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A Just Transition to Circular Economy



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CHAPTER 24

Visioning four different circular futures: what could 2050 look like?

Chapter 24: Visioning four different circular futures: what could 2050 look like?

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Abstract: There are many competing visions regarding what a circular future entails and how it would transform our social, economic, and political systems. This chapter sheds light on these different circular discourses by asking the following research questions: what kind of society would different visions of a circular future seek to create by 2050? To answer this question, this chapter unpacks the four circular discourses developed by Calisto Friant et al. (2020). Results examine how these four discourses would organise and operationalise circular transport, energy, agriculture, and industrial systems in 2050. Results also explore the political systems and governance processes they would establish and the type of society, culture, and daily life they would create. Our chapter concludes that there is a real danger in following growth-based circular discourses and scenarios because their visions cannot be implemented within the boundaries of the Earth. Indeed, over 50 years of academic research has demonstrated that decoupling economic growth from environmental degradation fast enough to prevent climate breakdown and biodiversity collapse is impossible. Degrowth-oriented circular society approaches, on the other hand, might shed light on socially innovative transformations that can allow all humans to meet their needs within the ecological boundaries of the Earth.

Keywords: circular economy; circular society; futuring; sustainability; degrowth.

This chapter asks: what kind of society would different visions of a circular future seek to create by 2050? To answer this question, we explore what competing circularity futures propose for our transport, energy, agriculture, industry, political institutions, culture, and everyday life.

24.1 Introduction

In the past decade, the circular economy (CE) rose from a niche concept in the sustainable production and consumption literature to become a major component of any business, government, or civil society discourse on sustainability. A Google search for “circular economy” in 2012 would lead to around 80 thousand results, the same search now leads to over 80 million. However, the CE is nothing new, the metaphor of a circle to represent a sustainable economy has existed at least since the 1970s with Barry Commoner’s magnum opus, “The Closing Circle” (Commoner 1971). The idea of a society that works in harmony with the natural cycles of the Earth can be traced even further back to the ancestral worldviews and ways of life of indigenous peoples throughout the globe

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(Kothari et al. 2019). The current definition and forms of implementation of CE are very diverse and still very much contested, with many different actors proposing different visions and discourses of CE, depending on their socio-economic perspectives and interests (Korhonen et al. 2018).

This chapter seeks to shed light on these different circular futures and scenarios by asking the following research questions: what kind of society would different visions of a circular future seek to create by 2050? To answer this question, this chapter unpacks the 4 circular discourses developed by Calisto Friant et al. (2020) to explore how these different approaches to circularity imagine the future. It does so by working with an artist to illustrate 4 images that represent the futures that each of the 4 discourse types would envision by 2050.

This chapter is thus the result of a “futuring” thought experiment, where we unpack and draw out four circular discourses into the near future and critically engage with their sustainability implications. By collaborating with an artist to visualise each of these futures, we hope this chapter can help academics and practitioners better understand the different visions of circularity that currently compete in the discursive debate and to better grasp their key implications for human planetary well-being.

After explaining the methods (section 2), the article explores the four possible futures that each of these discourse types would envision by 2050 (section 3). Section 4 investigates which of these visions currently dominates the discursive debate on CE and discusses the sustainability implications of each of these futures. We conclude with final reflections and avenues for further research.

24.2 Methods and theoretical framework

The typology of circularity discourses developed by Calisto Friant et al. (2020) was chosen as the theoretical framework for this article as it is a typology that has been widely used by other academics for discourse and policy analysis on the topic (e.g. Arai, Calisto Friant, and Vermeulen 2023; Melles 2021; Ortega Alvarado et al. 2021; Palm et al. 2021). The framework is based on a comprehensive literature review on CE and all its related concepts, including both ideas from the GN and South. It is thus a broad and plural typology that embraces many different approaches to the topic in a holistic manner. It is particularly useful to this chapter’s research aims, as the typology can help us envision the complexity and diversity of futures that different CE proposals entail in a coherent and systematic manner.

The 2x2 typology differentiates CE discourses based on 2 criteria. First, whether discourses are *optimist* or *sceptical* regarding the possibility that economic growth can be decoupled from environmental degradation fast enough to prevent a socio-ecological collapse (eco-economic decoupling). Second, whether discourses are *holistic* by including social justice and political empowerment considerations or *segmented* by focusing on resource efficiency alone. This differentiation leads to 4 broad circularity discourse types: *Technocentric Circular Economy* (*optimist* and *segmented*), *Reformist Circular Society* (*optimist* and *holistic*), *Transformational Circular Society* (*sceptical* and *holistic*), and *Fortress Circular Economy* (*sceptical* and *segmented*) (see **Figure 24.1**).

		Approach to social, economic, environmental, and political considerations	
		Holistic	Segmented
Technological innovation and ecological collapse	Optimist	<p>Reformist Circular Society</p> <ul style="list-style-type: none"> - Assumptions: reformed form of capitalism is compatible with sustainability and socio-technical innovations can enable eco-economic decoupling to prevent ecological collapse. - Goal: human prosperity and well-being within the biophysical boundaries of the earth. - Means: technological breakthroughs and social policies that benefit humanity and natural ecosystems. - Example concepts: natural capitalism, cradle to cradle, the performance economy, the natural step, the blue economy, regenerative design, sound material-cycle society, doughnut economics. - Proponents: various international organizations, academics, large foundations, and some governments. 	<p>Technocentric Circular Economy</p> <ul style="list-style-type: none"> - Assumptions: capitalism is compatible with sustainability and technological innovation can enable eco-economic decoupling to prevent ecological collapse. - Goal: economic prosperity and development without negative environmental externalities. - Means: economic innovations, new business models, and unprecedented breakthroughs in CE technologies- - Example concepts: industrial ecology, reverse logistics, biomimicry, industrial symbiosis, extended producer responsibility, cleaner production, bioeconomy. - Proponents: some academics, many corporations, various national and city governments, and international organizations.
	Sceptical	<p>Transformational Circular Society</p> <ul style="list-style-type: none"> - Assumptions: capitalism is incompatible with sustainability, and socio-technical innovations cannot bring absolute eco-economic decoupling to prevent ecological collapse. - Goals: a world of conviviality and frugal abundance for all, while fairly distributing the biophysical resources of the earth. - Means: complete reconfiguration of the current socio-political system and a shift away from productivist and anthropocentric worldviews. - Example concepts: conviviality, steady-state economics, permacircular economy, degrowth, eco-anarchism, Buddhist economics, buen vivir, ubuntu. - Proponents: many academics, social movements, bottom-up circular initiatives, and indigenous peoples. 	<p>Fortress Circular Economy</p> <ul style="list-style-type: none"> - Assumptions: there is no alternative to capitalism and socio-technical innovation cannot bring absolute eco-economic decoupling to prevent ecological collapse. - Goal: maintain geostrategic resource security in global conditions where widespread resource scarcity and human overpopulation cannot provide for all. - Means: innovative technologies and business models combined with rationalized resource use and migration and population controls. - Example concepts: the tragedy of the commons, the population bomb, overshoot, disaster capitalism, capitalist catastrophism. - Proponents: survivalists, a few academics, some geostrategic think tanks, and state policies.

Figure 24.1: Circularity Discourse Typology (adapted from Calisto Friant, Vermeulen, and Salomone 2020)

To develop a visual representation of the 4 discourse types and their proposed futures we worked with an artist and designer, Anke Muijsers. Through a series of collaborative sketching exercises, we developed an illustration of each of these futures (see **Figure 24.2**)⁴⁴. These figures detail the type of future and socio-economic system that each circularity discourse would imagine for 2050, with the mix of agricultural, industrial, housing, energy, consumption, and transport systems they would engender. We sought to create visual representations that are

⁴⁴ These artistic representations (figures 2, 3, 4, 5 and 6) were illustrated by Anke Muijsers from <https://visual-research.studio/>

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both complete and comprehensive but also simple and easy to understand so they could be used as education and workshop materials with citizens, researchers, practitioners, students, and other actors.

24.3 Four different visions of a circular future

24.3.1 The Technocentric Circular Economy Future

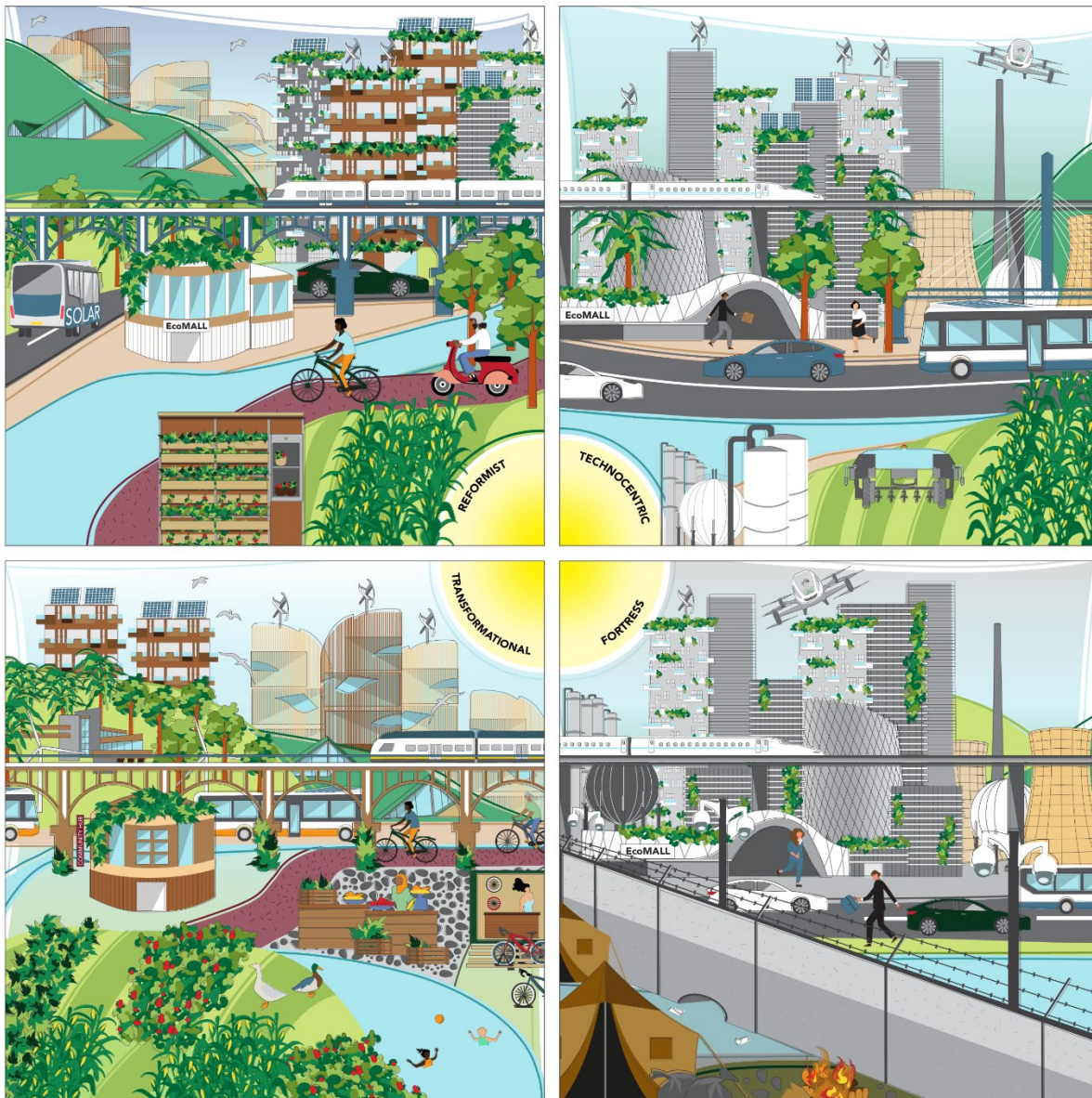


Figure 24.2 Visual representation of the circularity discourse typology (Calisto Friant 2022)¹

Technocentric Circular Economy (TCE) discourses are *optimist* about the capacity of technology to prevent socio-ecological collapse as well as *segmented* as they don't include social justice and political empowerment considerations (see **Figures 24.1** and **24.3**). These discourses seek to reconcile economic development with

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ecological sustainability through innovative business models and technological breakthroughs, especially in resource recovery, biotechnology, and renewable energy.

In a TCE future, industrial output and energy demand continue to grow by using many different sources of energy, including solar panels, wind turbines, hydrogen, biofuels, nuclear, and even fossil fuels such as gas and oil with carbon-capture and storage technology to prevent greenhouse gas emissions. Agriculture is highly efficient and automatised and uses artificial intelligence (AI), robotisation, biotech and genetically modified organisms (GMOs) to increase resilience and productivity and reduce losses. This industrial agriculture system thereby supplies food for human consumption and industrial feedstock to produce biofuels and advanced biomaterials (such as bioplastics), all while recuperating organic wastes from urban areas through bio-digestion and waste-water recycling. Transport systems include high-tech innovations such as autonomous vehicles, high-speed rail, and passenger drones, as well as green aircraft powered by biofuels, hydrogen, or electric batteries. Buildings are made from recovered or innovative sustainable materials and are packed with smart technologies, which allow energy-efficient insulated housing, malls, and offices to rise surrounded by green walls, wind turbines and solar panels. New recovery technologies and businesses flourish in this society, with myriad innovations to recycle all types of waste and repair, remanufacture or refurbish disused products.

Many industries switch from selling specific goods like cars, smartphones, and washing machines to providing services like transportation, cleaning, lighting, or computing (so-called product-service systems). Industries also start producing closer to consumption markets with innovative robotisation and machine learning technologies. This also allows for a strong symbiosis between and within urban and industrial clusters, which efficiently and continuously re-use and recuperate wastes to manufacture new products.

TCE visions do not address social considerations, so current social relations and working practices remain broadly unchanged and thereby replicate present racial, class, gender, property, health, and ethnic disparities. Overall, a TCE vision seeks to create a highly productive and efficient society with an abundance of technical solutions that allow for high material standards of living and the continued reproduction of capitalist socio-economic relations.

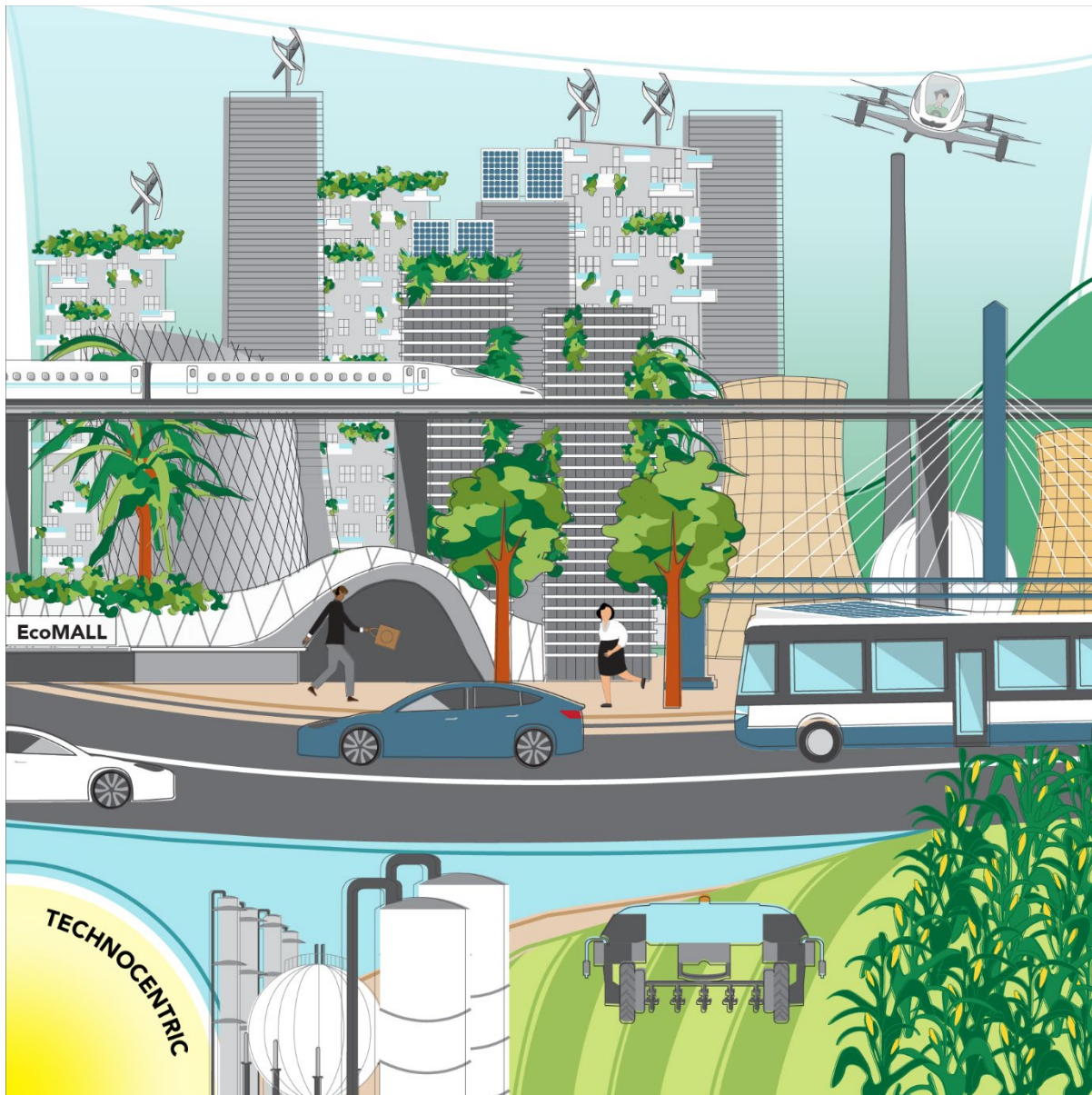


Figure 24.3 Visual representation of a Technocentric Circular Economy future (Calisto Friant 2022)¹

24.3.2 The Reformist Circular Society Future

Reformist Circular Society (RCS) discourses are *optimist* about the capacity of technology to prevent socio-ecological collapse and *holistic* as they integrate many social justice and political empowerment considerations (see **Figures 24.1** and **24.4**). These discourses seek to create a sustainable circular future through a combination of innovative business models, social policies, and technological breakthroughs. RCS visions thus add a social justice lens to the many technical and business innovations of TCE visions.

An RCS society combines high-tech innovations and industrial processes with greater care for workers' well-being and respect for human rights. It is a society where technology has brought nature closer to humans with a myriad of nature-based solutions like green walls and parks that mitigate heat waves and floods. It is a future where industrial processes operate like natural ecosystems, sharing resources between localised manufacturing hubs and cities to continuously re-use wastes to produce new goods. Innovative technologies like robotisation, 3D

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printing, chemical recycling, big data, and artificial intelligence enable the re-localisation of industrial processes and the mining of urban areas for secondary materials. This is all powered by abundant renewable energy from large-scale solar and wind farms, hydroelectric dams, and geothermal plants. This smart energy grid also provides power for an electrified transport system combining high-speed rail, autonomous vehicles, and passenger drones, with electric scooters, buses, bikes, and aeroplanes.

Buildings are constructed with recovered resources and sustainable bio-sourced materials. Urban spaces are optimised, renovated, insulated, and greened as much as possible. The need for offices and housing is reduced thanks to co-working and house-sharing platforms. A myriad of sharing economy activities emerge thanks to new information technology platforms enabling people to rent, lend, and share tools, knowledge, work, cars, bikes, resources, and much more. In this networked economy, people become less inclined to own products and rather seek access to their transportation, cleaning, computing and other needs. Companies thereby switch from selling products to providing services through product-services systems like leasing phones and washing machines instead of selling them.

Agriculture systems are also transformed by combining organic agricultural practices with high-tech innovations like vertical farming, aquaponics, hydroponics, autonomous tractors, and genetic engineering. This enables the provision of diverse diets of fresh produce for humans, the production of biofuels for energy use, the supply of biomaterials for industrial applications (such as bioplastics). Bio-digestors and wastewater recovery systems also enable the efficient re-utilisation of urban organic waste as fertilisers.

The nation state remains the dominant model of governance, but some local participatory mechanisms are encouraged (such as participatory budgeting) and transparent, open, and accountable representative institutions are reinforced. The welfare state is also strengthened and redistributes excessive inequalities while ensuring the access of basic services for all, such as education, healthcare, and social security. Moreover, international organisations are empowered to address global sustainability challenges in a collaborative manner, such as climate change, poverty reduction, and biodiversity protection.

While privately owned corporations remain the norm, and capitalist power relations subsist, a greater voice is given to unions, workers, and stakeholders in business boards. A triple bottom line of profit, planet, and people thus guide corporations and help create socially responsible and environmentally sustainable business models. An anthropocentric and liberal worldview based on the respect of human rights and an aspiration to pursue sustainable development within capitalist market relations guides socio-cultural practices.



Figure 24.4 Visual representation of a Reformist Circular Society future (Calisto Friant 2022)¹

24.3.3 The Transformational Circular Society Future

Transformational Circular Society (TCS) discourses are *sceptical* about the capacity of technology to prevent socio-ecological collapse and *holistic* as they integrate many social justice and political empowerment considerations (see **Figures 24.1** and **24.5**). These discourses seek to create a fair, democratic, de-colonial, and sustainable post-capitalist future where humanity and nature live in mutual harmony by re-localising and redistributing power, wealth, and knowledge. It is a society where industry belongs to workers, democratic public institutions, and communities rather than private investors and bondholders. Profit motives and endless economic growth imperatives thus no longer dictate economic and political decisions. It is a society where power is equally shared amongst all thanks to a plurality of deliberative democracy innovations such as citizen assemblies of randomly selected citizens, participatory budgeting processes, referendums, and citizen initiatives. It is an economy that redistributes wealth and resources from those that have the most to those that have the least, thanks

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to high taxes on wealth and a diversity of social justice programs like job guarantees, universal healthcare, public childcare, free education, abundant social housing, social security, and universal basic income (UBI) etc.

It is an economy run through social and solidarity economy practices of care, reciprocity, and solidarity. There is hence an abundance of economic and social initiatives that care for humans and non-humans alike, such as repair cafés, community gardening, fab-labs, cooperative firms, support groups, sharing initiatives, convivial biodiversity conservation and ecosystem regeneration projects etc. Working time is reduced to allow people to be involved in all the above community activities or any personal, artistic, spiritual, relational, or family project. Productive work, personal achievement and competition are no longer the foremost goals in life, allowing for slower, more meaningful, and convivial forms of life. Citizens thereby gain a renewed sense of freedom and control over their time and the meaning they wish to give to their lives.

Industrial and manufacturing systems are as low-tech as possible and focus on providing for real human needs rather than endless artificial wants. Products are highly durable and easily repairable and upgradable. Product patents and manuals are open and free to facilitate modularity and innovation. People thus partake in a plurality of repair, repurpose and do-it-yourself activities that give them tangible control over their material resources.

Global energy use is reduced to sustainable levels for the biosphere, and it is shared to ensure enough energy is available for everyone. Moreover, energy is produced in socially and environmentally respectful manners thanks to decentralised energy grids of community-owned renewable sources like wind turbines, geothermal plants, and solar panels.

All agriculture is organic, highly biodiverse, and as local as possible, utilising urban food waste for community composting and urban agriculture. Cooking and food preparation is cherished and slowed down, with deep care and appreciation for diverse, seasonal, healthy, plant-based ingredients that ensure human and planetary well-being.

Transportation needs are reduced as much as possible by planning inclusive walkable cities, with easy access to local goods and services for all thanks to plenty of green spaces, accessible sidewalks, and bike lanes, as well as free and quality public transport systems. This leads to convivial cities and neighbourhoods with access to local markets, parks, communal spaces, gardens, and public services for everyone, regardless of class, gender, ethnicity, sexual orientation, race, (dis)ability or age. Long-distance travel is reduced to a minimum and, when necessary, it happens by train or sailboat and supports community tourism that respects local cultures and ecosystems.

The construction of additional buildings is reduced to a minimum by focusing instead on repurposing unused or under-used buildings and preventing the unfair and unsustainable accumulation of building stock through. When infrastructure construction is necessary to meet social needs, it focuses on using local materials and socio-ecologically responsible building practices. Biodiversity is cherished by protecting ecosystems, prioritising green infrastructure, and replacing unnecessary parking, roads and highways with green belts and roofs.

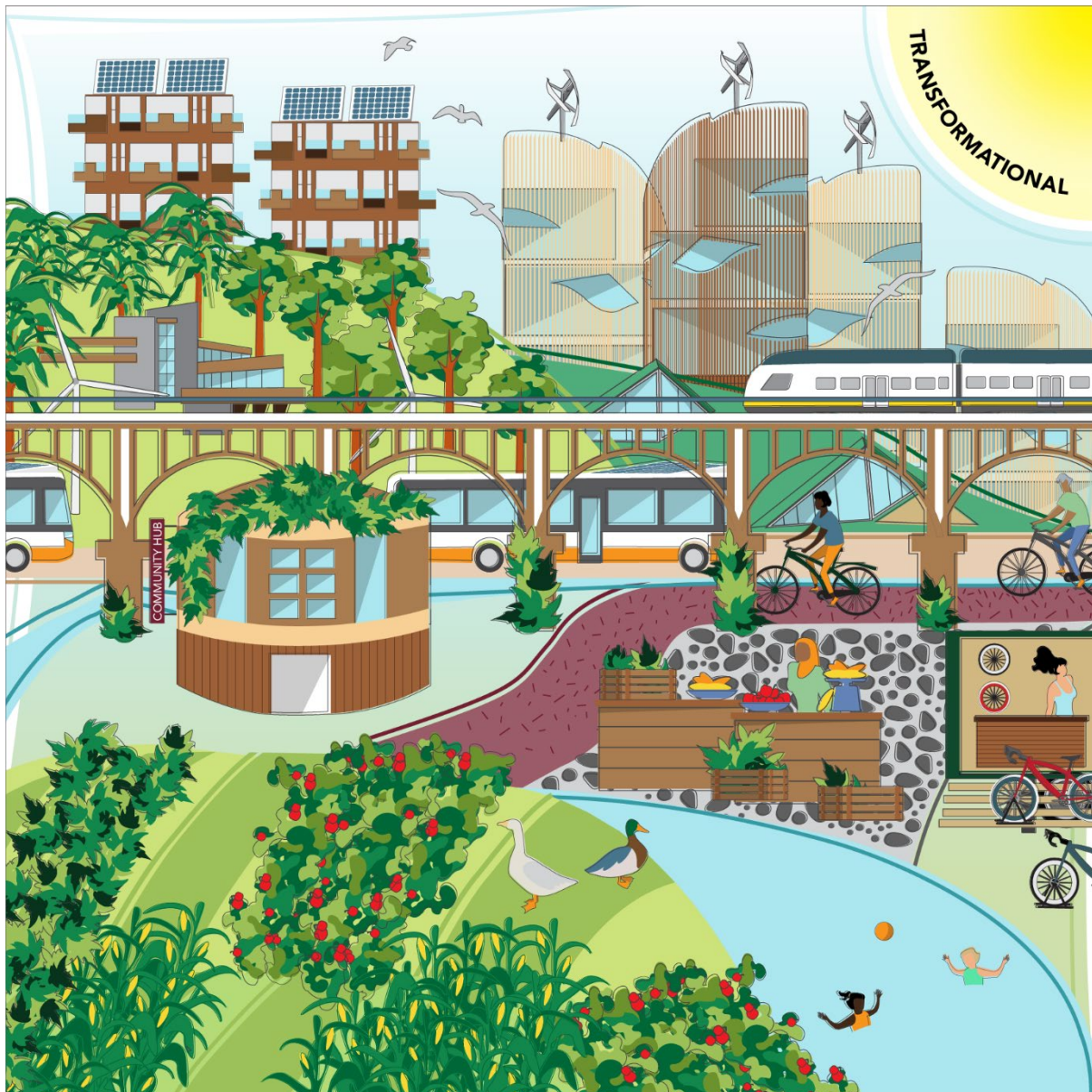


Figure 24.5 Visual representation of a Transformational Circular Society future (Calisto Friant 2022)¹

24.3.4 The Fortress Circular Economy Future

Fortress Circular Economy (FCE) discourses are *sceptical* about the capacity of technology to prevent socio-ecological collapse and *segmented* as they don't include social justice and political empowerment considerations (see **Figures 24.1** and **24.6**). They describe a future in which biophysical stability is severely weakened and geostrategic resource security is sought through technological innovations and top-down controls on people and resources. FCE discourses are concerned about the tangible shortages caused by overpopulation and the overconsumption of natural resources. Yet, instead of envisioning a utopic vision to solve these socio-ecological challenges and prevent planetary overshoot, they see climate breakdown and ecological collapse as inevitable due to the entrenched nature of capitalist power relations and a generally negative vision of human nature. Therefore, rather than attempting to describe the world as it should be, FCE discourses focus on describing the world as it will most likely be if current unsustainable socio-ecological trends continue.

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FCE discourses thus see a world where people seek to protect themselves and maintain access to resources despite the surrounding collapse. Protection from mass climate-induced migration is intensified with heavy security apparatus of walls, surveillance systems and migration controls. Military and economic domination and coercion are used to secure access to key resources and build high-tech industrial societies. Minerals for wind turbines and solar panels, uranium for nuclear power plants, and land for bio-fuels are thus obtained throughout the globe by some societies, despite global shortages that prevent others from accessing these resources. Military and police power also enables some societies to impose the conservation of critical biodiversity hotspots, and to restrict access to fossil fuels. It thereby secures key planetary functions and resources for some humans to enjoy by imposing sufficiency on all others.

Islands of material wealth and abundance are hence created by neo-colonial and imperial practices. This allows some societies to maintain high-speed rail networks, autonomous vehicles, passenger drones and malls filled with electronics, clothing, furniture, and other goods for those that can afford them. Climate engineering, autonomous tractors, AI, GMOs, and biotechnology maintain a limited supply of foods and industrial feedstock for those who can afford them. Water scarcity and pollution are rampant due to constant droughts, floods, and heatwaves, but new water-saving, decontamination and desalination technologies provide water access for those who can pay for it.

In the most powerful cities, buildings and urban systems are highly efficient and interconnected thanks to big data, AI, and the internet-of-things to ensure the effective use of limited resources. Innovative recovery technologies and strong integration between powerful consumption and production centres ensure the efficient recovery, remanufacture, refurbishment, and recycling of waste materials for new products and services. Some nations use high-tech robotisation, automatization, bioengineering, and machine learning technologies to create eco-industrial systems with optimum labour, energy, and material efficiency. However, these industrial tools and resources remain inaccessible to most of the Earth's population. In fact, for most of humanity, informal settlements and refugee camps are the norm, and people undertake multiple informal activities (such as waste picking and scavenging) to make a living due to widespread job scarcity.

An FCE future is a world where socio-ecological crisis has become the new normal. Current social disparities along racial, class, gender, property, health, and ethnic lines are reinforced and exacerbated as those with historical power are able to maintain access to the limited resources that remain. All in all, it is a bleak portrait of the future where a minority of people in a few countries secure a relative material abundance amidst a heavily degraded planetary system with strong resource constraints for most of humanity. It is circularity and sustainability for those that can afford it and imposed sufficiency for all the rest.

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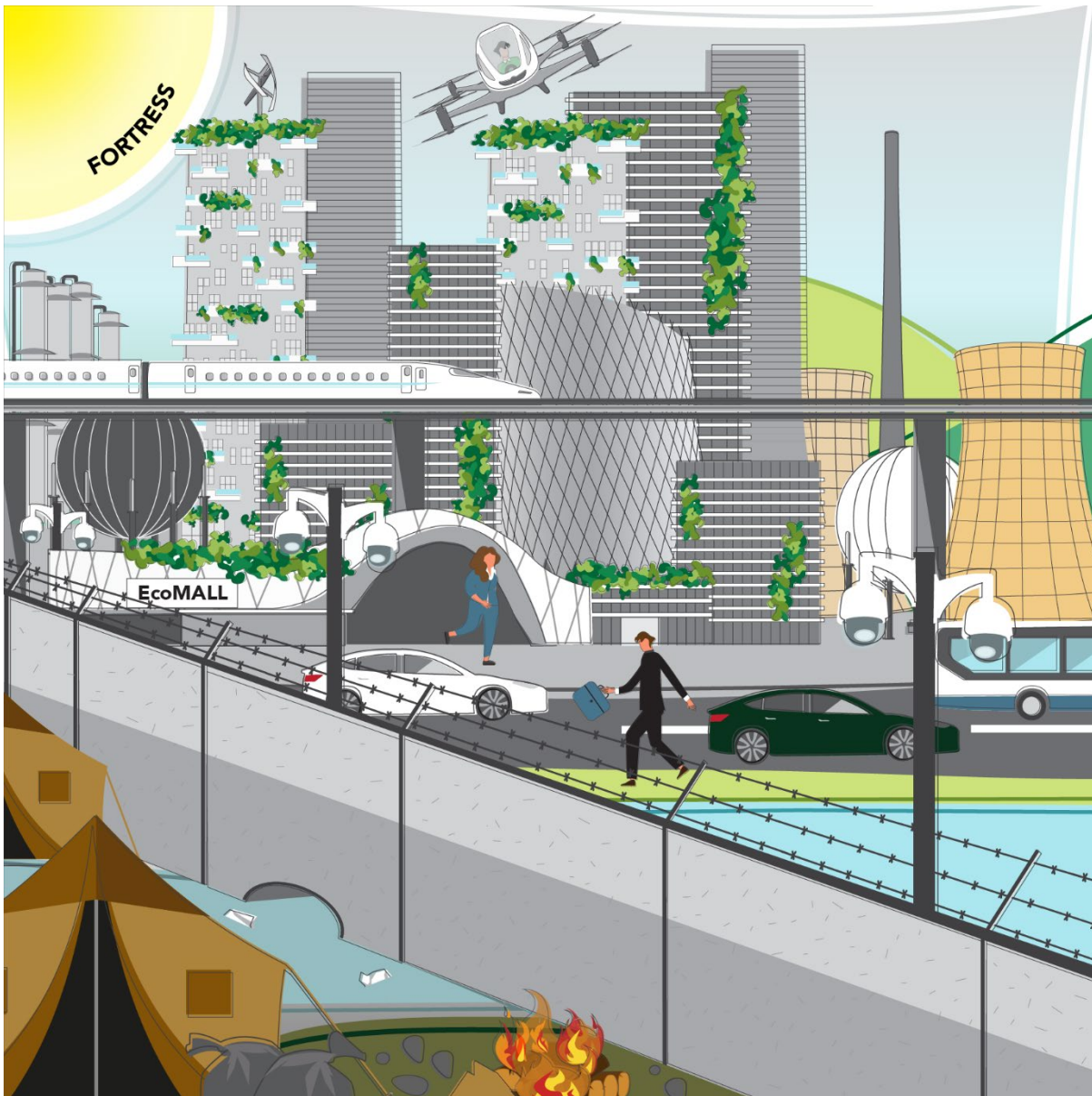


Figure 24.6 Visual representation of a Fortress Circular Economy future (Calisto Friant 2022)¹

Table 24.1: Summary of sectoral transformations envisioned for 2050 by the four circularity discourse types

	Technocentric Circular Economy (<i>optimist and segmented</i>)	Reformist Circular Society (<i>optimist and holistic</i>)	Transformational Circular Society (<i>sceptical and holistic</i>)	Fortress Circular Economy (<i>sceptical and segmented</i>)
Energy	Energy use increases through the expansion of solar, wind, hydrogen, biofuels, nuclear, and fossil-fuels with carbon-capture and storage.	Energy use increases through the expansion of smart grids, large-scale solar and wind farms, hydroelectric dams, and geothermal plants.	Global energy use is reduced to sustainable levels and is produced in socio-ecologically respectful manners through community-owned renewable sources (mostly wind and solar)	Energy use decreases for most of humanity but rises for the wealthy, who can pay for new technologies (e.g. biofuels, hydrogen, solar, nuclear, and carbon-capture and storage).
Agriculture	High-tech and highly automatised industrial agriculture system using AI, robotisation, and GMOs to produce food and industrial feedstock (biofuels and biomaterials) and recuperate urban wastes as fertiliser.	Combining organic agricultural practices with high-tech innovations like vertical farming, AI, bio-digestors, robotisation, and GMOs to produce food and industrial feedstock and recuperate wastes as fertiliser.	Agriculture is organic, highly biodiverse, and locally produced using urban food waste for community composting and urban agriculture. Healthy plant-based diets ensure human and planetary well-being.	High-tech and highly automatised industrial agriculture system using AI, robotisation, and GMOs to produce food and industrial feedstock for those who can afford it.
Industry	Business models focus on servicing and leasing. Re-localisation of production through robotisation, and machine learning as well as advanced recovery technologies that recuperate wastes from consumption centres.	Business models focus on servicing and leasing. Re-localisation of production through robotisation, and machine learning as well as advanced recovery technologies that recuperate wastes from consumption centres.	Industry as low-tech as possible and focuses on providing essential needs rather than endless wants. It is run through social and solidarity economy practices including cooperatives, repair cafés, and sharing initiatives.	Powerful countries have integrated production systems through robotisation, and machine learning as well as advanced recovery technologies that recuperate urban wastes.
Building and infrastructure	Focus on using recovered or innovative sustainable building materials as well as smart technologies and big-data solutions to improve energy efficiency.	Focus on using sustainable building materials, smart technologies, and nature-based solutions to improve eco-efficiency as well as co-working and house-sharing to optimise the use of space.	Construction is reduced to a minimum by focusing on repurposing unused buildings and preventing the unfair and unsustainable accumulation of building stock. Construction is based on socio-ecologically responsible local materials.	Powerful cities use innovative, sustainable building materials as well as smart technologies, AI and big-data solutions to improve energy efficiency. Informal settlements and refugee camps are the norm for the rest of humanity.
Transport	Focus on high-tech private transport through autonomous vehicles, passenger drones combined with high-speed rail and aircraft powered by biofuels, hydrogen, or electric batteries	High-tech electrified transport system combining private and public systems such as passenger drones, scooters, bikes, autonomous vehicles, buses, high-speed rail, and aircraft powered by green fuels.	Transportation needs are reduced by planning walkable cities, with easy access to local services, accessible sidewalks, bike lanes, and free public transport. Long-distance travel is reduced are privileges rail and sail.	High-tech transport is available for the wealthy, including autonomous vehicles, passenger drones, high-speed rail and aircraft powered by biofuels, hydrogen, or electric batteries.
Consumption	Consumption focuses leasing and access rather than ownership.	Focus on leasing and access rather than ownership. Many sharing economy platforms so people can rent, lend, and share tools, work, cars, bikes etc.	Products are durable, repairable, and upgradable. People have greater control over their material resources as parents and manuals are open.	Small percentage of humanity maintains high material wealth, amidst global poverty.
Governance	Social considerations are absent, so they will replicate current social relations and working practices, and reproduce present racial, class,	Nation-states based on accountable representative institutions share power with international organisations to address local and global sustainability challenges.	Deliberative democracy innovations such as citizen assemblies, participatory budgeting, and referendums ensure that power is equally shared by all citizens.	Powerful countries use their economic and military power to secure access to key resources despite global shortages.

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Social welfare	gender, property, health, and ethnic disparities.	Welfare states redistribute excessive inequalities and provide for some basic needs like healthcare and education. Regulated markets provision most other goods and services.	Strong redistributive focus through high taxes on wealth and social justice programmes like job guarantees, universal healthcare and education, social housing, and UBI.	Powerful countries maintain social security for their citizens through strict migration controls and protections.
Work relations		Capitalist private ownership of corporations continues but with a greater voice to unions, workers, and other stakeholders and a focus on a triple bottom line (people, planet, profit).	Companies belong to workers and communities rather than private investors and bondholders. Working time is reduced, and work-relations are equal, fair, and democratic.	Capitalist private ownership of corporations prevails and offers some formal employment in powerful capitals. Most of humanity survives from precarious informal work.
Culture and worldviews		Anthropocentric vision based on liberal vision of human rights and sustainable development within capitalism.	Postcapitalist worldview based on care, solidarity, and reciprocity for human and more than human life and a deep focus on socio-ecological well-being through conviviality, and radical democracy.	Cultural relations remain unchanged, and replicate present racial, class, gender, property, health, and ethnic disparities.
Scientific validity	Lacks scientific validity because it assumes that eco-economic decoupling is possible. Projections for increased energy and resource use are thus incompatible with planetary limits.	Lacks scientific validity because it assumes that eco-economic decoupling is possible. Projections for increased energy and resource use are thus incompatible with planetary limits.	Scientifically valid because it is not based on eco-economic decoupling. It thereby recognises and adapts to planetary boundaries and resource limits.	Scientifically valid because it is not based on eco-economic decoupling. It thereby recognises and adapts to planetary boundaries and resource limits.

24.4 Discussion

First and foremost, it is important to note our description of 4 circular futures is an inevitable simplification of complex visions, and its main objective is to help understand the core differences across most circularity discourses to date. Moreover, the actual future of our planet is unpredictable and will depend on how we address present challenges today. **Table 24.1** resumes the key elements of the four described futures to help us compare and contrast their core ideas.

Each of the above discourses has its strengths and weaknesses. RCS and TCE visions place too much hope on sustainable technological innovations to address resource shortages, climate change, and biodiversity collapse. This is clear now that decades of academic research have evidenced that the absolute decoupling of economic growth from environmental degradation cannot occur on a scale sufficient to prevent climate breakdown and biodiversity collapse (Haberl et al. 2020; Hickel and Kallis 2019; Jackson 2016; Parrique et al. 2019; Wiedenhofer et al. 2020).

The idea of perfectly circular resource cycles is simply biophysically impossible. Indeed, materials inevitably degrade and dissipate each time they are cycled. Moreover, in a growing economy, recovered materials can only provide a fraction of our resource needs. More natural resource extraction and environmental degradation will thus remain necessary as long as economic growth continues, so the TCE and RCS visions of a perfect regenerative economy are impossible in the present growth-dependent capitalist system (Genovese and Pansera 2020; Giampietro and Funtowicz 2020).

On the other hand, TCS discourses are perhaps too optimistic about the possibility of transforming current capitalist ways of life, social structures, and power relations in a fair, democratic, and sustainable manner. Envisioning a post-growth society, and thus, a post-capitalist future, does seem like a far shot, especially in a

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discursive landscape that makes many people believe that “there is no alternative” and think that “it is easier to imagine an end to the world than an end to capitalism” (Fisher 2009). Yet, as Christian Felber puts it, “there are plenty of alternatives” (Felber 2015) thanks to a rich history of social movements and ideas from the GN and South alike that have proposed and enacted radically different ways of living and flourishing (like degrowth, buen vivir, ecological swaraj, steady-state economics, economy for the common good etc.).

On the opposite end of the spectrum, FCE discourses place no hopes neither on technological innovations nor on fair societal transformations. Instead, they rationally, and perhaps cynically, describe the future of humankind and planet Earth if nothing is done to reverse current unsustainable trends. Yet, it is also clear that this is not a world where anyone would like to live, except perhaps some wealthy elites who own crucial technologies and industries and could thus maintain and grow their positions of power.

One thing is certain: we live on a finite and fragile planet with key boundaries and limits, and if we keep overshooting them, the Earth’s climate and ecosystems will inevitably break down and collapse, and critical resources will be exhausted. If we decide to believe in capitalism and the idea that technology can allow us to decouple economic growth from environmental degradation, then we are bound to see crucial planetary functions and ecosystems fail before our eyes. However, if we develop a post-capitalist society that can operate beyond economic growth, then we might have a chance of living in a desirable future that truly leaves no one behind. The real choice is thus not between a TCE, RCS, TCS and FCE society but actually between a TCS and FCE society because those are the only discourses that take the very real material limits of our planet into account.

Thankfully, there are a plurality of circular visions and ideas from the GN and South that have developed a wide range of post-capitalist and post-growth societal visions (and TCS discourses described above are just the tip of the iceberg). They are a breadth of inspiration that can help us overcome the socio-ecological challenges of the 21st century.

Unfortunately, these alternatives are currently not being fully explored as research on CE has found that TCE is currently, by far, the most dominant discourse in public and private institutions (Arai, Calisto Friant, and Vermeulen 2023; Berry et al. 2021; Calisto Friant, Lakerveld, et al. 2022; Calisto Friant et al. 2023; Calisto Friant, Vermeulen, and Salomone 2021; Campbell-Johnston et al. 2020; Melles 2021; Ortega Alvarado et al. 2021; Palm et al. 2021). CE debates and implementation to date have thus not sufficiently addressed the socio-political implications of a circularity transition and the biophysical limits to economic growth. But what would most people prefer when envisioning a circular future?

There is little research on CE perceptions; two recent studies of civil society and citizen perceptions of CE in the EU show that a more holistic and socially inclusive approach to CE is preferred (Lazarevic and Valve 2017; Repo et al. 2018). Three recent surveys also suggest that citizens would prefer TCS discourses. The first survey by the Observatory of Utopic Perspectives in France found that 54.6 % of respondents prefer a sufficiency-oriented and inclusive ecological utopia rather than a growth and technology-oriented neoliberal utopia (15.9%) or a conservative traditionalist utopia (29.5%) (Observatory of Utopic Perspectives 2019). The second survey, by the Global Commons Alliance, found that 74% of people in G20 countries agreed that governments should move beyond focusing on economic growth and profits and instead focus more on human well-being and ecological protection (Gaffney et al. 2021). The third survey found that 60.5 % of people in 34 European countries favour post-growth values such as environmentalism, collectivism and altruism as opposed to neoliberal capitalist values like hierarchy, individualism, and materialism (Paulson and Büchs 2022).

Moreover, a recent survey on CE perceptions around the world by Utrecht University and Revolve Circular found that *holistic* circular society discourses (TCS and RCS) were preferred compared to *segmented* discourses (FCE

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and TCE) (51.6% vs 48.4%) and that respondents placed a high degree of importance to social justice concerns and consumption/production reduction imperatives (Calisto Friant, Vermeulen, et al. 2022).

The abovementioned research suggests that the *TCE* discourse, which dominates the current debate on circularity, does not align with what citizens would prefer when they are asked to think of a circular future. While these surveys have their limitations, many other studies find that when citizens openly and freely deliberate in a well-informed, inclusive, and democratic environment, they tend to make significantly more sustainable decisions than politicians (Cabannes 2018; Calisto Friant 2019; Dryzek et al. 2019; Fishkin 2018). Research even finds that, in a democratic context, citizens choose to forgo personal gains for the benefit of future generations (Hauser et al. 2014).

A deliberative governance process that hands decision-making power to citizens could help co-design and implement fair and sustainable circularity policies that subordinate economic growth to planetary boundaries and social justice imperatives. This democracy is also needed in the workplace by replacing the hierarchical shareholder capitalism of corporations working to generate endless profits for their stockowners, with non-profit cooperatives owned and managed democratically by workers for the benefit of their socio-ecological communities. Indeed, a more diverse, democratic, and inclusive construction of a circular future is needed to better include the plurality of citizens' discourses and perspectives on circularity.

24.5 Conclusions

This chapter explored 4 CE futures and their key sustainability implications. Our insights suggest that the hegemonic and growth-focused TCE discourse is more a "fairy tale" of technological innovation and competitiveness than a feasible circular transition to all humanity. This TCE future will likely provide many benefits for a few leading businesses, industries, countries, and economic actors but will also most certainly be unable to ensure a dignified life for all humanity and prevent the overshoot of planetary boundaries. In fact, such a future might worsen the unsustainable extraction of natural resources from the GS and could end up exacerbating current patterns of neo-colonial discrimination and exploitation along gender, race, class, and ethnic lines. The TCE vision may have become the hegemonic CE discourse precisely because it ignores these social and political implications. It is hence a depoliticised discourse that seeks to create a CE transition that does not challenge the current growth-dependent capitalist system of endless expansion and commodification of life and nature. In this vision, transition "from linear to circular" simply means better recycling and recovery technologies rather than addressing the systemic causes of our current socio-ecological crisis. It is thus unsurprising that such a discourse gained so much traction in the policy and business arena, as it promised the illusion that a circular flow of materials could allow capitalist economies and businesses to continue growing.

Yet, this TCE discourse is in no way the only vision of a circular future. There are many different circular visions that subordinate economic growth and profits to social and ecological imperatives. We explored these in the FCS future, and as mentioned above, various surveys suggest that citizens actually prefer a more transformative and socially inclusive circularity transition. More inclusive and participatory development of circularity policies, where citizens can openly deliberate and decide on the course of the circularity transition in an informed and democratic

manner, would thus likely allow us to overcome current lock-ins and path dependencies. Hence, we must, first and foremost, call for real democracy, one that empowers people through randomly selected citizen councils, non-

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profit cooperatives, and other institutions that can break powerful interests and lead the way to a socially legitimate and ecologically feasible circularity transition.

More research is needed to gain a better picture of what circularity discourses people find most appealing and what circular economy and society policies they would choose in a democratic context. Further research on circular futures and citizen perspectives and preferences on circularity is hence much needed to help better plan and envision a desirable circular transition that actually brings about improvements in human and planetary well-being. In doing so, our chapter and our illustrations of the four different futures can help visualise the full picture and diversity of circularity visions that exist, with their key differences and commonalities. It can also help imagine a plurality of solutions, practices and policies that can be developed within different circularity approaches. Finally, it can help in transdisciplinary research activities and participatory workshops to define democratic agreements and common visions regarding the shape and type of circularity transition that people can aspire to co-design and co-create.

References

- Arai, Risa, Martin Calisto Friant, and Walter J. V. Vermeulen. 2023. 'The Japanese Circular Economy and Sound Material-Cycle Society Policies: Discourse and Policy Analysis'. *Circular Economy and Sustainability*. <https://doi.org/10.1007/s43615-023-00298-7> (November 10, 2023).
- Berry, Brieanne et al. 2021. 'Just by Design: Exploring Justice as a Multidimensional Concept in US Circular Economy Discourse'. *Local Environment* 0(0): 1–17.
- Cabannes, Yves. 2018. 'The Contribution of Participatory Budgeting to the Achievement of the Sustainable Development Goals: Lessons for Policy in Commonwealth Countries'. *Commonwealth Journal of Local Governance* (21).
- Calisto Friant, Martin. 2019. 'Deliberating for Sustainability: Lessons from the Porto Alegre Experiment with Participatory Budgeting'. *International Journal of Urban Sustainable Development* 11(1): 81–99.
- . 2022. 'From Circular Economy to Circular Society: Analysing Circularity Discourses and Policies and Their Sustainability Implications'. Utrecht University.
- . 2023. 'Sustainable Circular Cities? Analysing Urban Circular Economy Policies in Amsterdam, Glasgow, and Copenhagen'. *Local Environment* 0(0): 1–39.
- Calisto Friant, Martin, Dirkjan Lakerveld, Walter J V Vermeulen, and Roberta Salomone. 2022. 'Transition to a Sustainable Circular Plastics Economy in The Netherlands : Discourse and Policy Analysis'. *Sustainability* 14(190).
- Calisto Friant, Martin, Walter Vermeulen, Legarda Bernal, and Sören Bauer. 2022. *How Do You Imagine a Circular Economy? Survey Report*. Utrecht University & Revolve Circular.
- Calisto Friant, Martin, Walter J.V. Vermeulen, and Roberta Salomone. 2020. 'A Typology of Circular Economy Discourses: Navigating the Diverse Visions of a Contested Paradigm'. *Resources, Conservation and Recycling* 161(May). <https://doi.org/10.1016/j.resconrec.2020.104917>.
- . 2021. 'Analysing European Union Circular Economy Policies: Words versus Actions'. *Sustainable Production and Consumption* 27(337): 337–53.
- Campbell-Johnston, Kieran et al. 2020. 'How Circular Is Your Tyre: Experiences with Extended Producer Responsibility from a Circular Economy Perspective'. *Journal of Cleaner Production* 270: 122042.
- Commoner, Barry. 1971. *The Closing Circle: Nature, Man, and Technology*. New York: Bantam Books.
- Dryzek, John S. et al. 2019. 'The Crisis of Democracy and the Science of Deliberation'. *Science* 363(6432): 1144–46.
- Felber, Christian. 2015. *Change Everything: Creating an Economy for the Common Good*. London, UK: ZED Books.
- Fisher, Mark. 2009. *Capitalist Realism: Is There No Alternative?* UK: Zero Books.
- Fishkin, James S. 2018. *Democracy When the People Are Thinking: Revitalizing Our Politics Through Public Deliberation*. Oxford, UK: Oxford University Press.
- Gaffney, Owen et al. 2021. *Global Commons Survey: Attitudes to Planetary Stewardship and Transformation among G20 Countries*. Global Commons Alliance. <https://globalcommonsalliance.org/news/global-commons-g20-survey/>.
- Genovese, Andrea, and Mario Pansera. 2020. 'The Circular Economy at a Crossroads: Technocratic Eco-Modernism or Convivial Technology for Social Revolution?' *Capitalism, Nature, Socialism*.
- Giampietro, Mario, and Silvio O. Funtowicz. 2020. 'From Elite Folk Science to the Policy Legend of the Circular Economy'. *Environmental Science and Policy* 109: 64–72.
- Haberl, Helmut et al. 2020. 'A Systematic Review of the Evidence on Decoupling of GDP, Resource Use and GHG Emissions, Part II: Synthesizing the Insights'. *Environmental Research Letters* 15(6). <https://iopscience.iop.org/article/10.1088/1748-9326/ab842a> (June 9, 2020).

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A Just Transition to Circular Economy

Hauser, Oliver P., David G. Rand, Alexander Peysakhovich, and Martin A. Nowak. 2014. 'Cooperating with the Future'. *Nature* 511(7508): 220–23.

Hickel, Jason, and Giorgos Kallis. 2019. 'Is Green Growth Possible?' *New Political Economy* 0(0): 1–18.

Jackson, Tim. 2016. *Prosperity without Growth : Foundations for the Economy of Tomorrow*. London: Routledge.

Korhonen, Jouni, Cali Nuur, Andreas Feldmann, and Seyoum Eshetu Birkie. 2018. 'Circular Economy as an Essentially Contested Concept'. *Journal of Cleaner Production* 175: 544–52.

Kothari, Ashish et al. 2019. *Pluriverse: A Post-Development Dictionary*. New Delhi, India: Tulika Books.

Lazarevic, David, and Helena Valve. 2017. 'Narrating Expectations for the Circular Economy: Towards a Common and Contested European Transition'. *Energy Research and Social Science* 31(February): 60–69.

Melles, Gavin. 2021. 'Figuring the Transition from Circular Economy to Circular Society in Australia'. *Sustainability (Switzerland)* 13(19): 10601.

Observatory of Utopic Perspectives. 2019. *L'Observatoire Des Perspectives Utopiques, Rapport d'analyse*. Observatory of Utopic Perspectives.

Ortega Alvarado, Isaac Arturo, Thomas Edward Sutcliffe, Thomas Berker, and Ida Nilstad Pettersen. 2021. 'Emerging Circular Economies: Discourse Coalitions in a Norwegian Case'. *Sustainable Production and Consumption* 26: 360–72.

Palm, Ellen, Jacob Hasselbalch, Karl Holmberg, and Tobias Dan Nielsen. 2021. 'Narrating Plastics Governance: Policy Narratives in the European Plastics Strategy'. *Environmental Politics*: 1–21.

Parrique, T et al. 2019. *Decoupling Debunked: Evidence and Arguments against Green Growth as a Sole Strategy for Sustainability*. Brussels: European Environmental Bureau.

Paulson, Lily, and Milena Büchs. 2022. 'Public Acceptance of Post-Growth: Factors and Implications for Post-Growth Strategy'. *Futures* 143: 103020.

Repo, Petteri, Markku Anttonen, Juri Mykkänen, and Minna Lammi. 2018. 'Lack of Congruence between European Citizen Perspectives and Policies on Circular Economy'. *European Journal of Sustainable Development* 7(1): 249–64.

Wiedenhofer, Dominik et al. 2020. 'A Systematic Review of the Evidence on Decoupling of GDP, Resource Use and GHG Emissions, Part I: Bibliometric and Conceptual Mapping'. *Environmental Research Letters* 15(6). <https://iopscience.iop.org/article/10.1088/1748-9326/ab8429> (June 9, 2020).

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