12 QUESTIONS TO BIRGIT KOPAINSKY

1. From your point of view, what are today's most pressing environmental problems?

As a systems thinker, I find it hard to prioritize one or a few pressing environmental problems. They are all interlinked. And they are the tip of the iceberg; they are symptoms of an underlying system where a one-sided focus on (economic) growth erodes well-being, social justice, and environmental sustainability. So my answer would be that the most pressing environmental problem is the addiction to economic growth.

2. When looking at potential improvements in our environment, what gives you hope?

There seems to be an overall increase in awareness about the urgency of climate solutions. And I'm inspired by the determination of young people to push for change and to hold us accountable. Sadly, the speed and scope of these developments are not nearly sufficient. Instead of being hopeful, I simply choose to believe that we must find a way. We have the tools and the potential to transform our systems. We "just" have to do it.

3. Is there a particular environmental policy reform you admire the most?

Not really. Even the success story of electric vehicles in Norway ends on a rather disappointing note. In the early years, strong incentives for both producers and consumers of electric vehicles alike removed many of the barriers that typically favor the incumbent in a "success to the successful" system archetype, facilitating the rapid adoption and diffusion of electric vehicles. However, without imposing a limit on the total number of vehicles, it became clear that this was not a mobility transition but a mobility addition, and without simultaneous investment in public transportation, the root cause of the environmental problems caused by mobility could not be addressed.

4. Which trend in environmental policy and politics do you consider an aberration?

Reinforcing feedback loops generate exponential behavior and path dependency. Economic growth relies on such reinforcing mechanisms, and it relies on cheap energy and subsidized fossil fuels. Recycling and efficiency gains can only compensate to a very limited extent for the resource extraction and use associated with this growth, and usually lead to rebound effects.

5. Why environmental communication and campaigning?

Both are vital tools for fostering understanding, inspiring action, and driving positive change towards a more sustainable world. But knowledge and awareness alone do not lead to action. Campaigns must also address emotions, cues and triggers, values and norms, and beliefs, in ways that take into account the diversity and plurality of lived realities. We researchers need to be more proactive and not shy away from discussing the policy, management, and ethical issues related to our scientific work.

6. What has your experience been when it comes to transferring scientific insights into practice?

For me, the time of science transfer is long gone. The complex and messy problems that we are dealing with in sustainability science require us to co-create understanding, visions and solutions. It requires a shift from doing science for society to doing science with society. I find it humbling and inspiring to explore and exploit the potential of systems thinking and modeling tools in transdisciplinary projects and processes.

7. What field of research in the environmental sciences do you find most exciting?

Probably the field of just transitions. The social, ecological, and technological transitions required to achieve decarbonization and other sustainable development goals will have to be ever more disruptive, inevitably risking reproducing existing or creating new environmental and socio-economic injustices and inequalities. I am interested in contributing to a better understanding of how the scholarship of just transitions can offer perspectives and principles that can be useful for model-based assessment of decarbonization pathways and policies.

8. Can you name any person or event that has had a particular influence on your commitment to environmental issues?

What influenced me most was not one person or event, but the personal experience accumulated over many years of connecting with nature in different ways and contexts. This sense of connection, which is increasingly broken today, grounds and inspires me.

9. What knowledge about the environment would you like to pass on to young people?

The answer to this question is closely related to the previous one. It's not so much knowledge that I want young people to have, but a deep sense of connection with the natural world, which is crucial to a commitment to environmental and social stewardship. I'd also like to see young people become strong systems thinkers who have a holistic perspective that is essential for understanding, managing, and solving complex and interconnected environmental challenges. We have a responsibility to build young people's confidence and enable them to transform their fears about the future into hope and positive action.

10. As a person concerned with environmental and especially climate communication, what contradictions do you face in everyday life?

I am grappling with the contradiction that arises from my personal consumption and lifestyle choices while at the same time seeing and advocating for climate solutions. To play the systems thinker card one more time: while taking full responsibility for these contradictions at the individual level, the system around us makes it really difficult to see how changes at the individual level alone can be effective if the institutional environment does not facilitate a more sustainable and equitable world. There is a lot of blame on individuals for not making the right choices, while at the same time the system we are embedded in is deeply unsustainable.

11. What are you reading at the moment?

Braiding Sweetgrass by Robin Wall Kimmerer and *Heart of Dryness* by James G. Workman, two wonderful books that weave together indigenous wisdom and scientific knowledge and re-evaluate humanity's relationship with nature. In addition, I'm still working my way through *The Model Thinker: What You Need to Know to Make Data Work for You* by Scott E. Page who makes a great case for the use of model thinking concepts to navigate and understand the complexity of the world.

12. Apart from the ones we've raised here, what is the most important question of our day?

While the science about our impact on Earth's systems is quite clear, the way forward is not. How can we in the Global North shift our value system quickly enough towards more sufficiency, care, and collaboration to bring about the large-scale behavior change that is needed for a safer future trajectory? We have the tools and resources. So let us do some soul-searching about the kind of present and future we want for ourselves and for future generations.

Birgit Kopainsky,
Systems thinker and modeler with a passion for learning in and about food and other social-ecological systems, University of Bergen (UiB), NO.

Studies in geography and environmental sciences. 2005 PhD in agricultural economics at ETH Zurich, CH. Since 2017, professor in System Dynamics at the University of Bergen, NO, and program leader master's in System Dynamics. Since 2022 co-editor *System Dynamics Review.* 2019 president elect, 2020 president, 2021 past president of the System Dynamics Society.

Publications (selected): Transforming food systems at local levels: Using participatory system dynamics in an interactive manner to refine small-scale farmers' mental models (*Ecological Modelling* 2017; with others) | A framework to assess the resilience of farming systems (*Agricultural Systems* 2019; with others) | Smallholder farmer resilience to extreme weather events in a global food value chain (*Climatic Change* 2023; with others) | Dynamic implications of the biological link between bovine milk and meat production for operationalizing the planetary health diet (*Nature Food* 2023; with Florian Kapmeier).

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BIRGIT KOPAINSKY

I have come to know Birgit Kopainsky as an enthusiastic and brilliant systems thinker who is able to combine different approaches and disciplines in unique ways. Thematically, her work focuses mainly on questions of sustainability and resilience in food systems. Her true passion, however, is bringing people together to create, discuss and transform systems. This could be around a Norwegian classroom table with students, in a Swiss meeting room with high-level executives, or under a tree in the African savannah with smallholder farmers. I am sure that anyone who has ever experienced the spirit of such a session has left it with new insights, inspiration and a feeling of "I want to do something".

Creating such moments of inspiration requires a great depth of knowledge and expertise. Birgit has acquired this amongst others by carrying out research projects in a wide variety of contexts across Europe, Asia and Africa, as well as by using a wide range of methodological approaches, spanning from formal, mathematical system modelling to qualitative, participatory group model building. As a trained geographer and graduated agricultural economist, she strongly believes that today's sustainability problems should be tackled from different perspectives, in an interdisciplinary and transdisciplinary way. It is therefore not surprising that she came in touch with the "System Dynamics" approach at an early stage in her work, and that it remains a central pillar of her scientific activities to this day.

Her true passion is bringing people together to create, discuss and transform systems.

As a professor at the University of Bergen and manager of the university's System Dynamics group, Birgit currently works in one of the few places worldwide where System Dynamics is used as a central approach both for research and in teaching. Particularly by contributing to two Master's programs, she plays an important role in building a community of young scholars. Furthermore, Birgit contributes to the international System Dynamics Society, for example by serving as the first female president in 2020 or by chairing the organization of the Society's annual conference in 2020 and 2024. In addition to her scientific activities, she also acts as a managing partner of a private consulting company in Switzerland, where she has gained experience in the practical application of her scientific knowledge. All these engagements make Birgit a well-recognized expert and important developer in the field of System Dynamics in general, and for its application to sustainability issues in particular.

Personally, I met Birgit Kopainsky years ago as a student in her lecture on System Dynamics at ETH Zurich. Already back then I was fascinated by her integrative view on the sustainability problems of our time and wanted to contribute to a more sustainable world with such "system models" myself. Soon after, I became one of the first doctoral students to be supervised by Birgit. From this perspective, I would like to conclude by emphasizing that I have come to know and appreciate Birgit not only as an excellent thinker, but above all as an extremely supportive person and mentor.

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