KNOWLEDGE FOR A SUSTAINABLE 21ST CENTURY

Results of the workshop held by the EEA and its Scientific Committee on 29 October 2019 in Brussels

This workshop aimed to reflect on Europe's unprecedented sustainability challenges from a knowledge and environment perspective, taking the European Environment Agency (EEA) report, **'The European environment – state and outlook 2020'** (SOER 2020), as an entry point. 60 representatives from 17 organisations shared their experience, including nine Directorate Generals (DGs) of the European Commission, such as DG Research and Innovation and DG Joint Research Centre (JRC), the European Parliament, two Horizon Europe Mission Boards, the European Food Safety Authority (EFSA) and the European Academies' Science Advisory Council (EASAC).

The objective of the workshop was two-fold: to identify knowledge needs for environmental sustainability, and to reflect on innovations in knowledge development, exchange and use practices at the science-policy-society interface so that knowledge better supports policy and action.*

* For more information, please refer to the workshop agenda and background paper.

What knowledge needs to be developed?

For the purpose of this workshop, five major clusters of knowledge needs were selected from the SOER 2020 assessment in view of their relevance and complexity. Using the World Café method, workshop participants identified knowledge needs within these clusters, some of which are listed here:

Geographical interconnectedness

Given Europe is part of a globalised interconnected world, we need better understanding of:

- Global impact of material and immaterial flows.
- The nature and impact of EU and global governance and regulation.
- How to better use and share data and information.

Human environmental system interactions

In order to identify critical thresholds and tipping points, and to support more integrated management approaches, new knowledge is needed on:

- The value of nature related to ecological accounting but also human self-identity.
- Behavioural changes and consumption.
- Resilience of ecological and societal systems.
- Integral solutions and bio-mimicry.

Environmental risks and well-being

Vulnerability to health hazards and emerging risks creates a need for new types of knowledge on:

- New risks at the systemic level (e.g. environmental stressors vs. physical and mental health).
- Risk management approaches.
- Basic and advanced elements of well-being.

Societal systems

Knowledge about societal systems driving environmental and sustainability changes, i.e. the dynamics of production -consumption systems, is needed to navigate transition processes. For example:

- Knowledge of subsystems exists, but it is often dispersed and should be better connected.
- There is a need for a commonly shared vision of well-being, future societal systems and available solutions.
- Consideration of synergies and trade-offs, as well as prioritising just transitions, will increase acceptability and mitigate undesirable effects of transitions.
- Due to (infrastructural) lock-ins, quick areas of change and (political) priority setting are needed.

Governance for sustainable transition

Governance is key for sustainability transitions; a better understanding is needed on the role of:

- New actors, new stakeholders, new alliances.
- Inclusive governance as a driver of change.
- Synergies between different levels of governance (i.e. central governance and cities).
- Citizens involvement.
- Vested interests.
- Policy tools and learning in transition – indicators for evaluation, scaling-up niches.
- Foresight approaches.

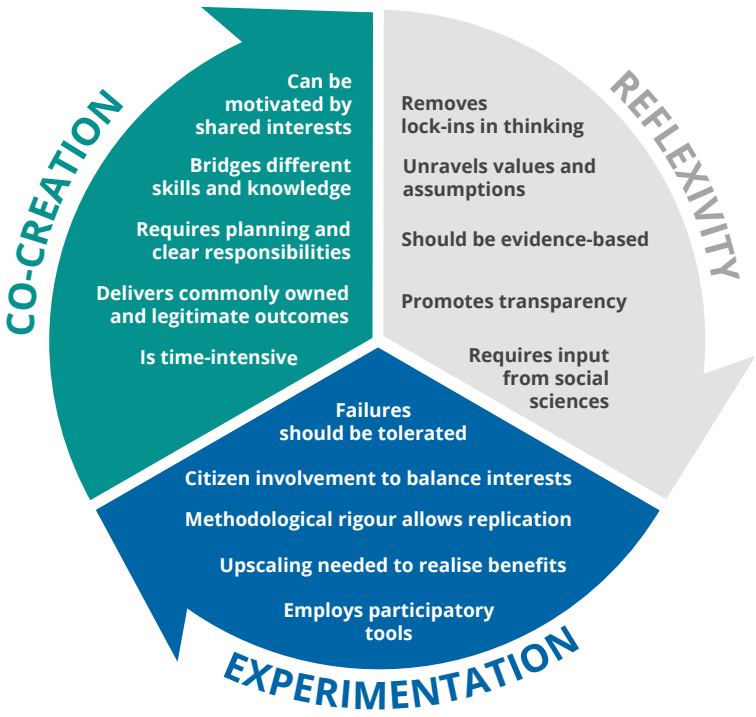
How should knowledge for sustainability be developed and used?

Changes in the types of knowledge required to respond to Europe's sustainability challenges call for new strategies to bring about innovations in knowledge creation. Replicating the current modus operandi will not advance the necessary fundamental changes towards sustainability. Knowledge creation in this respect is therefore understood as the practice of generating knowledge to support policymaking – often referred to as 'usable' or 'actionable' knowledge. Recent research points to different types of innovations required within the sustainability science-policy-society interface. Three pointers were chosen for this workshop and further reflected upon by five working groups:

Co-creation of knowledge has not been utilised to its full potential, in particular when it comes to transdisciplinary co-creation of solution-oriented knowledge. The opportunity to bridge different skills and knowledge requires careful planning, shared interests and sufficient time. However, if successfully implemented, it can deliver more legitimate and actionable outcomes.

Reflexivity encourages personal values and assumptions to be made explicit. This facilitates increased transparency and helps removing lock-ins in thinking. Embedding greater reflexivity into the design of research requires input from social sciences in particular.

Experimentation, with a long-standing tradition in science, is also key to addressing complex environmental problems. But a higher tolerance for failures is needed, especially from research funders. In order to realise the benefits of small-scale niche experiments, critical analysis and upscaling is needed, based on methodological rigour and citizens' involvement.



Conclusions

- There is already sufficient knowledge available for transformational action, but it needs to be better connected and used. In particular, knowledge transfer needs to better align with the needs and realities of decision-makers and societies.
- The development of new knowledge should be based on reflexivity, processes of knowledge co-creation and interdisciplinarity, so that lock-ins of the present system can be opened up.
- The understanding of social interaction and science-policy communication are ever more important.
- Governance plays and important role in knowledge creation and transition. New governance will include new actors i.e. from civil society, and place governance also outside national governments, i.e. in regions and cities.
- Co-creation processes with different stakeholders inevitably involve a multitude of different areas of expertise, approaches, and interests, calling for specific bridging competences and sufficient time.
- Re-thinking of academic incentives is needed to complement the scientific impact factor with societal impact factors.
- Real-world experiments and their scaling-up are another starting point for the creation of solution and impact-oriented knowledge and action. This calls for a coherent framework of evaluation combined with increased tolerance for failure.
- The increasingly shared consensus about the scale and urgency of environmental and climate challenges helps create a society-wide common understanding of the needed sustainability transitions.
- Trade-offs between different policy objectives need to be studied further to support the establishment of policies that scale up sustainable solutions and phase out unsustainable practices and subsidies.
- Societal actors, including researchers, need to take responsibility both for mobilisation and action.