NEW ECONOMIES FOR ERADICATING POVERTY

SPECIAL PROCEDURES UNITED NATIONS HUMAN RIGHTS COUNCIL

Ecological Justice

POLICY PROFILE 4.4

PROMOTION OF CIRCULAR ECONOMY

A contribution to the Roadmap for Eradicating Poverty Beyond Growth

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June 2026

Suggested citation: Belitz, Jonah. "Policy Profile 4.4: Promotion of Circular Economy." In *The Roadmap for Eradicating Poverty Beyond Growth: Report of the Special Rapporteur on extreme poverty and human rights, Olivier De Schutter.* New Economies Eradicating Poverty, 2026.

The United Nations Special Rapporteur on extreme poverty and human rights extends his sincerest gratitude and commendation to the author(s) and peer-reviewer(s), listed at the end, for their expertise and commitment in preparing this policy profile.

EXECUTIVE SUMMARY

This policy proposes promoting the circular economy to reduce global demand for natural resources, ensuring that the material foundations of wellbeing can be achieved across all countries within the natural boundaries of the planet. Every year, the global economy extracts more than 100 billion tonnes of resources from the earth, over three times as much as in 1970, and this figure is set to grow by a further 60% by 2060. This trajectory is driven by a linear model of production and consumption built around endless extraction, manufacture, use, and disposal of resources in the pursuit of economic growth. The consequence is that humanity has now passed seven out of nine planetary boundaries , while 1.1 billion people remain in poverty. The circular economy offers an alternative: it eliminates waste and pollution by design, keeps materials and products in use for as long as possible, and allows nature to regenerate. 49 governments have already adopted dedicated circular economy roadmaps or strategies , and over 120 million people worldwide already work in repair, recycling, second-hand trade, and waste management. The Roadmap goes further than existing national strategies, which focus primarily on recycling and waste management , by proposing five integrated policy priorities: shifting demand away from the most resource-intensive goods and services; embedding circular principles in global governance and trade; making resource extraction and pollution more expensive while reducing the costs of circular activities; requiring products to be designed to last; and directing investment toward circular businesses. Taken together, these policies pursue three goals that are directly relevant to tackling poverty in a post-growth framework. First, they seek to reduce demand for resources, especially by high-income countries and households, to mitigate environmental degradation, which is borne most heavily by communities in the Global South. Second, they enable low-income countries to build the housing, energy, food, and transport systems their populations need without replicating the wasteful development path of industrialised economies. Third, they support commodity-dependent countries in earning more from their resources and building more diverse economies. In doing so, the circular economy makes it possible for governments to improve people's lives, and meaningfully reduce poverty, without requiring ever-increasing levels of resource extraction from the earth.

1. POLICY GOAL

Global extraction of resources has more than tripled since 1970 to 106 billion tonnes per year in 2024 – driven by a linear model of production and consumption: extract, manufacture, use, discard[1]. This system has coincided with rising living standards across the world, driven by improved access to basic services such as housing, food, mobility and energy[2]. But it has also pushed humanity beyond its safe operating space: seven out of nine planetary boundaries are now transgressed[3]. The extraction and processing of materials alone accounts for more than 55 per cent of global greenhouse gas emissions and over 90 per cent of land-related biodiversity loss – and causes up to 40 per cent of health-related impacts from air pollution worldwide[4].

The benefits of this expansion have not been shared equitably, and neither have its burdens: while people in high-income countries use six times more resources per person than those in low-income countries[5], 1.1 billion people remain in multidimensional poverty[6]. The most vulnerable communities face 15 times higher mortality rates from floods, droughts and storms than the world's most protected populations[7] and bear the greatest risk of livelihood loss from ecosystem degradation[8]. They also disproportionately face land dispossession, pollution, displacement, health harms and conflict linked to extractive and industrial development, especially in the context of critical energy transition minerals and on or near Indigenous and other locally governed lands[9].

A new model is required for how societies, produce, use and manage resources to achieve a human rights economy beyond growth within the natural limits of our planet – the objective of this Roadmap. The circular economy has been put forward as such an alternative: waste and pollution are eliminated by design, materials and products are kept in use for as long as

[1] International Resource Panel, *Global Resources Outlook 2024: Bend the Trend—Pathways to a Liveable Planet as Resource Use Spikes* (Nairobi: United Nations Environment Programme, 2024), https://www.unep.org/resources/Global-Resource-Outlook-2024.
[2] Ibid.
[3] Boris Sakschewski et al., *Planetary Health Check 2025: A Scientific Assessment of the State of the Planet* (Potsdam: Potsdam Institute for Climate Impact Research, 2025), https://doi.org/10.48485/PIK.2025.017.
[4] IRP, *Global Resources Outlook 2024*.
[5] Ibid.
[6] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *Global Multidimensional Poverty Index 2024: Poverty amid Conflict* (New York: UNDP, 2024).
[7] Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report* (Cambridge: Cambridge University Press, 2022).
[8] International Labour Organization, *The Employment Impact of Climate Change Adaptation* (Geneva: ILO, 2018), https://www.ilo.org/publications/employment-impact-climate-change-adaptation.
[9] Arnim Scheidel et al., "Global Impacts of Extractive and Industrial Development Projects on Indigenous Peoples' Lifeways, Lands, and Rights," *Science Advances* 9, no. 23 (June 2023): eade9557.; Christina M. Kennedy et al., "Indigenous Peoples' Lands Are Threatened by Industrial Development," *One Earth* 6, no. 8 (2023): 1032–1049, https://doi.org/10.1016/j.oneear.2023.07.006.; United Nations General Assembly, *Report of the Special Rapporteur on the Rights of Indigenous Peoples*, UN Doc. A/78/155 (2023).; United Nations General Assembly, *Report of the Special Rapporteur on the Rights of Indigenous Peoples*, UN Doc. A/80/188 (2025).; United Nations Secretary-General's Panel on Critical Energy Transition Minerals, *Resourcing the Energy Transition: Principles to Guide Critical Energy Transition Minerals towards Equity and Justice* (New York: United Nations, 2024).

possible, and natural systems regenerate[10]. That vision has found genuine recognition in policy – 49 countries have adopted circular economy roadmaps or strategies to date[11].

However, most national ambitions focus on technology-driven efficiency improvements and waste management– leaving questions of sustainable and equitable resource use globally unanswered[12]. Realising the circular economy's full potential to contribute to this Roadmap requires the pursuit of three priorities: First, tackling resource overconsumption, particularly in high-income countries and households. Second, guiding the resource-efficient expansion of infrastructure to meet basic human needs, particularly in low-income countries. Third, supporting commodity-dependent countries in capturing greater value from their resources and diversifying their economies.

This document presents policy instruments that collectively contribute to a human rights economy through the circular economy. It is, however, one building block among many: realising the Roadmap's objective requires the full complement of policies set out across the other policy briefs of this Roadmap.

2. POLICY FORMULATION

Transitioning to a circular economy requires fundamental changes across resource production and consumption systems. No single policy can make a meaningful difference on its own; policy change is required across five interconnected domains: i) shaping demand for low-impact goods and services; ii) embedding the circular economy in global governance and trade, iii) correcting the prices of resources and pollution; iv) directing finance towards circular business models, and v) mandating circular product design. Some of the instruments are related and work across these categories – highlighting the importance of an integrated approach to policy formulation for the circular economy.

Area 1 – Shaping demand for low-impact consumption

Even highly efficient production systems powered by renewable energy will not bring the global economy within planetary constraints as long as consumption systems remain geared towards generating demand beyond human needs[13] - a dynamic driven in part by the systematic exploitation of human behaviour on part of commercial interests.[14] Sufficiency

[10] Ellen MacArthur Foundation, "Circular Economy Principles," n.d., https://www.ellenmacarthurfoundation.org/circular-economy-principles.
[11] Jack Barrie et al., *Global Stocktake of National Circular Economy Roadmaps and Strategies: 2025 Update* (Vienna: UNIDO/Chatham House, 2025), https://www.unido.org/sites/default/files/unido-publications/2026-01/Stocktake%20CE%20Roadmaps%202025.pdf.
[12] Ibid.
[13] IRP, *Global Resources Outlook 2024*.
[14] Thomas Wiedmann et al., "Scientists' Warning on Affluence," *Nature Communications* 11 (2020): 3107, https://doi.org/10.1038/s41467-020-16941-y; Peipei Tian, Yuli Shan, and Klaus Hubacek, "Consumption Inequalities in Material Use Undermining Resources Sustainability," *Nature Sustainability*, published online January 16, 2026, https://doi.org/10.1038/s41893-025-01726-2; Joseph J. Merz et al., "World Scientists' Warning: The Behavioural Crisis Driving Ecological Overshoot," *Science Progress* 106, no. 3 (2023), https://doi.org/10.1177/00368504231201372.

policies – 'a set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries'[15] – need to complement more efficient and cleaner production, the dominant focus of global policy today[16].

1.1 Expand access to low-impact services and products

Barrier: Food, mobility, housing and energy systems account for approximately 90 per cent of global material demand[17]. Current policies keep resource-intensive options in these systems more accessible and cheaper than low-impact alternatives[18].

Instruments: Action plans to ensure low-impact options are available and affordable should target concrete shifts in each system: in food, shifting demand from animal-based protein towards plant-based sources of protein, e.g. through updating dietary guidelines, making plant-based options the default in public settings such as schools, hospitals and canteens[19]. This can be complemented by binding food-waste reduction targets for food producers and retailers. In mobility, the focus should be on shifting demand from individual motorised transport to resource-efficient shared and public systems – investing in bus, metro and rail networks, building infrastructure for walking and cycling, and using congestion charging to manage private vehicle demand[20]. Where individual motorised travel is necessary, this should be supported by a buildout of electric vehicle charging networks and financial incentives for electric vehicles[21]. In housing, the key demand-side solutions include density-oriented urban planning, limits on floor space per capita, and policies promoting multifunctional use of existing space[22]. In the energy system, the transition to universal access to clean energy through electrification and decarbonisation must be accelerated[23]. This should be coupled with demand-side measures to limit energy use: targeted incentives for building retrofits, heat pumps and efficient appliances and cooking equipment; and minimum energy performance standards for heating, cooling and household appliances and equipment that remove the least efficient products from the market[24].

1.2 Regulate marketing of high-impact products and greenwashing

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[15] IPCC, *Climate Change 2022: Impacts, Adaptation and Vulnerability*.
[16] IRP, *Global Resources Outlook 2024*.
[17] Ibid.
[18] Ibid.
[19] Marco Springmann et al., "Options for Keeping the Food System within Environmental Limits," *Nature* 562 (October 2018): 519–525.; Felix Creutzig et al., "Demand, Services and Social Aspects of Mitigation," chap. 5 in *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the IPCC,* ed. P. R. Shukla et al. (Cambridge: Cambridge University Press, 2022).
[20] Creutzig et al., "Demand, Services and Social Aspects of Mitigation."; Christian Brand et al., "Road to Zero: A Study of Future Travel Mode Choices and Their Environmental Impacts," *Energy Policy* 152 (May 2021): 112206.
[21] International Energy Agency, *Global EV Outlook 2024: Moving towards Increased Affordability* (Paris: IEA, 2024), https://www.iea.org/reports/global-ev-outlook-2024.
[22] Luisa F. Cabeza et al., "Buildings," chap. 9 in *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the IPCC,* ed. P. R. Shukla et al. (Cambridge: Cambridge University Press, 2022).
[23] International Energy Agency, *World Energy Outlook 2024* (Paris: IEA, 2024), https://www.iea.org/reports/world-energy-outlook-2024.
[24] International Energy Agency, *Energy Efficiency Policy Toolkit 2025* (Paris: IEA, 2025), https://www.iea.org/reports/energy-efficiency-policy-toolkit-2025.; Cabeza et al., "Buildings."

Barrier: Global advertising expenditure surpassed 1 trillion USD in 2024[25], disproportionately promoting resource-intensive consumption and consumerist lifestyles[26]. At the same time, environmental claims on part of companies often fail to provide reliable information to consumers on the environmental impacts of their products and services[27]. The systematic stimulation of unsustainable demand on one hand, and the erosion of consumer trust through greenwashing on the other, together constitute a significant structural barrier to sustainable consumption.

Instruments: Restricting advertising of the highest-impact product categories – an approach with regulatory precedent in tobacco, where comprehensive advertising bans have demonstrably reduced consumption[28] – can play an important role in reducing demand for high-impact and resource-intensive consumption options. An internationally agreed list of high-impact categories would provide a common reference point, avoiding fragmentation across jurisdictions. Mandatory company disclosures of environmental footprints for high-impact products can further guide consumers[29]. This should be combined with anti-greenwashing regulation that requires independent verification of environmental claims and imposes meaningful penalties for non-compliance.

1.3 Embed circular criteria in public procurement

Barrier: Governments can shape demand for circular goods and services through their own purchasing power: public procurement accounts for approximately 13% of GDP across OECD countries and around 13-20% of GDP in many economies globally. Yet procurement frameworks still often focus on the initial purchase price rather than long-term value, giving too little weight to durability, recycled content, repairability, and end-of-life recovery.[30][31][32]

***Instruments*:** Procurement specifications should embed minimum circularity requirements across the product lifecycle, including recycled content, durability and repairability standards, circular design features where relevant, and supplier take-back obligations[33]. Lifecycle costing should complement purchase price as an evaluation criterion by capturing

[25] WARC, *Global Ad Spend Outlook 2024/25* (London: WARC, 2024), https://page.warc.com/global-ad-spend-outlook-2024-25.html.
[26] Patrick Hartmann et al., "Advertising and Climate Change—Part of the Problem or Part of the Solution?," *International Journal of Advertising* 42, no. 2 (2023): 385–417, https://doi.org/10.1080/02650487.2022.2140963.
[27] European Commission, Directorate-General for Environment, *Environmental Claims in the EU: Inventory and Reliability Assessment — Final Report* (Brussels: European Commission, 2020), https://op.europa.eu/en/publication-detail/-/publication/b0185e91-bb01-11ea-811c-01aa75ed71a1.
[28] Christina Saad et al., "Effectiveness of Tobacco Advertising, Promotion and Sponsorship Bans on Smoking Prevalence, Initiation and Cessation: A Systematic Review and Meta-Analysis," *Tobacco Control* (January 2025), https://doi.org/10.1136/tc-2024-058903.
[29] IRP, *Global Resources Outlook 2024*.
[30] Organisation for Economic Co-operation and Development, *Government at a Glance 2025* (Paris: OECD Publishing, 2025), https://www.oecd.org/en/publications/2025/06/government-at-a-glance-2025_70e14c6c/full-report/size-of-public-procurement_6979cd47.html.
[31] United Nations Environment Programme, "Sustainable Consumption and Production and Circularity" (UNEP, 2025), https://www.unep.org/topics/finance-and-economic-transformations/sustainable-consumption-and-production-and-circularity.
[32] European Commission, "Circular Public Procurement" (European Green Forum, 2025), https://green-forum.ec.europa.eu/news/circular-public-procurement-cities-2025-10-30_en.
[33] Ibid.

acquisition, energy and resource use, maintenance, replacement, residual value, and end-of-life costs over an asset's full useful life[34].

Area 2 – Embedding the circular economy in global governance and trade

Despite their central role in addressing both ecological limits and human needs, resources are not adequately reflected in global governance and national strategies. Moreover, the global trade system needs reform to incorporate circular economy considerations in cross-border resource flows and resource-rich countries need to be given the space to diversify their economies away from commodity-dependence.

2.1 Advance global resource governance

Barrier: Resource extraction and processing is the main driver behind climate change and biodiversity loss and significantly contributes to pollution – yet it remains underrepresented in global environmental agreements and national ambitions and action plans[35]. Without explicit strategies to address global levels of resource demand, countries will continue to tackle the symptoms of environmental degradation, rather than their root cause[36].

Instruments: Countries should define global and national resource use pathways that are linked to multilateral environmental agreements and related national strategies[37], including Nationally Determined Contributions (NDCs) and National Biodiversity Strategies and Action Plans (NBSAPs). This would support the achievement of existing climate, biodiversity and pollution targets, while anchoring resource governance in frameworks that already have national reporting, review cycles, and – in the case of climate – a built-in ratchet mechanism. Such national resource use pathways need to be differentiated by development contexts, i.e. high-income countries aiming for absolute reductions in resource use and developing economies aiming for resource-efficient growth[38], and linked to the best available science on what constitutes sustainable levels of resource use at the global level. A complementary, albeit more far-reaching initiative, would be the establishment of an International Materials or Minerals Agency under a UNEA mandate that could monitor national performance, strengthen existing transparency and reporting frameworks, benchmark country performance, and build policy capacity where it is needed most[39].

2.2 Incorporate circular economy considerations in the global trade system

[34] United Nations Environment Programme, *Sustainable Public Procurement: How to Wake the Sleeping Giant*, 2nd ed. (Nairobi: UNEP, 2021), https://wedocs.unep.org/20.500.11822/37045.; European Commission, "Life Cycle Costing" (European Green Forum, 2025), https://green-forum.ec.europa.eu/green-public-procurement/life-cycle-costing_en.
[35] Barrie et al., *Global Stocktake of National Circular Economy Roadmaps*.; United Nations Environment Programme, *7th Global Environment Outlook: People and Planet in the Balance* (Nairobi: UNEP, 2025), https://www.unep.org/index.php/global-environment-outlook/geo-7.
[36] IRP, *Global Resources Outlook 2024*.
[37] Ibid.
[38] Ibid.
[39] Ibid.

Barrier: Circular economy considerations are largely absent from international trade rules and agreements[40], making trade in circular goods more expensive than linear alternatives. The absence of agreed definitions for secondary materials and recyclable goods causes legitimate circular trade to be treated as waste and blocked at borders[41], while facilitating illegal waste shipments that disproportionately affect lower-income countries[42].

Instruments: Countries need to agree on common definitions for remanufactured products and secondary raw materials, so these goods are not treated as waste and restricted from trade[43]. Trade and economic cooperation agreements should explicitly incorporate circular economy and resource-efficiency objectives, while reducing tariff and non-tariff barriers and improving trade facilitation for circular goods, reverse supply chains, and enabling technologies such as sorting, recycling, repair, refurbishment and remanufacturing equipment[44]. Tackling illegal waste shipments, which disproportionately affect low-income countries, requires coordinated international monitoring and enforcement[45]. Developing countries should be adequately represented in designing standards and trade rules through representation in international standard-setting bodies and receive targeted financing and technical assistance to meet compliance costs[46].

2.3 Enable resource value retention in producer countries

Barrier: Beyond the technical dimensions of trade reform, the foundations of value capture in global material value chains require fundamental redesign. Raw materials, energy, and labour consistently flow from lower to higher income countries at prices that fail to account for the environmental and social costs borne in the former - a structural transfer of economic value that has persisted across decades[47].

Instruments: Several instruments need to be pursued in parallel to enable greater value retention in producer countries. Importing countries should be required to pay for the true

[40] Shunta Yamaguchi, "International Trade and Circular Economy: Policy Alignment," OECD Trade and Environment Working Papers 2021/02 (Paris: OECD Publishing, 2021), https://doi.org/10.1787/ae4a2176-en.; Barrie et al., *Global Stocktake of National Circular Economy Roadmaps*.
[41] World Trade Organization, *Trade Policies for a Circular Economy: What Can We Learn from WTO Experience?*, WTO Staff Working Paper ERSD-2020-10 (Geneva: WTO, 2020), https://www.wto.org/english/res_e/reser_e/ersd202010_e.htm.
[42] Patrick Schröder and Jack Barrie, *The Role of International Trade in Realizing an Inclusive Circular Economy*, Chatham House Research Paper (London: Royal Institute of International Affairs, 2022).
[43] WTO, *Trade Policies for a Circular Economy*.
[44] Yamaguchi, "International Trade and Circular Economy."; Shunta Yamaguchi, "Securing Reverse Supply Chains for a Resource Efficient and Circular Economy," OECD Trade and Environment Working Papers 2022/02 (Paris: OECD Publishing, 2022), https://doi.org/10.1787/6ab6bb39-en.; Evdokia Moïsé and Enxhi Tresa, "Trade Policies to Promote the Circular Economy: A Case Study of the Plastics Value Chain," OECD Trade Policy Papers No. 279 (Paris: OECD Publishing, 2023), https://doi.org/10.1787/e36f2d91-en.; United Nations Economic Commission for Europe, *Harnessing Trade for the Circular Economy* (Geneva: UNECE, 2025), https://unece.org/trade/publications/harnessing-trade-circular-economy.
[45] Schröder and Barrie, *The Role of International Trade*.
[46] Schröder and Barrie, *The Role of International Trade*.; IRP, *Global Resources Outlook 2024*.
[47] IRP, *Global Resources Outlook 2024*.; Jason Hickel, Dylan Sullivan, and Huzaifa Zoomkawala, "Plunder in the Post-Colonial Era: Quantifying Drain from the Global South Through Unequal Exchange, 1960–2018," *New Political Economy* 26, no. 6 (2021): 1030–1047, https://doi.org/10.1080/13563467.2021.1899153.; Jason Hickel et al., "Imperialist Appropriation in the World Economy: Drain from the Global South through Unequal Exchange, 1990–2015," *Global Environmental Change* 73 (2022): 102467, https://doi.org/10.1016/j.gloenvcha.2022.102467.

environmental and social costs of extraction – for example through a Raw Material Border Adjustment Mechanism as proposed by the IRP – with revenues directed toward improving extraction standards and supporting economic diversification in (low-income) material producer countries [48]. Producer countries can capture more value from their natural resources by onshoring higher value-adding downstream processing of materials. This can be achieved by imposing export taxes or restrictions on unprocessed materials to encourage in-country processing, alongside local content policies that promote domestic processing and require greater use of local suppliers, goods, and services[49]. Financial loopholes such as trade misinvoicing, abusive transfer pricing and tax avoidance by multinational companies erode public revenues in developing countries: trade value gaps were estimated at US$1.6 trillion in 2018, while full implementation of the global OECD tax agreement could raise corporate tax revenues in developing economies by up to 8% [50]. Closing these leakages requires wider implementation of the global tax agreement, alongside action against financial secrecy jurisdictions and greater customs transparency and trade-data sharing. Moreover, the financialisation of commodity markets, through which price volatility is driven by speculative behaviour on part of financial actors, requires targeted regulation of commodity trading, which is concentrated in a small number of jurisdictions. [51]

Area 3 – Correcting the prices of resources and pollution

The environmental and social damage caused along the lifecycle of resources (from extraction to waste) is not reflected in the prices businesses and consumers pay. The result is that extracting primary resources and throwing them away tends to cost less than keeping them in use. Fiscal and economic reform can address this imbalance by aligning prices with the true costs of resources across their life cycle.

3.1 Shift taxes from labour to resource use and pollution

Barrier: Across high-income and many middle-income economies, labour is more heavily taxed than the extraction of raw materials, pollution, and waste [52]. This makes labour-intensive circular economy business models focused on repair, refurbish, remanufacture financially less attractive compared to throwing resources away prematurely and purchasing new products[53].

[48] IRP, *Global Resources Outlook 2024*.
[49] Isabelle Ramdoo and Aaron Cosbey, *Local Content Policies in Mining: Scaling Up Local Procurement* (Geneva: IGF and IISD, 2020), https://www.iisd.org/publications/local-content-policies-mining.; Abdoul Ba and Jérémie B. Jacquet, "Local Content Policies in West Africa's Mining Sector: Assessment and Roadmap to Success," *The Extractive Industries and Society* 9 (2022): 101048, https://doi.org/10.1016/j.exis.2021.101048.
[50] Organisation for Economic Co-operation and Development, *2024 Progress Report on Tax Co-operation for the 21st Century* (Paris: OECD Publishing, 2024).
[51] IRP, *Global Resources Outlook 2024*.
[52] Organisation for Economic Co-operation and Development, *Tax Policy Reforms 2023: OECD and Selected Partner Economies* (Paris: OECD Publishing, 2023).; Organisation for Economic Co-operation and Development, *Environment at a Glance Indicators 2024* (Paris: OECD Publishing, 2024).
[53] Walter Stahel, "Policy for Material Efficiency—Sustainable Taxation as a Departure from the Throwaway Society," *Philosophical Transactions of the Royal Society A* 371 (2013): 20110567.; Luis J. Llorente-González and Xavier Vence, "How Labour-Intensive Is the Circular Economy? A Policy-Relevant Analysis," *Resources, Conservation and Recycling* 162 (November 2020): 105033, https://doi.org/10.1016/j.resconrec.2020.105033.; Xavier

Instruments: A comprehensive tax shift can rebalance this by raising revenue from pollution, resource use, and resource-intensive consumption while lowering the tax burden on labour-intensive circular activities. On the revenue side, this includes taxes on primary resource extraction and mining royalties, prices on carbon and other forms of pollution, waste disposal levies, water charges, and higher value-added taxes on resource-intensive goods. On the relief side, it includes cuts to income tax, income support for lower-income households, payroll tax credits for circular innovations, and reduced or exempt VAT on repair services, second-hand goods, and products with recycled content[54].

3.2 Phase out harmful subsidies

Barrier: Public subsidies for fossil fuels and agriculture artificially reduce the cost of extraction and resource-intensive production, making primary resources cheaper than they should be. For fossil fuels, explicit subsidies were USD 725 billion in 2024; when unpriced health and environmental costs are included, the total rises to USD 7.4 trillion – equivalent to 6.4% of global GDP[55]. In agriculture, 87% of the USD 540 billion in annual producer support is either price-distorting or harmful to nature and health[56].

Instruments: A priority assessment of subsidy portfolios (adapted to national circumstances) should identify and phase out support that is most harmful to nature and health (e.g. production subsidies for fossil fuels and input subsidies in agriculture). For fossil fuels, full price reform would generate revenues equivalent to 3.6% of global GDP – fiscal space to fund affordable, clean energy access[57]. For agriculture, subsidies could be redirected towards research and development, rural infrastructure development, and targeted cash transfers to protect smallholders and poor consumers from short-term food cost increases[58].

3.3 Build Extended Producer Responsibility schemes

Barrier: Once a product is sold, the company that made it typically bears no legal or financial responsibility for what happens next[59]. The cost of collection, sorting, and disposal falls on local authorities and taxpayers – an implicit subsidy for linear business models that maximise product sales and waste.

Vence and Susana López Pérez, "Taxation for a Circular Economy: New Instruments, Reforms, and Architectural Changes in the Fiscal System," *Sustainability* 13, no. 8 (2021): 4581.

[54] Femke Groothuis et al., *The Tax Shift: An EU Fiscal Strategy to Support the Green Deal* (Brussels: Ex'tax Project, 2022), https://circulareconomy.europa.eu/platform/sites/default/files/the-taxshift_eu-fiscal-strategy_extax-project-2june22def.pdf.

[55] International Monetary Fund, "Underpriced and Overused: Fossil Fuel Subsidies Data 2025 Update," IMF Working Paper No. 2025/270 (Washington, D.C.: IMF, 2025), https://doi.org/10.5089/9798229034715.001.

[56] Food and Agriculture Organization, United Nations Development Programme, and United Nations Environment Programme, *A Multi-Billion-Dollar Opportunity: Repurposing Agricultural Support to Transform Food Systems* (Rome: FAO, 2021), https://openknowledge.fao.org/items/7872fdc7-cb4f-4c76-aab2-84b69b5d127f.

[57] International Monetary Fund, "IMF Fossil Fuel Subsidies Data: 2023 Update," IMF Working Paper No. 23/169 (Washington, D.C.: IMF, 2023), https://doi.org/10.5089/9798400249006.001.; IMF, "Fossil Fuel Subsidies Data 2025 Update."

[58] FAO, UNDP, and UNEP, *A Multi-Billion-Dollar Opportunity*.

[59] Organisation for Economic Co-operation and Development, "Extended Producer Responsibility: Basic Facts and Key Principles" (Paris: OECD, 2024).

Instruments: Extended Producer Responsibility (EPR) schemes correct this market failure by internalising end-of-life costs into product prices before they are sold. On the one hand, EPR schemes mandate producers to take back products at end of life and meet legally binding collection and recycling targets, with penalties for non-compliance. On the other hand, eco-modulated fees – varying what producers pay into shared collection systems based on how easy their products are to recycle, repair, or reuse – create a direct incentive to design products that are cheaper to recover [60]. EPR coverage can be extended to packaging, electronics, textiles, furniture, construction materials, batteries, and agricultural plastics (among others), with mandatory targets encompassing reuse and remanufacturing alongside recycling[61]. EPR coverage could also extend to industrial and business-to-business capital equipment, with explicit recognition of leasing and performance contract models, in which manufacturers retain ownership and bear direct responsibility for durability, maintenance, and end-of-life recovery.

Area 4 – Directing finance towards circular business models

The financial system continues to direct most investment toward extracting, processing, and discarding resources. Circular economy investments averaged US$27 billion per year between 2018 and 2023, representing only approximately 2 per cent of total commercial investments[62]. Circular business models struggle to attract capital both because banks and investors lack the tools to evaluate them or consider them too risky, and because the risks associated with resource depletion and supply chain fragility are not yet treated as distinct financial concerns.

4.1 Integrate circular economy criteria into sustainable finance taxonomies

Barrier: No global harmonised framework exists for identifying which economic activities qualify as circular. Without common definitions, banks, institutional investors, and capital markets have no basis for classifying or comparing circular investments, and no means of directing capital towards the most impactful solutions.

Instruments: Sustainable finance taxonomies should be extended to treat circular economy objectives as a standalone category, distinct from climate mitigation, with measurable performance indicators covering recycled content, resource intensity, and end-of-life recovery rates. Harmonising existing frameworks, such as the EU Taxonomy, the IFC Harmonized Circular Economy Finance Guidelines[63], the ISO 59000 series, and the Global Circularity Protocol[64], would enable financial institutions across jurisdictions to classify, report on, and compare circular investments, potentially lowering the cost of green bonds

[60] Ibid.
[61] Allison Brown, Frithjof Laubinger, and Peter Börkey, *New Aspects of Extended Producer Responsibility*, OECD Environment Policy Paper (Paris: OECD Publishing, 2023).
[62] Circle Economy and KPMG, *Circularity Gap Report: Finance* (Amsterdam: Circle Economy and KPMG, 2025), https://kpmg.com/xx/en/our-insights/esg/circularity-gap-report-finance.html.
[63] International Finance Corporation, *Harmonized Circular Economy Finance Guidelines* (Washington, D.C.: IFC, 2025), https://www.ifc.org/en/insights-reports/2025/harmonized-circular-economy-finance-guidelines.
[64] World Business Council for Sustainable Development, in collaboration with One Planet Network (UNEP), *Global Circularity Protocol for Business* (Geneva: WBCSD, 2025), https://www.wbcsd.org/resources/a-global-framework-to-measure-manage-and-communicate-business-circularity/.

and sustainability-linked finance for circular businesses. Reporting on resource use and resource-related performance targets should be mandatory, with financial regulators requiring disclosure of circular economy metrics alongside existing climate and biodiversity reporting[65].

4.2 Scale blended finance for circular investment in low- and middle-income countries

Barrier: Private capital for circular businesses remains insufficient for firms trying to scale, with many struggling to secure the funding needed to grow beyond the start-up phase[66]. The perceived risk of uncertain returns and the absence of reliable market data on circular business performance deter commercial investors[67].

Instruments: Regional and multilateral development banks should deploy blended finance instruments – leveraging public resources to mitigate the risks of circular investment and attract commercial capital. This approach is particularly critical for small and medium-sized enterprises, which account for the largest share of circular businesses with unmet financing needs[68]. A Global Circularity Fund, explicitly called for in the 7th Global Environment Outlook, would scale this into a dedicated multilateral instrument – financing waste infrastructure and supporting circular businesses, particularly in low- and middle-income countries[69].

4.3 Integrate resource and linear asset risk into financial regulation and accounting standards

Barrier: The financial sector has made meaningful progress integrating climate risk into investment decisions, but resource-related risks remain largely absent from financial risk assessment frameworks[70]. Dependence on scarce raw materials, fragile supply chains, and linear business models reliant on continued extraction are not adequately reflected in how financial institutions evaluate risk or allocate capital. Moreover, prevailing accounting frameworks - in which assets depreciate steadily and have no residual value at end of life – do not adequately capture the value of products designed for multiple use cycles, creating structural disadvantages for circular business models[71].

Instruments: Financial regulators should require companies to disclose how much they depend on scarce raw materials and fragile supply chains, treating this as a distinct category of financial risk rather than a by-product of climate change. Businesses whose models depend on continued extraction of virgin materials and linear business models should demonstrate their financial resilience if those resources become scarce or significantly more expensive. In parallel, international accounting standards bodies should update how asset values are

[65] Circle Economy and KPMG, *Circularity Gap Report: Finance*.
[66] Ibid.
[67] Ibid.
[68] UNEP, *7th Global Environment Outlook*.
[69] Ibid.
[70] Ibid.
[71] UNEP, *7th Global Environment Outlook*.; Circle Economy and KPMG, *Circularity Gap Report: Finance*.

calculated, so that businesses designed to keep products in use for longer are not systematically disadvantaged by rules designed for a linear economy[72].

Area 5 – Mandating circular product design

Many products on the market today are designed to be replaced rather than repaired, made from materials that cannot be recycled, and sold under a business model that profits from short lifespans.[73] The costs of this – premature waste, toxic materials, lost materials – fall on consumers, public waste systems, and the environment, not on the producers who made the design choices in the first place[74]. Binding product standards address this directly – setting minimum requirements for durability, recyclability, and repairability that apply before products reach the market.

5.1 Mandatory eco-design standards (durability, recyclability, safer chemicals)

***Barrier**:* Manufacturers are still often not required to ensure that products are durable, repairable, transparent in terms of material composition, and designed for safe recovery and recycling[75]. Product-as-a-service models, collection systems, recycling infrastructure, and secondary material markets cannot function if the products entering them were never designed to be repaired, refurbished and recovered in the first place.

***Instruments**:* Ecodesign standards should specify minimum thresholds for product lifespans, repairability scores, recycled content, and maximum concentrations of hazardous substances – with mandatory compliance before market entry. Coverage should extend beyond consumer electronics and appliances to textiles, furniture, construction materials, and packaging (among others). For construction, standards should require that buildings and infrastructure are designed so that materials can be recovered and reused when they are eventually demolished[76].

5.2 Mandatory recycled content requirements

***Barrier**:* Across many value chains, manufacturers still face limited incentives to use recycled inputs, while secondary materials often remain less available or more expensive than virgin materials, weakening investment in collection and reprocessing infrastructure[77].

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[72] Circle Economy and KPMG, *Circularity Gap Report: Finance*.; UNEP, *7th Global Environment Outlook*.; Patrick Schröder and Johanna Raes, *Financing an Inclusive Circular Economy: De-risking Investments for Circular Business Models and the SDGs*, Chatham House Research Paper (London: Royal Institute of International Affairs, 2021), https://www.chathamhouse.org/2021/07/financing-inclusive-circular-economy.

[73] Siddharth Prakash et al., *Weiterentwicklung von Strategien gegen Obsoleszenz einschließlich rechtlicher Instrumente* (Dessau-Roßlau: Umweltbundesamt, 2020), https://www.umweltbundesamt.de/en/publikationen/weiterentwicklung-von-strategien-gegen-obsoleszenz.

[74] UNEP, *7th Global Environment Outlook*.

[75] UNEP, *7th Global Environment Outlook*.

[76] IRP, *Global Resources Outlook 2024*.; Patrick Schröder and Jack Barrie, *How the Circular Economy Can Revive the Sustainable Development Goals: Priorities for Immediate Global Action, and a Policy Blueprint for the Transition to 2050*, Chatham House Research Paper (London: Royal Institute of International Affairs, 2024), https://doi.org/10.55317/9781784136222.

[77] Organisation for Economic Co-operation and Development, *OECD Environmental Outlook on the Triple Planetary Crisis* (Paris: OECD Publishing, 2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/11/environmental-outlook-on-the-triple-planetary-crisis_13752c08/257ffbb6-en.pdf.; Katarina Svatíková, Allison Brown, and Peter Börkey, *Economic*

Instruments: Mandatory recycled content targets require manufacturers to incorporate a minimum share of secondary materials in specified product categories – including plastics packaging, construction aggregates, textiles, electronics, among others. By guaranteeing demand, recycled content mandates create a guaranteed buyer for recovered materials, which makes it financially viable to build and operate collection and sorting infrastructure that would otherwise struggle to find customers. For these targets to be effective, they must be accompanied by certified quality standards for secondary materials that give manufacturers the assurance they need to source high-quality recycled inputs reliably and at scale[78].

5.3 Right to repair (spare parts, repair information, software unlocking)

Barrier: Many products are deliberately designed so that only the original manufacturer can repair them, through proprietary parts, encrypted software, and restricted diagnostic information[79]. A broken product is often cheaper to replace than to fix, not because repair is inherently expensive, but because manufacturers control access to the tools, parts, and information that independent repairers and consumers need[80].

Instruments: Right-to-repair legislation should require manufacturers to make spare parts, diagnostic tools, and repair documentation available to independent repairers and consumers at reasonable cost for a minimum period after a product has been placed on the market. Manufacturers should be prohibited from using software to block independent repair and warranties should remain valid when non-proprietary parts are used. For these measures to be effective, they must be accompanied by public awareness campaigns and accessible repair infrastructure – including community repair centres and trained repair networks – so that consumers know repair is a viable and affordable alternative to replacement[81].

Enabling conditions

The transition towards the circular economy will only succeed at delivering equitable outcomes if it is underpinned by a set of enabling conditions.

Instruments for a Resource-Efficient Circular Economy (Paris: OECD Publishing, 2025), https://doi.org/10.1787/35a7051a-en.

[78] Katarína Svatíková, Allison Brown, and Peter Börkey, *Economic Instruments for a Resource-Efficient Circular Economy* (Paris: OECD Publishing, 2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/02/economic-instruments-for-a-resource-efficient-circular-economy_a0acfd50/35a7051a-en.pdf.

[79] United Nations Conference on Trade and Development, *Digital Economy Report 2024: Shaping an Environmentally Sustainable and Inclusive Digital Future* (Geneva: United Nations, 2024), https://unctad.org/system/files/official-document/der2024_en.pdf.; Margot Moeslinger, Kristóf Almásy, Marion Jamard, and Hugues de Maupeou, *Towards an Effective Right to Repair for Electronics: Overcoming Legal, Political and Supply Barriers to Contribute to Circular Electronics in the EU* (Luxembourg: Publications Office of the European Union, 2022), https://doi.org/10.2760/42722.

[80] Sahra Svensson-Höglund et al., "Barriers, Enablers and Market Governance Mechanisms for Repair of Electronic Products," *Journal of Cleaner Production* 328 (December 2021): 129399.; Schröder and Barrie, *How the Circular Economy Can Revive the SDGs*.

[81] Sahra Svensson-Höglund et al., "Barriers, Enablers and Market Governance Mechanisms for Repair of Electronic Products," *Journal of Cleaner Production* 328 (December 2021): 129399, https://doi.org/10.1016/j.jclepro.2021.129399.

Formalising the role of the estimated 11.4 million waste pickers who perform the majority of collection and recycling in developing economies (through cooperative registration, municipal service contracts, and labour law reform) integrates these workers as recognised participants with labour rights (including occupational health protections), fair pay, and social security contributions[82].

Fiscal reforms that raise the cost of resources risk falling hardest on lower-income households[83]. Carbon and resource dividends (returning tax revenue from resource extraction and pollution to all citizens as equal per-capita payments) could support lower-income households who tend to have relatively small carbon and material footprints[84]. Likewise, the shift away from resource-intensive industries risks displacing workers whose livelihoods depend on them. Sector-specific retraining, negotiated transition agreements, and targeted investment in affected regions are prerequisites for a just transition[85].

Indigenous and local communities have governed shared resources and designed out waste for generations, predating modern circular economy thinking[86]. Bringing these communities in as co-designers of national circular economy strategies, with free, prior and informed consent and formal recognition of their territorial rights, is a prerequisite for sustainable and equitable policy design[87].

Circular standards developed in high-income countries risk functioning as trade barriers for lower-income exporting countries. Technology transfer, technical assistance, and co-investment in institutional capacity are required to enable producers in these countries to comply with and benefit from circular trade rules[88]. Likewise, robust material flow accounting, circularity monitoring, and product-level traceability are preconditions for many

[82] International Labour Organization, *Recycling Economy: Status and Trends in Waste Picker Cooperatives and Enterprises* (Geneva: ILO, 2023).; Felix Preston, Johanna Lehne, and Laura Wellesley, *An Inclusive Circular Economy: Priorities for Developing Countries*, Chatham House Research Paper (London: Royal Institute of International Affairs, 2019).
[83] Katarína Svatíková, Allison Brown, and Peter Börkey, *Economic Instruments for a Resource-Efficient Circular Economy* (Paris: OECD Publishing, 2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/02/economic-instruments-for-a-resource-efficient-circular-economy_a0acfd50/35a7051a-en.pdf.
[84] Cristina Alonso and Ian Kilpatrick, "The Distributional Impact of a Carbon Tax in Asia and the Pacific," *IMF Working Paper* (Washington, D.C.: International Monetary Fund, 2022), https://www.imf.org/en/Publications/WP/Issues/2022/06/24/The-Distributional-Impact-of-a-Carbon-Tax-in-Asia-and-the-Pacific-519983; Tian, Shan, and Hubacek, "Consumption Inequalities in Material Use."
[85] Patrick Schroeder, *Towards an Inclusive Circular Economy* (London: Chatham House, 2020), https://www.chathamhouse.org/sites/default/files/2020-04-01-inclusive-circular-economy-schroder.pdf.; International Labour Organization, *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* (Geneva: International Labour Office, 2015), https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/documents/publication/wcms_432859.pdf.
[86] Martin Calisto Friant, Walter J. V. Vermeulen, and Roberta Salomone, "A Typology of Circular Economy Discourses: Navigating the Diverse Visions of a Contested Paradigm," *Resources, Conservation and Recycling* 161 (2020): 104917, https://doi.org/10.1016/j.resconrec.2020.104917.
[87] UNEP, *7th Global Environment Outlook*.; Neil M. Dawson et al., "The Role of Indigenous Peoples and Local Communities in Effective and Equitable Conservation," *Ecology and Society* 26, no. 3 (2021): art. 19.
[88] Schröder and Barrie, *The Role of International Trade*; Preston, Lehne, and Wellesley, *An Inclusive Circular Economy*.

of the policy instruments in this document to work[89]. Building this infrastructure and ensuring developing countries have the capacity and financing to participate in it, requires dedicated international support[90].

3. EXPECTED BENEFITS AND EVIDENCE, EXAMPLES & BEST PRACTICES

Environmental

Circular economy strategies applied to just five material systems – cement, steel, aluminium, plastics, and food – could reduce emissions from the production of goods by 9.3 billion tonnes of CO2-equivalent annually by 2050, equivalent to eliminating current emissions from all global transport[91]. Broader sustainability transition scenarios combining circular economy measures with changes in energy, food and land systems suggest that greenhouse gas emissions could decline by over 80 per cent by 2060 compared with 2020 levels, while global resource use could fall by around 30 per cent relative to projected business-as-usual trajectories[92].

Lower levels of resource extraction also reduce pressures on ecosystems linked to mining, logging and agricultural expansion. Modelling of circular economy interventions across food and agriculture, construction, textiles and forestry suggests that by 2050 such a transition could reduce agricultural land use by 640 million hectares relative to business-as-usual (an area 1.5 times the size of the European Union) – while saving 280 million hectares of forest, with biodiversity potentially recovering to year-2000 levels by 2035[93].

Transforming food systems through dietary shifts towards healthier, more plant-based patterns, combined with reductions in food loss and waste and improvements in agricultural productivity, could cut food-related greenhouse gas emissions by more than half; halving food loss and waste alone could lower the projected global food supply gap by approximately 20 per cent[94].

Moreover, a full transition to circular waste management could keep global municipal solid waste at roughly 2022 levels through 2050, avoiding the projected 50% increase to 3.9 billion tonnes under current trends[95]. Improved waste management and circular practices could also generate net gains of around USD 108.5 billion per year by 2050, partly through avoided

[89] UNEP, *7th Global Environment Outlook*.
[90] IRP, *Global Resources Outlook 2024*.; Schröder and Barrie, *How the Circular Economy Can Revive the SDGs*.
[91] Ellen MacArthur Foundation and Material Economics, *Completing the Picture: How the Circular Economy Tackles Climate Change* (Cowes: Ellen MacArthur Foundation, 2019), https://www.ellenmacarthurfoundation.org/completing-the-picture.
[92] IRP, *Global Resources Outlook 2024*.
[93] Finnish Innovation Fund Sitra and Vivid Economics, *Tackling Root Causes: Halting Biodiversity Loss through the Circular Economy* (Helsinki: Sitra, 2022), https://www.sitra.fi/en/publication/tackling-root-causes/.
[94] Johan Rockström et al., *The EAT-Lancet Commission 2.0 on Healthy Diets from Sustainable Food Systems* (London: The Lancet, 2025), https://www.thelancet.com/commissions-do/eat-2025.; Tim Searchinger et al., *Creating a Sustainable Food Future: A Menu of Solutions to Feed Nearly 10 Billion People by 2050*, World Resources Report (Washington, D.C.: World Resources Institute, 2019).
[95] Ed Cook et al., *What a Waste 3.0: Global Snapshot of Solid Waste Management toward Circularity until 2050*, Urban Development Series (Washington, D.C.: World Bank, 2026), https://doi.org/10.1596/978-1-4648-2309-1.

environmental and health damages[96] and could almost completely eliminate plastic leakage into the environment by 2060[97].

Circular economy can materially reduce energy-transition mineral demand by lowering primary demand and increasing secondary supply. Although demand for key transition minerals is still projected to rise sharply in net-zero-aligned pathways[98], stronger circularity can reduce the scale of new mining required. Expanded recycling can lower new mining activity by 25–40 per cent by 2050, reduce mining investment needs through 2040 by about 30 per cent, and cut emissions from recycled lithium, nickel and cobalt by about 80 per cent relative to primary production[99]. Beyond recycling, lifetime extension, repair, refurbishment, material recovery and material substitution can further reduce demand for primary mined materials and, in some cases, reduce demand for the mining of critical energy transition minerals by up to 58 per cent by 2050[100].

Socio-economic

Between 121 and 142 million people worldwide already work in circular economy activities such as repair, recycling, second-hand trade and waste management[101]. Most of this employment is concentrated in developing countries. Yet more than 74 million of these workers, over half the total, operate in the informal economy without legal protection, stable income or safe working conditions[102]. The transition therefore presents both an opportunity and an obligation: combining circularity investments with decent work protections, formalisation, and social dialogue could transform precarious livelihoods into a foundation for inclusive development.

Pollution from industrial production, waste and chemical exposure causes around 9 million premature deaths annually (one in six deaths worldwide) and amounts to economic losses equivalent to 6.2 per cent of global GDP[103]. Circlar economy and waste management improvements would deliver the greatest health dividends in low- and middle-income countries, where some 92 per cent of these deaths occur. Improved waste management

[96] United Nations Environment Programme and International Solid Waste Association, *Global Waste Management Outlook 2024: Beyond an Age of Waste* (Nairobi: UNEP, 2024).
[97] Organisation for Economic Co-operation and Development, *Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options* (Paris: OECD Publishing, 2022).
[98] International Energy Agency, *Global Critical Minerals Outlook 2024* (Paris: IEA, 2024), https://www.iea.org/reports/global-critical-minerals-outlook-2024/outlook-for-key-minerals.
[99] International Energy Agency, *Recycling of Critical Minerals* (Paris: IEA, 2024), https://www.iea.org/reports/recycling-of-critical-minerals/executive-summary.
[100] SINTEF, *The Future Is Circular: Circular Economy and Critical Minerals for the Green Transition* (Trondheim: SINTEF, commissioned by WWF, November 2022), https://wwfint.awsassets.panda.org/downloads/the_future_is_circular___sintefmineralsfinalreport_nov_2022__1__1.pdf.
[101] International Labour Organization, Circle Economy, and World Bank, *Employment in the Circular Economy* (Geneva: ILO, 2025).
[102] Ibid.
[103] Richard Fuller et al., "Pollution and Health: A Progress Update," *The Lancet Planetary Health* 6, no. 6 (June 2022): e535–e547.

systems alone could generate net economic gains of around USD 108 billion per year by 2050, partly through avoided environmental and health damages[104].

Reducing dependence on primary resource extraction could also ease social tensions associated with the energy transition: more than half of known energy-transition mineral deposits worldwide lie on or near Indigenous and peasant lands, roughly one in four projects in these areas overlap with recent violent conflict, and 65 per cent of early-stage projects face high concurrent risk across water stress, conflict and food insecurity[105].

4. OBJECTIONS, POTENTIAL BARRIERS & COUNTERARGUMENTS

The specific instruments mentioned in the policy formulation section, including the measures noted as enabling conditions, should be treated as a coherent policy package that should to be advanced over time. It has been designed in view of several anticipated objections and barriers on part of specific stakeholder groups.

Extractive and primary material producers, particularly in high-income economies, frequently raise concerns about competitiveness. Their argument is that resource taxes or product standards could increase production costs relative to less regulated trading partners, potentially encouraging firms to relocate production abroad or increasing emissions embodied in imports[106]. Harmonised international standards, the inclusion of circular economy provisions in trade agreements, and coordinated border adjustment mechanisms aim to mitigate this risk[107] .https://www.unep.org/index.php/global-environment-outlook/geo-7?utm_source=chatgpt.comhttps://doi.org/10.1787/e8c3d060-en

At the same time, these trade measures may raise concerns in resource-rich developing countries. Higher requirements for circular product design or resource use may function as de facto trade barriers when standards diverge, definitions are inconsistent, or compliance is costly, limiting access to major markets[108]. A related and more fundamental concern is that lower demand for some primary raw materials in high-income economies could weaken export revenues in commodity-dependent countries, accounting for 95 of 143 developing countries[109]. Circular economy policies therefore need to be paired with strategies that

[104] UNEP and ISWA, *Global Waste Management Outlook 2024*.
[105] John R. Owen et al., "Energy Transition Minerals and Their Intersection with Land-Connected Peoples," *Nature Sustainability* 6 (2023): 203–211, https://doi.org/10.1038/s41893-022-00994-6.
[106] Yannick Hemmerlé, Tobias Kruse, and Mauro Pisu, "How Different Climate Policies Affect Carbon Leakage through Trade: Cross-Country Evidence for the Manufacturing Sector," OECD Economics Department Working Papers No. 1851 (Paris: OECD Publishing, 2025), https://doi.org/10.1787/5819ce91-en.
[107] UNEP, *7th Global Environment Outlook*.; Antoine Dechezleprêtre et al., "Carbon Border Adjustments: The Potential Effects of the EU CBAM along the Supply Chain," OECD Science, Technology and Industry Working Papers No. 2025/02 (Paris: OECD Publishing, 2025), https://doi.org/10.1787/e8c3d060-en.
[108] UNEP, *7th Global Environment Outlook*.
[109] United Nations Conference on Trade and Development, *The State of Commodity Dependence 2025* (Geneva: UNCTAD, 2025), https://unctad.org/publication/state-commodity-dependence-2025.

support economic diversification and greater domestic value creation [110]. The energy transition in particular creates a clear economic opportunity for resource-rich countries to raise export earnings and domestic value added through processing and downstream manufacturing[111]. International cooperation and development finance will be required to ensure that circular trade measures are accompanied by investment in processing capacity, certification systems and infrastructure in producing countries[112].

Similarly, there are concerns that fiscal measures such as the proposed tax shifts, as well as cost increases resulting from product design requirements and infrastructure investment, may be passed on to consumers. These price increases can fall disproportionately on lower-income households. Taxation reforms that shift taxes from labour to non-renewable resources and waste therefore need to be accompanied by measures to compensate low-income groups and prevent rising energy and material costs. The proposed resource dividend, modelled on equal per-capita carbon dividends, would return revenues from resource pricing to citizens on an equal per-capita basis, ensuring that households with lower material consumption receive more in payments than they pay through higher prices. In the short term, targeted support programmes for vulnerable households can further mitigate potential cost increases.[113][114][115][116]

Similarly, labour displacement is a major concern in extractive and manufacturing sectors and in communities that depend on resource-intensive industries. Workers in high-polluting occupations face higher displacement risks, and these sectors are often geographically concentrated, which means that job losses can have significant local impacts [117]. For this reason, place-based retraining programmes, sectoral transition agreements and targeted public investment in affected regions need to be an integral part of the policy instruments proposed in this brief[118]. Moreover, small and medium-sized enterprises require capacity-building support and access to finance and technology to scale circular business models, meet traceability and reporting requirements, and become integrated into international markets [119].

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[110] United Nations Conference on Trade and Development, *Critical Minerals, Critical Decisions: Industrial Policy and the Energy Transition* (Geneva: UNCTAD, 2025), https://unctad.org/publication/critical-minerals-critical-decisions-industrial-policy-energy-transition.; UNEP, *7th Global Environment Outlook*.
[111] UNCTAD, *Critical Minerals, Critical Decisions*.
[112] UNEP, *7th Global Environment Outlook*.
[113] Magnus Merkle and Geoffroy Dolphin, "Distributional Impacts of Heterogenous Carbon Prices in the EU," IMF Working Paper No. 2024/149 (Washington, D.C.: IMF, 2024), https://doi.org/10.5089/9798400280825.001.
[114] UNEP, *7th Global Environment Outlook*.
[115] Mark Budolfson et al., "Protecting the Poor with a Carbon Tax and Equal Per Capita Dividend," *Nature Climate Change* 11 (2021): 1025–1026, https://doi.org/10.1038/s41558-021-01228-x.; Mark Budolfson et al., "Climate Action with Revenue Recycling Has Benefits for Poverty, Inequality and Well-Being," *Nature Climate Change* 11, no. 12 (2021): 1111–1116, https://doi.org/10.1038/s41558-021-01217-0.
[116] International Labour Organization, *World Social Protection Report 2024–26: Universal Social Protection for Climate Action and a Just Transition* (Geneva: ILO, 2024), https://www.ilo.org/publications/flagship-reports/world-social-protection-report-2024-26-universal-social-protection-climate.
[117] Orsetta Causa et al., "Labour Markets Transitions in the Greening Economy: Structural Drivers and the Role of Policies," OECD Economics Department Working Papers No. 1803 (Paris: OECD Publishing, 2024), https://doi.org/10.1787/d8007e8f-en.
[118] UNEP, *7th Global Environment Outlook*.; Causa et al., "Labour Markets Transitions in the Greening Economy."
[119] UNEP, *7th Global Environment Outlook*.

Finally, objections may emerge from ecological economists and post-growth scholars, who raise a more fundamental concern. They argue that efficiency improvements envisioned by the circular economy alone are compatible with continued growth in total resource use and that no country has yet achieved sustained absolute decoupling of resource use from economic growth[120]. From this perspective, the circular economy risks becoming a narrative that leaves overall resource throughput largely unchanged. This critique highlights important limitations of the currently dominant technology-dominated discourse in policy and business. It is therefore important that circular economy measures encompass not just supply-side oriented strategies but also sufficiency-oriented and demand-side mitigation strategies that directly tackle resource overconsumption and contribute to the achievement of resource-related human needs around the world.

5. IMPLEMENTATION STEPS

The proposed implementation roadmap in Table 1 is not a uniform prescription. What countries should prioritise and in what sequence depends on their national development priorities and capacities.

For lower- and lower-middle-income countries, the objective might be to build circular economy principles into the core of the economic systems that provide housing, mobility, food, and energy; the core challenge is ensuring that the investments needed to meet basic needs do not lock in wasteful, polluting systems for decades to come. Scaling these systems requires access to finance, technology and technical capacity building support, all which need to be (in part) provided by dedicated global funding vehicles and international financial institutions. Near-term priorities for these countries will likely include governing waste and secondary material flows, formalising informal recycling sectors and securing land rights for smallholders.

Upper-middle- and high-income countries might benefit from defining national transition pathways for their economies' resource use, with targets for reducing absolute levels of resource use in the medium- and long-term. For upper-middle-income countries, particularly major manufacturing hubs, the near-term priority might be stabilising resource use by shifting investment away from linear production and ensuring new infrastructure is aligned with circular standards. For high-income countries, the priority might be shifting consumption towards more circular and lower-impact options, financed by phasing out harmful subsidies and introducing taxes on resource use and pollution. In both contexts, governments can act in the short term through a mix of regulatory and fiscal instruments, including product standards, EPR schemes, advertising restrictions, reduced VAT on repair

[120] Timothée Parrique et al., *Decoupling Debunked: Evidence and Arguments against Green Growth as a Sole Strategy for Sustainability* (Brussels: European Environmental Bureau, 2019).; Giorgos Kallis et al., "Post-Growth: The Science of Wellbeing within Planetary Boundaries," *The Lancet Planetary Health* 9, no. 1 (January 2025): e62–78, https://doi.org/10.1016/S2542-5196(24)00310-3.

and second-hand goods, and targeted incentives to support markets for certified recycled-content products.

Table 1. Proposed implementation roadmap for the transition to a circular economy.

Policy area	Short-term actions (0–3 years)	Medium-term actions (~5 years)	Long-term actions (10+ years)
Area 1: Shaping demand for low-impact consumption	Update dietary guidelines; make plant-based options the default in public institutions; set food waste reduction targets; restrict advertising of high-impact product categories in public and media; introduce anti-greenwashing regulation requiring independent verification of environmental claims; embed lifecycle costing in public procurement. *Governance: National, Local*	Scale green / circular procurement standards across sectors; expand public and shared mobility systems and active transport infrastructure; mandate environmental footprint labelling for key product categories; extend advertising restrictions to digital and broadcast media. *Governance: National, Local*	Integrate sufficiency principles into urban planning, infrastructure and service provision across mobility, housing and food systems; embed circular provisioning standards in national development frameworks. *Governance: National, Local*
Area 2: Embedding the circular economy in global governance and trade	Define global and national resource use pathways differentiated by development context; agree common definitions for remanufactured products and secondary raw materials to remove trade barriers; expand technical assistance and co-investment for producer countries; establish international monitoring of global resource use. *Governance: International, Regional*	Integrate resource use indicators and material flow accounting into multilateral environmental agreements' national reporting (NDCs, NBSAPs); strengthen governance of waste trade and secondary material flows; build national capacity for material flow data collection. *Governance: International, Regional, National*	Establish an International Materials Agency under UNEA mandate; integrate circular economy and resource efficiency objectives into trade and investment agreements; introduce Raw Material Border Adjustment Mechanisms with revenues directed to producer countries; harmonise definitions of waste, secondary materials and circular products. *Governance: International*
Area 3: Correcting the prices of resources and pollution	Introduce taxes on primary resource extraction and pollution; conduct systematic review of harmful subsidies (fossil fuels, industrial agriculture) and begin phase-out; introduce or expand extended producer responsibility schemes across priority sectors; reduce VAT on repair, second-hand goods *Governance: National*	Expand eco-modulated EPR fees and deposit-refund systems across packaging, electronics, textiles, construction and agriculture plastics; redirect fossil fuel and agricultural subsidy savings to clean energy access and smallholder support. *Governance: National, Regional*	Align fiscal systems comprehensively with resource efficiency objectives; coordinate resource pricing internationally to prevent competitive distortions; introduce resource content border adjustment mechanisms; redirect revenues via per-capita dividend mechanisms to offset regressive impacts on lower-income households. *Governance: National, International*
Area 4: Directing finance towards	Extend sustainable finance taxonomies to treat circular economy as a standalone category with measurable indicators	Scale blended finance mechanisms with dedicated windows for SMEs and lower-income countries; operationalise a Global Circularity	Require companies to disclose dependence on scarce raw materials and fragile supply chains as distinct financial risk; update international

circular business models	(recycled content, resource intensity, end-of-life recovery); establish circular investment facilities through national and multilateral development banks; mandate disclosure of circularity metrics alongside climate and biodiversity reporting. *Governance: National, Regional*	Fund for waste infrastructure and circular business support; integrate natural capital depreciation into corporate and national accounting standards. *Governance: National, Regional, International*	accounting standards so products designed for longevity are not disadvantaged; integrate resource and linear asset risk into financial regulation and central bank stress testing. *Governance: National, International*
Area 5: Mandating circular product design	Introduce eco-design standards for durability, repairability, recycled content and hazardous substance limits across electronics, textiles, furniture, packaging and construction; adopt right-to-repair legislation requiring availability of spare parts, diagnostic tools and repair documentation at reasonable cost. *Governance: National, Regional*	Introduce mandatory minimum recycled content requirements for plastics packaging, construction aggregates, textiles and electronics; establish certified quality standards for secondary materials to give manufacturers confidence to source at scale. *Governance: National, Regional*	Harmonise circular product standards, recycled content thresholds and lifecycle requirements across international supply chains; prohibit (software-based) blocking of independent repair; extend eco-design coverage to construction and other sectors, requiring design for material recovery at demolition. *Governance: Regional, International*
Enabling conditions	Formalise waste picker and informal recycler roles in national circular economy strategies (cooperative registration, municipal contracts, labour protections); conduct distributional impact assessments for all resource pricing instruments before adoption; integrate free, prior and informed consent safeguards for indigenous and local communities. *Governance: National*	Implement carbon and resource dividend mechanisms to return extraction and pollution revenues to citizens on a per-capita basis; provide sector-specific retraining and negotiated transition agreements for displaced workers in resource-intensive industries; scale technical assistance and co-investment for compliance with circular economy trade rules in lower-income countries. *Governance: National, Regional, International*	Embed just transition principles across all circular economy policy frameworks; develop global benefit-sharing standards for resource extraction; build international support for material flow accounting, circularity monitoring and product traceability infrastructure in lower-income countries as preconditions for EPR compliance, taxonomy eligibility and resource use tracking. *Governance: International*

6. INTERNATIONAL HUMAN RIGHTS FRAMEWORK AND INTERNATIONAL COMMITMENTS

The circular economy is an essential component for ensuring respect for and the protection of the right to a clean, healthy and sustainable environment as unsustainable patterns of production and consumption are issues directly implicated in human rights.[121] The same orientation is reflected in the Agenda for Sustainable Development, which expressly situates sustainable development within an integrated framework of people, planet and prosperity and includes, *inter alia,* the commitment under SDG 12 to ensure sustainable consumption and production patterns.[122]

Beyond soft law instruments, there are several chemicals and waste conventions that crystalize these commitments into binding obligations. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal requires each Party to ensure that the generation of hazardous and other wastes is reduced to a minimum, to ensure the availability of adequate facilities for their environmentally sound management, to prevent pollution arising from such management and to reduce transboundary movements to the minimum consistent with environmentally sound and efficient management (Art. 4(2)). The Convention also establishes a prior notification and consent architecture for transboundary movements (Art. 4(6)).

The recent Ban Amendment, which entered into force on 2019 (decisions II/12 and III/1), prohibits Annex VII Parties (States members of the Organization for Economic Co-operation and Development, the European Union and Liechtenstein) from exporting to non-Annex VII States hazardous wastes covered by the Convention for any final disposal, and hazardous wastes under Article 1(1)(a) for reuse, recycling or recovery.

It has been strengthened further by the 2022 e-waste amendments decision (BC-15/18) to Annexes II, VIII and IX, which the Conference of the Parties (COP) made all electrical and electronic waste subject to the prior informed consent procedure. The COP-17 in 2025 also adopted an amendment to Annex IV to clarify disposal operations, adopted updated technical guidelines on the environmentally sound management of Persistent Organic Pollutants (POPs) wastes, a new Strategic Framework for 2025–2031, and opened a new workstream on transboundary movements of used textiles and textile wastes (decisions BC-17/1, BC-17/4 and BC-17/12).

Another binding instrument is the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Its objective is to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the

[121] United Nations General Assembly (UNGA), The human right to a clean, healthy and sustainable environment, A/RES/76/300 (2022).
[122] United Nations General Assembly (UNGA), Transforming our world: the 2030 Agenda for Sustainable Development, A/RES/70/1 (2015).

environment (Art. 1). The treaty allows, for example, a developing-country Party or a Party with an economy in transition to propose the listing of a severely hazardous pesticide formulation in Annex III (Art. 6). Annex III is the Convention's official list of pesticides that the COP has decided to make subject to the PIC procedure.

On the other hand, the Stockholm Convention is explicitly directed to the protection of human health and the environment from POPs. This underlines the importance of manufacturers taking responsibility for reducing adverse effects caused by their products, recognizes the need to prevent adverse effects at all stages of the life cycle (Preamble), and requires each Party to adopt an action plan for unintentional POPs,[123] promote practical release-reduction measures, and promote, and where appropriate require, substitute or modified materials, products and processes to prevent the formation and release of POPs (Art. 5).

Stockholm also requires POPs wastes to be identified and managed in a manner protective of human health and the environment; such wastes must be destroyed or irreversibly transformed or otherwise disposed of in an environmentally sound manner where appropriate, but they must not be subjected to operations leading to recovery, recycling, reclamation, direct reuse or alternative uses of POPs (Art. 6).

In this context, the Special Rapporteur on toxics and human rights has expressly called for a transition to a "chemically safe circular economy" and emphasized that such a transition must be guided by human rights principles and must address specific toxic waste for example the plastics cycle as a whole.[124] Other experts have emphasized that transforming society to ensure a good quality of life for all in harmony with nature requires, among other things "shifting to a circular economy", alongside reducing material consumption by wealthy individuals and reforming supply chains so as to reduce environmental impacts.[125]

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[123] For example, hexachlorobenzene (HCB), hexachlorobutadiene (HCBD), pentachlorobenzene (PeCB), polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF), and polychlorinated naphthalenes.
[124] Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos Orellana, The stages of the plastics cycle and their impacts on human rights, A/76/207, para. 106, https://docs.un.org/en/A/76/207.
[125] Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, David R. Boyd, Human rights depend on a healthy biosphere, A/76/207, para. 82, https://docs.un.org/en/A/75/161.

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8. KEY EXPERTS

The following list highlights some organisations active in circular economy policy, research and advocacy, whose experts may be relevant for peer review, consultation and partnership in the further development of this brief and the broader Roadmap. It reflects the author's experience and is necessarily selective – many organisations not listed here are making substantive contributions to the field.

Table 2. Overview of selected organisations active in the circular economy (non-exhaustive)

Full name	Abbreviation
Global / Multi-regional	
Global Alliance on Circular Economy and Resource Efficiency	GACERE
Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development	IGF
International Alliance of Waste Pickers	IAWP
International Finance Corporation	IFC
International Labour Organization	ILO
International Resource Panel	IRP
One Planet Network / Ten-Year Framework of Programmes on Sustainable Consumption and Production	OPN / 10YFP
Organisation for Economic Co-operation and Development	OECD
Platform for Accelerating the Circular Economy	PACE
United Nations Conference on Trade and Development	UNCTAD
United Nations Environment Programme	UNEP
United Nations Industrial Development Organization	UNIDO
Women in Informal Employment: Globalizing and Organizing	WIEGO
World Business Council for Sustainable Development	WBCSD
World Resources Institute	WRI
Europe	
Circle Economy Foundation	-
Chatham House	-
Club of Rome	-
Ellen MacArthur Foundation	EMF
European Environment Agency	EEA
Finnish Innovation Fund	Sitra

Institute for European Environmental Policy	IEEP
Metabolic	-
Stockholm Environment Institute	SEI
United Nations Economic Commission for Europe	UNECE
Wuppertal Institute for Climate, Environment and Energy	-
Zero Waste Europe	ZWE
Africa	
Africa Circular Economy Network	ACEN
African Circular Economy Alliance	ACEA
African Development Bank	AfDB
United Nations Economic Commission for Africa	UNECA
Latin America & Caribbean	
Circular Economy Coalition for Latin America and the Caribbean	LAC CEC
Economic Commission for Latin America and the Caribbean	ECLAC
Inter-American Development Bank	IDB
Asia Pacific	
ASEAN Circular Economy Stakeholders Platform	ACESP
ASEAN Secretariat (Environment Division)	ASEAN
Asian Development Bank	ADB
Commonwealth Scientific and Industrial Research Organisation	CSIRO
Institute for Global Environmental Strategies	IGES
The Energy and Resources Institute	TERI

9. REMARKS

Despite recent efforts at standardisation, the circular economy remains a contested concept: well over a hundred definitions exist in the literature[126]. In policy and business practice, the dominant focus remains on technology-enabled efficiency improvements in production, recycling, and waste management. This sits in stark contrast to more holistic academic interpretations, which extend to consumption-oriented interventions and structural transformation of resource use at the societal level[127]. Many of the ideas embedded in these more expansive visions are not new: principles of sufficiency, conviviality, and living within ecological limits have been practised by local communities for generations – including through traditions such as ubuntu, buen vivir, and ecological swaraj – predating the term "circular economy".

While this policy brief advances a more ambitious framing than is common in current circular economy practice, it remains anchored in Western academic and policy traditions. It should be read as one contribution to a much wider conversation and complemented over

[126] Julian Kirchherr et al., "Conceptualizing the Circular Economy (Revisited): An Analysis of 221 Definitions," *Resources, Conservation and Recycling* 194 (July 2023): 107001, https://doi.org/10.1016/j.resconrec.2023.107001.
[127] Martin Calisto Friant, Walter J. V. Vermeulen, and Roberta Salomone, "A Typology of Circular Economy Discourses: Navigating the Diverse Visions of a Contested Paradigm," *Resources, Conservation and Recycling* 161 (2020): 104917, https://doi.org/10.1016/j.resconrec.2020.104917.

time by perspectives from heterodox economic traditions, in particular perspectives from the Global South. For further reading on the diversity of circular economy interpretations and their deeper conceptual roots, see Calisto Friant, Vermeulen and Salomone (2020).