

Subcommittee Meeting of the Committee of Permanent Representatives
8 November 2018, 9:30 a.m. to 12:30 p.m.
United Nations Office at Nairobi Gigiri
Conference Room 1

**Background Document for Agenda Item 4:
Secretariat briefing on the work on Life Cycle Approaches under the UN Environment
Programme.**

This note serves as a background document for discussions under Agenda Item 4: Secretariat briefing on the work on Life Cycle Approaches under the UN Environment Programme.

Briefing Note on the work on Life Cycle Approaches under the UN Environment Programme

Background

In May 2016, the United Nations Environment Assembly adopted resolution 2/8 on sustainable consumption and production, following the adoption of Sustainable Development Goal 12. This resolution encourages all Member States to promote life-cycle approaches, amongst others. Specific progress on this resolution has been reported to the CPR on 28th September 2018. In the fourth session of the UN Environment Assembly, the theme: Innovative solutions for environmental challenges and sustainable consumption and production is further detailed with a Focus Area (b) on “Life-cycle approaches to resource efficiency, energy, chemicals and waste management”.

Life cycle approaches for Resource Efficiency and Sustainable Consumption and Production: what they are, and examples of application

Life cycle approaches are techniques and tools to inventory and assess the impacts along the life cycle of products, understood as the consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal (ISO 14040:2006). Life Cycle Assessment (LCA) is the standardised (ISO 14040:2006) compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle. Life cycle approaches provide intelligence on the environmental (and often social) impacts related to production and consumption systems; as such, they are essential in informing innovative solutions to resource, energy, chemicals and waste management, as well as to inform sustainable business options and consumption and production systems (such as food). Life cycle approaches also play a crucial role in informing policy making in the context of Sustainable Consumption and Production strategies or Nationally Determined Contributions.

By assessing the impacts generated along the life cycle stages of consumption and production systems, life cycle approaches help identifying priorities and opportunities (hotspots) to improve those systems, while addressing unintended trade-offs in environmental, social and economic impacts. Life cycle approaches have been used successfully in industry for many years to identify and address hotspots and thus decouple resource use and environmental impacts from specific economic activities. They have also been applied to prioritising improvements during product design, based on the key drivers for impact and the design alternatives that optimise trade-offs between environmental issues as well as cost and design constraints. In the **automotive sector**, for example, life cycle approaches inform the relative benefits of different materials, design options with effects on fuel consumption, and more lately the relative advantages of different fuels or energy sources (renewable fuels vs. fossil fuels or internal combustion vs. hybrid vs. electric vehicles). The example of e-vehicles is a clear case of trade-offs between different life cycle stages or locations (emissions at the tailpipe vs. emissions in the electricity generation), as well as impacts (air pollution vs. emissions from electricity vs. scarce materials and difficult recycling of batteries, to name a few). In addition to product design, life cycle approaches may inform better existing transportation policies. Many automotive greenhouse gas policies tend to focus mostly on tailpipe emissions and disregard upstream emissions, therefore providing incentives that may potentially lead to emissions leakages (to the power sector, for example, in the case of electric vehicles where electricity generation is not enough decarbonised). Transitioning to life cycle based automotive environmental policies would allow avoiding this burden shifting problem.

Life cycle approaches significantly contribute to better targeted support from UN Environment Programme to Member States through the programme of work of the organization, mainly in the area of sustainable consumption and production, but also in climate change, pollution, etc. Recent examples include guiding hotspots analyses applied in the tourism and plastics sectors, which in turn inform the most adequate policies and actions to reduce environmental impacts. Eco-innovation has been successfully applied to support businesses, including Small and Medium-Sized Enterprises, delivering life cycle approaches in a business-minded language to increase their profitability across the value chain (unep.ecoinnovation.org). Eco-innovation uses simplified life cycle approaches to be able to rely on data available for SMEs. And life cycle approaches are one of the key attributes of the 10-Year Framework of Programmes on Sustainable Consumption and Production patterns (on consumer information; sustainable procurement; sustainable food systems; buildings and construction; lifestyles...). Life Cycle Costing is a promising tool to inform sustainable procurement, as it goes beyond the cost of purchase and total cost of ownership to also include the cost of externalities.

Beyond the work on specific industrial sectors, life cycle approaches applied at the **economy level** allow setting priorities to those sectors that drive bigger shares of the environmental footprint of the economy. E.g. the International Resource Panel report on priority sectors¹... uses a life cycle perspective to identify agriculture and food consumption as well as the use of fossil fuels as two key global drivers of environmental pressures on a wide range of impacts. Similar yet more advanced life cycle approaches underpin the forthcoming Global Resource Assessment by the International Resource Panel to provide further granularity on the policy options to enhance Resource Efficiency and all the associated impacts over the life cycle of consumption and production systems. Similarly, a **life cycle approach to the footprints of nations** provides extremely useful information to countries' development and action plans to sustainable consumption and production or resource efficiency, such as the key sectors contributing to the country's environmental footprint, specific life cycle stages within those sectors, whether the footprint occurs mainly within the domestic borders or "supplier or customer countries", etc.

Since 2002, the Life Cycle Initiative² has enhanced the enabling conditions to support global application of life cycle approaches. Such enabling conditions include the facilitated access and interoperability of Life Cycle Assessment datasets (see www.globalcadataaccess.org); bringing consensus on impact indicators; developing capacity in all sectors and especially in developing countries. The Life Cycle Initiative also supports the application of life cycle thinking in specific sectors, such as packaging; plastics; chemicals – SAICM (Strategic Approach to International Chemicals Management); hotspots analysis at the country level; etc. The work also focuses significantly on the support to public policy, e.g. with a Hotspots Analysis Tool for Sustainable Consumption and Production policies (SCP-HAT) developed in collaboration with the One Planet Network and the International Resource Panel.

Recommendations and Suggested Action

Life cycle approaches provide a strategic systemic perspective which is indispensable to support and inform the transition to sustainable consumption and production, and an inclusive circular economy. By pointing at key environmental (and social) hotspots, and potential trade-offs between different aspects, life cycle approaches inform the most efficient pathways to reach Climate and Sustainable Development Goals faster. Life cycle approaches require harmonised methods and access to interoperable data to yield more useful and efficient results, as well as to allow comparability of results within global value chains.

¹ UNEP (2010) Assessing the Environmental Impacts of Consumption and Production: Priority Products and Materials, A Report to the International Panel for Sustainable Resource Management. Hertwich, E., van der Voet, E., Suh, S., Tukker, A, Huijbregts M., Kazmierczyk, P., Lenzen, M., McNeely, J., Moriguchi, Y.

² A multi-stakeholder partnership hosted by UN Environment Programme, see www.lifecycleinitiative.org

Recommendations:

- a) Enhance the promotion and application of science-based life cycle approaches in policies towards sustainable development, to avoid unintended trade-offs and leakage of impacts.
- b) Collaborate internationally on harmonised approaches and data to facilitate the application of life cycle approaches world-wide.
- c) UN Environment Programme to provide additional support to international cooperation on Life Cycle Assessment and life cycle approaches more generally, with a focus on the enabling conditions that allow their application world-wide (life cycle data; harmonised methods and metrics; guidance for application in sectors and policy-making; capacity).
- d) UN Environment Programme to integrate systematically life cycle approaches in its work around resource efficiency, energy, chemicals and waste management, as well as sustainable consumption and production more generally.