



# EDITORIAL

Editorial

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## Circular territories

2022 marks the 50<sup>th</sup> anniversary of the *Meadows* report, which warned in 1972, about growth limits and the finite nature of natural resources for the development system. It would take until 1987 for the UN to publish the Brundtland Report, initially known as *Our Common Future*, and define the concept of sustainable development, highlighting the moral need to responsibly use resources for the planet's conservation. Nevertheless, this concept, tired and distorted today, did not explicitly imply critically viewing the prevailing linear model based on extraction, production, consumption, and waste.

In this sense, the concept of "circularity" builds upon that of sustainable development since it reorients the current production model towards the closure of its cycles, thus assimilating them to natural ecosystems. Circularity aims at building a virtuous circle that minimizes the resources used at their origin, as well as the output waste, through repair, reuse, or recycling.

This circularity approach is not new as some ancient civilizations already had advanced waste management systems that included recycling materials. It would reappear in the last few decades of the twentieth century, hand-in-hand with a new awareness of cities' socio-ecosystem realities and their metabolic operation. Indeed, some of the approaches, such as regenerative design or industrial ecology, which emerged in the 80s, already intrinsically included this idea.

However, the term "circular economy" would not come into use until 1989, when environmental economists David W. Pearce and R. Kerry Turner in their book, *Economics of Natural Resources and the Environment*, described an economic system where the use of raw materials and resources in processes should take precedence to reduce the environmental impact. Another great example, in this framework, is the Ellen McArthur Foundation which, in 2015, determined that the circular economy creates economic, natural, and social capital, separating biological cycles from technical ones. This is based on three principles: (1) eliminating waste and pollution by design; (2) keeping products and materials in use; and (3) regenerating natural systems.

Domestically, the Chilean Ministry of the Environment (MMA) issued, in 2021, the *2040 Roadmap for a Circular Chile*, which establishes 7 long-term goals that should be used as indicators that progress is being made in the system's transition:

1. Generation of green jobs.
2. Decrease in the generation of municipal solid waste per inhabitant.
3. Decrease in total waste generation by GDP.
4. Increase in material productivity.
5. Increase in the overall recycling rate.
6. Increase in the Household Solid Waste (HSW) recycling rate.
7. Recovery of sites affected by illegal dumping.

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Figure 1, 2 Los Algarrobos human settlement, second stage. Source: MGI Piura, 2022

To achieve these goals, the Roadmap proposes four lines of work: (1) circular innovation, (2) circular culture, (3) circular regulation, and (4) circular territories. The first seeks to encourage creativity for the transition to a low socioenvironmental impact productive system; the second, to fully educate an aware society that takes care of its environment; the third, to adjust the regulatory framework so that it enhances and facilitates the integration of the CE; and, the last, to promote sustainable local development that is compatible with the visions and vocations of each territory.

To move forward in the transition of territories towards circularity in general, and to achieve the goals in particular, each region must address this challenge considering its local attributes. Chile's regional diversity is very broad; therefore, each territory must acknowledge its realities and leverage its strengths and all its potentialities. Although urban solid waste management is currently a transversal problem throughout the country, the system's environmental impacts could be reduced by redirecting from a circular perspective and applying this to the entire food chain, acting as a driver for the local economy and changing the model in many territories.

The FAO, to work on circularity in urban food systems, proposed the prioritization pyramid where public policies should aim to reduce the volume of waste through strategies before its valorization or disposal. In that sense, it is essential to propose strategies to prevent and reduce food losses and waste at their source and redistribute food that, for aesthetic reasons, cannot be sold through conventional channels. Secondly, it can be reused and recycled, as animal feed, fertilizers, or in anaerobic digestion, and composting. Finally, everything that could not be reduced, redistributed, or reused in the previous stages, can be taken to landfills or incinerated.

On the other hand, the Chilean reality involves managing waste in three areas, namely: (1) the redirection or reuse of waste in the production stage; (2) the collection of waste from the sales process of large urban generators: logistics nodes, supermarkets, and street markets, which on taking place in public spaces requires municipal intervention; and (3) the collection of waste at the end of the food chain, derived from consumption. These can be done in an organized way by the municipality, or "door to door" to take them to a communal composting plant, handled by community or individual composters. In some cases, in the absence of communal management, there are self-managed experiences of neighbors, either as a community or individually. In the latter, there are two key gaps in promoting this transition, as both the waste recovery infrastructure and the R&D&i resources and investment are mainly found in the Metropolitan Region.

Today, in the Concepción Metropolitan Area, only Santa Juana has a composting plant that receives waste through a differentiated door-to-door collection. The compost produced is then returned to those contributing organic waste and farmers from the PRODESAL program, closing the virtuous food circle. Chiguayante, on the other hand, has some neighborhood groups working with community vermicomposting. Other municipalities are considering how to implement waste valorization and transition their territories to a circular economy. However, these are isolated and independent views and initiatives, without an integrated metropolitan view where municipal cooperation and alliances can be the basis of transition towards a circular economy that benefits all the municipalities, on a solidary basis.

When are we going to accept that resources and ecosystems are not infinite? When are we going to move from a linear model based on a disposable culture to a circular economy that is also a driver for the endogenous development of territories? When are we going to understand that we are part of an integrated territory that should not be conceived by its administrative boundaries? When are we going to start to work together and generate alliances that allow us to implement more responsible use of public resources?



