Theme 2: Social organization and risk management in a circular bio-based society

Sessions 1-4

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2S1

What kind of circular society

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A circular society has many potential benefits and is one of the most promising pathways to a more sustainable economy. But pitfalls exist as well. A careful examination of such pitfalls is required in order to take the right decisions. Without doing so, circularity may not always lead to more sustainable outcomes. In this session we aim to learn from past mistakes, so that we can gear towards sustainable forms of circularity.

Issues to be discussed may include:

- Sometimes a waste stream turns into a primary resource, once a certain production scale is achieved. Wood pallets are an example: they were once no more than the by-product of forestry, but now that they are needed to keep powerplants running, they have become the primary purpose of production. The same can be said about 1st generation biofuels: it was initially meant to be grown on 'waste land', but soon started to occupy high quality soils. We invite contributions that elaborate these and other

examples of instances where the waste- or by-product became the primary product, and what that meant for sustainability.

- In some case the process of recycling waste consumes more resources than what is saved by it, especially in combination with the mechanisms that people start using more of it (the rebound effect). For example paper coffee-cups: although they are recycled, the recycling process is water- and energy consuming, a harmful product such as PFAS is used, and people no longer bother to re-use their cups since the disposed cups will be recycled anyhow. We invite contributions that elaborate these and other examples of instances where the recycling itself is very resource-consuming, and what that means for sustainability.

- It is sometimes argued that technological solutions prevent more structural solutions such as a change in consumption patterns. This is the debate between 'the wizard and the prophet'. Where does circularity stand in this debate? Could it be that circularity is a form of technological solution that is – in the end – not the best way towards a more sustainable society? We invite reflections on this question supported by examples.

Keywords: sustainability, competition, rebound effect, prioritisation, perverse triggers, biofuels, renewable energy.

2S2

Costs and risks

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The matter of unintended consequences for health, local environment, and landscapes should be carefully considered. In a circular economy, primary resources are replaced by by-products and waste streams, which are often of lower quality. This may have consequences of the quality of the end product (e.g. contamination by pathogens of chemicals), which may imply a health risk. Furthermore, unintended by-products or processing plants may harm local environments and landscapes.

Issues to be discussed may include:

- Costs come in the form of industrial activities that require space and energy, and which may pollute air, water and landscapes. Do we sacrifice valuable land (that could be used for food production) for building processing plants or producing renewable energy? We invite contributions in which the costs and benefits are discussed.

- Applicable waste streams or by-products are usually of sub-optimal quality compared to products specifically produces for the given purpose and may therefore lead to, for instance, lower crops yields or less robust products. To what extent is lower productivity or low quality of end products acceptable?

- Risks are considered within a one health approach, including risks for humans, animals and the environment. By using waste streams or by-products hazardous pathogens or chemicals (e.g. processing and environmental contaminants, pharmaceuticals) could be reintroduced in the system and they can continue to circulate or accumulate in specific compartments. By-products that are used as feed or fertiliser input are considered of the highest risk. Do we know where risks might occur? Are we able to predict this? What aspects to consider to prevent risks from occurring and what mitigation strategies are available? Yet again, a fair yet critical assessment needs to be made.

For this session we also welcome out-of-the-box solutions to mitigate costs and risks.

Keywords: Costs, benefits, risks, transmission, landscape quality, one health, chemicals, pathogens, solutions.

2S3

Food safety in the circular food system

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Current plant and animal production systems in Europe have led to the production of safe and high quality food for everyone. However, it has not become without negative effects; our current feed and food production systems have led to pollution, soil derogation, emission of greenhouse gasses, amongst other negative effects on our planet. With the establishment of the Green Deal and Farm to Fork policy, the European Commission want to counteract these negative impacts on our planet, by making our food production systems more sustainable. An important part of the proposed way forward is to recycle the byproducts from food production, processing and consumption back into the food production system. This implies, amongst others, that we bring back byproducts, like by- and side streams from food production, that can not directly be used for human consumption, into the food production system. Closing loops to make our food production system more circular has not only advantages, but also entails disadvantages. When by- and side streams are re-used as much as possible in food production, we should prevent the accumulation of hazardous substances in our food chain. These could be, for instance, persistent chemicals or viruses that could contaminate the final food production and result into human health risks. Recycling streams can also be susceptible to fraud regarding the type of food waste. Identification and management of possible hazards should be in place, and be part of proper HACCP procedures.

2S4

Risk management and trade-offs

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This session presents ways of how to deal with the dilemma's discussed in session 1 (pitfalls of circularity) and session 2 (risks and costs). This includes technical tools and methods as well as transparent communication. This session specifically invites practitioners of circularity as well as CSOs that seek to promote circularity.

We invite contributions on topics like:

- Guidelines such as priority ladders, in order to handle situations in which alternative uses for waste streams exist. How to ensure that it is used in the best way and not simply by the party with the highest purchasing power?

- Trade-off frameworks for weighing costs and risks against benefits, as decision-support for promote circularity or not?

- How to win and maintain the intended users' trust: clear communication tools such as life cycle assessment (LCA), labelling, and other communication strategies.

- The importance of using the rights benchmarks in order to make a fair comparison.

- The involvement of stakeholders in the development of and communication about new techniques.

Keywords: Communication strategy, stakeholder involvement, labelling, Life Cycle Assessments, Cost Benefit Assessments, priority ladders