emerging institutional, environmental, economic conditions
  - Key messages may be transferred including drivers that are actively shaping transformation in one context and might stimulate the search for transformative pathways in other contexts.
- How can processes operating at different scales be integrated?
- Usually disciplinary research focuses on systems (e.g. drylands, forests, coasts), actors or institutions etc. and is associated to specific methodological approaches. Interdisciplinary

research needs to integrate such approaches in a flexible way and be creative in finding ways to address complex research questions. It is important to look for recurrent patterns across different systems. For example, are institutions that shape change in coastal areas also important in drylands? Why and what does this mean?

- What if the up-scaling of innovations may threaten sustainability? For example, scaling-up of organic agriculture may require new approaches to deal with pests\diseases. This requires a re-thinking and adjustment of pest\disease control to avoid environmental pressure.
- Influence diagrams and visualisation of qualitative information is helpful in communication. For example simple x-y diagrams depicting qualitative relationship of 2 variables including trends, general behaviour or thresholds .

### Convenor

- Ines Campos

### Participants

- Fabio Eboli, Charles Travis

### Key messages on promising research directions

- More Research on the "now"; what transformation is taking place on economic, political, social and ecological systems<sup>1</sup>
- Shifts in paradigm – changes in consciousness; awareness through different forms of communicating climate change
- Shifts in market; economical dynamics – less focus on production and more focus on quality
- Consuming better – no waste and more quality products
- Governance transformation – a focus on sustainable cities – mega cities; "star mayors" supporting transformative change
- What is transformation? How to be sure it will lead to sustainable outcomes? And what is sustainability

### Discussion and recommendations

- If there is a need for shifting economic; political and societal paradigms, then within research there should be a transformation also. In economics research, for instance, a higher focus on quality (not quantity) as the heart of the production cycle. Governance studies should address local governance from a multilevel perspective, considering cities and their mayors as the hearts of change, influenced by national policy, by regional directives but also by local solutions. It is important to map and understand examples of transformation occurring today, that can be replicated and up-scaled. It is also important to understand what is transformation and how is sustainability integrated in processes of change, preventing dominant ways of being and doing things from taking over and again detour from sustainable pathways.
- The role of environmental education and other approaches that attempt to support shifts in environmental awareness should be assessed in terms of efficiency. Are the adults of today being overlooked? Is there a focus just on children? Does societal transformation need education reforms? Should there be something else?
- A focus on communication is important, a flattening the hierarchical links between society at large, business and corporations, political institutions and science. Communication should be transversal and constant in order to promote transformative change now.
- More research on everyday life could help understand why so often people are aware of a problem, but do not act on it. They are aware recycling is important but do not recycle, for

instance. To understand this value-action gap, it would be important to look at the micro level, understand why people choose to act in a certain way and try to identify key drivers for change at the individual level, which can be promoted, so that a replicating wave of change emerges.



### Convenor

- Rüdiger Haum

### Key messages on promising research directions

- Transformations towards a sustainable society may be understood as multiple smaller transformations/ transitions towards
- Democracy is crucial for accelerating the mitigation of climate change, however what "changes" to democratic system needs to actually initiate, stabilise and accelerate relevant decision making
- A large body of knowledge exists on social change towards a sustainable society but the notion of "accelerating" these changes is largely missing
- Processes of long-term technological and social change (industrial revolution) are well researched that that knowledge is not made "fruitful" towards shaping and accelerating transformations towards a sustainable society

### Discussion and recommendations

- A stronger focus on developing political strategies to accelerate transformations
- Strong research focus in what political institutions and processes may support acceleration of by creating the required social conditions
- Linking the research traditions of innovation studies (in the widest sense) with political science perspectives to accommodate knowledge on "change" with the normative requirements of democracy as well as the role of politics in facilitating radical change
- More research how markets need to be designed and regulated (governed) in order to accelerate technological and social innovation
- Understand the role of collective decisions in accelerated transformation
- Do we need to reconsider what we know about innovation and its drivers in the light of climate change?
- Acceleration might possible require the mining, recombination and communication of existing knowledge
- Is there now role for boundary work between science and government in the light of selective reception of sustainability knowledge in the policy side/
- If transformations need to accelerated it is likely different bodies knowledge / rationalities of societal sub systems not only need to integrated in science but also in education

## The role of Individuals (citizens, consumers, researchers...) in societal transformations in the face of climate change

### Convenor

- Dries Hegger

### Participants

- Lisa Almesjö; Dries Hegger; Michelle Bonatti; Abigail Lynam; Jeppe Laessöe

### Key messages on promising research directions

- Societies are made up of individuals. A research agenda on societal transformations under climate change should conceptualise the role of these individuals. A pressing question is what would be action perspectives for them – towards sustainable transformations – under different circumstances;
- A conceptualisation of the individual should try to build a bridge between approaches that centre on the individual (e.g. social psychology) and systemic approaches (e.g. macro-economics). Several existing frameworks (e.g. social practices approach, four quadrants approach within integral theory) seem promising in this respect;
- Even when the individual is conceptualised ‘in context’, it can still be approached from different angles, for instance as actor within a system; as the carrier of societal values; as participant in social practices amongst others. It is probably enriching to use such approaches simultaneously;
- An important research question is what causes stability and what causes change in the collective behaviour of individuals. For instance, how can we explain the ‘Arabic spring’? How can we explain that now everyone is ‘swiping’ their iPhones in the subway? From policy sciences (e.g. Punctuated Equilibrium Theory) we can learn that changes are virtually always underway, before we witness their manifestations.

### Discussion and recommendations

In this group we discussed how individuals (who can be citizens, consumers, researchers...) relate to the societies they are part of. Several approaches seem to have a tendency to focus on specific aspects of the ‘micro’ (individual) level or the ‘macro’ (societal/system) level (e.g. social-psychologists or micro-economists vs. theorists on socio-technical systems or sociologists developing ‘grand’ theories of society). It is a challenge and an interesting opportunity to bring these two strands together. Some frameworks for doing so do already exist. Examples are social practices theory and the social practices approach as has been developed within environmental sociology (e.g. Gert Spaargaren) as well as the four quadrant framework within integral theory (Ken Wilbert). Both frameworks have the intention to take into account that individuals act within systems and are both enabled and constrained by these systems while on the other hand they may also be under some circumstances a driving force for systemic changes.

Inspired by these two frameworks, several interesting research directions for JPI climate were discussed: Using a social practices approach one can approach an issue from different perspectives. One can look at the level of practices and sub-domains like food consumption, housing, clothing, travelling etc. What kinds of changes have taken place in these domains in a certain time frame and geographical context, how can the presence or absence of such changes be explained and what was the role of citizens/consumers therein?

One can also approach the individual from a systemic point of view. For instance, taking a concrete policy issue like climate change adaptation and within this a certain sub-issue (flood risk management), one can ask such questions as what role has been played or can be played by citizens/consumers in this (adaptation) domain?

Also, one can take for instance cultural values (e.g. of different lifestyle groups) as a starting point and ask what their role has been in shaping societies.

The four quadrant framework within integral theory distinguishes the following four quadrants: 1) values (focused on the individual and the interior); 2) culture (collective and interior); 3) behaviour (individual and exterior) and 4) systems (exterior and collective). These four quadrants are of course interrelated. Within JPI Climate, questions could be addressed about the interrelationship between the four quadrants.

The point was furthermore raised that social psychologists do have a role to play in addressing the role of individuals. An important issue is the one of dealing with uncertainty both in human and natural systems. Some people seem to have a tendency to want to ignore uncertainties, whereas others opt for alarmism.

## How can we bring sustainable innovations to scale so that we can enable larger transformations?

### Convenor

- Timos Karpouzoglou

### Participants

- Daniel Hausknost, Ines Campos, Jelle Behagel,

### Key messages on promising research directions

- Much of our understanding of innovation is biased towards technology, more openness is needed in the definition of innovation, and to incorporate social, ecological and institutional innovations.
- Need to develop a better understanding of multiple drivers of change operating across different spatial and temporal scales (climate and society related), and how these can steer or undermine the wider adoption of climate smart innovations.
- Some drivers of change that can influence if innovations can be brought to scale can be measured using quantitative methodologies (i.e. financial investments in specific technologies). Other drivers however may require more qualitative methodologies (i.e. the influence of collective value systems, and political decision systems). It is important to incorporate both in the research process.

### Discussion and recommendations

- It is important to have a discussion about the definition of 'drivers of change', so that it allows openness to different trends. Quantifiable but also qualitative.
- Need to think about the costs of bringing innovations scale. For example in terms of their ecological and social impacts once their adoption is substantially enhanced.
- Bounding the research problem in terms of scale, technology, or sector can be difficult. On one hand you require sufficient breadth in the focus (for example innovations at the European level) but also not losing the details of context specificity. This is a trade off involved in carrying out this type of research.

## The University in Addressing Climate Change: Communicating Climate Change for Impactful Action

### Convenors

- Christopher Lyon
- Candice Howarth

### Participants

- Meg Parsons, Nicky Phear, Abigail Lynam, Candice Howarth, Christopher Lyon, Timos Karpouzglou, Susanna Lidström, Charles Travis

### Key messages on promising research directions

- Create a vision of an academic culture that recognises its role in addressing climate change and engages in the process of reflexively adapting itself to the task
- Recognise that climate change requires personal and societal transformations as these are inherently connected
- Acknowledge that transformations are not static, but remain processes in themselves
- Incorporate innovative and creative communication as part of an on-going reflexive process, as opposed to end-goal communication outputs
- Overtly recognise that there are many dimensions (cultural, historic, class, anthropological, geographical, organisational, institutional, political, scientific) that inform, drive and comprise the issue of climate change together with societal responses *and see these as opportunities, not barriers*

### Discussion and recommendations

- Emphasise and recognise process more than specific outcomes, end goals, or deliverables
  - Move away from quantified, deliverable led assessment framework, recognising that effective research output and communication may not be captured by quantitative metrics (e.g. number/type of journal articles/publications)
  - Encourage a flexible, adaptive, reflective, “learning loop” process throughout the research that is able to transform research as new leads and questions emerge
- Develop a culture of acceptance of errors and failure as part of a research and learning process
- Challenge academic cultures, systems, and structures to foster collaboration and communication between researchers, and researchers and the public (e.g. around risk taking, traditional but limited means of scholarly communication).
  - Develop the courage to make the issue personal and challenge the institutional cultures and incentive structures that work against effective communication and research about climate change
  - Normalise risk-taking and system/paradigm challenging in order to transcend static academic

cultures

- Move away from the traditional single expert, elitist model of academic research and communication to better recognise the plurality of valid contributions/ideas, enable and create research cultures and outputs that embrace this reality
- Redefine what counts as a research output: What it is? What is its value? Should it represent success?
- Better identify and make use of opportunities for engaging and communication research
- Develop and institutionalise new methodologies and practices that integrate diverse communication processes and means
- Focus on quality not quantity

### Convenor

- Manuel Gottschick

### Participants

- Michelle Bonatti, Abigail Lynam, Armin Kratzer

### Key messages on promising research directions

- To analyse the interest and decision situation of your target group is key to do feasible research for transition and decision support.

### Discussion and recommendations

- Often climate knowledge recipients “need to survive” and can not/want not to think about climate change.
- How can we as applied scientist develop a respectful attitude and cope with the “nasty” plurality of society?
- Social norms have some importance. E.g. cultural aspects that lead our behaviors
- What are our blind spots of our perceptions of society? We are socialized in a high educated social group and tend to apply this personal experience to our mental model of society.
- What want society? → What want individuals (from society)?
- Useful structure to analyse “society”: individuals → groups → pattern of society, Knowledge transformation is/could be a process of domination. E.g. when we proposed “best” practices or “optimal” transformative knowledge it represent best for who?
- Is climate change in a rational way less relevant for society? How can we poof this?
- Work with (stakeholder) as they are. Analyse what degree of complexity and long-term perspective is normal for that group. And work with that (without trying to change this (too much)).

# Participants

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