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# Beyond Marrakech: The resource nexus and eco-innovation



Residents of Fayoum in Egypt help to build a biogas digester, a device that can convert farm or sewage waste into energy. Such digesters are real-world examples of "eco-innovations" that address the nexus of water, energy and food. Photo: ECHO4 Project (http://www.futureearth.org/sites/default/files/styles/full\_blog\_image/public/field/image/fayoum\_digester.jpg?itok=B6-e7ean)

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by [Raimund Bleischwitz](/blog/people/raimund-bleischwitz)

The major political changes that have occurred across the world in recent years call for a new approach to sustainability – one that is driven from the bottom up, rather than by government. As Raimund Bleischwitz argues.

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*On 17 to 18 November 2016, the Innovation for Sustainable Development Network (Inno4SD) and Future Earth held a symposium ([events/workshop-eco-innovation-water-energy-food-nexus](/events/workshop-eco-innovation-water-energy-food-nexus)) in Nicosia, Cyprus. The meeting explored how sustainable innovation can contribute to the nexus of water, energy and food – a concept that explores the causes and consequences of how humans use these interconnected resources. Raimund Bleischwitz gave the keynote talk at the start of this event, reflecting on the outcomes of the Marrakech climate conference, which had brought together leaders and researchers from around the world to discuss the current state of international efforts to slow the pace of climate change. The follow blog is adapted from Bleischwitz’ address.*

*For more information about Future Earth’s activities around the resource nexus, see the page for the [Water-Energy-Food Nexus Knowledge Action Network](#) (</future-earth-water-energy-food-nexus>).*

The outcome of the Marrakech climate change conference can be cheered as a cocktail of mixed ingredients. While some hail a dawn of a new cooperation, others see the whole Paris Agreement at risk of being ditched in an era when big polluters such as the U.S. may pull out of commitments.

Better narratives are needed to bolster the drivers of a greener economy that puts people first, and to align the efforts of powerful coalitions across a variety of international goals. Rewiring climate action from the previous top-down approach that put global environmental public goods at centre stage towards transformative action from the bottom up is actually taking place, but will benefit from new narratives to help people making decisions about sustainability.

The “resource nexus” and “eco-innovation” are two of such new narratives. Both have compelling storylines on their own and have been adopted by a variety of actors around the globe. I believe they can well go together and bring along a much needed new and additional bottom-up dynamic.

Without doubt, 2016 has been a year of major changes. Sweeps of aggressive populism and triumphs of a new ethnic nationalism are the other side of a coin in a world where many people feel left behind and mass migration has become the new normal. Despite such gloomy trends, positive [investment trends](http://www.goldmansachs.com/our-thinking/pages/3-drivers-of-the-low-carbon-economy.html?mediaIndex=1&autoplay=true&cid=PS_01_60_07_00_01_16_01&mkwid=ulbXmuAY) ([http://www.goldmansachs.com/our-thinking/pages/3-drivers-of-the-low-carbon-economy.html?mediaIndex=1&autoplay=true&cid=PS\\_01\\_60\\_07\\_00\\_01\\_16\\_01&mkwid=ulbXmuAY](http://www.goldmansachs.com/our-thinking/pages/3-drivers-of-the-low-carbon-economy.html?mediaIndex=1&autoplay=true&cid=PS_01_60_07_00_01_16_01&mkwid=ulbXmuAY)) and political will seem to prevail towards delivering the Sustainable Development Goals and the Paris Agreement on climate change, two of the promising milestones reached in 2015. But the road ahead won't be easy; in fact, it will be quite bumpy, and some actors might choose exit options.

The [water-energy-food nexus](https://www.water-energy-food.org/start/) (<https://www.water-energy-food.org/start/>), a relatively new field of research, addresses the interlinkages across how we use natural resources. The concept has been formulated as a response to “silo” thinking in traditional planning, where the provision of these resources had been treated separately. It emphasises that it is important to look at trade-offs and synergies in the use of resources in a more integrated manner. The nexus can be defined as the set of context-specific, critical interlinkages between two or more natural resources used in socio-economic systems. Its novel narrative lies in addressing:

- Human security, a “nexus on the ground,” and livelihoods of the one billion plus people living below the poverty line;
- Political security, mainly as tool for analysing conflicts related to natural resources within regions or across borders;
- The interlinkages across systems of provision;
- The nexus typically involves actors from infrastructure planning units for water and energy, development agencies and international organisations; all quite often operating in crisis regions of the Global South.

In comparison, the concept of “[eco-innovation](http://www.inno4sd.net/) (<http://www.inno4sd.net/>),” has strong bearings in pioneering manufacturing industries, policy actors across the environment and economic sectors and like-minded research organisations – quite often in mature or emerging regions with import dependencies on commodities. The term eco-innovation has been [coined](http://www.eco-innovation.eu/) (<http://www.eco-innovation.eu/>) to describe any form of innovation resulting in or aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment, enhancing resilience to environmental pressures or

achieving a more efficient and responsible use of natural resources. Beyond such small-scale changes, systemic eco-innovation would comprise a series of connected changes improving or creating novel functional systems that reduce use of natural resources and decrease the release of harmful substances across the whole life cycle. This compelling narrative addresses:

- Environmental sustainability towards a low-carbon circular economy (<https://www.ellenmacarthurfoundation.org/>);
- Innovations from niches towards regime changes, in line with ecological modernisation and sustainable consumption and production patterns;
- A decoupling of resource use and environmental pressures from GDP growth, a relationship termed the “environmental Kuznets curve,” along with jobs in cleaner production.

Seen together, the two fascinating concepts of the resource nexus and eco-innovation are being picked up by actors driven by a variety of motivations, including and beyond climate and environment.

A real-world example are anaerobic digestion reactors applied in rural areas of developing countries. They are able to produce biogas, i.e. energy, out of waste and wastewater while also co-producing fertilisers and cleaning the water.

Together, the nexus and eco-innovation offer an opportunity to realise co-benefits and address a number of challenges more synergistically:

- Deliver the Sustainable Development Goals 2 (food), 6 (water), 7 (energy), 9 (infrastructure and industrialisation) and 12 (sustainable consumption and production) in a more integrated manner;
- Develop business niches with local people at the Bottom of the Pyramid (<http://www.bopglobalnetwork.org/about-us>) towards eco-innovations with a potential to grow and become interconnected;
- Enable new alliances for collaborations with international companies seeking for community involvement and eco-innovation across borders with local benefits;
- Engage with investors, large companies and international organisations that are under pressure to serve long-term goals with more short-term returns.

As fascinating as it looks, additional efforts will be required to bring those two strange bedfellows into a real partnership. Mapping and assessing cases will be important towards relevance and the potential to disseminate internationally.

Altogether, such a patchwork will comprise millions of people dedicated to learning and making progress on the ground; and the analytical tools for assessments and foresight are awaiting to be applied and support strategies.

After all, the Marrakech conference confirms the need for transformative changes in energy and water systems, international food chains, housing, mobility and industrial development – and getting the people involved.

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