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Systems approach to identify sustainable chemical innovations that encompass life-cycle impacts



Elze C. van Hamelen

The Natural Step, Germany

Too often we cherry-pick sustainability topics: there is a focus on green chemistry, climate change, on circular economy, or types of poverty. Rarely do we look at the many faceted challenges of sustainability as deeply interconnected. The root causes of these challenges lie in the fundamental unsustainability of the way we organize our businesses and societies.

Based on the laws of thermodynamics and sociological research on the healthy functioning of socio-ecological systems, the Framework for Strategic Sustainable Development (FSSD) identifies four root causes of unsustainability. Together, they constitute the boundary conditions or design principles for humanities to sustain within the limits of planet earth. In this way, the conditions constitute a science-based definition of success for sustainable design, selection and management of chemicals, materials and products.

The Strategic Life Cycle Assessment (SLCA) applies the sustainability principles in each phase of the product life cycle – creating a ‘heat map’, merging perspectives on chemicals, circular economy and SDGs, and providing direction for effective sustainability innovation. By applying these sustainability principles rigorously and strategically, the systems perspective that underlies it assures holistic and integrated solutions, avoiding solutions that only combat symptoms, or solutions that cause complications in other domains.

The Natural Step has been helping organisations apply these principles since the early 1990’s. Here we focus on application and insights around circular / sustainable product innovation.

Biography

Elze is an Advisor at The Natural Step Germany, and Associate Partner at the Sustainable Growth Associates network. Elze holds an MBA in Sustainable Management and an MA degree in Organisational Sociology, combining different perspectives within an organisation, such as policy, strategy, change, culture, cooperation, behaviour and communication. She is passionate about the strategic implementation of sustainability using The Natural Step framework, and she’s convinced that innovations in chemistry and materials management are key to accelerating the transition to sustainability

elze.vanhamelen@thenaturalstep.de

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