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Working session I Circular economy: Potential of circular economy solutions to tackle two wicked problems: climate change and biodiversity loss

Two recent science reports have underlined the urgency in tackling two wicked problems we face today. The report by the Intergovernmental Panel on Climate Change (IPCC) made it clear that in order to avoid catastrophic risks we need to limit global warming to 1.5 degrees Celsius. The Global Assessment Report of the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services clearly indicates that we are continuing to lose our ecosystems, species and biodiversity at an alarming rate. The report calls for a transition towards more sustainable production and consumption patterns in order to respond to global commitments for conserving and sustainably using nature and for achieving sustainability goals.

Current production and consumption habits are still heavily based on the linear use of virgin natural resources. Today, we extract over 80 billion tonnes of materials per year, of which around 9 per cent are reused or recycled by the global economy. In addition, according to the OECD, the world's consumption of raw materials will double by 2060 as the global economy expands (Global Material Resources Outlook to 2060).

These habits also have impacts on producing countries, as we “outsource” CO₂ emissions and other impacts of our consumption to developing and growing economies. Scientists report that over a third of CO₂ emissions associated with the consumption of goods and services in many developed countries are actually emitted outside their borders. There is a need to incorporate the emissions from the consumption of imported goods into national emissions monitoring. This would also benefit economies and the environment outside European borders.

Switching to a circular economy to cut emissions

Recent studies have revealed a link between the fight against climate change and the circular economy. For example, studies by Material Economics show that an improved circular economy could play a vital role in achieving the goals of the Paris Agreement. Switching to the circular use of materials, particularly the four most commonly used materials — steel, plastics, aluminium and cement — could be central to cutting global greenhouse gas emissions. Switching to a more circular use of these materials in the EU alone could cut industrial emissions by more than half by 2050.

Furthermore, a report by the International Resource Panel (IPR) predicts that resource efficiency policies and initiatives could cut resource use by 26 per cent and reduce greenhouse gas emissions by an additional 15–20 per cent by 2050.

The European Commission's strategy 'A Clean Planet for all' includes eight scenarios for a climate neutral economy by 2050. The scenarios that are based on energy efficiency, the use of renewables, land use and forestry achieve around 80–90 per cent reductions in greenhouse gas emissions. The eighth scenario assesses the impact of a highly circular economy and the role of a change in consumer choices that are less carbon intensive. The scenario builds upon a clean energy transition and renewable energy production and the circular economy as a move towards a net-zero greenhouse gas economy.

The conclusion of the Commission's strategy is that reaching net-zero greenhouse gas emissions will require maximising the potential of technological and circular economy options, the large-scale deployment of natural land-based carbon sinks, including in the agricultural and forestry sectors, as well as shifts in mobility patterns. A rapid change towards circular economy and behavioral changes may reduce the need for additional investment.

Possible approaches forward:

- The greatest potential lies in the reuse, repair and remanufacturing of products, keeping materials in use for as long as possible. Resource-efficient business models provide equal contribution. For instance, forms of business interaction such as industrial symbiosis could contribute to this objective. A circular economy can reduce emissions from sources that climate instruments do not reach - such as chemical processes, short-lived goods with high fossil-fuel content or international trade.
- The extensive modernisation of existing installations to ensure that they improve resource efficiency and incorporate the potential of digital tools. According to the Commission, investments in sectors with potential will be instrumental to enabling the next industrial revolution.
- The recovery and recycling of raw materials will be of particular importance in those sectors and technologies that rely on critical materials such as cobalt,

rare earths or graphite, whose production is concentrated in a few countries outside Europe. This could also reduce the dependency on imported resources in Europe.

- The potential to develop new circular business models deriving from a shared economy, for example in the case of mobility.
- According to the Commission's strategy, new materials will play an important role as well, whether rediscovering traditional uses such as wood in construction, or new composites replacing plastics or energy-intensive materials.
- Consumers have a powerful role to play in driving the transformation forward, as consumers and as producers in both the energy and material cycles.

Switching to a circular economy to halt biodiversity loss

The Global Assessment Report of IPBES clearly indicates that human activity has already resulted in the loss of 34 per cent of global biodiversity, and therefore transition towards more sustainable production and consumption manners is necessary. The circular economy reduces the pressure to the use of natural resources and diminish harmful impacts to biodiversity and ecosystems.

Ecosystems are vital for the economy, delivering a range of services, from the production of materials and the replenishment of clean water and air, to the maintenance of a rich pool of genetic resources. A sustainable economy requires circularity to manage ecosystems in a way that allows them to regenerate. This requires, for example, that in the footprint of products, we include their impacts on biodiversity and ecosystems and that we look to green infrastructure.

The transition will require that we better integrate natural capital into socio-economic analysis and decision-making, accounting and reporting systems, and into macro-indicators related to natural assets. Such indicators can stand alongside GDP, inflation and employment and provide information on the state of natural stocks and flows for the circular economy, and on environmental impacts.

Questions

1. What should the role of circular economy be in contributing to the EU's net-zero emission strategy (LTS) and the long-term temperature goal of the Paris Agreement? In addition, how can we integrate circular economy solutions reducing GHG emissions in national climate policies?
2. How can circular economy advance the EU's biodiversity strategy?