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INTERNATIONAL WORKSHOP  
ADVANCES IN CLEANER PRODUCTION

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“COUPLING GREEN TO BLUE ECONOMIES: HOW ARE CLEANER PRODUCTION AND CITIES LEADING THE NEXT SUSTAINABLE DEVELOPMENT”

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## Building Regenerative Economies for People and Planet

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We live in an unprecedented period in planetary history, as the scale, speed, and scope of human economic activities threaten the survival of human and most other species on earth. Recognizing that our linear economic models need to change to enable all life to flourish, scholars and practitioners are exploring alternative “economies”. Among these efforts are the “green” – focused on environmentally benign practices for life above water, the “blue” – harnessing while protecting ocean resources, and “circular” – creating closed loops that can regenerate resources. Each of these economies promote the conservation of resources in line with planetary boundaries. Generally, these movements discuss the responsibility of organizations in promoting changes, and the role of humans as actors leading these changes. Although enhancing human outcomes such as equitable distribution of wealth and improved quality of life are mentioned, they have not been a priority in defining intervention strategies for current economic models. On the other hand, the “solidarity” economy is grounded in human and social well-being, beyond individual profits and towards self-determination, equity and the creation of multiple types of benefits for diverse actors; while “doughnut” economy seeks to define a safe space for economic activity based on minimum social needs and maximum perturbation of planetary boundaries. All of these re-conceptualizations point towards creating economic systems that no longer exploit resources for the benefit of relatively few humans, but instead regenerate different types of capital in order to more equitably benefit human actors, other species and ecosystems.

Working at the intersection of sustainability science, industrial ecology and design, we have developed frameworks, models, and tools to create a new approach for considering a variety of resources that diverse human agents utilize when creating value for themselves, society and the planet. We utilized the concept of capital as resources capable of producing other resources, and delineated eight types currently used in modern socio-ecological-technical systems (SETS): natural, financial, manufactured, digital, human, social, political, and cultural. We used participatory action research and prototyping methods to integrate knowledge distributed across multiple levels in these systems, then applied and tested our approach with individual firms (micro level), among a group of firms (meso level), and across a region (macro level). Each application supported processes for co-creating intervention strategies with a diverse group of stakeholders, and focused on the potential these stakeholders have to regenerate different types of resources through economic activities that serve a broader constituency, including a diverse group of people and the planet. In this talk, I highlight three of the cases – single facility (loop closing), group of firms (industrial symbiosis), region (brownfields as assets), and demonstrate how they contributed to the development of the frameworks. We need massive shifts in how we conceive, develop and manage both hard and soft infrastructures in order to realize regenerative economies that benefit people and planet.

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