

Governing foresight: the politics of imagining Anthropocene futures

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Faced with the complex challenges of the Anthropocene, there is an urgent need for action-oriented approaches to anticipation – to help imagine and pre-experience challenging futures, to question limiting assumptions about what futures may be possible, and to experiment with strategies aimed at transformational change.

This paper explores a key gap in current Earth System Governance research: understanding the governance of a growing array of anticipatory activities that can collectively be termed ‘foresight’. Foresight is a label for methods of anticipation that aim to explore what the future might bring – with most foresight approaches focusing on the use of multiple alternative scenarios to explore future directions of multiple drivers of change (Habegger 2010, Bourgeois et al. 2012). Ostensibly, foresight should help create better anticipatory governance, for instance to ensure the resilience of the population in a country or region in the face of future changes. But how are foresight processes being governed, i.e. who is steering them, to what end, and through what deliberative or representative processes? We present a set of research questions to help shape a research agenda on foresight and environmental governance, and then apply these research questions to two diverse case studies for a (preliminary) analysis.

We are proposing to engage with this question as part of a wider effort within Earth System Governance to understand anticipatory governance. By anticipatory governance, we mean governance in the face of normative and scientific uncertainty and conflict over the very existence, nature and distributive implications of future risks and harms (Guston 2014). This wider research agenda includes questions such as: What does and should ex-ante, anticipatory governance consist of? What normative underpinnings are discernible in anticipatory governance arrangements? Who decides how these arrangements are organized, and through what means? How is the accountability of anticipatory governance secured?

The growing role of foresight in environmental governance

In the face of climate change and global pressures on the environment, governments and other actors are increasingly looking to foresight to help imagine and experiment with potential future climate conditions, and their interactions with other (economic, political, socio-cultural) uncertainties (Vermeulen et al. 2013). Developing countries that are highly vulnerable to climate change are, increasingly, seeking to use foresight studies to guide their adaptation and mitigation planning, both in dedicated climate policies and plans, and in other sectoral planning (Vervoort et al. 2014). The recently concluded Paris Agreement and its goal to aim to restrict temperature increases to below 1.5 degrees gives increased impetus to foresight

processes, as evident from the IPCC special report now commissioned to consider ways forward - national commitments to lower emissions require the exploration of transformative pathways (Van Asselt 2016).

Much progress has been made within the field of foresight regarding sustainability challenges, leading to strong insights on the integration of qualitative and quantitative scenarios (Alcamo 2008, Volkery et al. 2008), the integration of scenarios across scales (Kok et al. 2006, Biggs et al. 2007, Kok et al. 2007), and novel ways of constructing scenario frameworks (Lord et al. 2016). The community of IPCC-related researchers has recently developed a new set of climate and socio-economic scenarios that aim to function as a set of global reference contexts (O'Neill et al. 2014), building on a similar role for the SRES scenarios before it (Arnell et al. 2004).

Disconnects between foresight and governance research

There are, however, important disconnects between foresight research, rooted mainly in environmental sciences, macro-economics, land use change and business planning, and research on environmental policy and governance (Pulver and VanDeveer 2009, Gupta and Mason 2014):

1. There is lack of understanding of foresight as a political intervention and hence a need to govern foresight processes: the future is an open space, but not a politically neutral nor an empty space, with many actors projecting their interests onto it (Sova et al. 2015, Vervoort et al. 2015). Numerous academic communities have long addressed various dimensions of anticipatory environmental and technological governance, including scholars of transition studies, risk, science and technology studies, and responsible research and innovation. Yet the notion is understood and deployed within these communities in very different ways, with diverse normative starting points and research agendas. Similarly, elements such as forecasting, scenario-building, long-term strategizing, real-time technology assessment, information disclosure, and citizen deliberation, are assumed to be more or less important to processes and institutional arrangements for anticipatory governance, yet how these function in contested geopolitical contexts of uneven earth system transformations remains under-analyzed. Critical social science perspectives on such foresight processes are thus urgently needed to understand the political motivations for and consequences of the creation for alternative future scenarios and projections. Who is leading these efforts? Who is not involved? Who is affected? What discourses and modes of thinking are promoted through foresight, and what is ignored or marginalized? Who determines what futures are 'plausible' (Ramírez and Selin 2014)? What kind of governance arenas are created through foresight processes? How do issues of equity and justice play out in foresight processes (Shi et al. 2016)?

2. There is a lack of understanding of how and why foresight is integrated into environmental governance and policy processes: Many foresight processes are initiated by actors who are disconnected from decision-makers in governments, the private sector or civil society, and while such decision-makers may participate in foresight processes, integration between foresight and specific planning processes is not part of the mandate, the interest or the experience of many foresight organizers (Bourgeois et al. 2012). Alternatively, foresight exercises might be encouraged by policy makers for various reasons – to make policy less focused on power politics and more problem-oriented (Jordan and Turnpenny 2015) or, as critics of foresight allege, to deflect urgent and politically contested decisions and actions on climate mitigation and adaptation (Green 2014). The two cases discussed in this paper also reflect ambitions to conduct governance-literate foresight: the CGIAR's CCAFS Scenarios Project has conducted a number of foresight processes that have been designed specifically to guide policy and this objective has been achieved in a number of specific cases (Vervoort et al. 2014, Mason-D'Croz et al. 2016). The project has

also identified a widespread demand for policy-relevant foresight in the world's vulnerable regions. The TRANSMANGO project has similarly integrated foresight with planning activities, this time with social innovation movements and with the EU (transmango.eu). However, much is still not understood about how foresight can be integrated more effectively with policy formulation. The question of effectiveness also extends to the content of future scenarios, which is often limited and does not take important policy and governance-related drivers into account (Garb et al. 2008). How can the content of foresight be made more relevant to policy and governance, and to contested political choices? How can foresight lead to truly novel, salient climate governance futures (Vervoort et al. 2012, Payo et al. 2016)?

Bringing together the disconnected fields of foresight and environmental governance to address the two-pronged research challenge noted above is, in our view, urgent and timely, and should ideally become the focus of a partnership between leading foresight and climate governance scholars.

With the adoption of the Paris Agreement, and its coming into force in November 2016, foresight processes are now set to play an increasingly central role in anticipatory climate governance (MacNaghten and Owen 2011, Biermann et al. 2012, Macnaghten and Chilvers 2014). This requires rethinking foresight itself, and analyzing its political context and implications. This research will reconceptualize foresight as going beyond an expert-driven neutral input into improved climate policy and decision-making. Instead, we aim to understand whether and how foresight initiatives constitute a site of politics and governance in and of themselves, wherein potentially contested, alternative versions of climate futures are imagined, negotiated, used and/ or ignored in the scenario development process and by key policy actors. If foresight is indeed a site of politics, what does this mean for its potential to create more democratic anticipatory governance? While this is a general research gap in both developed and developing country contexts (Boucher et al. 2016), we propose that research should focus especially on investigating these dynamics in the world's most vulnerable regions of the Global South, where they are most pressing, but least analyzed (Chaudhury et al. 2013, Jalloh et al. 2013, Haque and Huq 2015).

Proposing a research agenda on foresight and environmental governance

A new Earth System Governance working group on the wider domain of anticipatory governance has proposed the following future directions for research (see also earthsystemgovernance.net/conceptual-foundations):

- Explore the historical antecedents and understandings of anticipatory governance within the social science and global change research communities, in order to ascertain whether and how the notion is being deployed, and with what political implications and/or uptake.
- Draw on this state-of-the art review to further elaborate our own understanding of anticipatory governance, and assess the current state of play with regard to institutional arrangements and normative presumptions in diverse areas of sustainability governance.
- Comparatively assess the institutional and normative elements discernible in emerging anticipatory governance of novel technological risk and harm, including in areas such as geoengineering, nanotechnology, synthetic biology and modern biotechnology.
- Bring critical social science perspectives to bear on processes of anticipation (foresight), the futures they generate, and the ways in which they are integrated into governance processes.

Here, we elaborate on the last point of focus – though all of the above research goals have relevance for the specific study of foresight. A group of researchers from the IPPC scenarios community has, in a workshop at the Earth System Governance conference in Tokyo in 2013, asked for inputs from governance researchers to help improve their global foresight. Both communities agreed that the integration of climate governance research insights into climate foresight is key for the ability of researchers and policy makers to imagine futures that are attuned to complex political realities.

We propose that research on foresight and environmental governance should focus on the following analytical points:

1. **Why** is a foresight exercise undertaken in the first place? What is its proposed impact? What purpose is publically stated and does this purpose differ from the strategic reasons key actors may have to initiate it?
2. **Who** is involved in foresight? What types of actors lead the process, who commissions it, who sets the agenda, the duration of the project and the key moments in the process? Who is included? Who are stakeholders in the process? How are they selected? What power do they have to shape its contents and its use? How are different types of disciplinary and stakeholder knowledge and experience valued?
3. **What** types of futures are imagined? To what framings, discourses, worldviews etc. can they be seen to belong? How do they prohibit more pluralism in foresight? Do experiential aspects of imagination play a role?
4. **How** is the foresight process integrated into governance processes and structures?

A comparative case study: two scenario projects

To provide a preliminary demonstration as to why the above questions may be useful, we investigate two scenario projects led by one of the authors (Vervoort) that share some methodological similarities but are, at the same time, focused on different global regions, and primarily engaging with different levels of governance. It is important to know that in each of these two case studies, attempts were made to be reflexive about the above questions already.

We will briefly compare the two projects on the basis of each of the analytical questions, with a more in-depth analysis planned for a future version of this paper – where other case studies will be included as well.

The CCAFS Scenarios Project

The Scenarios Project of the CGIAR's Climate Change, Agriculture and Food Security program (ccaafs.cgiar.org/scenarios) is a project that evaluates the use of governance scenarios for policy development in the context of climate adaptation, socio-economic development and food security through six case studies (Vermeulen et al. 2013, Vervoort et al. 2014). First, regional scenarios were developed by stakeholders in seven global regions: East and West Africa, South and Southeast Asia, the Andes, Central America and the Pacific. Participants used a novel method for the combination of many interacting drivers in the scenarios. The scenarios were then quantified using two global agricultural economic models, IMPACT and GLOBIOM. In each of these regions, dialogues with governments led to the identification of a number of specific national policy processes (Cambodia, Honduras, Costa Rica, Peru, Bangladesh, Burkina Faso, Tanzania, Uganda). For this purpose, those involved in the processes and wider groups of stakeholders used a method for re-imagining the regional scenarios to ensure a good fit

with policy concerns. These adapted scenarios were used in detailed analyses of the policy drafts, and suggested changes were taken up into new policy drafts and taken forward toward finalization and implementation, supported by the project researchers.

The FP7 TRANSMANGO project

TRANSMANGO is a European Commission FP7 funded program on the future of food in Europe (transmango.eu), in the context of global change. The goal of the program is to identify and develop alternative transition pathways to more sustainable food and nutrition systems for the future of Europe, in the face of uncertain global change. The focus in TRANSMANGO is on capturing and developing a diversity of perspectives on the future of food in Europe – to go beyond “business as usual” ideas and dominant discourses on food and nutrition. The program works with a number of sub-national case studies to identify alternative niches and practices across food systems, and analyze their potential for contributing to systemic transitions to more sustainable and resilient food systems. The feasibility of these transition pathways is tested against scenarios created by stakeholders in sub-national social innovation projects, and at the level of the EU.

If we compare these two projects according to our research questions, we find the following points of comparison – though this is a preliminary comparison that will be developed further. We ask the ‘why’ and ‘who’ questions together, since the answers to these questions prove to be strongly intertwined.

Why is the process initiated; who is involved?

Very generally, both projects aim to use foresight to contribute to more sustainable food and nutrition security in their focus regions/countries. But specific aims differ. The CCAFS Scenarios Project aims to improve food and nutrition security by investigating the feasibility of national policies through challenging future scenarios – in the process opening up policy development to various stakeholders who may be affected by these policies, or may be instrumental in achieving them. The TRANSMANGO program uses foresight to enrich EU-level explorations of food-related policy with the practices and future visions of social innovators throughout Europe – aiming to provide more ways to achieve sustainable food and nutrition security. At the same time, it seeks to help social innovators in the food system test the feasibility of their strategies in the face of future uncertainty, but also aims to give them a voice in EU-level strategy.

In both projects, the overall process is led by a consortium of researchers – a combination of European, African, Asian and Latin American researchers in the case of CCAFS, and European researchers in the case of TRANSMANGO. The CCAFS Scenarios Project is funded by a range of development funders, including the EU and national governments – with a strong development mandate that requires identifiable policy impact. This mandate has focused the project on engaging with pre-existing policy processes to ensure maximum, concrete impact in all of its global regions. This approach has been described as successful in achieving policy-specific outcomes – in the sense that plans and policies have been shaped by foresight, but could be considered to focus on the support of current policy processes rather than the establishment of new governance where gaps exist. TRANSMANGO is funded under the EU FP7 program, which entails that its mandate is mostly one of producing relevant research, and its imperative for direct societal impact is less prominent than in the case of CCAFS. However, the researchers in TRANSMANGO believe that foresight should have identifiable impacts on governance, and at the same time, that the governance of foresight should (also) be in the hands of social innovators to allow them to explore challenging and desired futures and so improve their strategies. Because of this, they are working closely

with sub-national projects focused on social innovation in the context of food to ensure that these project partners benefit from targeted foresight.

In both cases, individual foresight processes are co-designed with users to ensure maximum impact. An effort is made to include diverse actor groups, including representatives of vulnerable groups such as groups representing smallholder farmers, women's rights organizations, youth organizations and organizations that work directly with food insecure people. In both case studies, overarching regional scenarios are first developed with a range of stakeholders, mostly representatives of sector organizations at the regional level. This means that stakeholders who are operating at lower levels are mainly represented by proxy by prominent people in the organizations that cover their interests, such as farmer or consumer organizations. When the European scenarios are then used for national (CCAFS) or local (TRANSMANGO) planning processes, actors at those levels form the primary stakeholder groups – and because processes are organized across countries in a region or across sub-national initiatives, many avenues for participation are created. In TRANSMANGO, local scenario planning which is conducted in the context of the European scenarios is re-integrated into the European scenarios, offering a concrete link from local perspectives to the European context. The focus on specific strategies and policies in both projects means that each foresight process has a 'main' partner, which arguably biases the process towards these stakeholders unless the researchers work to mitigate that bias.

How is the foresight process integrated into governance processes and structures?

In the CCAFS project, partly because of the need to show concrete policy impacts, the project engages with the national governance level where there is a clear demand for structured investigations of policy options. Foresight processes in this project are designed to be integrated with the pre-existing processes of policy and strategy development. However, true integration between foresight and planning is not always straightforward, because of internal political tensions around policies, changes in government personnel, and the reliance on consultants and other temporary actors.

In the TRANSMANGO project, local foresight processes are conducted in close collaboration with local food innovation projects, and other process participants are invited to contribute to that project's strategy – though it has not always been possible to identify clear 'clients' of the process because of the fragmentation of social innovation efforts around food. In those cases, strategic planning on the basis of foresight has focused on developing and experimenting with new arrangements for collaboration. At the EU level in TRANSMANGO, the goal is to ensure a more resilient food system – and here, engagement with existing policy processes is less of an option and new processes have to be initiated. TRANSMANGO's goal is to establish a new EU policy platform on integrating food and nutrition security policy and enabling social innovation throughout Europe.

What types of futures are imagined?

In the CCAFS Scenarios Project, a conscious effort has been made to break away from the very much agriculture-focused overarching frame of the CGIAR, to imagine futures which focus on wider food system issues and socio-economic concerns. Though disciplines of food systems research, (agricultural) economics, land use change and environmental science dominate, the scenarios are also strongly focused on questions of governance and political economy. Other strong influences on the framing of the foresight in the project are the development, adaptation and conservation discourses around the national policies that are being targeted. In terms of how different drivers of change shape the future scenarios

that are being considered, an innovation was introduced in several of the CCAFS regional processes to make the scenarios more multi-dimensional (Lord et al. 2016). This approach allowed for the inclusion of a range of social, economic, environmental, cultural and political drivers in the same scenario set, making regional scenarios more adaptable to different national concerns (Mason-D'Croz et al. 2016). The approach to multi-dimensional scenarios developed in the CCAFS project was also applied in the TRANSMANGO project – including even more drivers of change. The shift to multi-dimensional scenarios where many drivers of change interact in both cases means that the resulting scenarios can be seen as conforming less with pre-existing narratives – because it takes more effort to create coherent narratives about a larger number of interacting drivers. In addition, in the TRANSMANGO project, part of the project approach is to identify key discourses around the future of food in Europe and use these discourses to characterize foresight results.

In terms of the engagement of experience, in both the CCAFS and TRANSMANGO projects, the emphasis in scenario development has been on narrative story development, structured by conceptual mapping and other analytical tools. However, in the CCAFS project, storytelling through role-playing has been introduced in some regions to help create personal perspectives on the futures that are being explored. In one region in particular, the Pacific, the express goal of the project was to create resonant narratives about the evolution of the Pacific food system under climate change, and much more time was dedicated to the experiential and storytelling aspects of scenario development. In both the CCAFS Scenarios Project and TRANSMANGO, visual facilitators were employed to help bring the narratives to life for participants while they were creating them – establishing a feedback loop between storytelling and visualization. In one specific process in the West Africa region for the CCAFS Scenarios Project, with a focus on Ghana, scenarios were developed from the local level to the national. This process started with a storytelling exercise among people at different levels, to share their lived experiences, as a basis for planning and scenario development. Finally, the TRANSMANGO project includes a process where ‘game jams’ –events where various games are constructed by game designers, and in this case, food stakeholders- are organized throughout Europe to create a range of games that each provide a different, direct experience related to the future of food in Europe. Some projects make use of virtual reality technology to bring experiential futures to life.

Preliminary discussion and conclusions

As previously mentioned, our two example case studies are not typical foresight cases because in both examples, efforts have already been undertaken to build on governance research to create more inclusive processes that engage with diverse conceptions of the future, and that integrate with existing governance processes.

What does emerge from our analysis is that the ‘why’ and ‘who’ questions cannot easily be separated, at least not in terms of who leads and funds a foresight process. The development funding that drives the CCAFS process comes with a clear mandate to achieve policy outcomes which drives the foresight project toward existing policy processes; while the TRANSMANGO process, because of its research-oriented funding, can afford to take a less outcome-oriented approach, take more risks, and therefore engage more primarily with actors beyond national government – but has less resources and support for continuous national policy engagement, and more of a focus on EU level policy. Therefore, who funds the foresight has an influence on who else is involved, though both processes still aim to include a wide range of stakeholders in their processes. Taking another step back, the broader agendas of funders shape each foresight process – development funding is under political pressure to demonstrate significant outcomes

rapidly, on a yearly basis; EU research funding has to stimulate innovation action across Europe. Both types of funding are themselves under threat as political priorities threaten to shift away from development and EU research. Finally, the focus in EU funding has shifted away from research plus general stakeholder engagement, and more toward direct collaboration with private sector partners with the advent of Horizon 2020 funding. For foresight, true partnerships with private sector increases the chance of impacts, but could also be said to contribute to pre-selecting the key actors involved in foresight processes. The answers to the 'who' and 'why' questions for these examples indicate that these foresight processes are political, not just in terms of the objectives of their funders, but also in terms of their major partners (national governments and social innovation practices, respectively) who can use foresight to involve new actors in their decision-making, create awareness about their strategies, and might gain credibility through their use of science-based policy approaches – though this is mostly anecdotal in these examples, and based on observations from the literature (Jordan and Turnpenny 2015). For other actors, the foresight processes offer a possibility to express their views and goals and include them into the planning process in a way that would not be possible with less participatory policy formulation. While those greater opportunities may be created through other participatory policy processes as well, the use of foresight approaches has a specific political dimension – because foresight is based on the acknowledgement that any single imagined future cannot be said to be the more likely future – and should therefore not be the only frame in which plans are formulated. In the face of uncertainty, foresight processes acknowledge that many different perspectives are valid and needed.

When foresight processes do succeed in creating more inclusive planning processes, this inclusivity should also lead to more pluralistic imaginings of 'what' futures are considered – but this depends strongly on the methods used. The case studies use methods that create multi-dimensional, adaptable futures, but methods that start entirely from the diverse past, present and future worlds of different actors may create more truly pluralistic foresight (Vervoort et al. 2015).

Similarly, when there is clarity about the 'why' and 'who' of foresight – the purpose, the supporters and funders, the target users et cetera, the question of 'how' foresight should be integrated into planning is easier to answer – and answering this question focuses more on integration with existing governance mechanisms and the establishment of new processes, depending on the case.

Because of this, we propose that investigating the 'why' and 'who' aspects of foresight, beyond their stated purpose and most obvious process leadership, and into underlying reasons and into organizational and funding contexts, can help make both critique and design of foresight more reflexive. Those who analyze foresight processes can point to how purpose and supporters frame which futures are explored and how they are integrated into governance; designers of foresight processes can develop more reflexivity about their own processes and aim to correct for problematic framings and exclusions of certain actors – and certain imaginable futures. At the same time, the 'what' and 'how' questions point to research needed from a combined governance and foresight perspectives on the methods of foresight and the practical challenges of integrating foresight with governance processes. Finally, we would like to propose that beyond investigating the proposed questions, future research that links foresight and environmental governance should aim to conduct empirical studies on live foresight processes, from their conception to beyond their finalization – to trace shorter and longer-term impacts or the lack thereof.

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