

What is the circular economy?

FROM LINEAR TO CIRCULAR

The global economic system has developed in a linear fashion. Resources are extracted to produce goods, which are then distributed to markets, consumed and thrown away at the end of their useful life. This system was appropriate in a world of less than one billion inhabitants where resources were abundant and waste was not a particular problem.

However, over the last century as the global population has grown and our consumption patterns have become more resource-intensive, this model has had some significant, if unintended, consequences.

GROWING SCARCITY OF NON-RENEWABLE RESOURCES

If current trends continue, our ability to continue meeting global demand will be affected. As this graph below shows, reserves of many critical minerals and fossil fuels are estimated to run out in the next 50 years. This will affect the production of a variety of goods across a range of sectors unless alternatives can be found.

INCREASING WASTE GENERATION

At the same time the amount of waste we produce is growing and becoming increasingly difficult to dispose of, putting pressure on local and global ecosystems. Over the next three decades, global waste production is set to rise by 70 percent, from 2.01bn tons in 2016 to 3.4bn tons of waste per year by 2050.¹

These challenges call for a more circular way of thinking, where industrial and agricultural systems are designed to maintain value, preserve resources and restore ecosystems.

The Ellen MacArthur Foundation describes a circular economy as **AN INDUSTRIAL SYSTEM THAT IS RESTORATIVE OR REGENERATIVE BY DESIGN. THE FOUNDATION SUGGESTS THREE PRINCIPLES THROUGH WHICH CIRCULARITY CAN BE ACHIEVED²**

1

DESIGN OUT WASTE AND POLLUTION:

changing our mindset to view waste as a design flaw.

2

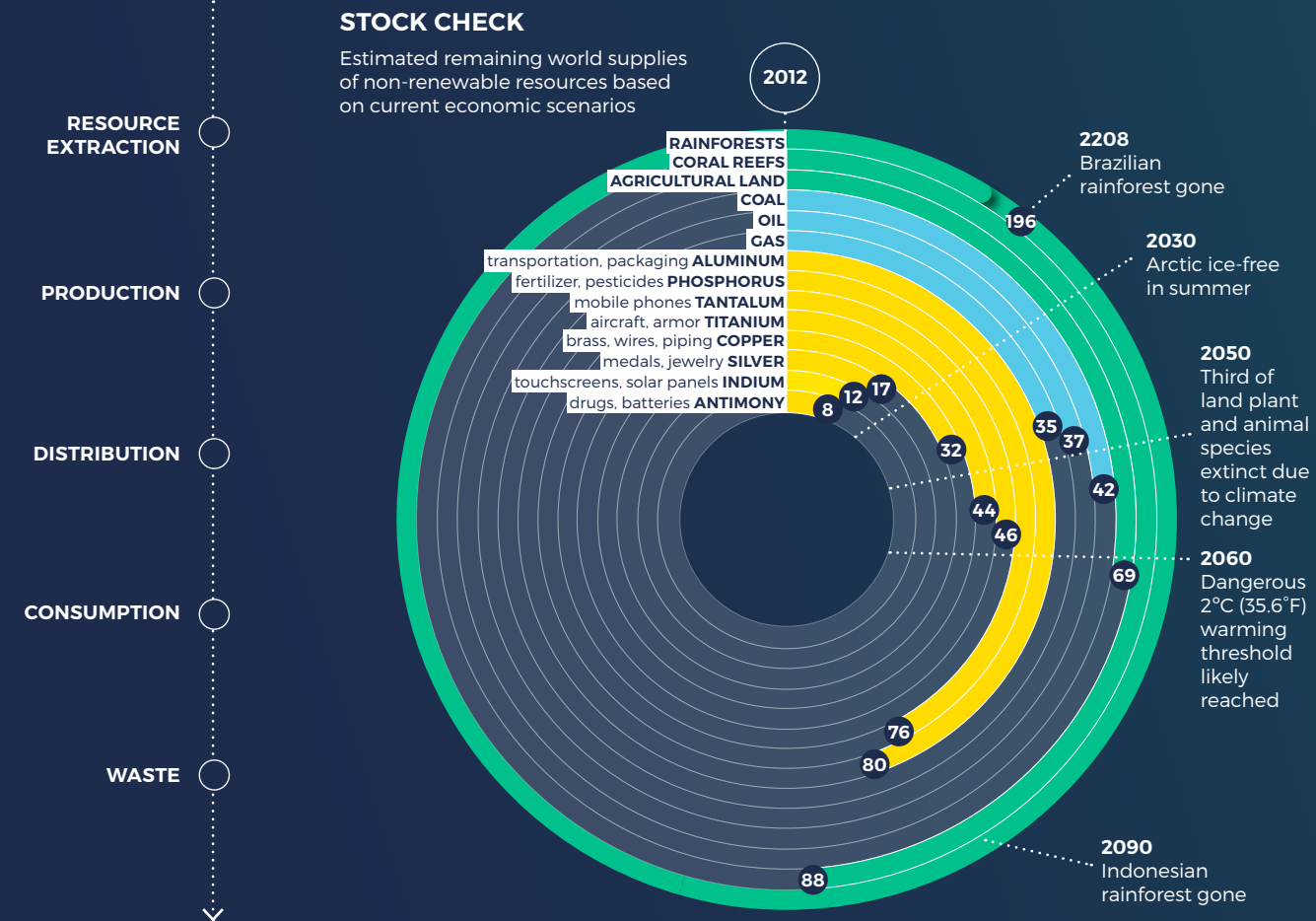
KEEP PRODUCTS AND MATERIALS IN USE:

design products and components so they can be reused, repaired and remanufactured, ensuring no materials end up in landfill.

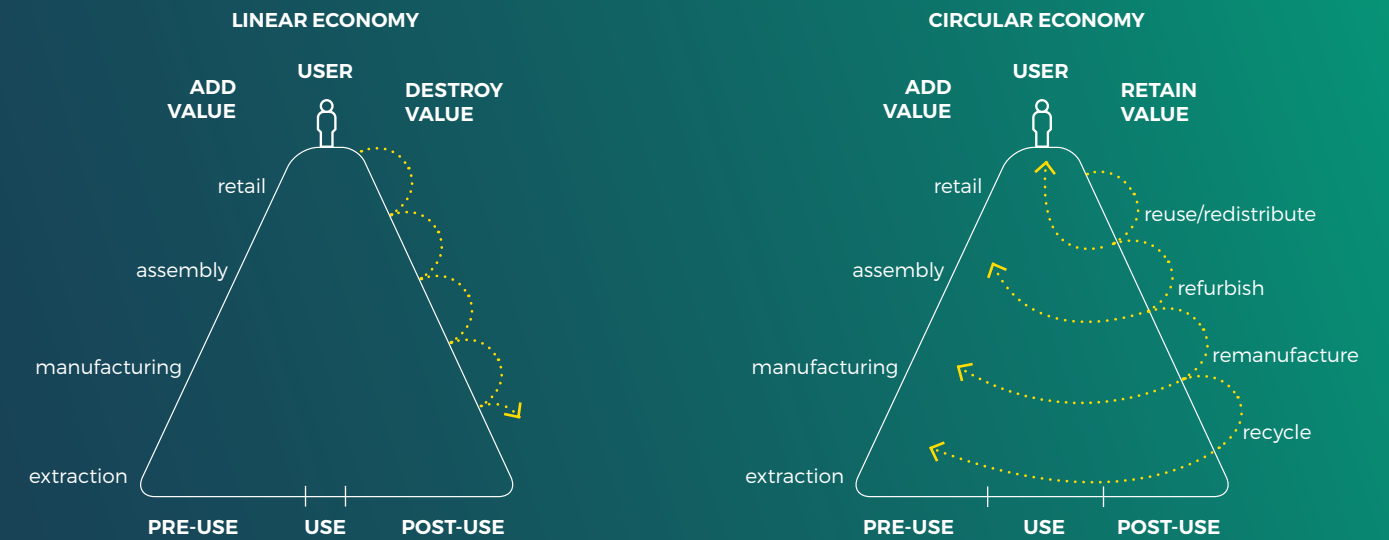
3

REGENERATE NATURAL SYSTEMS:

aim to enhance natural resources by returning valuable nutrients to the soil and other ecosystems.



IN ITS VALUE HILL DIAGRAM, CIRCLE ECONOMY SHOWS HOW THE CIRCULAR ECONOMY RETAINS VALUE AT EVERY STAGE OF THE PRODUCTION PROCESS, RATHER THAN DESTROYING IT AS IN A LINEAR MODEL.³



IN PRACTICE WHAT DOES THIS MEAN?

While many might associate a circular economy with recycling, this is one of the least circular (and value-generative) activities. Circular thinking is about a fundamental reevaluation of the way we manufacture and use products so that their useful life is extended. Examples include the following.

Sharing and product-as-service models, such as Zipcar or Rent the Runway.

Increasing the useful life of a product through more durable design and easier repair, applying [circular design guidelines](#).

Enabling the trade of second-life products, parts and raw materials, using approaches such as [DonateNYC](#) and [Queen of Raw](#).

Sources: UN TEEB, US Geological Survey, BP, Worm et al. (2006), London Metal Exchange. Figures are worldwide. Living natural resources dates are worst-case based on published estimates. Minerals and fossil fuel data based on known reserves currently economical to extract, assuming fixed percent increase in usage per year. No provision made for changes in demand caused by new technologies, discoveries of new reserves or market forces. Agricultural land means land suitable for rainfed cultivation not for other land usage. Thirty-year historic agricultural expansion rates are applied.

1 World Bank Group. *What a Waste 2.0: A global snapshot of solid waste management to 2050* (2018)
 2 <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>
 3 Achterberg, E., et al., *Master Circular Business with the Value Hill* (2016). Available online via: <https://publish.circle-economy.com/financing-circular-business>