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Workshop report

How quickly are we evolving towards a circular economy? Measurement gives us the facts.

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Circular Economy Policy Research Center organises its first academic workshop

HOW QUICKLY ARE WE EVOLVING TOWARDS A CIRCULAR ECONOMY? MEASUREMENT GIVES US THE FACTS.

On 6 June 2019, the world commemorated the 75th anniversary of D-Day with a shared moment of silence. For the Circular Economy Policy Research Center (CE Center), this day was also a milestone. It was the first time the research centre – which draws scientists from various Flemish universities and VITO together – organised an academic workshop in Leuven. The workshop's objective was to demonstrate Belgium's current progress by using measuring instruments that indicate the speed of the Belgian economy's transition to a circular economy. It was also intended to clearly present the challenges ahead. By taking this approach, the workshop prioritised the significance of measuring from a broader perspective that spans multiple fields.

An outline of current and future challenges

'The circular economy is one of the former Flemish government's seven key priorities and will continue to be high on the policy agenda in future', says Prof. Karel Van Acker begins. As chairman and promoter of the CE Center, Van Acker knows what he is talking about. 'Our ultimate goal? The development of a new Circular Economics Monitor. By taking this approach – based on scientific parameters – we obtain a broad overview of the speed at and manner in which the Flemish economy is becoming circular.'

> 'Working towards a sustainable economy is about more than just a circular economy.'

This relatively new field of research calls for the requisite scientific research. Working towards a sustainable economy is about more than just a circular economy. This workshop is where we present our current achievements and research results. And we focus on the future: what are the developments in measuring sustainability and circularity that will be relevant tomorrow?'

Continuing to develop the existing framework of indicators

Gustavo Moraga is at the forefront of these developments. Moraga comes from Brazil, and as an academic research fellow at the Circular Economy Policy Research Center, his focus is on the indicators used to measure the circular economy. According to Moraga, 'There are over a hundred definitions of what constitutes a circular economy'. 'Our first assignment? That's to clearly define what we mean by circular economy. Based on a common vision, we determine what needs to be measured and how. The European Commission has already published a set of indicators. It's within that framework of indicators that we measure circular economic strategies.'

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This framework consists of four themes with ten indicators and twenty sub-indicators. The majority of these correspond to the materials group and are developed using the knowledge we currently have on hand. Our future mission? Filling the existing framework's gaps. For instance, that's why there should be more focus on input indicators. These focus on the actions needed

to promote the circular economy. Basically, there's a desire to measure more, but the data required still isn't there.'

Comparative studies to measure the evolution of sustainability in agriculture

Where the transition to a more sustainable society and a circular economy is concerned, agriculture is one of the most important links. Professor Steven Van Passel of the Department of Engineering Management at the University of Antwerp takes stock of the state of affairs. He draws on the results of a large-scale study in 2000 to address the issue. 'At the time, the Flemish government asked us to research how sustainable Flemish agriculture is. This produced a number of important results. Farming systems related to food production are not sustainable enough, a thorough investigation of all factors is needed, and we need value-driven tools.'

'Are you interested in finding out how sustainability evolves? Well, then you also need an agriculture-focussed indicator tool. We have two tools for this: a visual tool and a numerical tool. The visual provides you with an overview on a business scale, so that companies can compare themselves with other companies. The major challenge for getting this tool to work properly is collecting the necessary data.'

'Our approach is value-driven for the numerical tool and we (use it to) focus on the sustainability value of agricultural systems. Here, too, you can compare different systems with each other. Essentially though, both instruments provide policy makers with valuable information. In the quest for even more sustainable agriculture, comprehensive assessments of this kind, based on in-depth scientific research, are and will continue to be sorely needed.'

Sustainable development indicators to measure progress towards the SDGs

The Federal Planning Bureau uses indicators to measure the progress of Belgium towards the Sustainable Development Goals (SDGs). Johan Pauwels has been working for the Planning Bureau for 18 years and is a member of the Task Force on Sustainable Development, so he's the right man to shed some light on these indicators. `In 2015, the United Nations adopted 17 SDGs, associated with 169 targets, and a global framework of 232 indicators. To assess whether Belgium is on a path to reach the SDGs by 2030, we selected 51 indicators, three per SDG. How do we measure progress? We assess trends of indicators by comparing observed data and expectations with policy objectives.'

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'Some objectives are well-defined, that means quantified and time-bound, while others only consist of a desired direction. We have chosen to work with a dashboard of indicators, not just one or a few composite indicators. The number of indicators in the set has to be large enough to show the complexity of our society and small enough to allow for an overview. The indicators have to be regularly updated to be useful for policy-making. They are part of a sustainable development strategy cycle, designed to improve policies and living conditions in Belgium.'

ECOOM researches the impact of R&D indicators on the road to greater sustainability

Innovation plays an important role in the pursuit of a circular economy. Machteld Hoskens is a senior research fellow at the Centre for Research and Development Monitoring (ECOOM). This centre is a consortium that all Flemish universities participate in. 'Our mission? Developing a set of R&D indicators to compare Flemish policy at an international level', Hoskens begins. 'We take R&D and innovation surveys to acquire the insights needed. Ideally, innovation should lead to environmental benefits, which is why companies ought to take this into account during the production phase and the after-sales phase.'

'We ask companies about what drives them to innovate. Furthermore, we also see that high-tech companies in particular are at the forefront. In contrast, sectors such as transport and finance are dangling from the bottom rung of the innovation ladder. Another important observation is that large companies pay more attention to innovation than SMEs. It often happens that companies engaged in eco-innovation indicate that they do so via sectoral agreements or because existing

legislation obliges them to do so.'

Machteld Hoskens concludes with a constructive message: 'Of course, we are restricted to a few fixed domains and questions in the surveys we conduct. We are also open to other avenues of collaborative research. Where these are concerned, we look for the benefits that innovation represents for the transition to greater sustainability and a circular economy.'

A Flemish CE monitor for 2050

In the Vision 2050 programme, the Flemish government outlines seven transition priorities. Circular economy is one of them. Luc Alaerts, Manager and Research Fellow at CE Center explains how we measure progress transitioning to a circular economy. 'We're already asking a lot of questions today. What measuring instruments do we already have? What effects do they have on policy? And how do we amend the policy even further? To do an even better job of answering these questions, we need more indicators. Right now, we don't get enough feedback. Why? There will only be an impact on the figures once the circular share of the economy is large enough.'

'First and foremost, we look at evolution from the consumer's point of view. Seriously thinking about increasing circularity is only possible after taking consumption into consideration. The transition to a circular economy always goes hand in hand with the search for alternative ways of funnelling consumer demand into products and services. The consumer – the last link in the chain – also has to be involved in this. We still lack the data right now to shed light on the consumption perspective.'

'The CE monitor we're working on has three layers. The macro level covers the Flemish level, the meso level is about systems that meet demand and the micro level examines individual products and services.'

> 'There's still a lot of work to be done. For example, we need to take an in-depth look at our indicators to see what impact they have on future research.'

'We're developing the monitor from existing data and are assessing a number of systems such as mobility and housing, food and consumer goods. Do we ask ourselves, for instance, how many kilometres people in Flanders travel by car a year and how many cars are used for that purpose? If so, that will yield important data. This data is useful to policy makers for building their future foundations.

'There's still a lot of work to be done. For example, we need to take an in-depth look at our indicators to see what impact they have on future research. We're also looking at how we can continue improving these indicators. That's also why significant interaction between this research project and Gustavo Morago's work with the current framework of indicators shouldn't come as a surprise.'

The impact of sustainability measures on people's well-being

Ghent University's Brent Bleys is developing the Index of Sustainable Economic Welfare. It measures the extent to which the economy contributes to the welfare of citizens. 'We use a cost-benefit analysis to examine the level of sustainable economic welfare,' says Bleys.

> 'The welfare indicators have a fairly limited influence on policy. However, they do deliver a clear message – we have to make choices and be consistent.'

'The index has 15 to 25 components. A few examples include air pollution figures, or the costs involved in car accidents. In this way, the index provides an overview of the impact of sustainable measures. The emphasis in this area is on products, rather than on consumption.'

'The welfare indicators have a fairly limited influence on policy. However, they do deliver a clear message – we have to make choices and be consistent. How do we make those choices? By developing ecological macro-economic models.'

Ecosystem services: measuring and interpreting correctly

Dirk Vrebos is a research fellow at the University of Antwerp's Ecosystem Management Research Group. He's been studying Flemish ecosystems there for the past seven years. 'There are a few questions that we're asking', Vrebos begins his explanation. 'How do we go about developing the right measurement indicators for our ecosystems? How do we incorporate them in our studies? And how do those indicators change over time? Will you be representing something visually? On the one hand you see our ecosystems generating potential ecosystem services, while on the other, the demand for ecosystem services arises out of our socio-economic system. Maintaining a balance between supply and demand during this process is important.'

It's for this reason that now, more than ever, measurement of ecosystem service use has to be well-substantiated. It's why we want to develop tools and methods to help us accomplish this. One of these tools is the scenario evaluator tool. It's a plug-in model that uses tons of spatial data. Some examples: the air quality map and data such as nitrate and CO2 emissions data.'

'A key insight: don't look at the ecosystem service values one-to-one. Instead, interpret them and focus on the context too. This example makes it more straightforward. The figures show that the nitrate content in Flemish soil is on the decline. This evolution might derive from better ecosystems. However, it could be that there's actually more nitrate in our soil, while we're just managing to get rid of more at the same time. That's why it's better to look at the removal rate and not just at the bare figures.'

> 'A key insight: don't look at the ecosystem service values one-to-one.'

'The indicators in our tool need to reflect a range of prospects. In this process, the 'why' question is often the most relevant question. And because we don't explain complex issues using a single conclusive figure, we have to carefully consider when we use which indicators.'

Life cycle thinking as an assessment tool

'I see circular economy as a tool that facilitates more sustainable development', Wouter Achten starts out. As a professor at the ULB's Institute for Environmental Management and Land-use Planning, he specialises in life cycle thinking. 'The circular economy as a concept encompasses many concepts and objectives – economic growth and job creation are just two of these. And that's how it contributes to greater sustainability. And that's why, in my opinion, the circular economy is more an instrument for (creating) greater sustainability. The link between the multitude of circular mechanisms and ideas creates additional challenges, which by necessity, entail complexity. It's for this reason that we need assessment tools that can deal with this complexity.'

'Another important observation: the transition to a circular economy creates winners and losers. The latter should also be included in the assessment tools.'
'Circular economy is an incredibly fragmented affair. Isn't there a danger of competition between Brussels, Flemish, federal and European CE initiatives? If that's the case, we're better off asking how we can go about properly organising everything.'

> 'The transition to a circular economy creates winners and losers. The latter should also be included in the assessment tools.'

'One thing's for sure. If we're interested in knowing what the impact of the transition to greater sustainability is, then we need measuring instruments. Life cycle thinking is a tool for integrating the impact of the sustainability transition as a whole into our assessments. How do we do that? We look at the full life cycle of a product or material and draw a distinction between direct and indirect effects. The ultimate goal is to affect systemic changes in the economy, which is why we are investigating several different perspectives. And we use three methods: input-output LCA (life cycle analysis), consequential LCA and territorial LCA.'

'Input-output LCA tables give us a picture of an economy's financial flows. They show how production is distributed across sectors and the extent to which it is dependent on other sectors. For example, we link monetary flows with material flows and emissions data. Those measurements are then funnelled into a multiregional model. The outcome is a concrete assessment of the impact of sustainability measures in the different regions.'

'When using consequential LCA the focus is not on the economy but is on the effects of sustainability changes instead. Just to clarify, here's an example: if we replace 10 percent of the materials during laptop production with recyclable materials, what is the impact?'
'Territorial LCA is used to study a geographic territory. We measure the environmental impact of land-use planning and examine productivity where possible. In other words, we are thinking sensibly about the use of our available landscape.'

Work in circular progress

All the speakers at the academic workshop make one thing abundantly clear: there is still a lot of work to be done. To decisively drive the Belgian economy down the road towards greater circularity and sustainability, even more efforts, research and new measuring instruments and options remain a must. What's more, the circular economy definitely can't be encapsulated in a single number or indicator. The conclusion then is that there's definitely more to the story to come.

Written by David Vanden Eynde