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Circular economy indicators: what do they measure?
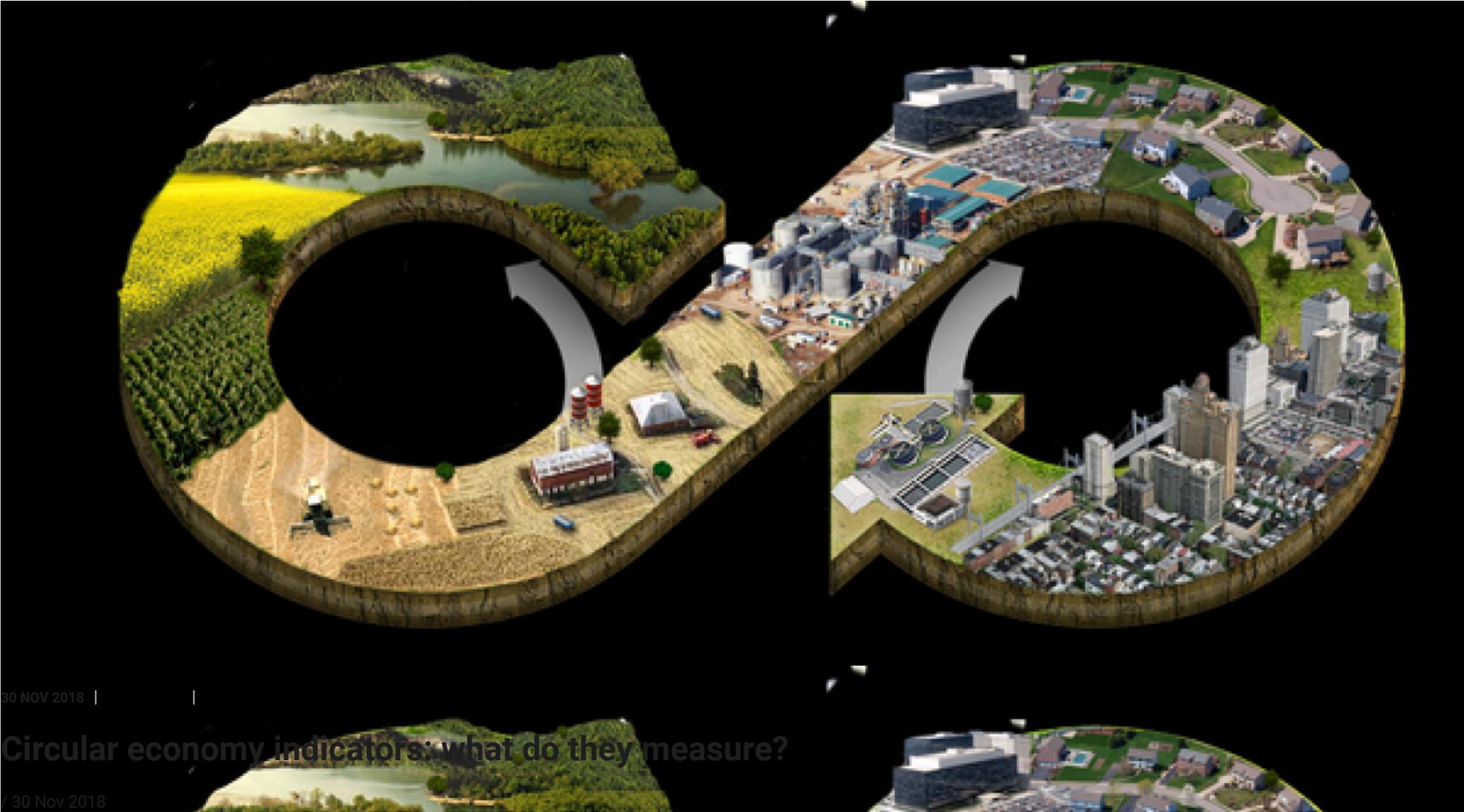
Gina Dohmen and Andre Confiado

The heat map analysis presented in this blog is part of a broader report on circular economy for Bruxelles Environnement, co-produced by UN Environment, Ecocity Builders and World Council for City Data.

In the context of climate change impacts, massive unsustainable resource extraction and global population growth, experts agree that our current economic model is no longer sustainable. Circular economy is an alternative economic model for exchange and production that seeks to decouple economic growth from material dependency. The idea is to increase resource efficiency use and reduce environmental impact at all stages of the product (goods and services) life cycle, reducing resource waste, ensuring the reduction of environmental impacts, while allowing us to meet our needs within planetary boundaries and developing the well-being of individuals. According to the European Commission, circular economy encourages maintaining the value of products, materials and resources for as long as possible by returning them back to the product cycle at the end of their use, and minimizing the generation of waste. Relying on system-wide innovation, it aims to design waste out of product life cycles and service delivery while minimizing negative impacts. Experts at McKinsey estimate that the transition to a circular economy in the mobility, food, and built environment sectors alone could lead to emissions reductions of 48 per cent by 2030, and 85 per cent by 2050, compared with 2012 levels. In addition, the European Union estimates that its circular economy package would produce cost savings of around 600 billion euros through actions such as waste prevention, eco-design, re-use, and is expected to contribute to the creation of more jobs at the same time.

Measuring progress is an essential component of the circular economy transition. One of the main challenges that UN Environment and its partners faced in the implementation of their pilot projects to help build circular economy in cities, is the number and variety of indicator frameworks monitoring topics related to circular economy and sustainable development. Many of the cities had an aspiration or vision statement related to circular economy and it was important to see whether current indicator frameworks aligned with the city aspirations.

To answer this question, UN Environment conducted a review of 31 global indicator frameworks comprising over 2,000 indicators on topics relevant to aspirations of the pilot cities. The review identified the predominant narratives of circular economy, as well as gaps between city aspirations and indicator frameworks. First, the indicators were grouped into 22 categories and 140 subcategories covering the following sectors: economy, environment, society and governance. Then, a heat-map analysis was conducted, which made the thematic focuses of each indicator framework evident. Finally, the five indicator frameworks most related to circular economy were reviewed in more detail. As was expected, it became clear that the five frameworks have a dominant focus on materials, solid waste and economy, while categories like education, gender, health, urban planning, people and safety are often overlooked (see graphics below).

Percentage of framework indicators group by category
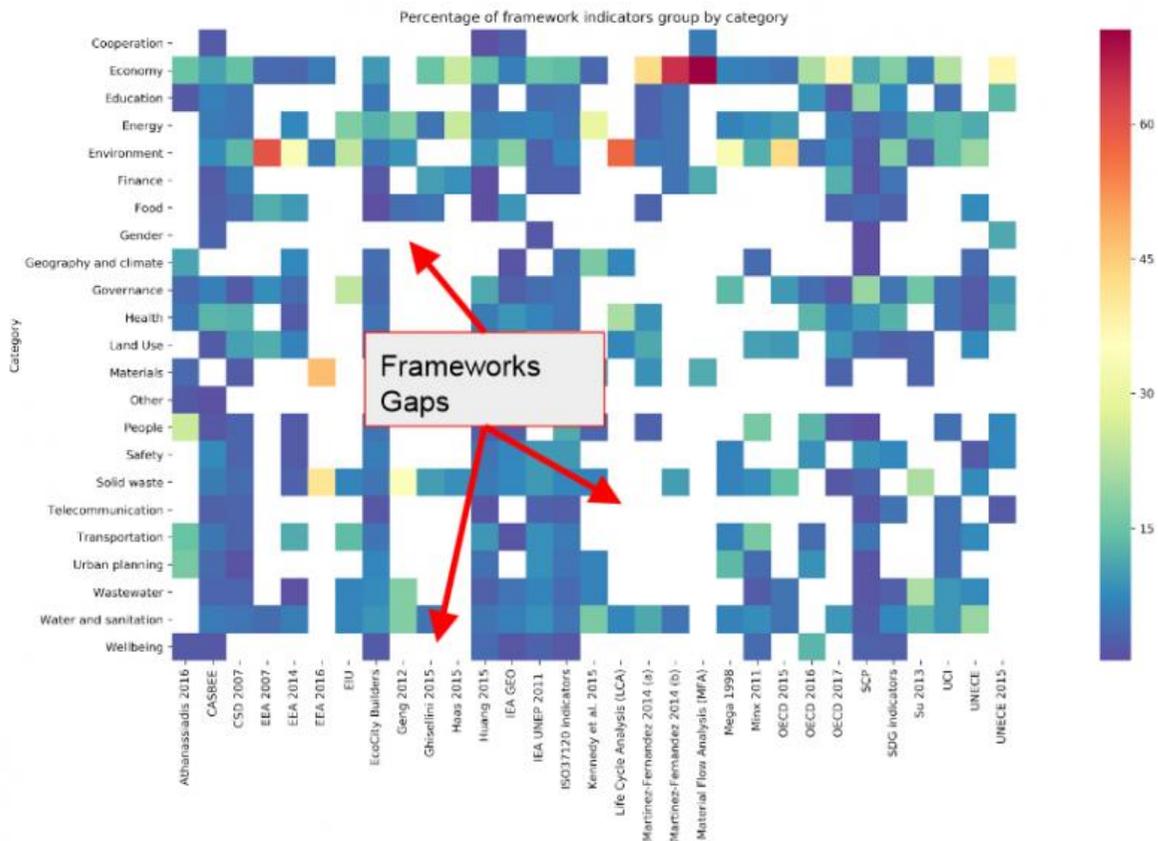
The results of the heat-map analysis show that the indicator frameworks that were studied do not capture the impact of the development of a circular economy on well-being or equality. The circular economy strategies of major global cities such as Paris, Amsterdam or London reference social indicators like quality of life, health and well-being, as part of their overall goals. However, there are few, if any, circular economy indicator frameworks to measure those categories. Neither do existing circular economy monitoring frameworks capture the progress of policy implementation toward circular economy transitions nor identify possibilities to accelerate transitions. As a result, these indicator frameworks with limited thematic variability only allow for an examination of the transition at a macro level.

Because circular economy is a cross-sectoral concept, it is necessary to cover a broader spectrum of subject categories. To enable this, a new set of indicators must be developed that covers the overall transition (macro level), the transition process with its actors and locations, and the implemented policies and their efficiency. For future projects, these important conclusions about circular economy indicator frameworks will be used to develop indicator sets that take into consideration the impacts on people (quality of life, health, well-being, job distribution, to name a few), particularly on minorities and on vulnerable sections of the population, in addition to the above-mentioned categories, like economic growth, materials, and solid waste. A balanced indicator set on circular economy would have to measure the possible impacts of development and growth on the urban poor, minorities and

marginalized populations, to ensure a more equitable transition. Examples for these kinds of impacts could be increased rental prices in buildings with efficiency improvements, which can lead to gentrification. Similarly, it is clear that the quality of newly created jobs must be considered alongside the quantity.

In summary, future circular economy projects would benefit from a broad but well considered set of monitoring indicators that capture economic, environmental, social and governance impacts. Circular economy frameworks would benefit from having strategies and indicators measuring well-being and equity as much as they measure material flows. As a consequence, the transition of a city into a circular economy could be monitored and would take into consideration all impacted sectors and identify disproportionally affected strata of the population. This would also enable the monitoring of the overall transition (macro level), the paths taken for this transition, and the transition policy implementation, as well as ensure a transition that is not only circular but also environmentally and socially sustainable.

The heat map analysis was conducted by Esteban Muñoz with André Confiado; Alice Loevenbruck; and Rebecca Wareham; under the leadership of Sharon Gil, UN Environment Programme Officer and Coordinator of the Global Initiative for Resource Efficient Cities.

UN Environment works with cities on practical ways to implement circular economy systems at city level, facilitating a bottom-up approach to decoupling. The UN Environment-led Global Initiative for Resource Efficient Cities (GI-REC) uses urban metabolism techniques as a systematic approach to demonstrate the benefits and importance of circular economies for sustainable urban development. The initiative integrates this approach into city planning and management, helping cities to build circular economies. Pilot projects were launched in five cities around the world: Brussels, Belgium; Cape Town, South Africa; Dongguan, China; Recife, Brazil; and Sorsogon City, Philippines. They address local concerns and support local governments in a transition towards low-carbon, resilient, resource-efficient, equitable, and circular cities. More information on the Global Initiative for Resource Efficient Cities can be found at: www.resourceefficientcities.org

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