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How the circular economy can revive the Sustainable Development Goals

Priorities for immediate global action, and a policy blueprint for the transition to 2050

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Summary

As concerns rise about the achievability of the 2030 Agenda for Sustainable Development, an opportunity is emerging to promote the circular economy as the solution of the future – and to put the concept at the heart of action on everything from tackling climate change to reducing poverty.

The transformative potential of the 'circular economy' in addressing global environmental and social challenges is receiving increasing international attention, with recent interest driven in particular by recognition that the existing UN-led sustainable development agenda is faltering. Until now, the circular economy has been largely peripheral to that agenda, despite featuring extensively in government thinking and having a rising profile as a sustainable alternative to today's wasteful and polluting economic models. However, with the multilateral policy community considering as a matter of urgency both how to revive stalled progress on the Sustainable Development Goals (SDGs) and what any framework that replaces or extends the SDGs after 2030 should contain, there is an opportunity to embed circular economy principles more comprehensively and formally within the international system.

This research paper has been written with the express intention of contributing ideas to this emerging SDG reset, both at forthcoming events in the autumn of 2024 – most notably, the UN's Summit of the Future – and in continuing discussions into 2025 and beyond. We make the case for accelerating and deepening the shift to circular economic models, taking into account the potential trade-offs and unintended consequences that disruptive innovations may bring. The paper underlines the vital role that expansion of the circular economy could play in supporting the SDGs and in shaping what comes after them. On the latter, specifically, we present a policy blueprint for development of the circular economy to 2050 (see Chapter 4, Table 2).

At the heart of our argument is the idea that the circular economy and the SDGs are naturally complementary. Prominence in the SDG framework could help the circular economy to reach a critical scale and breadth, which in turn would improve prospects for achieving many of the SDGs' targets (see Table 1). Linking the two offers mutual benefits. The circular economy needs the imprimatur of the UN system and other multilateral institutions to establish itself globally. At the same time, the circular economy offers the prospect of vastly more effective action on the triple planetary crisis of pollution, climate change and biodiversity loss – precisely the sort of catalyst the UN's ailing 2030 Agenda for Sustainable Development could use.

A 'circular economy' can be thought of as a system designed to deliver social and economic prosperity without requiring unsustainable levels of raw material extraction, consumption or pollution. In simplified terms, a circular economy combines three design principles: eliminating waste and pollution; extending the lifetime of products and materials for as long as possible; and regenerating natural systems. It can entail many different types of activity – ecodesign of goods, 'product-as-a-service' alternatives to product ownership, regenerative and restorative farming, and the use of refurbished and second-hand goods are just a few examples. Achieving a circular economy is not simply about recycling more: it requires reorienting and redesigning the fundamental goals and structures of societal provisioning systems (food, transport, energy, shelter) in ways that dramatically reduce raw material and energy consumption.

The story of the circular economy so far has often been one of modest ambition, localized initiatives, and small-scale or experimental projects implemented incoherently.

A robust scientific literature underlines the advantages of circular economic models over today's predominantly extractive, resource-intensive ones (often described as 'linear' by researchers).[1] By some estimates, moving to a circular economy could unlock up to $1.5 trillion in value in just three sectors of the US economy alone.[2] It could help achieve 45 per cent of the global greenhouse gas emissions reductions needed to mitigate climate change by transforming the way products and materials are made and used.[3] It could also restore global biodiversity to its 2000 levels within little more than a decade (see Chapter 1). Yet without introduction of the circular economy at scale, in contrast, resource consumption could increase by 60 per cent from 2020 levels by 2060, while over half of the 169 targets within the 17 SDGs may be unachievable.[4] Put another way, the circular economy is becoming too important for policymakers to ignore, all the more so amid mounting concerns about rising global temperatures, the lack of progress on the SDGs, and the world's failure to meet many environmental targets.

Yet the story of the circular economy so far has often been one of modest ambition, localized initiatives, and small-scale or experimental projects implemented incoherently. As we argue in this paper, the circular economy needs to be both scaled up and globally coordinated. One of the most basic challenges is that not enough circular economy activity is going on: according to one estimate, the global economy is just 7.2 per cent 'circular', if measured by the percentage

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1 Ellen MacArthur Foundation (undated), 'What is the linear economy?, https://www.ellenmacarthurfoundation.org/what-is-the-linear-economy (accessed 29 Aug. 2024).
2 Ellen MacArthur Foundation and Oliver Wyman (2024), *An innovation pathway to decarbonization: circular economy solutions for policymakers and industry in the US*, https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2024/apr/an-innovation-pathway-to-decarbonization-circular-economy-solutions-for-policymakers-and-industry-in-the-US.pdf.
3 Ellen MacArthur Foundation and Material Economics (2021), *Completing the picture: How the circular economy tackles climate change*, https://emf.thirdlight.com/file/24/cDm30tVcDDexwg2cD1ZEcZjU51g.
4 Schroeder, P., Anggraeni, K. and Weber, U. (2018), 'The Relevance of Circular Economy Practices to the Sustainable Development Goals', *Journal of Industrial Ecology*, https://doi.org/10.1111/jiec.12732.

of secondary (i.e. cycled) materials it consumes.[5] A second problem is the lack of dedicated institutional representation. Whereas the UN Framework Convention on Climate Change (UNFCCC) exists for global climate policy coordination, and the International Energy Agency (IEA) provides a coordinating structure for the energy sector, no equivalent exists for the circular economy. What is needed is a kind of IEA for the circular economy, so to speak: a multilateral body that can champion the circular economy with policymakers and in the UN system, and that can coordinate policy, regulation and standards.

A third problem, partly stemming from the above, is that action on the circular economy remains fragmented at a global level. All countries depend to varying degrees on foreign trade for the materials, goods and services associated with circular activities. Equally, 'ecodesign' standards requiring products to meet strict circularity criteria will affect global supply chains, with implications potentially beyond the jurisdictions where such standards are enacted. However, the basic interconnectedness of the circular economy is not fully reflected in policy. More than 75 national circular economy action plans, roadmaps and strategies have been launched to date (another 14 are in development). These documents have been drafted unilaterally by the countries in question, resulting in a kaleidoscope of around 3,000 rapidly evolving commitments spanning 135 policy areas and 17 sectors. While the amount of activity is a positive sign of rising interest in the circular economy, fragmentation of its operating and regulatory environments risks increasing barriers to trade (for example, when regulations on the export of industrial waste or recycled electronics are incompatible between one country and another).

A fourth concern is that current government practice on the circular economy risks encouraging counterproductive resource nationalism and zero-sum economic competition, hurting resource-poor developing countries in particular and undermining the SDGs. In some cases, the national action plans and roadmaps mentioned above have narrow domestic goals, such as boosting competitiveness against trade partners, supporting the (often politically motivated) reshoring of industry and jobs, and reducing dependence on imported critical materials. Trends towards deglobalization and nationalism increase the temptation for governments to treat the circular economy as an opportunity to assert, or contest, control over supplies of critical raw materials.

Summary of recommendations

To address these challenges, this paper proposes solutions and ideas in two parts. The first part covers the period to 2030, the UN's currently envisioned deadline for achieving the SDGs. The second focuses on 2030–50, a period during which the SDGs may be extended (most likely in modified form) or replaced with new goals as part of a refreshed sustainable development agenda.

5 Circle Economy Foundation (2024), *The Circularity Gap Report 2024*, p. 8, https://www.circularity-gap.world/2024.

In terms of immediate action on salvaging the SDGs between now and 2030, we have identified five priority areas for international collaboration on the circular economy. These proposed actions draw on input from stakeholder workshops and consultations with participants from Africa, Asia, Europe and Latin America, and are intended for a varied audience of multilateral institutions, governments and businesses. With the 2030 SDG deadline approaching, work on implementing these recommendations would need to begin immediately. The five priorities are as follows:

1. Embed principles of justice and inclusivity in circular economy development. This is more than a moral imperative; it is a pragmatic necessity both for engagement with the UN system, where such values already underpin the SDGs, and for achieving political and popular support around the world for the economic reforms implied by the circular economy. Key tasks include rectifying environmental injustices such as illegal dumping of waste in low- and middle-income countries, providing decent work and meaningful employment, and consulting a wide range of countries and stakeholders on the design of circular economy policies. Other recommendations include establishing UN guidelines on social equity in the circular economy; setting up a platform under the UN's Economic and Social Council (ECOSOC) to facilitate sharing of expertise and best practices of Indigenous communities; and launching a global information campaign on the benefits of the circular economy.

2. Enhance global policy coordination on the circular economy. A multilateral or intergovernmental policy coordination mechanism is needed to help governments develop and implement national circular economy roadmaps. One option would be to establish a cross-sectoral circular economy alliance between UN development agencies. Such an alliance could work with national governments, multilateral development banks (MDBs), the private sector and civil society to offer guidelines, best-practice examples and technical knowledge. The Global Alliance on Circular Economy and Resource Efficiency (GACERE) – which currently consists of just 16 countries plus the EU – could conceivably be repurposed and expanded for this role. Another option would be to set up an international resource agency,[6] akin to the International Energy Agency (IEA) in some respects but with a mandate specific to material resources and the circular economy. Additionally, the G7 and G20 should be encouraged to increase their ambition on the circular economy and to align policy in areas such as product and producer standards (see Chapter 3). International coordination between environmental agendas could also be improved by applying circular economy principles to achieve the targets set in multilateral environmental agreements such as the Convention on Biological Diversity and the Paris Agreement on climate change.

6 UN Environment Programme (UNEP) and International Resource Panel (2024), *Bend the trend: Pathways to a liveable planet as resource use spikes*, Global Resources Outlook 2024, https://wedocs.unep.org/bitstream/handle/20.500.11822/44902/GRO24_Summary_for_Policymakers.pdf?sequence=3.

3. Reform the global financial architecture.
Scaling up the circular economy will require significant investment. At present, the circular economy is poorly integrated into the global financial architecture, and thus largely off the radar of many investors or perceived as too risky. Creating a circular economy-specific framework for international financial institutions could facilitate development of investment taxonomies, financial benchmarks and technical criteria that would underpin the funding of projects, technologies and business models at scale. Multilateral development finance – though historically focused on 'linear' economic models – also has a role to play in de-risking circular economy investments. The ongoing reform of MDBs presents an opportunity to embed circularity principles in international public finance. Most fundamentally, MDBs will need to increase their lending capacity and adjust their mandates to allow the financing of global public goods. A Global Circular Economy Fund, financed through public sources and modelled on the Green Climate Fund, could also be set up to mobilize private capital, concentrating on low- and middle-income countries that might otherwise struggle to attract financing for their circular economy transitions.

4. Rewire the global trade system.
Changes in policy and regulation are needed to support circular economy-enabling trade while preventing problems such as the illegal dumping of waste and trade in goods that inhibit the circular economy. Reconfiguring global supply chains to be circular in nature will require policies and regulations to streamline trade in many kinds of goods and services, including: remanufacturing and recycling equipment; second-hand goods; secondary raw materials; non-hazardous scrap and industrial residues; and design, rental and repair services. 'Trusted circular trader' schemes could be established to reduce red tape, pre-certifying circular economy-compliant exporters. 'Resource recovery lanes' similar to customs green lanes could expedite documentation for shipments of secondary raw materials. Technical cooperation to make circular trade compatible with the World Customs Organization's Harmonized System (HS) codes is also needed. Finally, the informal circular economy working group hosted by the WTO's Trade and Environmental Sustainability Structured Discussions (TESSD) would benefit from more formal status.

5. Develop shared standards and metrics.
Common standards and metrics will be crucial to expanding the circular economy worldwide, and to reducing policy and regulatory fragmentation. In addition to supporting disclosures by businesses and organizations, new metrics will be needed for monitoring and reporting the circular economy's aggregate impact on other multilateral environmental agreements, such as the Paris Agreement on climate change and the upcoming binding instrument to end plastic pollution by 2040. A circular economy-specific taxonomy of standards will need to cover many different areas, including product design, procurement, cleaner production, supply-chain transparency and traceability, and financial performance. The recent publication of the first tranche of ISO 59000 standards on the circular economy is a step forward, but micro, small and medium-sized enterprises (MSMEs)

in particular may need support on compliance costs. The new voluntary Global Circularity Protocol (GCP), launched in 2023, could drive the development of universal metrics for assessing circularity.

After the SDGs – 2030 to 2050

Most of the SDGs will not be achieved by 2030. Only 17 per cent of the SDG targets are on track to be met globally by 2030.[7] Some prominent voices propose that, instead of abandoning or replacing the SDGs, the UN should revise the current set of targets and extend the SDG framework to 2050.[8] To provide ideas in this area, Chapter 4 presents an indicative, longer-term policy blueprint to be considered in the context of a possible extended or revised SDG framework post-2030.

Specifically, we propose a set of circularity targets in 17 categories for 2050, and corresponding levers and actions for achieving them. Each category of target is mapped to one of the 17 SDGs. For example, for SDG 1 ('No poverty'), our proposed targets envisage the circular economy providing affordable basic services to the poor, and sustaining local businesses that can help make communities resilient to economic shocks and environmental disasters. For SDG 7 ('Affordable and clean energy'), we propose actions that would enable societies to achieve full, affordable access to renewable and circular energy systems. Under this target, most critical materials would be supplied through secondary sources or substituted with alternative materials – highlighting the importance of circularity in ensuring that the resource demands of the energy transition are reduced as much as possible.

To enshrine circular economy principles more prominently in the next set of goals post-2030, we recommend several steps:

1. Introduce a specific high-level objective, within the extended post-2030 SDG framework, that recognizes the transformative potential of the circular economy for global development and for addressing the triple planetary crisis.
2. Explicitly outline ambitious but achievable global targets related to reducing unsustainable resource use, reducing global waste generation, and enhancing circularity rates for key resources and materials.
3. Ensure that circular economy targets are integrated across all SDGs, emphasizing the interconnectedness of sustainable resource management with economic, social and environmental objectives.
4. Align the post-2030 framework and circular economy targets with the 'Beyond GDP' initiative that forms part of the UN secretary-general's 'Our Common Agenda' vision.
5. Develop clear, measurable indicators for inclusive circular economy practices with specific relevant targets for 2050.

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7 United Nations (2024), *The Sustainable Development Goals Report*, https://unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf.
8 Nerini, F. F. et al. (2024), 'Extending the Sustainable Development Goals to 2050 — a road map', *Nature* 630, pp. 555–58, https://doi.org/10.1038/d41586-024-01754-6.

01 Introduction

A global transition to a circular economy is essential for achieving the majority of the SDGs and for the post-2030 development agenda.

The economic, social and environmental case for shifting to a 'circular' global economy – a sustainable alternative to current wasteful and polluting models of production and consumption – is increasingly clear, and supported by an extensive academic literature.[9] But the global mechanisms for getting there largely remain lacking. This is partly because the concept of the circular economy, despite rapid uptake in many countries, is in its relative infancy and the new institutional frameworks and market structures to support its development and expansion have yet to be established. It is also because circular economy principles are insufficiently recognized in a formal way in the existing multilateral system, particularly in the realm of sustainable development.

However, the prospect of change is emerging. The type of development model and global approach required for the post-2030 development agenda is receiving increasing attention from the international community and policymakers. This reflects the world's lack of progress towards meeting the UN's Sustainable Development Goals (SDGs), and the fact that only six years remain before the 2030 deadline for the SDGs is reached. Given widespread concerns about this issue and the additional anxiousness of many policymakers to decide what should come after the SDGs, there is an emerging opportunity to embed the circular economy more fully in the sustainability debate at a multilateral level. This paper aims to contribute to UN-led discussions on 'the circular economy', outlines important principles that need to inform collective work on the circular economy as a catalyst for SDG realization, and proposes an indicative, SDG-linked blueprint for the future of the circular economy to 2050 to inform wider policy deliberation and negotiations.

9 See, for example, Stahel, W. (2016), 'The circular economy', *Nature* 531, pp. 435–38, https://doi.org/10.1038/531435a; Ghisellini, P., Cialani, C. and Ulgiati, S. (2016), 'A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems', *Journal of Cleaner Production*, 114, pp. 11–32, https://doi.org/10.1016/j.jclepro.2015.09.007; Korhonen, J., Honkasalo, A. and Seppälä, J. (2018), 'Circular Economy: The Concept and its Limitations', *Ecological Economics*, 143, pp. 37–46, https://doi.org/10.1016/j.ecolecon.2017.06.041.

In simple terms, a 'circular economy' is a system that seeks to deliver social and economic prosperity without requiring unsustainable levels of raw material extraction, consumption and pollution. To achieve this, it combines three design principles: eliminating waste and pollution; extending the lifetime of products and materials for as long as possible; and regenerating natural systems.[10] Achieving a circular economy is not simply about recycling more, although recycling is a well-known part of such a model. Rather, the transition requires reorienting and redesigning the underpinning goals and structures of societal provisioning systems (food, transport, energy, shelter) in a way that dramatically reduces raw material and energy consumption.

Benefits and transformative potential of the circular economy

If introduced systemically and globally, the circular economy promises many economic benefits. For example, it can reduce the economic costs of pollution and mismanaged waste. The *Lancet* Commission on pollution and health has estimated that the global costs of pollution alone amount to $4.6 trillion per year – equivalent to 6 per cent of global GDP in 2019.[11] At the same time, the estimated potential of the circular economy to create opportunity is significant. In the US alone, moving to a circular economy could cut raw material inputs in just three strategic industries – grid-scale and electric vehicle batteries, the built environment, and electronics – so substantially that between $883 billion and $1.5 trillion a year in revenue and economic value could be unlocked, sums equivalent to between 3.3 per cent and 5.5 per cent of US GDP in 2023.[12]

The restoration of degraded terrestrial and aquatic ecosystems could generate up to $9 trillion in ecosystem services worldwide by 2030.[13] Meanwhile, in terms of non-monetary environmental benefits, circular strategies could complement existing climate mitigation efforts. Such strategies could help achieve 45 per cent of the global greenhouse gas emissions reductions needed to decarbonize the economy – and not only in the energy and transport sectors – by transforming the way products and materials are made and used.[14] Circular strategies, though not proven at scale in practice, could theoretically also could halt biodiversity loss and, by 2035, enable global biodiversity to recover to its 2000 levels.[15]

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10 For the various definitions of the circular economy that have been put forward, see Kirchherr, J., Reike, D. and Hekkert, M. (2017), 'Conceptualizing the circular economy: An analysis of 114 definitions', *Resources, Conservation and Recycling*, pp. 221–32, https://doi.org/10.1016/j.resconrec.2017.09.005.
11 Fuller, R. et al. (2022), 'Pollution and health: a progress update', *Lancet Planet Health* 6: e535–47, https://doi.org/10.1016/S2542-5196(22)00090-0; UNEP (2022), 'Outcomes of the resumed session of UNEA-5 (UNEA-5.2)', https://www.unep.org/environmentassembly/unea5/unea-5.2/outcomes-resumed-session-unea-5-unea-5.2.
12 Ellen MacArthur Foundation and Oliver Wyman (2024), *An innovation pathway to decarbonization*.
13 UNEP and Food and Agriculture Organization of the United Nations (FAO) (2020), *The UN Decade on Ecosystem Restoration 2021-2030*, UNEP/FAO Factsheet, https://stg-wedocs.unep.org/bitstream/handle/20.500.11822/30919/UNDecade.pdf?sequence=11.
14 Ellen MacArthur Foundation and Material Economics (2021), *Completing the picture*.
15 Lehtinen, A. (2022), 'Circular solutions can halt biodiversity loss – The food and agriculture sector can make the largest contribution', Sitra, 16 May 2022, https://www.sitra.fi/en/news/circular-solutions-can-halt-biodiversity-loss-the-food-and-agriculture-sector-can-make-the-largest-contribution.

This transformative potential is reflected in the circular economy's rising profile in multilateral forums. At recent sessions, the UN Environment Assembly (UNEA) has published resolutions explicitly referencing the circular economy in calls for action on sustainability and for international cooperation to achieve environmental goals.[16] Resolution 11 from UNEA-5, for example, recognized 'the importance of inclusive multilateral and multi-stakeholder dialogues on sustainable consumption and production, resource efficiency and the circular economy to promote sustainable development'.[17]

Similarly, in 2023 the UN's High-Level Advisory Board on Effective Multilateralism (HLAB) – appointed by the UN secretary-general to galvanize international cooperation on addressing planetary challenges – published a report highlighting the importance of the circular economy for achieving the SDGs, global security and prosperity.[18] The report called for the establishment of a 'Pact for People and Planet' that would raise ambition on environmental targets and make signatories more accountable for achieving them. HLAB's stated goal for this draft pact – still a work in progress, and subsequently rebranded as the 'Pact for the Future', the intended outcome document of the Summit of the Future in September 2024 – was to enable a global transition to a circular economy, 'addressing both supply and demand in a way that achieves balance with the planet'.[19]

Perhaps the most urgent argument for the circular economy was made by the International Resource Panel (IRP), a grouping of scientists set up by the UN Environment Programme (UNEP), in its Global Resources Outlook 2024.[20] Without a coordinated global approach to the circular economy, the IRP warned, resource consumption could increase by 60 per cent from 2020 levels by 2060. The report also implicitly emphasized the need for a just transition to a circular economy, observing that resource consumption and impacts are distributed unequally between countries, and that high-income countries use six times more materials per person and are responsible for 10 times more climate impacts per person than is the case for low-income countries.[21]

The circular economy will be especially important for helping countries fulfil their 2050 net zero climate commitments. Accordingly, a growing number of countries are including circular economy components among the intended actions in their nationally determined contributions (NDCs) on emissions reduction and climate change adaptation.[22] In 2022, 79 countries had directly committed to adopting a circular economy within their Paris Agreement NDCs. However, research has suggested that these commitments are 'wildly inconsistent' and that this 'seriously

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16 UNEP (2024), 'Outcomes of UNEA-6', https://www.unep.org/environmentassembly/unea6/outcomes; and UNEP (2022), 'Outcomes of the resumed session of UNEA-5 (UNEA-5.2)'.
17 UNEP (2022), 'Resolution adopted by the United Nations Environment Assembly on 2 March 2022 – 5/11. Enhancing circular economy as a contribution to achieving sustainable consumption and production', 7 March 2022, https://documents.un.org/doc/undoc/gen/k22/007/01/pdf/k2200701.pdf.
18 High-Level Advisory Board on Effective Multilateralism (HLAB) (2023), *A Breakthrough for People and Planet: Effective and Inclusive Global Governance for Today and the Future*, New York: United Nations University, https://highleveladvisoryboard.org/breakthrough.
19 Ibid., p. 66.
20 UNEP and International Resource Panel (2024), *Bend the trend*.
21 Ibid., p. 4.
22 UNEP (2023), 'Building Circularity into Nationally Determined Contributions (NDCs) – A Practical Toolbox', 10 October 2023, https://www.unep.org/resources/toolkits-manuals-and-guides/building-circularity-nationally-determined-contributions-ndcs.

risks' undermining essential work on climate action.[23] Among specific examples of the circular economy's relevance to NDCs, circularity in the life cycle of critical raw materials will be essential to ensure sustainable and resilient supply chains for the clean energy transition. Adopting a circular economy for critical raw materials can reduce dependence on primary mining for limited resources, thereby also decreasing competition and potential conflicts between countries over the supply of these materials.

The arguments for global coordination

Avoiding regulatory fragmentation and maximizing the common good

Governments are increasingly implementing national circular economy action plans and related initiatives: as of May 2024, more than 75 national circular economy action plans, roadmaps and strategies have been launched (another 14 are in development).[24] At one level, the amount and intensity of activity are an encouraging sign of momentum. However, these documents have so far been drafted unilaterally, with many seeming to hold the primary goals of boosting competitiveness against trade partners, reshoring industry and jobs, and building supply-chain resilience by reducing dependence on imported critical materials.

Such a unilateral approach has resulted in a kaleidoscope of rapidly evolving policies and standards – including around 3,000 commitments spanning 135 policy areas and 17 sectors. All too predictably, this regulatory fragmentation increases barriers to trade between nation states. Additionally, despite policy efforts on national and local levels, the global economy itself is becoming less circular. *The Circularity Gap Report 2024* concluded that the global economy is only 7.2 per cent circular, compared to 9.1 per cent in 2018, in effect creating a large 'circularity gap' between actual levels of activity and the ultimate goal of a fully circular economy.[25] In other words, even as the circular economy takes off and initiatives proliferate worldwide, this is not offsetting increasing overall levels of non-circular activity. Moreover, the fact that investment is still mostly directed towards resource-intensive 'linear' industries rather than to recovery and recycling industries makes it all the harder for the circular economy to achieve critical mass.

Beyond creating policy overlaps and confusion, the prevalence of unilateralist national approaches to achieving a circular economy is increasingly recognized as fundamentally ineffective. We argue that the circular economy, if it is to function at a meaningful scale, is necessarily an international and cooperative project. Beyond localized, low-level initiatives, no country can achieve a circular economy on its own. Rather, all countries are dependent, to varying degrees, on trade

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23 Waste and Resources Action Programme (WRAP) (2022), 'Lack of consistency in circular economy pledges made in NDCs could hugely undermine climate action efforts', press release, 15 November 2022, https://www.wrap.ngo/media-centre/press-releases/lack-consistency-circular-economy-pledges-made-ndcs-could-hugely.
24 Barrie, J., Salminen, I., Schröder, P. and Stucki, J. (2024), *National circular economy roadmaps: A global stocktake for 2024*, UN Industrial Development Organization (UNIDO) and Chatham House, https://www.unido.org/news/1st-study-national-circular-economy-roadmaps-unido-and-chatham-house.
25 Circle Economy Foundation (2024), *The Circularity Gap Report 2024*.

partners to secure affordable and reliable access to the wide range of specialist materials, goods and services needed to perform domestic circular activities. A functional circular economy-related trade system is needed to optimize resource use on an aggregate global basis so that the above-mentioned 'circularity gap' can be closed, but this implies countries being freely able to export used goods or secondary raw materials to trade partners that have both the demand and scale necessary to make economical use of them. Equally, domestic policies such as national 'ecodesign' standards, which would require products to meet strict sustainability criteria, will necessarily depend on the willingness and ability of external supply-chain actors to adjust product design and manufacturing processes to meet market access requirements.

The circular economy, if it is to function at a meaningful scale, is necessarily an international and cooperative project. Beyond localized, low-level initiatives, no country can achieve a circular economy on its own.

This underlines the idea that the launch of policies in any one country is likely to create ripple effects (and, in some cases, to extend the analogy, veritable 'tsunamis' of impacts) along international value chains, resulting in potentially negative impacts on producers in countries not prepared or able to meet such standards. An example is the EU's Ecodesign for Sustainable Products Regulation,[26] which will put in place comprehensive market access requirements (covering reusability, repairability, non-toxicity, recyclability) for a wide range of goods in categories that include textiles, electronics and furniture. If introduced without providing appropriate support or funding to implement changes, such requirements may severely strain industry in developing countries, which commonly lack the capital, expertise and equipment needed to redesign products, retool production and retrain staff in accordance with new rules.

Why principles of justice and inclusivity matter for design of the circular economy

No less important a reason for global coordination, including the enshrinement of agreed common principles within any new framework, is the risk that the circular economy transition could otherwise perpetuate or amplify imbalances and inequities between countries' natural resource wealth, undermining environmental resilience in some cases. An increasingly siloed approach to circularity would risk encouraging 'circular resource nationalism' – where a country prioritizes sovereign control over its secondary material resources (at all stages of their life cycle) and

26 European Commission (2024), 'Ecodesign for Sustainable Products Regulation', https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products-regulation_en.

asserts this control through the principles of the circular economy.[27] The rising profile of politicized arguments and misinformation around deglobalization and nationalism is tempting governments to view the circular economy as a tool for resource nationalism, especially in terms of zero-sum competition for the critical raw materials needed for digital technologies, defence applications and renewable energy.

This underlines the need for justice and inclusivity to be enshrined as fundamental principles in any multilateral governance framework for the circular economy. Doing so is more than simply a moral imperative; it is a pragmatic necessity both for effective engagement with the UN system, where such values already explicitly underpin the SDGs,[28] and more widely for achieving political and popular support for the far-reaching economic reforms implied by the circular economy. For the circular economy to be embraced at sufficient scale, adherence to the principle of a just and equitable transition will be important to ensure that countries in the Global South can see the benefits. They will need to be actively supported by countries in the Global North, and be equal partners in the roll-out of the circular economy to ensure that economically disruptive reforms and new technologies will support socio-economic development and create new employment opportunities.[29] By prioritizing the needs and aspirations of communities and workers in developing countries, addressing historical inequalities associated with today's predominantly linear economic system, and providing support for capacity-building and technology transfer, the global community can not only foster a more inclusive and equitable transition to circularity but pre-empt resistance to its growth. In this, important lessons from the energy transition apply to the circular economy: if reform is not inclusive, it will merely exacerbate inequalities, limit access to essential resources and opportunities, and marginalize certain communities.

Box 1. What is an *inclusive* circular economy?

The principles of an *inclusive* circular economy are to maintain and create social, environmental and economic value by maximizing the lifetime of material resources, minimizing waste and pollution, and regenerating nature while ensuring that the benefits of circular economic activity are shared equitably among all countries and stakeholders, including among workers and marginalized and vulnerable populations.[30]

27 Schröder, P. and Barrie, J. (2024), 'What is Circular Resource Nationalism?', Circulareconomy.earth, 10 June 2024, https://circulareconomy.earth/publications/what-is-circular-resource-nationalism.
28 See, for example, United Nations (2015), 'Transforming our world: the 2030 Agenda for Sustainable Development', UN General Assembly, 21 October 2015, https://sdgs.un.org/2030agenda.
29 Schröder, P., Anantharaman, M., Anggraeni, K. and Foxon, T. (eds) (2019), *The Circular Economy and the Global South: Sustainable Lifestyles and Green Industrial Development*, London: Routledge.
30 Preston, F., Lehne, J. and Wellesley, L. (2019), *An Inclusive Circular Economy: Priorities for Developing Countries*, Research Paper, London: Royal Institute of International Affairs, https://www.chathamhouse.org/2019/05/inclusive-circular-economy.

Emerging governance models and their challenges

Circular economy governance is developing, but it is not yet equal to the challenges of scaling up new practices globally. At present, several international institutions and networks are actively advancing the circular economy agenda. Prominent voices include the Global Alliance on Circular Economy and Resource Efficiency (GACERE),[31] and regional networks such as the Circular Economy Coalition for Latin America and the Caribbean,[32] the European Circular Economy Stakeholder Platform[33] and the African Circular Economy Alliance (ACEA).[34] While these endeavours represent significant strides towards fostering regional collaboration and knowledge exchange on circularity principles, they are constrained in their capacity to tackle the complex *global* challenges associated with transitioning to a circular economy. In particular, such platforms have limited influence on systemic issues such as resource-intensive and extractivist modes of development,[35] the adverse effects of which include resource depletion, waste generation, toxic pollution and environmental degradation.

Nor are existing multilateral frameworks and institutions equipped to guide a globally inclusive transition to the circular economy. Partly that is because they were not designed with circularity in mind, and no credible alternatives have been developed. Unlike for climate and biodiversity, for instance, there is no institutional framework dedicated to the circular economy within the multilateral governance system. Moreover, even where their remits overlap with the circular economy, existing multilateral frameworks and agreements lack the coherence and ambition needed to facilitate a globally inclusive transition at speed and scale. There remains a pressing need, therefore, for more effective forms of intergovernmental coordination that can deliver higher collective commitment to transformative change at a global level.

This paper argues that one of the most obvious and potentially effective channels for addressing this governance deficit is through the UN's 2030 Agenda for Sustainable Development (see Chapter 2 for in-depth analysis on this topic). The SDGs and the circular economy are naturally complementary, and the world's lack of progress to date on achieving the SDGs by their 2030 deadline creates an opportunity to promote the circular economy as a solution to many of the challenges of SDG realization. Indeed, one study finds that over half of the 169 targets within the 17 SDGs will not be achievable without circularity.[36] Conversely, the embedding of circular economy principles, strategies and actions within the SDGs could dramatically raise the prominence of the circular economy

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31 UNEP (undated), 'GACERE', https://www.unep.org/gacere.
32 https://coalicioneconomiacircular.org/en/home.
33 European Union (undated), '#CEstakeholderEU: European Circular Economy Stakeholder Platform', https://circulareconomy.europa.eu/platform/en.
34 African Circular Economy Alliance (undated), 'African Circular Economy Alliance: Charting Africa's path to circularity', https://www.aceaafrica.org.
35 Haas, W., Virág, D., Wiedenhofer, D. and von Blottnitz, H. (2023), 'How circular is an extractive economy? South Africa's export orientation results in low circularity and insufficient societal stocks for service-provisioning', *Resources, Conservation and Recycling*, Volume 199, https://doi.org/10.1016/j.resconrec.2023.107290.
36 Schroeder, Anggraeni and Weber (2018), 'The Relevance of Circular Economy Practices to the Sustainable Development Goals'.

and help it to have a mainstream role in thinking and policy on sustainable development. Put another way, integrating action on the circular economy into the SDGs could provide mutual benefits in both areas.

Such an approach looks particularly appealing at a moment when international policymakers' attention and concern are focused on the ailing SDG agenda and on what comes after it. Much thought is being devoted to how to achieve the SDGs in the six years of the 2030 Agenda for Sustainable Development that remain, but even now attention is turning to what the post-2030 development paradigm should look like. Proposals vary, with one group of experts calling for an extension of the SDGs in revised form post-2030.[37] Another proposal emphasizes the need to involve other actors such as businesses more strongly, on a firmer legal basis, in implementation of the SDGs post-2030 and to bring the SDGs into international law.[38] Whether either of these approaches is eventually agreed or a substantively different vision emerges, the process of determining a successor to the existing SDG agenda provides an opportunity for the circular economy to take on a far more central role in supporting human development, promoting economic resilience, and addressing the triple planetary crisis of climate change, pollution and biodiversity loss.[39] By putting circularity at the centre of the future development framework, the international policy community could unlock new sources of economic value creation, reduce and reverse environmental degradation, and radically enhance the efficiency of resource use.

About this paper

The research input to this paper is derived principally from the 'Global Roadmapping Process for an Inclusive Circular Economy',[40] a Chatham House-led collaboration with 13 partners from sectors such as the UN system, multilateral development banking, civil society, think-tanks, and circular economy-specific initiatives and platforms for action.[41] As the name suggests, the ongoing aim of the initiative is to produce a roadmap for development of a fully globalized circular economy – articulating a shared vision, identifying essential areas for international cooperation and facilitating action on them, and raising ambition for the role of the circular economy.

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37 Nerini et al. (2024), 'Extending the Sustainable Development Goals to 2050 — a road map'.
38 International Law Association (ILA) (2023), *SDGs beyond 2030*, White Paper 18, https://www.ilaparis2023.org/wp-content/uploads/2022/10/ADI-ILA-ODD-VHD-EN.pdf.
39 UN Framework Convention on Climate Change (UNFCCC) (2022), 'What is the Triple Planetary Crisis?', 13 April 2022, https://unfccc.int/news/what-is-the-triple-planetary-crisis.
40 Barrie, J. and Schröder, P. (2023), 'A global roadmap for an inclusive circular economy', Circulareconomy.earth, 31 January 2023, https://circulareconomy.earth/publications/a-global-roadmap-for-an-inclusive-circular-economy.
41 The partners at the launch of the initiative were: UNIDO, the World Business Council for Sustainable Development (WBCSD), the African Development Bank (AfDB), the African Circular Economy Network (ACEN), Circular Innovation Lab, the European Circular Economy Stakeholder Platform, Circular Change, the World Economic Forum, the Institute for Global Environmental Strategies (IGES), the Circular Electronics Partnership, the Circle Economy Foundation, the Hanns Seidel Foundation and the Wyss Academy for Nature.

The paper draws on extensive global stakeholder dialogues, including workshops and consultations, in Africa, Asia, Europe and Latin America.[42] The consultation process has been collaborative, and invited ideas from over 350 participants for a policy paper initially entitled *Circular Economy Futures 2050* – the early working title of this paper – to be presented at the UN Summit of the Future in September 2024.[43] Although informed by external input, however, the final drafting of the paper was the work of the two authors.

The paper identifies priority actions in five key areas where international collaboration on the circular economy could deliver real progress on the SDGs. It also presents a series of longer-term goals for the evolution of a globally inclusive circular economy in the period 2030–50 (see Chapter 4). The aim is to provide a useful resource for national policymakers, UN agencies and the international research community engaged in implementation of the SDGs, as these key stakeholders and others seek to agree on the ambition and details of the post-2030 sustainable development framework.

The rest of the paper, after this introductory chapter, is organized as follows: Chapter 2 explains the critical role of the circular economy in delivering on the SDGs; it consists mainly of a table with specific examples of how the circular economy complements each of the 17 SDGs and can contribute to their delivery. In Chapter 3, the focus is on what more needs to be done to revive stalled progress on the SDGs over the next six years. To this end, the chapter explores in detail the above-mentioned five proposed priorities for international collaboration, and offers policy recommendations accordingly. Chapter 4 considers the longer term, outlining the potential of the circular economy to underpin the post-2030 development agenda, and proposing goals for an envisioned 2050 future in which the circular economy plays a central role in sustainable development. The chapter includes an overview table with our proposed circularity targets for 2050, mapped to the 17 SDGs, and suggests the corresponding levers and actions for achieving these targets.

42 Roundtables were convened by the Wyss Academy for Nature in Nairobi, Lima, Bangkok, and at the Swiss Mission to the UN in Geneva, in collaboration with partners and supported by Swiss embassies.
43 Circulareconomy.earth (2024), 'Circular Economy Futures 2050', 5 June 2024, https://circulareconomy.earth/publications/circular-economy-futures-2050.

02
The circular economy and the SDGs – an interlinked agenda

The circular economy and the SDGs are complementary in many areas. More formal integration of circular solutions into SDG implementation could leverage these complementarities, to mutual benefit.

The mutually reinforcing links between inclusive circular economy solutions and the Sustainable Development Goals (SDGs) have been highlighted by a growing body of scientific studies and publications.[44] Numerous case studies from businesses and communities in both the Global North and Global South illuminate instances where circular economy initiatives have contributed to the fulfilment of elements of existing SDGs – even as concerns about stalled progress overall on the 2030 Agenda for Sustainable Development have not gone away.

Circular strategies such as regenerative and bio-based production, extension of consumer product longevity, increased access to resources for minorities and vulnerable groups, and clean and non-polluting end-of-life product management highlight the circular economy's potential to drive economic development,

44 See, for instance, Schroeder, Anggraeni and Weber (2018), 'The Relevance of Circular Economy Practices to the Sustainable Development Goals'.

environmental sustainability and social inclusivity in combination.[45] The circular economy may have a particularly useful role to play in aligning economic and environmental agendas sometimes presented as incompatible. In countries where governments sometimes feel they must choose between funding essential services for development or addressing the climate and biodiversity crisis at scale, the circular economy provides an opportunity for a win-win solution that responds to competing imperatives in an integrated and systematic approach.

Embedding circularity principles more explicitly across all SDGs, and in the approaches proposed to achieve them, could enable sustainable and innovative solutions and technologies to be deployed far more widely.

The current SDGs reference circular economy approaches and practices, but only implicitly. Embedding circularity principles more explicitly across all SDGs, and in the approaches proposed to achieve them, could enable sustainable and innovative solutions and technologies to be deployed far more widely. This could secure for the circular economy the recognition, policy attention, and increased financial and practical resources that come with status as a mainstream element of the development agenda.

Table 1 outlines how socially inclusive circular economy solutions, business models, technologies and community initiatives already contribute (or have the potential to contribute) to each of the 17 SDGs.

45 Velenturf, A. and Purnell, P. (2021), 'Principles for a sustainable circular economy', *Sustainable Production and Consumption*, Volume 27, July 2021, pp. 1437–57, https://www.sciencedirect.com/science/article/pii/S2352550921000567; Ortiz-de-Montellano, C., Samani, P. and van der Meer, Y. (2023), 'How can the circular economy support the advancement of the Sustainable Development Goals (SDGs)? A comprehensive analysis', *Sustainable Production and Consumption*, Volume 40, September 2023, pp. 352–62, https://www.sciencedirect.com/science/article/pii/S2352550923001598.

Table 1. Examples of how the circular economy already contributes, or has the potential to contribute, to efforts to realize the SDGs

SDG	Circular economy contribution
SDG 1: No poverty	• Circular economy businesses create local skilled jobs, especially in recycling, repair and refurbishment sectors (e.g. consumer electronics).[46] • Circular goods and services reduce costs for low-income households through access to affordable refurbished and second-hand goods or via leasing models.[47] • Informal waste collection is widespread in developing countries. Circular economy practices such as product sharing, reuse, repair, remanufacturing and recycling offer opportunities to formalize the informal waste collection sector in developing countries, thereby creating secure and safe jobs, improving livelihoods and raising living standards.[48]
SDG 2: Zero hunger	• Regenerative and restorative farming and agro-ecology practices can enhance local food security and livelihoods, for instance through regenerative grazing and no-till farming.[49] • Circular agricultural practices – such as composting and the use of biofertilizers – make better use of agricultural by-products. These practices promote nutrient cycling, improve soil health, and thereby enable more efficient, resilient and affordable food production systems.[50]
SDG 3: Good health and well-being	• Reducing pollution and mismanaged waste through the circular economy and resource efficiency can improve public health outcomes, for example by reducing pollution-related illnesses and preventing community exposure to toxic chemicals and materials.[51] • Circular product design, using non-toxic materials and sustainable manufacturing processes, would reduce the exposure of workers and consumers to harmful substances.[52]
SDG 4: Quality education	• Embedding circular economy principles in educational curriculums would promote lifelong learning and skills development in sustainable practices, helping to prepare future generations for a world in which expertise in sustainable resource management and circular technologies may be key to securing green jobs. • Vocational training programmes on circularity for micro, small and medium-sized enterprises (MSMEs) can help students learn practical 'hands-on' skilled jobs as well as support a just transition from the linear economy to the circular economy by retraining those at risk of job losses during the transition.[53]

46 International Labour Organization (ILO) (2023), 'Global South circular economy could generate millions of job opportunities', 9 May 2023, https://www.ilo.org/resource/news/global-south-circular-economy-could-generate-millions-job-opportunities.
47 Andersson, J., François-Ferrière, M. and Hoskova, K. (2023), 'Circular Solutions, Community Revolutions: The Social Impact of Circularity', World Economic Forum, 14 December 2023, https://www.weforum.org/agenda/2023/12/circular-solutions-community-revolutions-the-social-impact-of-circularity.
48 Buch, R. et al. (2021), 'From Waste Pickers to Producers: An Inclusive Circular Economy Solution through Development of Cooperatives in Waste Management', *Sustainability*, 13(16), 8925, doi:10.3390/su13168925, https://www.mdpi.com/2071-1050/13/16/8925; Gutberlet, J. and Carenzo, S. (2020), 'Waste Pickers at the Heart of the Circular Economy: A Perspective of Inclusive Recycling from the Global South', *Worldwide Waste*, 3(1), pp. 1–14, doi:10.5334/wwwj.50, https://ri.conicet.gov.ar/handle/11336/171107.
49 Aznar-Sánchez, J. A., Velasco-Muñoz, J. F., Belmonte-Ureña, L. J. and Manzano-Agugliaro, F. (2021), 'Circular economy implementation in the agricultural sector: Definition, strategies and indicators', *Resources, Conservation and Recycling*, 175, 105818, doi:10.1016/j.resconrec.2021.105818.
50 Breure, A. M., Lijzen, J. P. A. and Maring, L. (2018), 'Soil and land management in a circular economy', *Science of The Total Environment*, 624, pp. 1125–30, doi:10.1016/j.scitotenv.2017.12.137.
51 Kumar, R. et al. (2021), 'Impacts of Plastic Pollution on Ecosystem Services, Sustainable Development Goals, and Need to Focus on Circular Economy and Policy Interventions', *Sustainability*, 13(17), 9963, doi:10.3390/su13179963, https://www.mdpi.com/2071-1050/13/17/9963.
52 van Liedekerke, M., Christensen, T. H. and Scheutz, C. (2018), 'Risk management of hazardous substances in a circular economy', *Journal of Environmental Management*, 215, pp. 200–07, doi:10.1016/j.jenvman.2018.04.014, https://www.sciencedirect.com/science/article/abs/pii/S0301479718301154.
53 Circle Economy (2021), *Closing the Skills Gap: Vocational education & training for the circular economy*, https://www.circle-economy.com/resources/closing-the-skills-gap-vocational-education-and-training-for-the-circular-economy.

SDG 5: Gender equality	• The circular economy has the potential to empower women in many areas of work, including by providing entrepreneurial opportunities (for example, involving women-led start-ups) and enabling women to participate in sustainable initiatives such as recycling cooperatives.[54] • Expansion of the circular economy would likely result in an increase in the availability and number of gender-inclusive training programmes for business development and leadership roles in green businesses, and provide new opportunities for equitable participation in community initiatives.
SDG 6: Clean water and sanitation	• Circular processes and technologies can be applied to many different water uses and sectors, e.g. for irrigation in agriculture, sanitation in human settlements, provision of clean drinking water, and water use in industrial facilities.[55] • Water-recycling technologies and solutions that reduce and reuse wastewater and improve access to clean water offer multiple benefits, including improved water security (especially important in regions expected to encounter increased water shortages) and sanitation.[56]
SDG 7: Affordable and clean energy	• Renewable energy solutions and energy-efficient technologies reduce reliance on fossil fuels and decrease energy costs, and their aggregate benefits for SDG 7 would increase as the circular economy expands. • Repair, maintenance and reuse services for renewable energy systems provide a means both to extend the operational life cycles of such systems and to create new types of green jobs.[57] • Using recycled and recyclable materials in the manufacture of solar panels, wind turbine blades and other renewable energy applications can help to improve the sustainability of renewables throughout the entire life cycles of products and technologies. • Energy-efficient appliances and lighting require less energy. This can help to reduce energy use, waste and greenhouse gas emissions.
SDG 8: Decent work and economic growth	• Expansion of the circular economy would create more green jobs in recycling, repair services, renewable energy and circular product design.[58] • Embedding principles of justice and inclusivity in circular economy policy programming would help to promote standards on decent work and fair labour practices in circular industries, especially in waste collection, recycling, reverse logistics, repair services and remanufacturing; in all of these sectors, workers are commonly exposed to poor working conditions and are required to handle or work in proximity to hazardous gases, chemicals and materials. • Many circular economy jobs are, or are likely to be, in the informal sector. Expansion of the circular economy could provide opportunities to bring more informal workers into the formal labour market, boost skills and economic prospects through training, and build capacity in new or existing green industries.[59]

54 Wiesen, C. (2022), 'The tactics to drive a gender-inclusive circular economy', blog post, UN Development Programme (UNDP), 26 May 2022, https://climatepromise.undp.org/news-and-stories/tactics-drive-gender-inclusive-circular-economy.
55 Sauvé, S., Lamontagne, S., Dupras, J. and Stahel, W. (2021), 'Circular economy of water: Tackling quantity, quality and footprint of water', *Environmental Development*, Volume 39, September 2021, 100651, https://doi.org/10.1016/j.envdev.2021.100651.
56 Morseletto, P., Mooren, C. E. and Munaretto, S. (2022), 'Circular Economy of Water: Definition, Strategies and Challenges', *Circular Economy and Sustainability*, Volume 2, 29 March 2022, pp. 1463–77, https://doi.org/10.1007/s43615-022-00165-x.
57 Velenturf, A. P. M. (2021), 'A Framework and Baseline for the Integration of a Sustainable Circular Economy in Offshore Wind', *Energies*, 14(17), 5540, doi:10.3390/en14175540, https://www.mdpi.com/1996-1073/14/17/5540.
58 Hopwood, B. (2024), 'Towards a circular economy and just transition to net-zero in rural communities: Insights from Scotland', *Journal of Rural Studies*, 94, 104799, doi:10.1016/j.jrurstud.2024.104799, https://www.sciencedirect.com/science/article/pii/S0743016724001049.
59 Marello, M. and Helwege, A. (2018), 'Solid Waste Management and Social Inclusion of Wastepickers: Opportunities and Challenges', *Latin American Perspectives*, 45(1), pp. 108–29, doi:10.1177/0094582X17726083, https://journals.sagepub.com/doi/abs/10.1177/0094582X17726083.

SDG 9: Industry, innovation and infrastructure	• The circular economy can complement, and stimulate, development of infrastructure for safe management and recovery of waste. • Growth in the need for 'reverse logistics infrastructure' for secondary materials – whereby used materials are transported back up the supply chain to their sellers or producers – would support the SDG 9 imperative of building more resilient, sustainable infrastructure and fostering innovation. • The development of new circular technologies and industrial processes has the potential to support SDG 9 in fostering innovation. • The establishment of circular industrial parks and eco-innovation hubs could support 'domestic technology development, research and innovation in developing countries'.[60] • Demand for digital infrastructure enabling the traceability of products and materials is likely to increase in line with rising need for supply-chain and provenance disclosures in circular economy trade.
SDG 10: Reduced inequalities	• Inclusive business models and community initiatives associated with the circular economy can ensure equitable access to resources and opportunities, reducing economic disparities. • Circular business models (such as product sharing and leasing) can provide more affordable access to essential goods (assuming the models embed sufficient social security nets to avoid termination of access to such goods for the most vulnerable people in the event of periodic economic hardship).
SDG 11: Sustainable cities and communities	• The integration of circular principles and zero-waste initiatives into urban planning would complement SDG 11's agenda to make 'cities and human settlements inclusive, safe, resilient and sustainable'.[61] • Modular construction, consistent with circularity principles, can enable the upgrading of informal settlements. • Waste reuse and recycling can support more sustainable construction and demolition.
SDG 12: Responsible consumption and production	• Circular practices include extending product lives, using resources more efficiently, and reducing waste through recycling, remanufacturing and sustainable consumption. • The introduction of mandatory product warranties and legislation on the 'right to repair' – ensuring consumer products that break down do not necessarily have to be discarded – can lengthen product lives. This can result in reduced waste and reduced demand for new or replacement products. • Societal shifts and initiatives promoting sustainable lifestyles and circular societies can reduce wasteful consumption and resource use and result in more sustainable consumption patterns. • 'Product-as-a-service' models can reduce product ownership and associated materials demand, while providing the same functionality as traditional ownership.
SDG 13: Climate action	• Adopting circularity principles in the use of materials reduces greenhouse gas emissions along value chains, from extraction to processing to manufacturing to consumption. • Adoption of circular municipal waste systems can reduce emissions of methane from landfills and of black carbon from open burning.[62]
SDG 14: Life below water	• Reducing deployment of single-use plastics and adopting closed-loop systems of resource use through reuse and recycling can prevent plastics from leaking into the marine environment; this can support efforts to tackle plastic pollution in the world's oceans. • Eliminating harmful chemicals from products and promoting the use of bio-based chemical alternatives (e.g. in production of textile dyes) can reduce pollution of oceans and coastal areas. • The use of biodegradable packaging produced from marine resources (e.g. seaweed) can reduce the use of unsustainable plastics, and reduce plastic pollution of marine environments.[63]

60 UN Department of Economic and Social Affairs (2024), SDG 9, 'Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation', Targets and Indicators, Target 9.b, https://sdgs.un.org/goals/goal9#targets_and_indicators.
61 UN Department of Economic and Social Affairs (2024), SDG 11, 'Make cities and human settlements inclusive, safe, resilient and sustainable', https://sdgs.un.org/goals/goal11.
62 Gómez-Sanabria, A. et al. (2022), 'Potential for future reductions of global GHG and air pollutants from circular waste management systems', *Nature Communications,* 13, 106, https://doi.org/10.1038/s41467-021-27624-7.
63 Priyanka Kajla, P. et al. (2024), 'Seaweed-based biopolymers for food packaging: A sustainable approach for a cleaner tomorrow', *International Journal of Biological Macromolecules*, Volume 274, Part 1, 133166, https://doi.org/10.1016/j.ijbiomac.2024.133166.

SDG 15: Life on land	• Circular bioeconomy practices[64] that emphasize avoiding waste and promoting resource-efficient use of biomass reduce the need to extract raw materials, and minimize land disturbance and habitat destruction. • Regenerative agricultural practices and ecological restoration[65] reduce deforestation and soil degradation. • In certain circumstances, using materials[66] made from renewable sources, and that fully biodegrade quickly without specialist treatment into safe non-toxic elements, can help reduce plastic pollution and its impact on land ecosystems.
SDG 16: Peace, justice and strong institutions	• Transparent and inclusive governance in circular economy initiatives can foster trust and cooperation between stakeholders. • Policies such as 'extended producer responsibility' (EPR – which in effect makes producers financially responsible for waste management costs associated with the goods they put on the market), right-to-repair legislation, and the provision of financial incentives for start-ups and small businesses can help to make economies more equitable and inclusive, for example correcting producer–consumer relationships or market distortions that unduly favour large enterprises. • Collaborative 'network governance' models[67] that distribute decision-making power cooperatively among multiple stakeholders have been advocated as an enabling mechanism for circular economy projects. Such models have the potential to support more inclusive and equitable public governance.
SDG 17: Partnerships for the Goals	• Regional alliances such as the Circular Economy Coalition for Latin America and the Caribbean,[68] the African Circular Economy Alliance as well as international circular economy networks enable collaboration across sectors, value chains and countries. Sharing of knowledge, technologies and best practice is an explicit requirement of SDG 17.

64 Muscat, A. et al. (2021), 'Principles, drivers and opportunities of a circular bioeconomy', *Nature Food,* 2, pp. 561–66, https://doi.org/10.1038/s43016-021-00340-7.
65 Morseletto, P. (2020), 'Restorative and regenerative: Exploring the concepts in the circular economy', *Journal of Industrial Ecology*, Volume 24, Issue 4, https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.12987.
66 European Environment Agency (2020), *Biodegradable and compostable plastics — challenges and opportunities*, EEA Briefing No. 09/2020, https://www.eea.europa.eu/publications/biodegradable-and-compostable-plastics.
67 Cramer, J. (2023), 'How circular economy and digital technologies can support the building sector to cope with its worldwide environmental challenge?', *npj Urban Sustainability,* 3, 28, https://doi.org/10.1038/s42949-023-00109-w.
68 https://coalicioneconomiacircular.org/en/home.

03
Five priorities for using the circular economy to reinvigorate the SDGs

Work on the SDGs is in trouble. Only 17 per cent of SDG targets are on course to be achieved by 2030. The circular economy could provide the solution, supporting both SDG delivery and sustainable development more broadly.

The previous chapter outlined how the cross-cutting nature of the circular economy can help it contribute to every single Sustainable Development Goal (SDG). Recognizing that work on the SDGs is off-track and that most of the 169 SDG targets will not be achieved by 2030,[69] we argue that now, more than ever, is the moment to ramp up international efforts on the circular economy.

The lack of progress on the SDGs is indicative of the fact that the world faces not only a sustainability crisis, but a crisis of multilateralism. International solidarity is essential to address challenges that are by nature global in scale, yet the

69 Only 17 per cent of the SDG targets are on track to be met by 2030, while the remaining 83 per cent are showing limited progress, no progress or regression. See United Nations (2024), *The Sustainable Development Goals Report*.

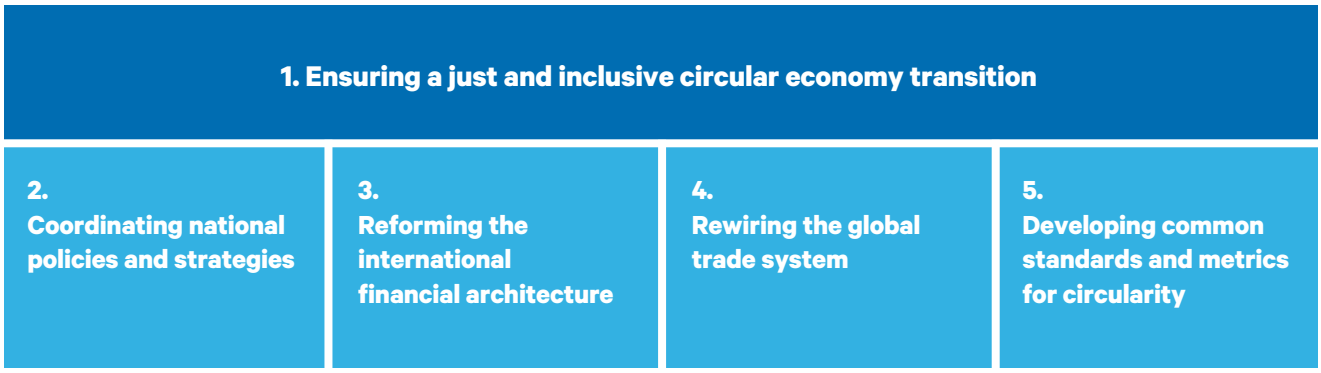
countries with the largest resources and capacity are often the least committed to UN-based multilateralism. The US is a case in point, ranking last in terms of engagement with the UN system in a 2024 index of measures that include UN treaty ratification, voting record at the UN General Assembly and financial contributions to the UN.[70] As with meeting the objectives of the SDGs, a successful circular economy transition will rely on strengthening multilateralism and ensuring renewed commitment to international cooperation and partnerships.

This chapter explores five areas for international collaboration that would help create a cohesive and effective global framework for a circular economy transition that supports the SDGs. The five areas, which can also be considered guiding principles for policymaking, are as follows: ensuring a just and inclusive transition; coordinating national policies and strategies; reforming the international financial architecture; rewiring global trade; and developing common standards and metrics. For each area, we propose a set of actions for various stakeholders involved in the multilateral system. As with the overall SDG framework, the five principles are interconnected and mutually supportive – progress in one area will advance progress in others, while neglecting one area will hold back overall progress.

The selection of the priority areas for collaboration was informed by a series of stakeholder roundtables hosted in Africa, Asia, Europe and Latin America between May and July 2024, as well as by feedback and inputs from over 30 organizations that participated in the Chatham House-led 'Global Roadmapping Process for an Inclusive Circular Economy'.[71] We strongly advise that action on these areas should begin immediately to ensure reforms become established before 2030, and to create the future institutional structures for a post-2030 transition to a revised or extended SDG framework. Although neither the future of the SDGs after 2030, nor the shape or substance of any successor regime, has been formally decided, there have been calls from prominent voices in the development debate for the SDGs to be extended, in revised form, to 2050.[72]

70 Sachs, J. D., Lafortune, G. and Fuller, G. (2024), *Sustainable Development Report 2024: The SDGs and the Summit of the Future*, Dublin: Dublin University Press, p. 35, https://doi.org/10.25546/108572.
71 Barrie and Schröder (2023), 'A global roadmap for an inclusive circular economy'.
72 Nerini et al. (2024), 'Extending the Sustainable Development Goals to 2050 — a road map'.

Figure 1. Proposed global areas for mutual coordination to accelerate progress on the SDGs



Priority 1: Ensuring a just and inclusive circular economy transition

According to the Club of Rome's 'Earth for All' report,[73] addressing inequality and ensuring inclusivity in sustainability transitions are key to achieving positive social tipping points, such as a critical mass of individuals and businesses shifting energy consumption patterns to renewable energy. We argue that a similar principle applies to the circular economy and its intersection with the SDGs. To achieve its transformative potential, the transition to a circular economy will need to be just and inclusive. It will need to anticipate and address social issues relating to human health, decent work and future employment – for example, ensuring that the introduction of circular technologies that disrupt incumbent industries takes into account potential job losses. And it will need to ensure that the ultimate focus of policy is on enhancing human well-being, not simply meeting technical sustainability metrics.

As discussed in Chapter 1, the case for a just and inclusive transition is more than a moral one. It is a pragmatic necessity for ensuring effective engagement with the UN system; such values, explicitly enshrined in the SDGs, are almost a prerequisite for serious consideration by multilateral policymakers. Justice and inclusivity are just as important for pre-empting political and popular resistance around the world to economic change, and for recruiting the widest possible international support for the circular economy by ensuring that its benefits are felt in developing countries as well as rich ones.

Building such trust will require, in the first instance, the rectification of existing environmental injustices around mismanaged waste and pollution, injustices that affect hundreds of millions of people worldwide. Necessary measures include halting and preventing the illegal dumping of waste to low- and middle-income countries; such practices have severe health impacts on workers, their families

73 Dixson-Declève, S. et al. (2022), *Earth4All – A Survival Guide for Humanity*, Club of Rome, https://www.clubofrome.org/publication/earth4all-book.

and communities.[74] The *Lancet* Commission on pollution and health estimates that up to 9 million people die prematurely every year due to pollution and mismanaged waste.[75]

Ensuring a just transition to a circular economy also entails anticipating which countries, sectors, communities and workforces may be adversely affected by industrial transformation, and building policies, legislation and standards accordingly. It will mean involving relevant stakeholders in policy design and decision-making from an early stage. In particular, incorporating principles of justice into the planning and design of circular economy interventions will need to take three factors into account: whether distribution of resources is likely to be equitable; whether decision-making processes will be equitable and transparent; and whether stakeholders' rights are likely to be upheld.[76]

These considerations apply both to technical dimensions of the circular transition (where industries adjust their operations and the composition of their labour forces to integrate circularity) and to its social dimensions (given the need to ensure social equity, social cohesion and acceptance of change among employers, workers and consumers). With the right planning, circular economy interventions can be effective at providing alternative livelihoods – for example, in repair and remanufacturing – for workers in regions or industries transitioning away from linear models of production. Equally, circular economy strategies such as mineral recovery and urban mining may be able to minimize the risks of 'energy colonialism', a persistent concern across many aspects of decarbonization.

At the global scale, for the circular economy to gain widespread acceptance, it cannot be perceived as embodying a Western-led, neocolonial approach to development. Local expertise and traditional practices – both in developing countries and elsewhere – will need to be acknowledged and respected, all the more so because the circular economy is already in some respects familiar in such settings. Indigenous and nomadic peoples and local communities have long-standing traditions, practices and epistemologies that embody principles of circularity, resilience and harmony with nature.[77] By recognizing and valuing Indigenous and local knowledge, modern societies can gain real-life and evidence-based insights into sustainable resource management and community-based governance. Integrating Indigenous perspectives into circular economy strategies can thus enrich the global community's understanding and practices, demonstrate practical approaches for balancing the relationship between humans and nature, and promote cultural diversity and social inclusion.

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74 Schroeder, P. and Barrie, J. (2022), 'Is going circular just? Environmental justice and just transition – key elements for an inclusive circular economy', *Field Actions Science Reports*, Vol. 24, pp. 20–25, https://journals.openedition.org/factsreports/6864.
75 Fuller et al. (2022), 'Pollution and health: a progress update'.
76 Schröder, P. (2020), *Promoting a Just Transition to an Inclusive Circular Economy*, Research Paper, London: Royal Institute of International Affairs, https://www.chathamhouse.org/2020/04/promoting-just-transition-inclusive-circular-economy.
77 Beamer, K. et al. (2023), 'Island and Indigenous systems of circularity: how Hawai'i can inform the development of universal circular economy policy goals', *Ecology and Society*, 28(1):9, https://doi.org/10.5751/ES-13656-280109.

A successful transition to a circular economy also needs comprehensive participation. It cannot achieve the scale and breadth required without involving businesses and economic actors in all sectors and at every level – from multinationals all the way down to micro, small and medium-sized enterprises (MSMEs) and informal workers. MSMEs and the informal sector already play an important role in the circular economy, including through small-holder regenerative farming, the sale of second-hand products, and waste collection and sorting. In many countries the informal sector is the starting point for reverse supply chains, filling gaps where governments do not function and acting as the largest supplier of second-hand goods. Of the estimated 19–24 million people globally who work in waste collection and recycling, 80 per cent are thought to belong to the informal sector.[78]

A successful transition to a circular economy needs comprehensive participation. It cannot achieve the scale and breadth required without involving businesses and economic actors in all sectors and at every level – from multinationals all the way down to micro, small and medium-sized enterprises and informal workers.

But while MSMEs and informal workers are the backbone of national and local economies – and could contribute to, and benefit, from the circular economy in many ways – they are sometimes excluded from policy calculations and lack institutional support to make the transition. A lack of effective legislation, limited funding, insufficient opportunities for training and skills development, ineffective taxation policy and incoherent environmental regulations are all widely recognized as barriers to MSME adoption of new circular business models.

Special attention needs to be given to vulnerable populations, informal sector workers and women entrepreneurs, to ensure that circular economy practices contribute to social equity and new economic and employment opportunities in global and local value chains. A recent joint study by the International Labour Organization (ILO), the Circle Economy Foundation and the World Bank highlights the need to focus not only on the quantity but also the quality of jobs that the circular economy can create, in line with SDG 8 ('Decent work and economic growth').[79] The issue of decent work is particularly relevant to informal and MSME workers, who face greater barriers when it comes to achieving decent and safe working conditions and accessing social security systems.

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78 WIEGO (2013), 'Waste Pickers: The Right to Be Recognized as Workers', June 2013, https://www.wiego.org/resources/waste-pickers-right-be-recognized-workers; and ILO (2013), *Sustainable development, decent work and green jobs*, International Labour Conference, 102nd Session, 15 March 2013, Report V, https://www.ilo.org/resource/conference-paper/ilc/102/sustainable-development-decent-work-and-green-jobs-0.
79 Circle Economy, International Labour Organization and World Bank (2023), *Decent work in the circular economy: An overview of the existing evidence base*, May 2023, https://www.circle-economy.com/resources/decent-work-in-the-circular-economy.

Priority 1 – Summary of recommendations for international organizations

Below we outline a series of actions which the policy communities setting frameworks for decent working conditions and protection of Indigenous people's rights could take to help ensure just transition and inclusivity principles are embedded within global circular economy development efforts.

1. Establish global guidelines for ensuring social equity in the transition to a circular economy. Develop a UN-endorsed framework that includes principles of just transition, focusing on the equitable distribution of resources, fair and transparent decision-making, and recognition of rights.
2. Establish an international platform under the UN Economic and Social Council (ECOSOC) together with the Inter-Agency Support Group (IASG) on Indigenous Issues to document, share and integrate Indigenous and local knowledge into circular economy policies and practices. It will be important to understand better and document the benefits and potential negative impacts of the circular economy on Indigenous communities.
3. Launch a global campaign targeting varied stakeholders – including governments, businesses, communities and educational institutions – to advocate for and explain the benefits of inclusivity for a circular economy.
4. Work with the International Labour Organization (ILO), the Circle Economy Foundation and the World Bank to develop comprehensive guidelines and best practice for measuring decent work in the circular economy. Such guidance will need to address issues such as employment impacts of circular economy policy alongside job safety, fair wages and social protection.
5. Provide technical assistance and policy guidance to national governments to develop and implement inclusive circular economy policies that address social issues such as health, decent work and community well-being.

Priority 2: Coordinating national policies and strategies to deliver an inclusive circular economy

The circular economy holds enormous promise, but implementation and policy at present are fragmented. Given the essentially interconnected nature of the circular economy, and the importance of global scale and coherence if the sector is to achieve critical mass, there is an urgent need for coordination between governments on national policies and objectives. The aim should be to create an effective global policy ecosystem conducive to circular economy transitions.

To illustrate the proverbial 'spaghetti bowl' of policies currently in place or under development, at the time of writing more than 75 national circular economy roadmaps and strategies had been launched (71 since 2016). Taken together, these documents include commitments from governments to introduce just under 3,000 separate circular economy policies spanning 17 sectors and

135 policy categories over the coming decade. Additionally, Chatham House has identified a further 540 existing circular economy policies in 110 countries; 80 per cent of these policies have been launched since 2010. While this proliferation of activity demonstrates growing momentum within the global community, signalling a shared aspiration to transition towards a circular economy, it also makes management and coordination difficult.[80]

Findings from the Global Stocktake of National Circular Economy Roadmaps 2024[81] confirm the problem and show three major shortcomings. First, the majority of roadmaps fail to consider the potential unintended consequences for key trading partners (particularly those in the Global South), as well as the dependence of domestic circular policy goals on global value chain coordination and collaboration. Second, the majority of circular economy roadmaps fail to consider the principles of just transition and social equity (including worker and consumer rights) within their agendas. Third, most existing roadmaps and policies do not provide adequate public resources to fund circular initiatives, nor do they provide mechanisms for leveraging private sector finance.

Box 2. Cross-border impacts of domestic circular economy policy – the case of the EU Ecodesign for Sustainable Products Regulation (ESPR)

The EU's new Ecodesign for Sustainable Products Regulation (ESPR), which entered into force on 18 July 2024,[82] will require a wide range of goods sold in the EU to be more circular – that means more durable, repairable, recyclable, less toxic, with verified green claims, and with traceable supply chains. The ESPR is a framework regulation intended to underpin the setting of product rules over time. Because these rules will apply to products made outside the EU as well as inside it, the ESPR is likely to present significant challenges for suppliers, particularly MSMEs in developing countries, as such suppliers may lack the capacity, finances, technology and intellectual property needed to meet market access standards.

Better collaboration is essential to turn these challenges into opportunities. For example, a country introducing its own ecodesign requirements could provide assistance in the form of technology transfer, training and financial support to help developing-country manufacturers meet its circularity standards. In recognition of these challenges, the EU has funded a number of initiatives to support the most affected non-EU value chain actors. These initiatives include the SWITCH to Circular Economy Value Chains programme, funded by the EU and led by the UN Industrial Development Organization (UNIDO),[83] and the European Circular Economy Research Center (CERC).[84]

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80 Barrie, Salminen, Schröder and Stucki (2024), *National circular economy roadmaps: A global stocktake for 2024*.
81 Ibid.
82 European Commission (2024), 'Ecodesign for Sustainable Products Regulation', https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products-regulation_en.
83 SWITCH to Circular Economy Value Chains (undated), 'Switch to Circular Economy Value Chains', https://www.switchtocircular.eu.
84 European Circular Economy Stakeholder Platform (undated), 'Circular Economy Research Center (CERC)', https://circulareconomy.europa.eu/platform/en/education/circular-economy-research-center-cerc-0.

But there is a need to go beyond traditional reactive donor support to better pre-empt the complex and multi-faceted cross-border impacts that ESPR requirements could create, and to integrate the most affected/marginalized communities into policymaking from the outset. Such communities include small-shop owners, street vendors, local government bodies, informal sector workers, local communities, and Indigenous peoples whose knowledge and practices can significantly contribute to circular strategies. This would not only aid compliance with the ESPR but would also support broader development goals, foster innovation and sustainability across industries, and create equitable benefits along supply chains.

Global policy coherence will play a pivotal role in charting the trajectory towards a circular economy. Circular economy policy frameworks, coordinated between countries, will be needed to accelerate efforts to address environmental challenges such as climate change, biodiversity loss, pollution and desertification. A range of 'policy packages' to advance inclusive circularity could combine any of the following: 'extended producer responsibility' (EPR) schemes;[85] product ecodesign standards (covering criteria such as durability, repairability, use of recycled content, and the removal of hazardous chemicals); product bans where circular alternatives exist; right-to-repair legislation; information campaigns and educational programmes; taxation of material consumption over labour; user charges for single-use items; public procurement guidelines; and new types of economic incentives and financial instruments.[86] Furthermore, policy impact assessments could usefully be conducted both ex ante and ex post to demonstrate how circular economy interventions can support a broader set of socio-economic objectives and SDGs, and to ensure policies are designed to support a just transition.[87]

Box 3. The case for global policy coherence on the 'right to repair'

'Right-to-repair' legislation aims to reduce waste, extend the lifespan of products and promote sustainability by granting consumers the ability to repair and maintain their products, and by ensuring access to the necessary tools, parts and information to do so. An example is the EU's new right-to-repair directive,[88] which mandates that manufacturers make spare parts and repair information available to consumers and professional repairers for at least 10 years after a product's market launch. One of the

85 In simplified terms, EPR is a type of policy that extends a producer's responsibility for its products to the post-consumption stage. This requires the producer to ensure proper disposal, recycling or reuse of its products once the consumer has finished with them, take responsible for the sustainable management of waste from its products, and cover the costs of doing so. The idea of EPR is to encourage the production of goods that are more durable, repairable and recyclable, and therefore reduce their end-of-life cost burden.
86 Couder, N., Katrakis, E. and Nacci, G. (eds) (2021), *Incentives to boost the circular economy A guide for public authorities*, Brussels: European Commission Directorate-General for Research and Innovation, https://op.europa.eu/en/publication-detail/-/publication/51378e0a-d303-11eb-ac72-01aa75ed71a1.
87 Circle Economy (2022), *Thinking beyond borders to achieve social justice in a global circular economy: Actions for governments and multilateral bodies*, June 2022, https://www.circle-economy.com/resources/thinking-beyond-borders-to-achieve-social-justice-in-a-global-circular-economy.
88 European Commission (2023), 'Proposal for a Directive on common rules promoting the repair of goods', 22 March 2023, https://commission.europa.eu/document/afb20917-5a6c-4d87-9d89-666b2b775aa1_en.

targets of right-to-repair legislation is the market for consumer electronics, where frequent upgrades and rapid obsolescence can render products unrepairable and add to the volume of materials that need recycling or disposal.

However, the lack of cross-border harmonization in right-to-repair laws raises the critical question of how rights to repair transfer across borders. When second-hand goods are shipped to secondary markets, they will often need to be repaired, refurbished or remanufactured. Without the transfer of the right to repair, the ability of third parties to access the necessary repair-related intellectual property, specialist tools and spare parts in these secondary markets will remain limited or non-existent. In such cases, this often leads to items being discarded prematurely, which exacerbates waste and undermines sustainability efforts. A fragmented legislative environment for the right to repair also makes it more costly and logistically complex for businesses to navigate and comply with different requirements.

The development of consistent global standards is therefore essential to ensure that all parties, regardless of location, have equitable access to repair information and tools. Globally harmonized right-to-repair legislation would foster a more inclusive global circular economy. It would empower consumers worldwide, increase product longevity, and align with broader goals of reducing waste and promoting environmental sustainability.

Circular economy policies will be crucial to implementation of multilateral environmental agreements and intergovernmental commitments, including those made under the UN Framework Convention on Climate Change (UNFCCC), the Paris Agreement on climate change, the Convention on Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD), and the upcoming UN legally binding instrument to end plastic pollution by 2040. The UNEA-6 ministerial declaration of March 2024 calls on member states and UN observer states to develop resource efficiency strategies and circular economy strategies.[89] However, implementation of circular economy policies is often hampered by a lack of finance, a lack of economic incentives, failure to provide clear targets, political short-termism and limited international coordination. At a national level, coordination on circular economy roadmaps or governance tends to sit primarily within the remit of environment ministries; this often prevents a systematic and whole-of-government approach.

Policy instruments and incentives are particularly needed to help MSMEs, so often the drivers of local economic development, to incorporate circular economy principles into their business models. Emphasis needs to be placed on ensuring that MSMEs and small suppliers are not excluded from value chains as a result of uncoordinated circular policies. Furthermore, circular economy approaches (reducing resource and product use, reusing products and materials, substituting products with sustainable alternatives, recycling) are key to the industrial transformation of many sectors.

89 UN Environment Assembly (UNEA) (2024), 'Outcomes of UNEA-6', https://www.unep.org/environmentassembly/unea6/outcomes.

Circular economy policies must also begin to address the many interlinked and interdependent factors that influence consumption patterns and behavioural changes, in order that populations can shift to sustainable lifestyles.[90] As the UN Global Strategy on Sustainable Consumption and Production 2023–2030 highlights,[91] coordination and collaborative efforts on consumption policies for effective demand-side management can bridge gaps in resource distribution, encourage knowledge exchange and establish a shared commitment to human well-being. Sustainable consumption is also a pivotal aspect of the circular economy in terms of fostering sustainable lifestyles, supporting well-being and aligning human aspirations with protection of the common global good. However, managing the trade-offs – real or perceived – between reducing consumption in global aggregate terms and supporting a just and inclusive transition (see Priority 1) will require international coordination to ensure equitable outcomes regarding the affordability of sustainable products, the phase-out of outdated products and the fulfilment of basic needs.[92]

Policy instruments and incentives are particularly needed to help MSMEs, so often the drivers of local economic development, to incorporate circular economy principles into their business models.

Priority 2 – Summary of recommendations for international policymakers

Below we outline a series of actions the global community could pursue to help ensure the wave of circular legislation due to be introduced around the world over the next decade is conducted in a coordinated way that works to the betterment of all, rather than becoming increasingly fragmented, unequal and inefficient.

1. Establish a cross-sectoral circular economy alliance and collaborative framework among UN development agencies. Participants would need to include government ministries whose remits cover economic planning and development, multilateral development banks (MDBs), the private sector, and civil society organizations engaged in global development and SDG implementation. Rather than starting from scratch, one option for establishing such an alliance could be to expand the membership, mandate and funding of the Global Alliance on Circular Economy and Resource Efficiency (GACERE) – which currently consists of 16 countries plus the EU – to turn it into a truly global platform.

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90 Creutzig, F. et al. (2024), 'Demand-side strategies key for mitigating material impacts of energy transitions', *Nature Climate Change* 14, pp. 561–72, https://doi.org/10.1038/s41558-024-02016-z.
91 One Planet Network (undated), 'Global Strategy on Sustainable Consumption and Production', https://www.oneplanetnetwork.org/globalstrategy.
92 Akenji, L., Bengtsson, M. and Salem, J. (2015), *Sustainable Consumption Guide for Policymakers: Debunking Myths and Outlining Solutions (Asia Edition)*, IGES Japan and UNEP, https://www.iges.or.jp/en/publication_documents/pub/policyreport/en/5349/SC-Guide-For-Policymakers%28low-resolution%29.pdf.

2. As an alternative to expanding GACERE, consider forming an international resource agency, as recommended by the International Resource Panel in the Global Resources Outlook 2024.[93] Such a body would be akin in some respects to the International Energy Agency (IEA) but with a mandate for the circular economy rather than energy. The new agency's mission would be to facilitate knowledge sharing, policy coordination, capacity-building and resource mobilization for joint policy initiatives.
3. Enhance the roles of the G7 and G20 in driving circularity, and increase the ambition of their commitments. A starting point would be to build on the 2024 G7 communiqué that recognizes the need to support developing countries in their national transitions towards a circular economy.[94] Work could involve expanding new opportunities in value chains arising from the transition, with G7 and G20 members coordinating alignment of key policy frameworks, especially for EPR schemes which many G20 members are in the process of developing.
4. Embed circular economy principles into the implementation plans of multilateral environmental agreements, including the CBD and the Paris Agreement on climate change. This could ensure more rapid adoption of circularity at the highest political level, and its integration into comprehensive national environmental strategies, including: NDCs on emissions reductions under the UNFCCC; national biodiversity strategies and action plans (NBSAPs) under the CBD's new Global Biodiversity Framework (GBF); and national and regional circular economy strategies.
5. Ensure national implementation is guided by tailored and updated transition roadmaps. This will mean supporting countries in their development of national plans that both align with global targets and consider local contexts, available resources, and institutional contexts and challenges. Strategies to be considered should include demand-side measures facilitating shifts to sustainable lifestyles.

Priority 3: Reforming the international financial architecture to incentivize inclusive models of circularity

The transition to a global circular economy will cost money. As the World Bank has highlighted, far more investment is needed to scale up the circular economy and realize the economic opportunities it presents.[95] Developing countries have significant gaps in financing for clean energy, waste management, circularity-enabling infrastructure and green industrial development. The transition to a circular economy will thus require substantial financial support

93 UNEP and International Resource Panel (2024), *Bend the trend.*
94 G7 (2024), 'G7 Trade Ministerial Meeting – Ministerial Statement', 17 July 2024, https://www.g7italy.it/wp-content/uploads/Trade-Ministers-Reggio-Calabria-Declaration-Final-clean-approved-by-TWG.pdf.
95 World Bank (2023), *Squaring the Circle: Policies from Europe's Circular Economy Transition*, https://www.worldbank.org/en/region/eca/publication/squaring-circle-europe-circular-economy-transition.

for infrastructure development and technology adoption in low- and middle-income countries. To give just one example, Ghana's national circular economy roadmap has an estimated required budget of US$2.4 billion,[96] equivalent to 3 per cent of GDP.

At the same time, the challenge is qualitative as well as quantitative: financing for the circular economy will not take off without reform of policies that, at present, continue to be biased towards conventional 'linear' models of production and consumption.[97] Among the most interesting opportunities in this area is the idea of enshrining circularity principles in the mandates of international public finance institutions, as this could enable a scaling-up of development and climate financing through multilateral development banks (MDBs).

Multiple recent financial and debt crises in developing countries have made the role of MDBs in closing the development financing gap more important than ever. In particular, as attracting private capital is becoming more difficult for low- and middle-income countries, MDBs will need to harness their proven ability to leverage private capital for financing the SDGs. Most fundamentally, MDBs will also need to increase their lending capacity substantially, for example by lowering their equity-to-loan thresholds and raising additional capital from shareholders or private investors. There have also been interesting calls for MDBs' mandates and missions to be reformed to include the provision of global public goods.[98]

Some progress is being made on operationalizing global public goods financing. For example, in April 2024, 11 countries announced commitments for the World Bank's Portfolio Guarantee Platform, a hybrid capital mechanism, and a new Liveable Planet Fund totalling $11 billion.[99] Over the next 10 years these new mechanisms could provide up to $70 billion in additional finance to advance development objectives linked to the SDGs and global public goods. Reform efforts also gained momentum during India's G20 presidency in 2023, when a group of independent experts appointed during the country's tenure recommended a 'triple agenda' to harness the potential of MDBs. This agenda's three elements were: (1) reforming MDB mandates to include explicitly the goals of eliminating extreme poverty, boosting shared prosperity and contributing to global public goods; (2) tripling sustainable lending by 2030; and (3) creating a flexible and innovative funding mechanism for recruiting investors willing to support elements of the MDB agenda.[100] Packages of new financing and advisory support by MBDs for circular economy solutions and businesses could support both global public goods as well as meeting individual country development needs.

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96 Barrie, Salminen, Schröder and Stucki (2024), *National circular economy roadmaps: A global stocktake for 2024.*
97 World Bank (2022), *Squaring the Circle*.
98 Dissanayake, R. (2023), *GPGs and Where to Fund Them: The Startling Implications of Financing Global Public Good Provision for the Multilateral Development Banks,* Center for Global Development, https://www.cgdev.org/sites/default/files/gpgs-and-where-fund-them-startling-implications-financing-global-public-good-provision.pdf.
99 World Bank Group (2024), 'New Financing Tools Receive Major Funding Boost', press release, 19 April 2024, https://www.worldbank.org/en/news/press-release/2024/04/19/new-financing-tools-receive-major-funding-boost.
100 Center for Global Development (2023), 'Strengthening Multilateral Development Banks: The Triple Agenda', 19 July 2023, https://www.cgdev.org/publication/strengthening-multilateral-development-banks-triple-agenda.

The circular economy's potential to create jobs gives development finance an important role, even more so now in the context of falling foreign direct investment (FDI) into countries of the Global South. Developing economies have seen the biggest fall in FDI over the 2022–23 period. According to the UN Conference on Trade and Development (UNCTAD), FDI to developing countries fell by 9 per cent to $841 billion in 2023. In particular, there was a significant reduction in project finance deals – a key financing mechanism for infrastructure and other key sectors relevant to sustainable development, including renewable energy, water and sanitation.[101] Moreover, the global geopolitical trend towards 'reshoring' of manufacturing could make it difficult for developing countries to access investments and upgrade their economies using traditional linear global value chains.[102] At the same time, this reform challenge presents an opportunity, as it may force developing countries to consider alternative possibilities such as investment in circular economy solutions and innovations across a range of different sectors. Key areas of potential include: buildings and infrastructure;[103] textiles, plastics and packaging; renewable energy; water and sanitation; and electronics, including e-waste and the automotive sector.[104]

As with any financial investment, market appetite for the circular economy will depend on how risks are assessed and adjusted for in the financial models and instruments concerned. The relative novelty of the circular economy makes this doubly important, as growth is likely to be contingent on appropriate de-risking of investments through the use of instruments such as blended finance and investment guarantees. This is particularly the case for developing countries, where risk premiums are already typically much higher than in advanced economies.[105] Appropriately structured risk-sharing protocols and instruments could do much to address this gap, supporting public–private collaboration and financing, and offering a wider range of possibilities for scaling up circular economy investments. Potentially effective options could involve the use of domestic public funds, official development assistance or the philanthropic sector to leverage private sources of capital and de-risk early-stage investments, particularly into MSMEs and start-ups.[106] Recent inflationary pressures have led to much tighter lending conditions for MSMEs in many countries, limiting the flow of finance and acting as a barrier to investment, with particularly detrimental impacts on the ability of women-led and minority-owned businesses to access funding.[107] Financial

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101 UN Conference on Trade and Development (UNCTAD) (2024), 'Foreign direct investment in developing economies fell 9% in 2023', 22 January 2024, https://unctad.org/news/foreign-direct-investment-developing-economies-fell-9-2023.
102 Ahn, J., Habib. A., Malacrino, D. and Presbitero, A. F. (2023), 'Fragmenting Foreign Direct Investment Hits Emerging Economies Hardest', International Monetary Fund (IMF), IMF blog, 5 April 2023, https://www.imf.org/en/Blogs/Articles/2023/04/05/fragmenting-foreign-direct-investment-hits-emerging-economies-hardest.
103 Krausmann, F. et al. (2017), 'Global socioeconomic material stocks rise 23-fold over the 20th century and require half of annual resource use', *Proceedings of the National Academy of Sciences*, 114(8), pp. 1880–85, doi:10.1073/pnas.1613773114.
104 Schröder, P. and Raes, J. (2021), *Financing an inclusive circular economy: De-risking investments for circular business models and the SDGs*, Research Paper, London: Royal Institute of International Affairs, https://www.chathamhouse.org/2021/07/financing-inclusive-circular-economy/02-sdgs-and-how-circular-economy-finance-can-0.
105 Gbohoui, W., Ouedraogo, R. and Some, Y. M. (2023), *Sub-Saharan Africa's Risk Perception Premium: In the Search of Missing Factors*, IMF Working Papers, Volume 2023, Issue 130, Washington, DC: IMF, https://www.elibrary.imf.org/view/journals/001/2023/130/001.2023.issue-130-en.xml.
106 Ibid.
107 OECD (2024), *Financing SMEs and Entrepreneurs 2024: An OECD Scoreboard*, Paris: OECD Publishing, https://www.oecd.org/en/publications/financing-smes-and-entrepreneurs-2024_fa521246-en.html.

institutions such as national development banks and commercial banks will therefore need to diversify their financing sources, and the range and sophistication of the circular economy-specific financial instruments at their disposal, to meet the evolving needs of MSMEs and entrepreneurs. This was a key recommendation put forward by the UN to accelerate the circular economy transition in Latin America and the Caribbean.[108]

As the multilateral development finance agenda shifts, circular economy principles will need to be at the centre of any new financial architecture.

As the multilateral development finance agenda shifts, circular economy principles will need to be at the centre of any new financial architecture. This is to ensure that development finance is directed to the right infrastructure projects, to resource-efficient industrial development, and to business models that create local value and benefit communities. Several reform proposals have been put forward, including the ongoing Financing for Development (FfD) process,[109] the Bridgetown Initiative,[110] and the Paris Pact for People and Planet championed by French president Emmanuel Macron.[111] While the proposals are making good progress on discussions such as including climate vulnerability in debt sustainability assessments or finance facilities for forests to pay for ecosystem services,[112] more work is required to reform the international financial architecture in view of escalating resource consumption, rising waste generation and the accelerating decline of environmental systems.

Leading MDBs have indicated their understanding of this challenge, as well as their intention to scale up their activities in the circular economy. An example can be found in the financing initiatives of the Global Environment Facility (GEF), a funding mechanism that supports six multilateral environmental conventions. Co-founded by the World Bank, the UN Environment Programme (UNEP) and the UN Development Programme (UNDP), the GEF has initiated various circular economy financing initiatives, including the Circular Economy Regional Initiative (CERI) targeting the Western Balkans and Turkey.[113] The Circle Economy Foundation's release of a high-level roadmap in 2022 set the milestones which international financial institutions including the MDBs see as critical to supporting

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108 UNEP (2023), *Unlocking Circular Economy Finance in Latin America and the Caribbean: The Catalyst for a Positive Change: Findings and recommendations for Policymakers and the Financial Sector*, Nairobi: UNEP, https://www.unepfi.org/publications/unlocking-circular-economy-finance-in-latin-america-and-the-caribbean-the-catalyst-for-a-positive-change.
109 United Nations (undated), 'Financing for Sustainable Development', https://www.un.org/sustainabledevelopment/financing-for-development.
110 https://www.bridgetown-initiative.org.
111 Paris Pact for People & the Planet (undated), https://pactedeparis.org/en.php.
112 Pacte de Paris pour les Peoples et la Planète [Paris Pact for People & the Planet] (undated), https://pactedeparis.org/pdf/pacte-de-paris-pour-les-peuples-et-la-planete-en.pdf.
113 Global Environment Facility (2021), 'Circular Economy Regional Initiative (CERI)', https://www.thegef.org/projects-operations/projects/10328.

financing efforts,[114] while a 'shared vision' published in April 2024 outlines the unique role MDBs see for themselves in leveraging the circular economy as a development strategy.[115]

Box 4. Financing circular economy business models in Africa

The African Circular Economy Facility (ACEF) is a multi-donor trust fund that aims to finance the expansion of the circular economy in Africa. This initiative of the African Development Bank (AfDB) is funded by Scandinavian donors, and has become a key component of the AfDB's 10-year strategy on green and inclusive development by offering grant financing for projects and micro, small and medium-sized enterprises (MSMEs) within individual countries and across the African continent. The aim is to advance the circular economy transition through a 'three-pronged approach' which includes building institutional capacity to create enabling environments, providing private sector support for MSMEs through technical assistance and grants, and promoting the broader adoption of the circular economy. The facility works closely with the government-led African Circular Economy Alliance (ACEA), highlighting the importance of aligning financing and policy development.[116] Through the financing facility, the AfDB seeks to support growth in strategic sectors and realize business opportunities in five priority sectors: food systems, packaging, the built environment, fashion and textiles, and electronics.[117] Financing, especially targeted at MSMEs that make up the majority of businesses in these sectors, is a crucial enabler to achieve the transition to a circular economy.

Priority 3 – Summary of recommendations for international policymakers

Below we outline a series of recommended actions that the international financial community could pursue to help transform the global financial architecture in a way that incentivizes the shift to an inclusive circular economy.

1. Implement global and national investment strategies for the circular economy, aligned with SDG objectives. As part of ongoing MDB reform and new mandates to include global public goods, international financial institutions will need to develop and implement strategies for scaling up circular economy initiatives and business models globally and locally. One option would be for the existing MDBs to formalize their existing circular economy working group, and to seek alignment between institutions on circular economy definitions,

114 Circle Economy (2022), *Unlocking the Potential of International Financial Institutions in the Circular Economy Transition: A high-level roadmap*, 10 November 2022, https://www.circle-economy.com/resources/unlocking-the-potential-of-international-financial-institutions-in-the-circular-economy-transition.
115 Bitsadze, R. (2024), 'MDBs publish shared vision for circular economy finance at WCEF 2024', European Bank for Reconstruction and Development, 15 April 2024, https://www.ebrd.com/news/2024/mdbs-publish-shared-vision-for-circular-economy-finance-at-wcef-2024.html.
116 African Development Bank (2024), *The Africa Circular Economy Facility: The enabler of the circular transition in Africa*, https://www.afdb.org/sites/default/files/2024/03/06/africa_circular_economy_facility_-_the_enabler_of_circular_transiion_in_africa.pdf.
117 World Economic Forum (2021), *Five Big Bets for the Circular Economy in Africa*, Insight Report, April 2021, https://www.afdb.org/en/documents/five-big-bets-circular-economy-africa.

assessment methodologies and investment priorities for the SDGs. The new objectives, milestones and alignment efforts would need to be anchored in a reformed MBD agenda.

2. Operationalize the MDBs' 'Just Transition High-Level Principles',[118] developed ahead of COP26 in 2021, through the MDB circular economy finance roadmap and 2024 'shared vision' document.[119] The Just Transition High-Level Principles and specific financial instruments could be integrated into the actions and milestones outlined in the roadmap.

3. Use the Fourth International Conference on Financing for Development (FfD4), scheduled to be held in Seville, Spain in mid-2025,[120] to accelerate reform and develop innovative proposals for financing circular economy business models and the SDGs. Priorities should include creating new mechanisms to leverage private sector investment through risk-sharing mechanisms such as blended finance and government-backed loans.

4. Develop a 'Global Circular Economy Fund', possibly modelled on the Green Climate Fund, with the mandate to finance and scale up circular solutions for resource efficiency and waste reduction across industries. The fund would mobilize public and private resources and accelerate the transition to a circular economy worldwide, especially supporting low- and middle-income countries. Such a fund could build on the lessons learnt from existing multilateral financing mechanisms for the circular economy, including GEF circular economy initiatives.[121] It could catalyse financing for innovative projects, facilitate agreement on common financial metrics and standards, promote cross-sectoral collaboration and drive systemic change in industrial development.

Priority 4: Rewiring the global trade system to handle circular economy-enabling goods and services

Trade has historically played an important role both in contributing to, and inhibiting progress towards, the SDGs.[122] On the one hand, it has been an engine for development and poverty reduction: boosting economic growth and helping to raise hundreds of millions of people out of poverty. On the other, the current trade system has tended to favour market liberalization as its primary goal, subordinating to that agenda wider goals such as sustainable development.

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118 Asian Development Bank (2021), 'MDB Just Transition High-Level Principles', https://www.adb.org/sites/default/files/related/238191/MDBs-Just-Transition-High-Level-Principles-Statement.pdf.
119 Bitsadze (2024), 'MDBs publish shared vision for circular economy finance at WCEF 2024'; European Investment Bank (2024), 'A Shared Vision for the Circular Economy', https://www.eib.org/attachments/press/20240412-mdb-ce-wg-shared-vision-for-the-circular-economy-wcef-2024-docx.pdf.
120 International Institute for Sustainable Development (undated), 'Fourth International Conference on Financing for Development (FfD4)', https://sdg.iisd.org/events/fourth-international-conference-on-financing-for-development-ffd4.
121 https://www.thegef.org/projects-operations/projects/10328.
122 World Trade Organization (WTO) (2018), *Mainstreaming trade to attain the Sustainable Development Goals*, https://sustainabledevelopment.un.org/content/documents/21419SDG_Publication_E.pdf.

Not only has this resulted in significant externalized environmental and social impacts[123] – for example, labour exploitation, deforestation, overfishing, and carbon emissions driven by global supply chains – but it has also prevented targeted support for trade in key environmental and socially beneficial goods. This is evidenced from the stalled negotiations at the World Trade Organization (WTO) on an Environmental Goods Agreement (EGA).[124]

Frictionless trade in relevant goods and services is important for expansion of the circular economy in the context of the SDGs. No country will be able to achieve a circular economy on its own. Rather, all countries are dependent to varying degrees on international trade to secure affordable and reliable access to a wide range of materials, goods and services. The many different types of trade flows involved are collectively referred to here as 'circular trade' (see Box 5).

Box 5. What is 'circular trade'?

We can define 'circular trade' as any trade flow that facilitates the uptake of circular economy activities.* This includes trade in the following:

- Circularity-enabling goods (such as remanufacturing and recycling equipment);
- Circularity-enabling services (circular economy design skills, leasing or rental services, and repair services);
- Relevant intellectual property rights (for example, repair and remanufacturing instructions and guidelines);
- Second-hand goods (in a condition sufficient for direct resale, repair, refurbishment, remanufacturing, or recycling in the secondary market); and
- Secondary raw materials and non-hazardous waste, scrap and residues that can't be domestically managed but can be recovered for use in primary production in secondary markets.

*Circular economy activities encompass any activity that results in the decoupling of economic activity from the consumption of finite resources. This includes 'refusing' [to buy non-sustainable products], 'rethinking' [consumption habits], 'reducing' [consumption and resource use], reusing, repairing, refurbishing, remanufacturing, repurposing, recycling, recovering and regenerating.

Source: Barrie, J., Schröder, P. and Schneider-Petsinger, M., with King, R. and Benton, T. G. (2022), *The role of international trade in realizing an inclusive circular economy*, Research Paper, London: Royal Institute of International Affairs, https://doi.org/10.55317/9781784135393.

123 Uehara, T. K. (2023), 'Planetary Welcare principles for just and sustainable futures: A compass for system change, trade reforms, and transformations', *Sustainability: Science, Practice and Policy*, 20(1), doi:10.1080/15487733.2023.2300885 (Directory of Open Access Journals – DOAJ).
124 WTO (undated), 'Environmental Goods Agreement (EGA)', https://www.wto.org/english/tratop_e/envir_e/ega_e.htm.

Although circular trade is a key to progress on the SDGs, a range of regulatory and technical challenges are inhibiting development.[125] These include a lack of mutually recognized definitions, classifications, interoperable standards, regulations and conformity procedures concerning circular economic activities or goods. Furthermore, as an emerging area of activity, the circular economy has only been embedded to a limited degree in bilateral, regional and plurilateral trade and economic cooperation agreements to date. This has restricted the scope and potential for collaboration on transboundary issues such as preventing illegal waste, preventing trade in circular economy-inhibiting goods (such as single-use items, non-repairable products and components, or materials containing toxic chemicals that cannot be reused or recycled), improving supply-chain transparency and traceability, stimulating investment, establishing mutual recognition of rules and standards, removing technical barriers to trade, and supporting trade facilitation services.

The increasing complexity of regulatory compliance is another obstacle to circular trade. For example, in recent years there has been a tightening of the rules covering the transboundary shipment of waste, notably through the Prior Informed Consent (PIC) procedure established in the 'Basel Convention' (formally, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, in force since 1992). These stricter regulations aim to deter waste dumping and promote responsible waste management. However, there is a pressing need to facilitate and support the operations of legitimate traders of second-hand goods, secondary raw materials and recoverable waste; these traders operate in good faith but are now facing increased costs and time burdens as a result of the need to comply with PIC requirements. Potential remedies that have been proposed include the establishment of 'resource recovery lanes' to facilitate customs clearance, and the use of 'trusted circular trader' programmes to pre-approve traders certified as circular economy-compliant (see Box 6); such measures could streamline customs processes and support circular trade while maintaining alignment with the Basel Convention.

Box 6. Boosting circular trade through 'trusted circular trader' schemes and 'resource recovery lanes'

'Trusted circular trader' schemes and 'resource recovery lanes' could help to streamline circular trade by reducing, with safeguards, the procedural requirements and red tape governing the movement of circular goods and materials across borders. The idea would be to make it faster, easier and cheaper for approved or certified exporters and/or importers to comply with strict quality and procedural standards, provided such traders meet certain qualifying conditions (see below).

125 Barrie, J. et al. (2022), *Trade for an inclusive circular economy: A framework for collective action, Recommendations from a global expert working group,* London: Royal Institute of International Affairs, https://doi.org/10.55317/9781784135294.

Trusted circular trader programmes: A trusted trader programme is a certification system offered by customs authorities or relevant governmental bodies to businesses engaged in international trade. These programmes aim to enhance trade efficiency and supply-chain security by providing benefits and privileges to traders who meet defined criteria and demonstrate high levels of compliance with customs and security standards. The Authorized Economic Operator (AEO) programme, managed by the World Customs Organization (WCO), is an example of such an initiative. A circular economy-focused version of this programme could offer incentives to traders involved in the exchange of recoverable waste, secondary raw materials, or used goods that are suitable for direct reuse, repair, refurbishment or remanufacturing.

Resource recovery lanes: A resource recovery lane is a concept similar to a customs 'green lane' at a port, designed to expedite customs processing for circular goods and materials. This would be particularly beneficial for companies that require consistent, timely and affordable access to secondary raw materials from international sources, either to enhance the sustainability of their products or to comply with regulations mandating recycled content. At present, companies often encounter significant delays, complex administrative barriers and high costs when attempting to secure secondary raw materials, due to stringent and often inconsistent international regulations governing waste trade. A resource recovery lane could address these issues by implementing more efficient health and safety checks, reducing the amount of required documentation, and prioritizing compliant shipments. An example of this concept in practice is the OECD's 'pre-consented facilities' initiative, which simplifies procedures for recovery facilities dealing with hazardous wastes, although it is not specifically focused on higher-value circular activities such as recycling, repair, refurbishment or remanufacturing.

Source: Barrie, J. and Grooby, G. (2023), *Going Circular: How the Harmonized System Codes Can/Not Support a Circular Economy and What Else Could Be Done*, Friedrich-Ebert-Stiftung, August 2023, https://library.fes.de/pdf-files/international/20579.pdf.

There is also the question of ensuring global circular trade is conducted according to the principles of justice and inclusivity mentioned earlier (see Priority 1). At present, global inequities in power relations, digital trade capabilities, trade infrastructure, access to circular finance, and industrial and innovation capabilities mean that countries in the Global North are typically better positioned than those in the Global South to reap the benefits of circular trade. If an explicit goal to reduce trade-related (or trade-exacerbated) inequities is not built into the global circular economy transition, then it is highly likely that these inequities will create or widen a 'circularity trade divide',[126] in which the gains accrued from circular trade are unevenly distributed.

This divide is already evident to a certain extent. Around 45 per cent of trade, by value, in secondary goods and materials, waste and scrap occurs solely between high-income countries, compared with only about 1 per cent between low-income

126 Barrie, J., Anantharaman, M., Oyinlola, M. and Schröder, P. (2022), 'The circularity divide: What is it? And how do we avoid it?', *Resources, Conservation and Recycling, 180*, 106208, https://doi.org/10.1016/j.resconrec.2022.106208.

countries and middle- to high-income countries.[127] Additionally, countries in the Global South are often the destination for internationally traded low-value or illegal waste. The lack of capacity in these countries to manage and treat such waste has led to greater environmental risks and social burdens. The circular trade divide, should it persist or widen, will act as a significant barrier to a globally inclusive transition to a circular economy, and impede progress on the UN's 2030 Agenda for Sustainable Development.

Looking forward, how countries respond to resource pressures in the context of climate change and other environmental challenges in the future will be critical to determining whether the circular economy takes off. A retreat into resource nationalism[128] would weaken the global commons on which the circular economy depends, whereas international collaboration and renewed commitment to multilateralism could catalyse its growth.

An alternative – and ultimately far more effective – pathway for the circular transition would be one in which circular trade serves as an enabler of fair, inclusive and circular societies. Rather than the current fragmented and largely unilateral approach to transitioning to a circular economy, overcoming barriers to circular trade will require a coordinated and collaborative global response to ensure that all countries and territories, in particular developing economies, benefit equally from the transition (see also Priority 2).

For this to occur, there is a pressing need to reform the international trade system so that it facilitates and incentivizes transparent and sustainable circular trade flows across borders. Necessary changes include harmonizing and ensuring mutual recognition of relevant circular standards, removing tariff and non-tariff trade barriers for goods and services that enable the adoption of circular practices (reuse, repair, remanufacturing, recycling), strengthening barriers to illicit trade in waste, and embedding circularity within future trade agreements. By aligning global trade policies with circular economy objectives, an enabling environment can be created for cross-border collaboration, trade and innovation.

Priority 4 – Summary of recommendations for international policymakers

Below we recommend a series of actions that the global community could take to support reform of the global trade system in a way that facilitates circular trade.

1. Formalize the current informal working group on the circular economy that is hosted by the WTO's Trade and Environmental Sustainability Structured Discussions (TESSD). The new formal group should seek to: (i) launch a dedicated awareness-raising initiative for WTO members to help to address the awareness gap in terms of the benefits of the circular economy, including by creating a space for collective discussions; (ii) conduct a comprehensive 'stocktaking' exercise among willing WTO members and industry of best

127 Barrie, J. et al. (2022), 'Overview of circular trade flows', in *The role of international trade in realizing an inclusive circular economy*, Research Paper, London: Royal Institute of International Affairs, https://doi.org/10.55317/9781784135393.
128 Schröder and Barrie (2024), 'What is Circular Resource Nationalism?'.

practice, existing definitions, and classifications of products in relation to circularity for key sectors such as construction, plastics, electronics and textiles (this should include identifying opportunities for wider uptake of shared definitions and classifications for the key sectors); (iii) draft a shortlist of goods necessary for conducting activities that offer a substantial contribution to the circular economy but are currently subject to high tariffs; (iv) provide a forum for countries (especially developing countries) to raise and discuss their concerns and challenges related to circular economy trade-related measures; (v) establish a technical working group to identify practical solutions and support multi-country pilot projects and experiments on capturing and communicating circular economy-relevant information on goods at international borders; and (vi) facilitate information exchange and bridge communication gaps between existing trade-related programmes (such as the WTO-led 'Aid-for-Trade Initiative') and institutions involved in multilateral and intergovernmental developments on the circular economy (such as multilateral environmental agreements, UNEA resolutions, etc.).

2. Identify circularity as a core pillar in the pursuit of 'greening' the WTO Aid-for-Trade Initiative and the agenda of the UN Capacity Building Task Force on Trade, Environment and Development. This will help mitigate the risk of a circular divide becoming entrenched, and establish a level playing field for circular trade. Key areas for circular capacity-building that Aid-for-Trade could focus on include: investing in infrastructure to enable domestic circular activities such as repairing, remanufacturing and recycling; trade infrastructure – in particular, building capacity for electronic Prior Informed Consent interoperability; customs systems and enforcement measures to counter illegal waste shipment; circular production skills and training; and policy development

3. Add a separate WTO notification classification for the circular economy. The WTO notification system offers a valuable process for encouraging transparency and coordination on circular trade-related measures and legislation. Circular economy measures are not classed under a specific category within the WTO notification system, which makes it harder for countries to track and understand developments. As such, including 'circular economy-related policies' as an environmental category within the WTO notification system could help resolve this issue. Alongside this, support for capacity-building is needed to help countries report more frequently and accurately on such policy developments. Building on the value provided from the WTO notification system, a prioritization and knowledge-sharing exercise between willing countries, hosted by the likes of TESSD, GACERE or the regional circular economy coalitions, would also help identify the evolving areas (or lack thereof) of regulations and standards most critical for circular trade, and where opportunities exist for mutual recognition or cooperation towards common standards (for example on extended producer responsibility), as well as the relevant bodies that can be used to help align on global standards. This exercise could also be used to assess, compile and promote best-practice circularity standards and regulations.

4. Recognizing that limitations in trade nomenclature inhibit facilitation of circular trade flows in a coordinated way, establish a working group that includes relevant stakeholders such as the World Customs Organization (WCO) and national border and environmental agencies. The working group could identify practical solutions to better capture and communicate circular-relevant information on goods at international borders in a way that is globally interoperable and compatible with the WCO's Harmonized System (HS) codes. Plurilateral pilot projects could be launched between willing countries to pilot technological and procedural solutions for improving the transparency and traceability of circular trade flows, and to better understand the challenges related to specific trade flows (e.g. e-waste as compared with scrap metals).

Priority 5: Developing common standards and metrics for circularity

Commonly accepted standards and metrics will be a crucial element of global governance for the circular transition, both operationally and for reporting purposes. On the one hand, coordinated and internationally compatible standards and metrics on circularity will be needed to keep the basic 'plumbing' of the circular economy running; this is likely to affect everything from certifying products and processes to facilitating customs clearances (see Priority 4) and setting benchmarks for financial products (see Priority 3). On the other hand, a shared taxonomy of circularity criteria will be needed more broadly to measure performance (or the lack thereof) against international environmental targets.

Businesses and organizations must be able to measure and report on their circular practices. Cities, regions, governments and intergovernmental organizations will also need to monitor and report on their progress towards the circular economy, for instance to meet current or envisaged reporting requirements associated with multilateral environmental agreements such as the Paris Agreement and the upcoming binding instrument to end plastic pollution by 2040. The EU, for instance, has developed the Circular Economy Monitoring Framework[129] to track progress across all member states in a consistent manner; the framework was last revised in May 2023. However, most countries lack adequate frameworks for monitoring and measuring progress, not only for waste but for overall material flows.

Many different standards and metrics will need to be developed. They will need to span many sectors and all stages of the value chain, including but not limited to the following areas: product design; procurement; cleaner production; circular business models (e.g., product-service systems[130]); decent work; supply-chain transparency and traceability; and reuse, repair, refurbishment, remanufacturing,

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129 Eurostat (undated), 'Monitoring framework', https://ec.europa.eu/eurostat/web/circular-economy/monitoring-framework.
130 A product-service system (PSS) is a business model offering the function of the product, not the product itself. See, for example, Mont, O. (2002), 'Clarifying the concept of product–service system', *Journal of Cleaner Production*, 10, 3, pp. 237–45, https://doi.org/10.1016/S0959-6526(01)00039-7.

recycling and waste management. Common standards and metrics also need to cover governance and performance aspects such as financial and non-financial reporting, organizational strategy and macroeconomic governance.

The problem is that no standards and metrics currently exist for some of the areas listed above, while for others there are already multiple different standards and metrics across many jurisdictions. This results in a complex, patchy and fragmented policy landscape – making it costly and operationally challenging for MSMEs and multinationals alike to prepare for and comply with different rules.

Many stakeholders, including businesses, non-governmental organizations (NGOs) and governments, are calling for greater efforts to build a more consistent and coherent set of global standards and metrics – at least for those activities with a transboundary element.

Box 7. A complex and fragmented landscape of standards and metrics

The following paragraphs present a snapshot, by category, of existing circular economy standards and metrics and those in development:

— **Circular organizational and management approaches** cover areas such as product-service systems, procurement, reporting and ecodesign. Examples include the UK's BS8001 standard, France's Pr XP X30-901 standard and the European Sustainability Reporting Standards E5 (which underpins the Corporate Sustainability Reporting Directive). The International Organization for Standardization (ISO) is developing a series of standards (ISO 59000) to facilitate circular economy implementation. The first tranche, published in 2024, includes principles and guidance for implementation, as well as guidance on the transition of business models and value networks.

— **Circularity assessment and reporting tools and metrics** have recently been or are under development to support companies with compliance and reporting. Leading examples include the World Business Council for Sustainable Development (WBCSD)'s 'Circular Transition Indicator', the Ellen MacArthur Foundation's 'Circulytics', the Boston Consulting Group's 'CIRCelligence' and Circle Economy's 'Circle Assessment'. In addition, many companies have emerged to help businesses embed circular traceability and transparency within their operations and the whole value chain. The Global Reporting Initiative has two related standards, GRI 301 Materials and GRI 306 Waste, which respectively set out reporting requirements on these topics; the two standards can be used by organizations of any size or type, in any sector or geographic location, wanting to report their impacts in relation to materials use and waste.

— **Product and material standards** are available for recycling and waste-handling (e-stewards, R2 Standards, WEEELABEX), and refurbishment and remanufacturing (FIRA/REMAN001: 2019, IEC TC 111, ANSI RIC001.1-2016 and BS 8887–220: 2010). There are also product-specific standards such as the BSI PAS 141:2011 for used electrical and electronic goods.

— **Supply-chain traceability and transparency standards** include the GS1 Global Traceability Standard (GTS2), PR3's standard for reuseable packaging, the UN Economic Commission for Europe (UNECE)'s traceability standards for sustainable garments and footwear, and the circularity.ID Open Data Standard for fashion.

Source: Barrie et al. (2022), *The role of international trade in realizing an inclusive circular economy*.

MSMEs (in addition to individual entrepreneurs) play a crucial role in driving innovation, creating local jobs and fostering local resilience within the circular economy. However, these enterprises, particularly in developing countries, face the prospect of higher barriers when it comes to conforming to circular economy standards. Design, production and traceability requirements will all create compliance burdens for small businesses, especially given regulatory challenges, limited access to finance and a lack of technical expertise. If the full potential of MSMEs as engines of circularity is to be realized, they will need targeted 'standards and metrics' support provided by governments, NGOs, business associations and intergovernmental agencies; such support could usefully include capacity-building programmes, access to financing mechanisms and enabling policy environments.

To garner political support for the circular economy around the world and embed it within the sustainable development agenda, it is vital that decision-makers understand and articulate the socio-economic opportunities it offers. A number of projects are working to build relevant metrics and standards, and to compile evidence and data on the socio-economic aspects and impacts of the circular economy. The specific aim with these projects is to improve data quality and create more definitions and indicators. Recent efforts include work by the UN System of Environmental Economic Accounting and the ILO. In addition, the Jobs in the Circular Economy Initiative – a joint programme by the Circle Economy Foundation and the Solutions for Youth Employment Programme of the World Bank Group – is working with governments, research agencies and statistical bureaus to align definitions, databases, methodologies and models used to measure employment related to the circular economy.

Box 8. Towards global circularity standards – a Global Circularity Protocol

Having commonly accepted standards for businesses along global supply chains will be a key element of the circular economy transition. In 2023, the World Business Council for Sustainable Development (WBCSD) launched the Global Circularity Protocol (GCP) in collaboration with the One Planet Network.[131] This voluntary framework for business 'aims to address key accountability and policy gaps currently impeding the scaling of circularity globally'.[132] It recognizes the

131 WBCSD (undated), 'Global Circularity Protocol (GCP)', https://www.wbcsd.org/actions/global-circularity-protocol.
132 Ibid.

importance of incorporating environmental and social indicators into measures of the impacts of circular economy practices, and the need for consistent metrics and a common language of circularity. Consistent and harmonized reporting is crucial for value-chain transparency, while harmonized methods for valuing assets and quantifying/adjusting for risk will be necessary to support the financing of circular economy businesses. The GCP will include a corporate performance and accountability system for circularity. As the creator of the protocol, WBCSD aims to make it the go-to framework for companies seeking to assess, measure, set science-based targets for, and report progress on resource efficiency and circularity in a consistent manner that enables comparison.

Source: WBCSD (undated), 'Global Circularity Protocol (GCP)', https://www.wbcsd.org/actions/global-circularity-protocol.

Priority 5 – Summary of recommendations for international policymakers

Below we recommend a series of actions the global community could take to help develop and disseminate standards and metrics in a way that incentivizes the establishment of an inclusive circular economy.

1. Ensure widespread adoption of ISO 59000 standards both up to 2030 and beyond. Deepen cooperation with international bodies such as ISO and the International Electrotechnical Commission (IEC) to facilitate implementation of the first tranche of ISO 59000 standards, published in 2024. As many MSMEs, particularly in developing countries, will not be able to afford the fees to access the standards, they will need to be provided with targeted support.
2. Develop and ensure the adoption of key performance indicators (KPIs) and metrics that can be universally used to assess and drive circularity in various sectors and industries. The new KPIs and metrics should be based on the WBCSD's GCP. They should be developed in cooperation with businesses, as well as with national statistical agencies that are collecting national-level data on industrial sectors.
3. Using specialized agencies such as the ITU and ILO, develop normative standards and guidelines for the circular economy that are freely available and accessible, and that provide a common reference point for countries and businesses to follow. The UN should lead this work. The integration of circularity into any post-2030 SDG framework will require specific, measurable and time-sensitive targets.
4. For the post-2030 SDG context, establish robust data protocols and reporting mechanisms for national statistical agencies to track progress on circular economy initiatives and actions. This is needed to ensure transparency and accountability through regular monitoring and reporting. Current reporting on the SDGs has been hampered by a lack of data and by capacity problems in national and intergovernmental statistical agencies.

04
Beyond the SDGs: a proposed blueprint for a circular future for 2050

Any post-2030 sustainable development agenda will likely require the current SDG framework, if not dropped altogether, to be reformed and revised. Here's how the circular economy could fit into a revised set of SDGs, or a successor regime, as a more central part of the policy ecosystem.

Most of the Sustainable Development Goals (SDGs) will not be achieved by 2030. Only 17 per cent of the SDG targets are on track to be met globally by 2030, with the remaining 83 per cent showing limited progress, no progress or regression.[133] Instead of abandoning the SDGs, prominent voices in the policy world have proposed both revising the current set of targets and extending the SDG framework itself to 2050.[134] This presents a clear opportunity not only to embed the circular economy far more explicitly in the sustainable development agenda, but to make it central to that agenda.

133 United Nations (2024), *The Sustainable Development Goals Report*.
134 Nerini et al. (2024), 'Extending the Sustainable Development Goals to 2050 — a road map'.

One of the most effective ways to pursue this, we argue, would be to leverage the high-level UN blueprints for the trajectory of the global community towards 2030 and beyond. These are set forth in the UN secretary-general's 'Our Common Agenda' initiative[135] and in the 'Pact for the Future', the negotiated outcome document to be adopted at the UN Summit of the Future in September 2024.

The idea of these initiatives is to amplify global policy efforts to realize the SDGs and create a sustainable, peaceful and secure future. This is where the circular economy could fit in. Although only mentioned once so far in the latest draft (Rev.4) of the Pact for the Future,[136] the circular economy has much to offer in terms of transforming the current development paradigm, moving it away from reliance on unsustainable industries, outdated technologies, unequal consumption patterns and finite resources.

Part of the opportunity for promoting the circular economy lies in its appeal as an antidote to the much-criticized lack of coordination between the SDGs.

This challenge has not been addressed by the current set of SDGs, but by inserting the concept of circularity prominently into the ongoing debate about the future of the SDGs, and by positioning it as a solution to many of the challenges motivating UN efforts to get SDG delivery on track, policymakers and activists could bring the circular economy into the mainstream of UN policy planning.

Part of the opportunity for promoting the circular economy lies in its appeal as an antidote to the much-criticized lack of coordination between the SDGs. Since 2015, SDG actions and implementation have often been undertaken with little alignment between each goal, which in some cases has created conflicts or trade-offs between targets. While it is clearly possible to advance some aspects of particular SDGs independently, the circular economy offers a natural coordinating logic where coherence is needed. For example, the circular economy's potential role in action on ending hunger (SDG 2) by promoting regenerative and restorative farming inherently complements action on climate change (SDG 13), and on sustainable land use and biodiversity (SDG 15). Similarly, the creation of new types of jobs in the circular economy would be consistent with the goals of ending poverty (SDG 1), promoting gender equality (SDG 5), providing 'decent work' (SDG 8), supporting industry and innovation (SDG 9), and more.

The argument for integrating circular economy principles, practices and strategies into a post-2030 SDG architecture is reinforced by the sense that there is no time to lose. Work needs to start immediately because, as with the SDGs themselves, systems transformation towards full circularity is an unavoidably long process and will not be achieved by 2030. Policy actors will need to make a considered

135 United Nations (undated), 'Our Common Agenda', https://www.un.org/en/common-agenda.
136 United Nations (2024), 'Pact for the Future: Rev 4', 13 September 2024, https://www.un.org/en/summit-of-the-future/pact-for-the-future-revisions (accessed 18 Sep. 2024).

case for the circular economy, achieve buy-in from multiple stakeholders, and build momentum as they seek to reorient systems and structures of production and consumption around revised goals. All this work will need to be informed by knowledge of national policy frameworks, new finance models and innovative technology options.

But what would an actual circular future look like? The rest of this chapter imagines what shape an inclusive global circular economy might take in 2050, what its key elements might be, and how these elements would intersect with (and support) both the current SDGs and whatever comes after them. This indicative 'future' is presented as a blueprint for change, with proposed targets for increasing circular economy activity across all 17 of the current SDG categories.

These targets and the proposed means of achieving them have been developed through the 'Global Roadmapping Process for an Inclusive Circular Economy' (see Chapters 1 and 3). This Chatham House-led collaboration with 13 partners[137] has drawn on inputs from diverse stakeholders spanning the globe. It places particular emphasis on voices and perspectives from the Global South, in part to address multilateralism's uneven history of engaging with developing countries fairly and effectively. The stakeholders in the consultation process have been deeply involved in shaping the circular economy objectives proposed here, and have brought insights rooted in their lived experiences, local contexts and unique challenges.

In Figure 2, we present some of the findings of our stakeholder consultations graphically, outlining the new targets the SDGs might hypothetically contain when adjusted for greater involvement of the circular economy. We have overlaid the 17 current SDGs with these indicative targets to show where the circular economy and the sustainable development agenda might share common ground in 2050.

For now, we have assumed no change in the future number of SDGs or in the 17 overarching categories they cover. In the evolving post-2030 development framework, it is entirely possible that the exact number of SDGs and their focus may change, but this would almost certainly not diminish the importance of the circular economy to implementation of any revised goals. For the practical purposes of this research paper, however, and in the absence of any definitive indication of what a new line-up of SDGs would look like, we decided to map our ideas to the current SDGs.

137 Barrie and Schröder (2023), 'A global roadmap for an inclusive circular economy'.

Figure 2. Suggested circular economy SDG targets for 2050 in a hypothetical extended and expanded SDG framework

Beyond proposing a vision of what the global circular economy could become, it is necessary to consider what needs to be done to get it there. As part of revising the SDGs and designing new targets for 2050, it will be important to solidify the circularity agenda within the post-2030 development framework. To enshrine circular economy principles more prominently in the next set of goals post-2030, we recommend several steps:

1. Introduce a specific high-level objective, within the extended post-2030 SDG framework, that recognizes the transformative potential of the circular economy for global development and for addressing the triple planetary crisis.

2. Explicitly outline ambitious but achievable global targets related to reducing unsustainable resource use, reducing global waste generation, and enhancing circularity rates for key resources and materials. These targets should then be adapted and implemented at the national level.
3. Ensure that circular economy targets are integrated across all SDGs, emphasizing the interconnectedness of sustainable resource management with economic, social and environmental objectives.
4. Align the post-2030 framework and circular economy targets with the 'Beyond GDP' initiative that forms part of the UN secretary-general's 'Our Common Agenda' vision. 'Beyond GDP' is co-led by the UN Department of Economic and Social Affairs (DESA, the UN's self-described 'think-tank'), UNDP and UNCTAD.[138] Thinking of the post-2030 agenda in terms of alternative approaches to measuring economic value may help ensure that the circular economy reaches its full potential and makes strong ecological and social contributions to human well-being and prosperity.
5. Develop clear, measurable indicators for inclusive circular economy practices within specific relevant targets for 2050. These could include metrics for circular job creation and business development, virgin vs recycled resources used in products, quantified waste reduction and recycling rates, regeneration of biodiversity and natural capital, or the advancement of closed-loop manufacturing.

Reform will be challenging. To achieve goals and targets in sustainability transitions will entail applying the right levers, to the right leverage points, to change legal, political, economic and other social systems and structures.

Reform will be challenging. To achieve goals and targets in sustainability transitions will entail applying the right levers, to the right leverage points,[139] to change legal, political, economic and other social systems and structures. Potential levers could include incentives or bans, technology innovations, the creation of new social narratives, enhanced cooperation across institutions, capacity-building and transformative learning processes.[140]

138 United Nations System (2022), *Valuing What Counts – United Nations System-wide Contribution on Progress Beyond Gross Domestic Product (GDP),* 17 August 2022, https://unsceb.org/valuing-what-counts-united-nations-system-wide-contribution-beyond-gross-domestic-product-gdp.
139 Chan, K. M. A. et al. (2020), 'Levers and leverage points for pathways to sustainability', *People and Nature*, Volume 2, Issue 3, pp. 693–717, British Ecological Society, https://doi.org/10.1002/pan3.10124.
140 Linnér, B.-O. and Wibeck, V. (2021), 'Drivers of sustainability transformations: leverage points, contexts and conjunctures', *Sustainability Science,* Volume 16, pp. 889–900, https://doi.org/10.1007/s11625-021-00957-4.

In the SDG context, the *Global Sustainable Development Report (GSDR) 2023* identified four levers of change for the SDGs: governance; economy and finance; science and technology; and individual and collective action.[141] The rationale here was that acting on these levers could trigger change in specific areas that underpin the SDGs and human development, such as the energy sector, food systems, industrial sectors, urban systems and natural resources.

Drawing on the emerging proposals to extend and upgrade the SDG framework, on the stakeholder inputs from our roadmapping process, and on the recognized need for levers to address systemic challenges, in Table 2 we propose a set of indicative circular economy targets for 2050. The table also presents the corresponding proposed levers (in the areas of governance, economy and finance, science and technology, and individual and collective action) for achieving them. The list of recommended actions is not exhaustive, but aims to provide a starting point for discussions on what can and should be done to achieve the circular economy targets for 2050.

141 Independent Group of Scientists appointed by the Secretary-General (2023), *Times of Crisis, Times of Change: Science for Accelerating Transformations to Sustainable Development*, Global Sustainable Development Report 2023, New York: United Nations, https://sdgs.un.org/gsdr/gsdr2023.

Table 2. Proposed future targets for the circular economy for 2050, and the levers for achieving them, mapped against the current SDGs

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 1: No poverty – End poverty in all its forms everywhere.	By 2050, circular goods and services provide affordable access to basic services for the poor. Localized circular economy businesses and livelihoods enable community resilience to economic shocks and environmental disasters.	Circular economy initiatives and projects should be actively included in strategies and roadmaps for addressing multidimensional poverty.[142] Governments and multilateral organizations, in particular UNDP and the World Bank, should incorporate circularity in such planning.	Preferential loans backed by governments should be offered to MSMEs and waste entrepreneurs to unlock opportunities and productive resources. This would also help to improve product quality and extend services to underserved populations.	Innovations and 'appropriate technology'[143] solutions for circularity (i.e. compatible with local economic conditions) should be developed to improve access to resources and services for minorities and vulnerable groups. This would help such cohorts to maintain and develop sustainable livelihoods.	Multi-stakeholder partnerships should support the development of circular business models that serve poor communities and that provide access to basic goods and services for underserved populations.
SDG 2: Zero hunger – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.	By 2050, zero food waste is achieved thanks to waste reduction and food waste valorization. Food systems are based on regenerative agricultural practices that contribute to global food security.	Governments should enact incentives for food waste reduction (such as China's Anti-food Waste Law enacted in 2021)[144] and for the valorization of non-avoidable food waste by converting it into organic fertilizers and bioenergy.	New financial models including incentives, investments and non-financial services[145] should be developed to help farmers adopt regenerative practices such as crop rotations, reduced tillage and nutrient cycling. This would help to scale up sustainable food systems.	Efficient and circular cold-chain technologies[146] should be adopted to reduce post-harvest food losses. Artificial intelligence (AI) applications should be used to reduce food waste at retail and consumer level.	Food-sharing systems – either community-based or using digitally enabled business models – should be developed to enable efficient sharing of excess food from the food retail sector and efficient distribution of such food to communities in need.

142 World Bank, UNDP and UNICEF (2021), *A Roadmap for Countries Measuring Multidimensional Poverty*, Equitable Growth, Finance and Institutions Insight, https://documents1.worldbank.org/curated/en/529491623166773607/pdf/A-Roadmap-for-Countries-Measuring-Multidimensional-Poverty.pdf.
143 Bishop, C. P. (2021), 'Sustainability lessons from appropriate technology', *Current Opinion in Environmental Sustainability*, Volume 49, April 2021, pp. 50–56, https://doi.org/10.1016/j.cosust.2021.02.011.
144 The Global FoodBanking Network (2023), 'New Research Presents Policy Opportunities for China to Reduce Food Loss and Waste', 15 March 2023, https://www.foodbanking.org/news/new-research-presents-policy-opportunities-for-china-to-reduce-food-loss-and-waste.
145 Masterson. V. (2024), 'These 5 steps could help us produce food more sustainably', World Economic Forum, 6 February 2024, https://www.weforum.org/agenda/2024/02/sustainable-food-agriculture-finance.
146 UNIDO (2019), *Sustainable Food Cold Chain*, https://www.unido.org/sites/default/files/files/2021-09/Sustainable_Food_Cold_Chain_UNIDO_EN_2019.pdf.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	Economy and finance	Science and technology	Individual and collective action
SDG 3: Good health and well-being – Ensure healthy lives and promote well-being for all at all ages.	By 2050, toxic materials, waste and pollution have been fully eliminated through the widespread adoption of closed-loop systems and bio-based alternatives, significantly improving human health and well-being.	Policies mandating toxin-free product design should be introduced to support the phase-out of harmful chemicals in products. The use of chemicals such as per- and polyfluoroalkyl substances (PFAS)[147] should be abandoned, and leakage of toxins into the environment reduced.	Coalitions of investors and asset managers should drive the phase-out of harmful chemicals such as PFAS. Market-based instruments should provide price incentives for companies to act on chemical pollution and invest in chemical pollution control. Allocation of funding to the GEF and other multilateral funds[148] should be increased to finance work on addressing chemical pollution.	Sectors that are sources of pollution and waste – such as mining, manufacturing, energy, textiles, chemicals and plastics – should adopt new technologies and practices such as chemical leasing,[149] reuse, remanufacturing, repair and recycling to eliminate industrial pollution impacting communities.	Coordinated by the UN, national regulators, investors, the chemical industry and societal actors should jointly set targets with specific milestones for different value chains and for the phase-out of chemicals such as highly hazardous pesticides (HHPs), as per the UNEA-6 call to action.[150]
SDG 4: Quality education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	By 2050, circular skills development is fully integrated into educational and vocational programmes. Circular knowledge resources are widely accessible.	National education systems and vocational training programmes should be adapted to equip the workforce with skills necessary for green jobs. Formal education in higher-level institutions should introduce design-led changes at the foundational level.	Organizations should invest in the upskilling of workforces to acquire circular skills, develop tools and restructure business processes. Global platforms like the UNESCO-UNEVOC Network[151] should offer targeted support.	Digital open-source online resources, video tutorials and step-by-step guides should provide comprehensive support for people looking to repair, repurpose or upcycle items. Platforms dedicated to sharing knowledge, guidelines and experiences should be used to help foster a global community of makers and fixers.[152]	Citizens should become skilled in fixing and upcycling items. This would significantly reduce waste and foster creativity. Such a culture should be supported by a variety of initiatives and pieces of infrastructure that would empower citizens to extend the lifetime of their belongings, promote resource efficiency, and cultivate a mindset of innovation.

147 Williams, S. C. P. (2024), 'What's the deal with PFAS, aka 'forever chemicals'?', Stanford University Medicine Scope Blog, 25 July 2024, https://scopeblog.stanford.edu/2024/07/25/pfas-forever-chemicals-health-risks-scientists.
148 International Institute for Sustainable Development (2023), 'Financing the Sound Management of Chemicals and Wastes', 29 March 2023, https://sdg.iisd.org/commentary/policy-briefs/financing-the-sound-management-of-chemicals-and-wastes.
149 UNIDO (undated), 'About the model', https://www.unido.org/our-focus-safeguarding-environment-resource-efficient-and-low-carbon-industrial-production/chemical-leasing.
150 Pesticide Action Network (PAN) International (2024), 'UN Environment Assembly calls for action to end the use of the world's most toxic pesticides by 2035', press release, 1 March 2024, https://pan-international.org/release/un-environment-assembly-calls-for-action-to-end-the-use-of-the-worlds-most-toxic-pesticides-by-2035.
151 UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (2021), 'Skills for the circular economy', https://unevoc.unesco.org/home/Skills+for+the+circular+economy.
152 Repair Café (undated), 'Repair guides', https://www.repaircafe.org/en/community/repair-guides.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 5: Gender equality – Achieve gender equality and empower all women and girls.	By 2050, decent work is realized for women in circular industries. Significant advancement in female entrepreneurship through circular economy businesses is achieved.	National circular economy policies, strategies and roadmaps should explicitly include gender components to ensure women's participation, leadership and access to opportunities.	Grant programmes, microfinance[153] and low-interest loans should be used to provide women with opportunities to start engaging in circular entrepreneurship.	Business associations and technology providers should offer targeted entrepreneurship training, technology support and resources for women to capitalize on circular economic opportunities.	Gender perspectives should be included in circular economy-related employment initiatives (such as the formalization of informal recyclers and the provision of technical support to circular enterprises) in order to promote gender equality.
SDG 6: Clean water and sanitation – Ensure availability and sustainable management of water and sanitation for all.	By 2050, full access to sanitation and water for all is achieved through the adoption of circular water technologies and urban sanitation systems. The latter are redesigned to enable the recovery of valuable resources, such as nutrients and energy, from waste.	Municipal governments should increasingly mandate the separation and treatment of organic waste and wastewater. Regulations should be introduced requiring the recovery of energy, in the form of biogas and nutrients such as phosphorus and nitrogen, from wastewater for fertilizers.	Dedicated funds and low-interest loans should be made available for circular water and sanitation projects, to enable implementation of projects that would otherwise be not feasible. Private sector involvement and investment should be leveraged through risk-sharing mechanisms. Subsidies for circular sanitation business models and fertilizer production should be used to support the scaling-up of circular sanitation solutions.[154]	Innovations and technologies for circular sanitation should be scaled up through international initiatives such as the UNICEF Global WASH Innovation Hub.[155]	Multi-stakeholder initiatives should be set up to coordinate the roll-out of decentralized and circular treatment technologies for urban slums and peri-urban areas. Such initiatives should be designed to accommodate the challenges of providing circular sanitation in fast-growing cities.

153 See, for example, Mukendi, S. and Manda, S. (2022), 'Micro-financial institutions and processes of women empowerment in Zambia', *World Development Perspectives*, 28, 100466, https://doi.org/10.1016/j.wdp.2022.100466.
154 Mallory, A. et al. (2020), 'Evaluating the circular economy for sanitation: Findings from a multi-case approach', *Science of The Total Environment*, Volume 744, 20 November 2020, 140871, https://doi.org/10.1016/j.scitotenv.2020.140871.
155 UNICEF (undated), 'UNICEF Global Sustainable WASH Innovation Hub', https://www.unicef.org/innovation/sustainable-wash-hub.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 7: Affordable and clean energy – Ensure access to affordable, reliable, sustainable and modern energy for all.	By 2050, societies achieve full access to affordable, clean, renewable and circular energy systems. The majority of critical materials needed for clean energy systems are supplied through secondary sources or substituted with alternative materials.	National governments and international development agencies should include circularity requirements for energy infrastructure in public tenders and projects, such as when participating in the World Bank's renewable energy initiatives.[156]	Established financing instruments for renewable energy[157] – such as grants, venture debt, securitization, convertible notes and development impact bonds – should be used to fund appropriate solutions for end-of-life management of renewable energy equipment.	Energy technology innovations should integrate circular economy principles and practices into the design of future renewable energy products and infrastructure (e.g. modular solar PV).[158] Circular design approaches should be used to ensure that new generations of clean energy technologies are fully modular, have reusable components and produce no waste.	Communities, businesses and renewable energy project developers should cooperate to ensure that materials such as cobalt, copper, lithium and rare-earth metals are mostly reused and recycled, thereby reducing reliance on primary mining and reducing the associated environmental impacts. Mining companies should evolve in effect into 'resource recovery' businesses, focusing on long-term stewardship of materials throughout the entire resource life cycle.
SDG 8: Decent work and economic growth – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	By 2050, standards on decent working conditions are upheld and informal sectors have undergone a positive transformation. Circular business models have become the norm in the global economy, and a major source of employment.	Social protection policies and just transition principles, based on the existing ILO guidelines,[159] should be embedded in economic and labour policies. Policies will need to ensure that workers from declining industries are retrained and integrated into the circular economy, promoting inclusive and equitable growth.	The Just Transition High-Level Principles for MBD finance[160] should be operationalized and implemented, supporting the transition to a circular economy through job creation while protecting workers' rights.	Diffusion of technologies for the circular economy[161] should be accelerated in areas such as remanufacturing, product design, data analytics, logistics and recycling. This is to support sustainable economic development, resource efficiency and decent work.	Partnerships with unions and labour associations should be used to integrate millions of informal workers (in sectors such as electronics repair, waste collection and recycling) into the formal economy. Integration should be supported by policies, access to financial services and capacity-building initiatives, in order to enhance labour productivity and improve working conditions.

156 World Bank (2024), 'World Bank Group Launches Renewable Energy Initiative to Enhance Energy Security and Affordability in Europe and Central Asia', press release, 28 March 2024, https://www.worldbank.org/en/news/press-release/2024/03/28/world-bank-group-launches-renewable-energy-initiative-to-enhance-energy-security-and-affordability-in-europe-and-central.
157 International Renewable Energy Agency (2023), *Global landscape of renewable energy finance 2023*, https://www.irena.org/Publications/2023/Feb/Global-landscape-of-renewable-energy-finance-2023.
158 *Solar Magazine* (2022), 'ITRI's Easy-Dismantled Solar Panel Module receives TÜV certification', 27 October 2022, https://solarmagazine.com/2022/10/itri-easy-dismantled-solar-panel-module-receives-tuv-certification.
159 ILO (2022), *The Role of Social Dialogue and Tripartism in a Just Transition towards Environmentally Sustainable Economies and Societies for All*, Just Transition Policy Brief, August 2022, https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_emp/@emp_ent/documents/publication/wcms_858810.pdf.
160 Asian Development Bank (2019), 'MDB Just Transition High-Level Principles', https://www.adb.org/sites/default/files/related/238191/MDBs-Just-Transition-High-Level-Principles-Statement.pdf.
161 Nasr, N. (ed.) (2024), *Technology Innovation for the Circular Economy: Recycling, Remanufacturing, Design, Systems Analysis and Logistics*, Wiley Scrivener Publishing LLC, https://onlinelibrary.wiley.com/doi/book/10.1002/9781394214297.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 9: Industry, innovation and infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	By 2050, circular industrial design and closed-loop industrial manufacturing become central to sustainable industrial development. This enables global value chains to operate fully on circular principles.	National governments should integrate circularity and regenerative practices into development and industrialization strategies. Transformation should be driven by comprehensive policies that support circular business models, industrial symbiosis networks[162] and the promotion of resilient local economies. Policy frameworks should outline clear goals for circular resource use, along with standards and metrics for circularity across all sectors.	Targeted financial support should be provided for MSMEs in manufacturing supply chains to improve access to loans, technical assistance and training. Local businesses should be supported in adopting circular practices, participating in global and local value chains, and competing in a global market.	Digital tools and technologies such as the Internet of Things (IoT), blockchain and AI should be leveraged to enhance resource efficiency and enable reverse logistics. International cooperation on digital product passports[163] should be used to enable the tracking and tracing of products and material flows along global value chains.	Industries should adopt circular approaches to manufacturing, so that the value of products and components is maintained, and so that 'planned obsolescence' is superseded as an industrial paradigm. Industrial design standards should ensure that products are durable, made to last, easily repaired, upgradeable through modularity, designed for disassembly, and recycled at the end of their life cycles.
SDG 10: Reduced inequalities – Reduce inequality within and among countries.	By 2050, high-value circular economic trade opportunities for developing countries are realized across global value chains.	Social protection measures should be introduced to ensure that low-income households have affordable access to circular products and are not impacted by increasing costs of the transition.	Investments should help low-income countries and communities tap into higher-value circular economic opportunities, such as refurbishment and industrial remanufacturing. Grant programmes should be introduced for community-based projects and social enterprises that promote circular activities, to enable social inclusion.	The development and diffusion of affordable technologies – including digital tools for tracing products and materials – should be designed around principles of inclusivity. This is to enable marginalized groups to participate in the circular economy.	New resource leasing models and partnerships such as materials-as-a-service[164] should be introduced to reshape trade relations along the critical raw materials value chain. Such arrangements should contribute to transparent and accountable mineral resource governance, and ensure equitable sharing of resource revenues with local communities.

162 Neves, A., Godina, R., Azevedo, S. and Matias, J. (2020), 'A comprehensive review of industrial symbiosis', *Journal of Cleaner Production*, Volume 247, https://doi.org/10.1016/j.jclepro.2019.119113.
163 Jensen, S. F. et al. (2023), 'Digital product passports for a circular economy: Data needs for environmental footprint declaration', *Sustainable Production and Consumption*, 37, pp. 242–55, https://doi.org/10.1016/j.spc.2023.02.021.
164 World Resources Forum (2023), 'Materials as a Service in the Minerals and Metals Sector – Event takeaways', 8 August 2023, https://wrf2023.org/materials-as-a-service-in-the-minerals-and-metals-sector-event-takeaways.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 11: Sustainable cities and communities – Make cities and human settlements inclusive, safe, resilient and sustainable.	By 2050, urban environments, infrastructure and housing are redesigned according to circularity principles to be affordable, resilient and inclusive.	Municipal and local governments should gradually integrate circular building design principles into the planning of urban spaces and infrastructure and development. Design should prioritize circular resource use, the refurbishment of existing building stock, and the design or upgrading of informal settlements according to circular principles. Policies should prioritize the refurbishment and retrofitting of existing building stock to improve energy efficiency, reduce construction waste and extend the useful life of buildings.	Financing models based on new valuation methods should be introduced for circular construction, refurbishment of social housing and upgrading of the building stock. Such models should be used to drive market development towards circularity. Policies should encourage the construction sector to rely on used building elements, products and construction materials.[165]	New modular building techniques should be developed and deployed to allow for flexible and adaptable spaces that can be easily reconfigured or expanded. Such techniques should aim to extend the lifespan of buildings and reduce the need for new construction. Advanced building materials such as bio-based composites and recycled content should be used to minimize environmental impact.	Citizens should be encouraged to engage and participate in the redesign of urban environments. Circularity principles should be applied to urban planning, to foster urban resilience and enhance quality of life for citizens.
SDG 12: Responsible consumption and production – Ensure sustainable consumption and production patterns.	By 2050, trends in unsustainable global resource consumption have peaked and gone into reverse, with all countries becoming close to zero-waste.	Governments should set national targets that exceed existing resource efficiency efforts in terms of reducing primary material consumption, reducing waste generation and increasing circular activity. Governments should actively incorporate circular economy business models and full life cycle cost accounting into public procurement practices, in order to drive circularity across multiple sectors and value chains.	Fiscal policies should shift from taxation of labour to taxation of non-renewable resources and waste, to provide incentives for more labour-intensive but resource-efficient business models (e.g. repair and reuse).[166] Inefficient subsidies that encourage wasteful consumption should be phased out. Market distortions should be removed, to support the existing 12.c target on fossil fuel subsidy phase-out.[167]	Common standards should be introduced for circular products and technologies. Such standards should emphasize longevity, modularity and repairability to enable widespread adoption, reduce costs and enable more sustainable lifestyle choices.[168]	Bottom-up community initiatives and cultural shifts should be encouraged. These should prioritize sustainable living, health, social relations and resilience over consumerism and linear consumption. Societal and behavioural changes should be pursued where they foster a 'circular society'[169] in which sustainable lifestyles are affordable, accessible and achievable.

165 Circle Economy (2019), *Building value: A pathway to circular construction finance*, January 2019, https://www.circle-economy.com/resources/building-value.
166 Milios, L. (2021), 'Towards a Circular Economy Taxation Framework: Expectations and Challenges of Implementation', *Circular Economy and Sustainability,* Volume 1, pp. 477–98, 21 January 2012, https://doi.org/10.1007/s43615-020-00002-z.
167 SDG 12 Hub (undated), '12.c Fossil Fuel Subsidies', https://sdg12hub.org/sdg-12-hub/see-progress-on-sdg-12-by-target/12c-fossil-fuel-subsidies.
168 Calisto Friant, M., Vermeulen, W. J. V. and Salomone, R. (2024), 'Transition to a Sustainable Circular Society: More than Just Resource Efficiency', *Circular Economy and Sustainability,* Volume 4, pp. 23–42, https://doi.org/10.1007/s43615-023-00272-3.
169 Ibid.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	Economy and finance	Science and technology	Individual and collective action
SDG 13: Climate action – Take urgent action to combat climate change and its impacts.	By 2050, circularity principles become fully embedded in climate mitigation and adaptation. Circular practices are applied to decarbonize upstream and downstream emissions of industrial value chains.	Governments should integrate circularity approaches into their national and sectoral decarbonization strategies, including their nationally determined contributions (NDCs) under the Paris Agreement on climate change.	Circular strategies changing the market structures and pricing for primary raw materials and new products should be implemented, in order to reduce global emissions from the extraction and processing of materials.[170]	A wide range of technologies should be adopted to reduce industrial emissions – including 'scope 3' emissions, upstream emissions from steel sectors and heavy industry, and downstream greenhouse gas emissions (especially methane) from legacy waste sites.	Circular economy solutions should be integrated into community-based and collective adaptation strategies,[171] in order to increase communities' adaptive capacity. Global stakeholder initiatives such as the Global Methane Initiative[172] should be expanded, and circular solutions for climate mitigation and adaptation should play more prominent roles.
SDG 14: Life below water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	By 2050, adoption of circular practices leads to a situation of zero leakage of plastic waste and pollutants into the aquatic environment. Restorative and regenerative practices are used to rebuild marine systems.	As mandated by the UNEA-6 resolution, the UN negotiations for a global plastics treaty[173] should be concluded by the end of 2024, and should address the full life cycle of plastic pollution. Completion of the treaty is needed to create a global framework for reducing microplastics generation and stemming plastic leakage into the marine environment.	Pricing structures for upstream plastic feedstock production should be reformed through the introduction of fees on primary plastics, to enable the creation of efficient markets for a circular plastics economy.	Affordable technologies and plastic waste collection systems should be adopted widely to prevent land-based leakage of plastics into the marine environment.	Based on a global commitment, developed and developing countries should implement policies, technologies and social practices that minimize waste generation and pollution of the aquatic environment.

170 Ellen MacArthur Foundation (2021), *Completing the picture*.
171 Moschitz, H., Roesch, A. and Schafer, M. (2022), 'Collective adaptation to climate change: Concepts, research gaps, and future directions', *Current Research in Environmental Sustainability*, 4, https://www.sciencedirect.com/science/article/pii/S1877343522001002.
172 Global Methane Initiative, https://globalmethane.org.
173 UNEP (undated), 'Intergovernmental Negotiating Committee on Plastic Pollution', https://www.unep.org/inc-plastic-pollution.

Current SDGs	Proposed circularity targets for 2050	Proposed levers for achieving 2050 circularity targets, by UN-defined category			
		Governance	**Economy and finance**	**Science and technology**	**Individual and collective action**
SDG 15: Life on land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	By 2050, net-positive nature regeneration is achieved through nature-positive circular bioeconomies.	Regulatory measures and economic incentives that link the circular economy, the bioeconomy, and the restoration of biodiversity and natural assets should be introduced to ensure sustainable outcomes and avoid trade-offs between different environmental objectives.	Circular economy finance should be aligned with nature-positive investments to halt biodiversity loss and restore damaged ecosystems, e.g. through the UNDP Biodiversity Finance Initiative (BIOFIN).[174] This is needed to enable rebuilding of natural systems at scale.	Indigenous knowledge, technologies and practices on circular resource use should be recognized and adopted in the management and protection of biodiversity. Technological innovations in the bioeconomy should be used to enable more efficient resource use and protect biodiversity.	To reverse the decline of natural systems, the global community should not only stabilize but also decrease the extraction and unsustainable use of natural resources.
SDG 16: Peace, justice and strong institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	By 2050, organized criminal networks engaged in illegal waste trade and environmental crimes are stopped. Accountable and transparent institutions for sustainable resource management operate globally.	Policy support and coordination should strengthen the capacities of law enforcement and customs agencies to restrict illegal waste trade, and to prevent dumping from developed to developing countries.	Sustainable finance taxonomies[175] should be adopted internationally and harmonized. These should be aligned with corporate reporting frameworks to enable financial institutions and investors to increase transparency and accountability around their investment decisions.	Digital technologies and data analysis should be used to improve traceability and transparency in relation to flows of resources, materials and waste, both globally and locally.	An international resource agency (as recommended by the International Resource Panel) should be established. Its mandate should be to guide governments, the private sector and other stakeholders in ensuring effective, inclusive and accountable progress towards circularity.
SDG 17: Partnerships for the Goals – Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.	By 2050, financial resources including taxation reforms for the circular transformation have been mobilized. Key technologies for advanced circular industries have been rolled out across all countries.	UN-led training programmes should be established for national policymakers and national statistical agencies. These programmes should support the design and implementation of relevant regulations and policies, and should assist monitoring and reporting on progress.	Commitment to multilateral cooperation for development should be renewed. This commitment should be accompanied by new allocations of development aid and other financial resources, such as blended finance, to support circular economy initiatives in developing countries.	International research partnerships should be established to facilitate R&D cooperation on circular technology development and the roll-out of new technology solutions. Technology standards and practices should be harmonized across countries. Trade partnerships should be set up to facilitate cooperation and create economic opportunities for low- and middle-income countries.	Regional alliances and international circular economy networks should enable collaboration across sectors, value chains and countries to facilitate the sharing of knowledge, technologies and examples of best practice for circular economy adoption.

174 UNDP Biodiversity Finance Initiative, https://www.biofin.org.
175 Barrie, J., Schröder, P. and Sherman, S. (2023), *Making sustainable finance taxonomies work for the circular economy: Lessons from the EU Taxonomy*, Research Paper, London: Royal Institute of International Affairs, https://www.chathamhouse.org/2023/06/making-sustainable-finance-taxonomies-work-circular-economy.

05 Conclusions: towards an inclusive circular future

Our proposed agenda for international collective actions and cooperation goes beyond what has been discussed within the circular economy and SDG policy contexts in the past decade, and advances ideas and actions that extend all the way until 2050.

As this paper has highlighted, an inclusive circular economy aims to eliminate waste and pollution, circulate products and materials at their highest value, and regenerate natural systems, while ensuring that all communities benefit equitably. We have argued that circular approaches address the root causes of climate change, biodiversity loss and pollution, in part by prompting society to rethink how it produces, consumes and manages materials. By focusing on sustainable livelihoods, decent work and social justice, the circular economy can improve human development and well-being globally. We have also argued that the circular economy and the UN's Sustainable Development Goals (SDGs) are complementary, and that promoting the circular economy within the SDG agenda can both make development programming more effective and enable the circular economy to reach critical mass.

Yet to integrate the circular economy effectively into the SDGs and the post-2030 development agenda, a systematic strategy is necessary. Current policy efforts are often fragmented. They fail to address the interconnectedness of global challenges, and of one SDG with another. Additionally, the circular economy could bring unwelcome consequences if its growth is not directed appropriately, as there is a risk that governments will see it as a tool for deglobalization, trade competition and resource nationalism. This risk will become all the more salient as climate change and other environmental challenges increase the pressure on countries to secure critical resources, potentially at the expense of the global commons. To counter these trends, a coordinated multilateral approach is essential to prevent the circular economy from becoming a unilateral competitive tool, and to ensure that all nations benefit from the transition.

This paper has highlighted five priority areas for international coordination and cooperation: embedding principles of just transition and inclusivity in circular economy development; establishing an international policy coordination mechanism; developing a funding framework for circular innovations; reforming the global trade system to support circular trade while preventing illegal waste dumping; and creating common standards and metrics. These actions, we believe, can help align global efforts and foster synergies in global resource management, mitigating potential conflicts over critical raw materials.

The momentum for shifting to a global circular economy is rapidly building. This has been demonstrated by the development to date of more than 75 national circular economy roadmaps, and by the planned introduction of 3,000 policies in the coming decade. As such, this is an opportune moment for the international community to come together and fully leverage the potential of the circular economy to help reinvigorate the SDGs and set a framework for the post-2030 development agenda. By working collaboratively, the global community can make significant strides towards achieving environmental and social objectives, paving the way for a sustainable and inclusive future for everyone.

Now is the time for decisive action. The triple planetary crisis of climate change, biodiversity loss and pollution threatens to exacerbate global inequality and deepen poverty unless we act swiftly. As UN Secretary-General António Guterres has emphasized in the lead-up to the Summit of the Future, we must prioritize global solidarity and collective action to address these interconnected crises. As Guterres has urged, the Summit of the Future is ‘a chance to shape multilateralism for years to come’ and to secure a future that works for all, underlining that our efforts must align with the urgent need to reform and strengthen global cooperation. By embedding circular economy principles into the international development agenda and renewing our commitment to multilateralism, we can create a future where human well-being is intrinsically linked with the health of the planet.

About the authors

Dr Patrick Schröder is an expert in the global transition to an inclusive circular economy, with a particular research emphasis on international policy coordination, bridging the investment gap, the role of global trade, and the contribution of the circular economy to achieving the Sustainable Development Goals (SDGs).

Before joining Chatham House, he was a research fellow at the Institute of Development Studies at the University of Sussex. From 2008 to 2015, he was based in Beijing, where he worked extensively on development cooperation programmes for the European Union and climate change initiatives with the German Corporation for International Cooperation (GIZ).

Currently, he serves as the coordinating lead author for UNEP's Global Environmental Outlook 7 and is a member of the International Science Council's expert group on plastic pollution.

Dr Schröder's academic work has been published in high-impact journals such as *Nature Sustainability*, the *Journal of Industrial Ecology*, *Sustainability Science and Resources*, and *Conservation and Recycling*. His opinion articles have appeared in leading international media outlets, including *Foreign Policy*, Devex, *The Independent*, *The Hill* and the *China Daily*.

He holds a BA (Hons) in Chinese from the University of Westminster, and earned his MA in international relations and PhD in environmental studies from Victoria University of Wellington, New Zealand.

Dr Jack Barrie is an expert in the global transition to an inclusive circular economy, with a particular research focus on international policy coordination, national roadmaps and strategies, the role of global trade, and the contribution of the circular economy to achieving the SDGs. He works in a technical and advisory capacity on a range of different international projects, such as the EU's 'SWITCH to Circular Economy Value Chains' initiative. He was also the lead author on the world's first 'Global stocktake of national circular economy roadmaps' in partnership with UNIDO. Jack also has conducted independent consulting work on the circular economy with organizations such as the UN, the World Customs Organization and the University of Edinburgh.

As a result of his research, he regularly advises high-ranking government and intergovernmental officials and private sector leaders. He sits on the World Business Council for Sustainable Development's technical working group for the Global Circularity Protocol (GCP), as well as being a specialist adviser to the UN Economic Commission for Europe (UNECE) on environmental, social and governance traceability of sustainable value chains in the circular economy. He is also a member of the 'expert group on circular economy, trade and sustainable development' at the World Trade Organization's Trade and Environmental Sustainability Structured Discussions (TESSD). In addition to his work at Chatham House, Jack is an editor of the *Circular Economy* journal and commonly lectures on the circular economy. He is also a member of the Royal Society of Edinburgh Young Academy of Scotland.

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