

Ecology and economy

Thinking about the circular economy started in the Western world, after a publication of Pearce and Turner¹. In their article they stated that a society that does not carefully handle raw materials, ends with an environment that is to be characterized as a landfill. The laws of thermodynamics tell us that energy and materials are constantly in closed systems so the open model of our economy is finite and should be circular by nature. Nature is characterized by circular relationships, Kenneth Boulding showed in his essay "The Economics of the Coming Spaceship Earth" (1966). There have been more publications in this direction. Jane Jacobs wrote in her "Economy of Cities" (1969) and later 'The Nature of Economies' (2000): 'we need an economy that works as nature.'

So here we are, a nice thought but far from reality. Nature is complex, is closely tied to the growth conditions on a location, is nowhere the same and organisms have strong interdependencies. And we? We do not like dependency, we love simplicity, we are pretty conservative, keep things as they are, and believe we can develop cities and regions according to a preconceived plan.

Now the Netherlands has a strong tradition in the relation between nature and society. A relationship that changed in recent decades and we can learn something of that change. In the sixties and seventies of the last century many systems thinkers were active in the world of nature and science. There were intense discussions on principles like 'everything is everywhere' and it are the conditions that determine what is actually growing. Ultimately, this has not become an axiom but an observation that seems to be true in principle: if a piece of land is left to its fate, there will arise a vegetation that fits there, mostly on the basis of seeds that are in stock. But more importantly, this was a great line of thinking that had a major influence on the development of nature: nature conservation, nature management and ultimately to nature development. Thus maintaining a proverbial "fence around it," to nature where we create the conditions that nature gives a new chance (think of the Oostvaardersplassen), nature managers focus on controlling the ultimate conditions.

This is a beautiful metaphor. From conservation to management to develop something new. That is what we do in the economic system now at full swing. The economic crisis brought a desperate pursuit of conservation and restoration, it strives for better (more efficient) forms of management of the existing. This requires measures to prevent proliferation, such as the excessive bonus culture. Nature never has the ambition to restore old, previous, systems. It just develops along the new situation, of course with the remaining elements of the earlier system. Nature is not destructive, nor efficient nor reconstructive, it adapts to the new, changed, conditions and develops on these.

Circular economy is often characterized as a 'living system concept and then also gets a lot of content that is consistent with these living systems: closing cycles, waste is food, the organization as an ecosystem, natural leadership, the metabolism of the city / region etc. This language is used and searched for the meaning it seems for economic systems. So it's about a systems approach. I suggest that makes great demands on our understanding of the functioning of natural systems and the creative and intellectual power to translate that knowledge and insights into the economic system.

For me an important lesson from nature is: *'it is all about the growing conditions'*. As the conditions, which determine development occurs in systems, can we learn from that? So can we create the conditions that ensure a development of circular economy? If that system change then comes about, then we can be confident that the dependency relationships,

¹ Pearce, D.W., Turner, R.K. (1990) Economics of Natural Resources and the Environment. Harvester Wheatsheaf, London

feedback mechanisms (feedback loops) and social context, are sufficient steering. Natural systems function without rules or control (from above), which can in principle also in a circular economy as a system functioning quality. This requires precise thinking about the conditions and the way is sent to it. Ecology as a teacher, that's why I say '*Ecomimicry*'. So I consider the purchasing power of the government and companies as an important form of control condition. If that force is deployed, it will force local and national economy to develop circular economy and circularity gets a boost. Economics is about business and circular economy brings new business models with the effect that is ultimately a powerful step towards sustainable development. Sustainability is thus an effect and not necessarily a goal!

Thinking and doing in the circular economy so requires especially interventions at the system level, focusing on the creation of growth conditions. With the current management models, which originated in the linear economy, we often work to preserve the existing secure basis of our existence. In the circular economy, we build a strong self-managing system innovation!

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