Committee: Economic and Financial Committee (ECOFIN)

Topic: Adopting a Global Framework for Circular Economy Implementation

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Topic Introduction

Our planet is grappling with severe pollution from the linear economy, where we take resources, make products, and then dispose of them. This system has led to staggering issues: over 2.5 billion tons of waste are generated globally each year, with only about 19% being recycled[1]. If we continue this wasteful approach, environmental damage will escalate, threatening ecosystems, public health, and climate stability. To address these pressing problems, a shift to a circular economy is essential.

The concept of the circular economy is to recycle materials for a more sustainable economic system without sacrificing profitability, and to avoid wasting any resources along the whole manufacturing chain[2]. This system attempts to maximise the efficiency of production and consumption in all the industries within the usage and recycling of resources.

According to the World Circularity Gap Report of 2024, awareness of the necessity of a circular economy has tripled in the past five years. However, despite this growing awareness, global circularity is still declining, and the circularity gap is widening. Over 500 gigatonnes of products are still being consumed, indicating that progress towards a complete circular economic society is slow and falling short of the goal.

Facing the global issues of climate change, resource depletion and waste management crises that may harshly damage the who biodiversity and leads to intensive recessions that may even affect the whole human society, promoting a more practical and effective framework for a circular economy is essential for creating a sustainable future where economic growth does not come at the expense of environmental health and social equity. There is a need to rethink how we produce, use, and dispose of the materials, in order to build a more resilient, sustainable, and equitable global society.

[1] "Development Topics." *World Bank*, www.worldbank.org/en/topic. Accessed 27 July 2024.
[2] "Circular Economy." *Corporate Finance Institute*, 22 Nov. 2023, corporatefinanceinstitute.com/resources/economics/circular-economy/.

Definition of key concepts

Circular Economy

"The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible. In this way, the life cycle of products is extended."[3] Such a concept could be done by eliminating waste and extending the life of products and materials, this strategy lessens its negative effects on the environment, protects natural resources, and advances sustainability. Here, the circularity of Circular Economy refers to the degree of transition from a linear economy to the circular economy. Thus, 'Circularity Gap' shows how much progress is left to achieve such a complete circular economy, and highlights the urgency of it.

Linear Economy

"A system in which people buy a product, use it, and then throw it away".[4] This could also be seen as the 'take-make-dispose' model mentioned in the previous section. It is the opposite of a circular economy.

Cradle to Cradle (C2C)

"Cradle to Cradle (C2C) is about using waste as an eternal resource and practice the circular system from the beginning. It is about making community and product development function in a cyclical way where all resources are used effectively (as opposed to the current linear system)."[5] Simply, it means to design all types of product, both industrial and biological, to be easier recycled at the end of their life, so to regenerate materials.

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[3] "Circular Economy: Definition, Importance and Benefits: Topics: European Parliament." *Topics | European Parliament*, www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits. Accessed 5 July 2024.

[4] Knight, Chris. "What Is the Linear Economy?" *European Investment Bank*, European Investment Bank,9,Aug,2023,www.eib.org/en/stories/linear-economy-recycling.

[5] "Cradle to Cradle." *Sustainabilityguide*, sustainabilityguide.eu/methods/cradle-to-cradle/. Accessed 5 July 2024.

Sustainability

Sustainability is the practice of meeting current needs without compromising the ability of future generations to meet their needs. In this case, "environmental sustainability is the ability to maintain an ecological balance in our planet's natural environment and conserve natural resources to support the wellbeing of current and future generations."[6]

Secondary Raw Materials (SRM)

"Recycled materials that can be used in manufacturing processes instead of or alongside virgin raw materials."[7] The utilisation of such material can directly benefit the implementation of a circular economy as more resources can then be recycled and reused.

Scope 3 Emissions

"The result of activities from assets not owned or controlled by the reporting organisation, but that the organisation indirectly affects in its value chain."[8] This refers to the indirect greenhouse gas emissions that occur in a company's production cycle, which are not directly controlled by the company but are a result of its activities.

Economic Growth

"The increase or improvement in the inflation-adjusted market value of the goods and services produced by an economy in a financial year."[9] Economic Growth can positively affect the whole society in many aspects. Specifically, it provides the resources and incentives needed for innovation, infrastructure, and technology that support sustainable practices and regulations. It promotes investments in renewable energy, efficient waste management and sustainable products, facilitating the transition to a more resilient and circular economy.

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[6] *OECDiLibrary*, www.oecd-ilibrary.org/sites/fdda19f3-en/index.html. Accessed 28 June 2024.

[7] European Parliament. "Strategy for Secondary Raw Materials: Legislative Train Schedule." *EuropeanParliament*, www.europarl.europa.eu/legislative-train/theme-new-boost-for-jobs-growth-and-investment/file-strategy-for-secondary-raw-materials. Accessed 27 June 2024.

[8] "Scope 3 Emissions." *EPA*, Environmental Protection Agency, www.epa.gov/climateleadership/scope-3-inventory-guidance. Accessed 27 June 2024.

[9] "Economic Growth." *Wikipedia*, Wikimedia Foundation, 1 June 2024, en.wikipedia.org/wiki/Economic_growth.

Economic Framework

"The measure of execution in product development is our ability to constantly align our plans to whatever is, at the moment, the best economic choice"[10] Through the creation of long-lasting, recyclable products, a circular economic framework prioritises waste reduction and effective resource usage. Supporting circular policies and incentives, it invests in recycling and remanufacturing structures, encourages leasing and sharing business models, and makes manufacturers responsible for the life cycles of their products.

Background Information

Since 1970, a concept of the "circular economy" has been in its development, integrating ideas from different experts and theDories to provide a complete framework for sustainable economic growth. It also attempts to reconstruct all forms of capital that are accessible, including natural, social, financial, and human capital. Recycling plastic is among the most well-known practices of a circular

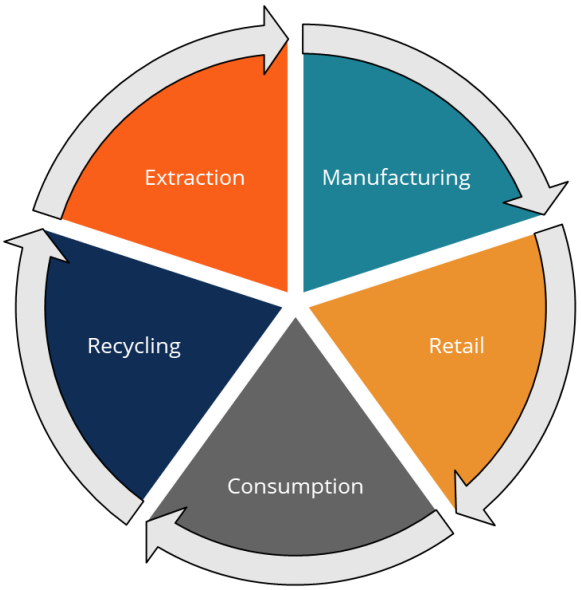

Fig 1: The steps involved in a circular economy [11]

[10] MJ, Prashant. "Economic Framework: Glossary." *INNOVATION ROOTS*, 28 May 2018, innoroo.com/blog/2018/05/30/economic-framework-glossary/.

[11] "Circular Economy." *Corporate Finance Institute*, 22 Nov. 2023, corporatefinanceinstitute.com/resources/economics/circular-economy/.

economy. After usage, bottles, packaging, and other plastic items may be gathered and processed to be transformed into raw materials for the production of new goods like clothing, furniture, and even more packaging, rather than being thrown away. Its three main principles are to 'Reduce, Reuse, and Recycle'. The first step to achieve so is to reduce the excessive extraction of raw materials by employing secondary raw materials that may be recovered from already-produced goods.[12]

The cycles of a circular economy

In practice, under the influence of the idea of 'Cradle to Cradle', a circular economy consists of two main cycles: the technical cycle, and the biological cycle. Both cycles are essential ways to reuse and recycle the materials while maintaining or even boosting the rate of economic growth.

Technical cycles

Resources that are limited must be managed during technical cycles. It is a practice that retains the highest value of a product by extending its use period through redesign, repair, reuse, remanufacturing, and recycling. Several production cycles include the extraction and utilisation of the industrial or manufactured resources. The materials and resources are designed to be more durable and more easily reused, repaired, and remanufactured in order to accomplish this. For example, the tech company Canon is focusing its efforts on the early phases of product design, making their cameras lighter and smaller, while reusing, recycling materials to the greatest extent feasible[13]

https://global.canon/en/sustainability/environment/resource-efficiency/

Biological cycles

In this cycle, biodegradable materials are broken down and returned to the earth through decomposition (via anaerobic digestion and composting). This ensures a continuous cycle, in which the earth reabsorbs its nutrients. These nutrients may then be utilised to produce new biodegradable products. For example, A Portuguese company called 'Nãm Mushrooms' is addressing

[12] Knight, Chris. "What Is the Linear Economy?" *European Investment Bank*, European Investment Bank,9Aug.2023, www.eib.org/en/stories/linear-economy-recycling.

[13] "Initiatives Canon's Approach to Achieve a Circular Economy." *Canon Global*, global.canon/en/sustainability/environment/resource-efficiency/approach/. Accessed 27 July 2024.

Lisbon's coffee waste problem. The business gathers leftover ground coffee from surrounding cafés and restaurants and uses it to cultivate fresh, organic oyster mushrooms. The business subsequently resells the mushrooms to the restaurants and general public. Furthermore, it uses the production waste from growing mushrooms to produce fruits and vegetables organically and nutritionally by selling it to nearby farmers.[14]

Combining the two cycles, the system attempts to reuse all the available resources by recycling the manufactured products, and also by allowing natural materials to be recreated more easily. Only when both cycles are functioning properly and smoothly will result in an absolute circular economy in all aspects, which is beneficial to the whole society and the natural environment.

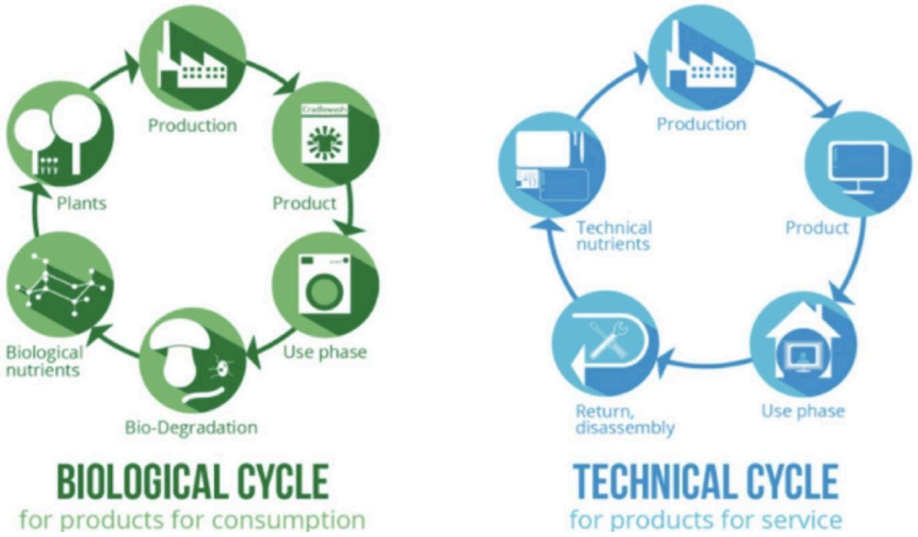

Fig 2: biological cycle and technical cycle[15]

Challenges of transitioning to a circular economy

While the potential benefits of a circular economy are significant, the transition from a linear to a circular model faces several challenges[16].

[14] "NÃM Mushroom: Urbanfarm." *NÃM Mushroom*, nammushroom.com/. Accessed 27 July 2024.
[15] *Distinction between Biological and Technical Cycles in the... | Download Scientific Diagram*, www.researchgate.net/figure/Distinction-between-biological-and-technical-cycles-in-the-Cradle-to-Cradle-design_fig2_322555840. Accessed 28 June 2024.
[16] "What Is Circular Economy and Why Does It Matter?" *UNDP Climate Promise*, 16 Nov. 2022, climatepromise.undp.org/news-and-stories/what-is-circular-economy-and-how-it-helps-fight-climate-change.

Limited Knowledge

Many countries and regions lack awareness and comprehensive strategies for implementing circular economy principles. Also, there is an insufficient understanding of the benefits and impacts of circular economy measures on climate change and biodiversity.

Financial Constraints

Small and medium-sized enterprises (SMEs) and other organisations often struggle to secure the necessary funding to transition to circular business models. The upfront investment for such transitions is substantial, with returns materialising over a long period of time. For instance, transitioning smallholder farmers from conventional to organic cotton production takes around three years, requiring significant investment, knowledge transfer, and training.

Complexity in Impact Assessment

Tracking reductions in "scope 3" emissions (indirect emissions throughout a company's value chain) is particularly difficult due to supply chain transparency issues, weak connections with suppliers, and complex accounting practices. There is a need for standardised metrics and robust methodologies to ensure reliable and comparable data for assessing circular economy impacts. Such tools would enhance transparency, accountability, and effectiveness in reducing scope 3 emissions across various industries.

Link for further research:
climatepromise.undp.org/news-and-stories/what-is-circular-economy-and-how-it-helps-fight-climate-change.

Case studies

Dell

Dell uses a circular economy approach to redesign its products for longer life, greater repairability and easier recycling. The company introduced asset recovery and free product take-back programmes in the late 1990s, supported producer responsibility laws in 2003, and banned the export of e-waste to developing countries. Over the years, Dell has collected more than 2.5 billion

pounds of e-waste and plans to recycle/reuse one product for every product sold by 2030[17]. By partnering with governments and organisations such as UNIDO, Dell has expanded its global reach and established the world's largest electronics recycling programme, significantly reducing the environmental impact of e-waste.

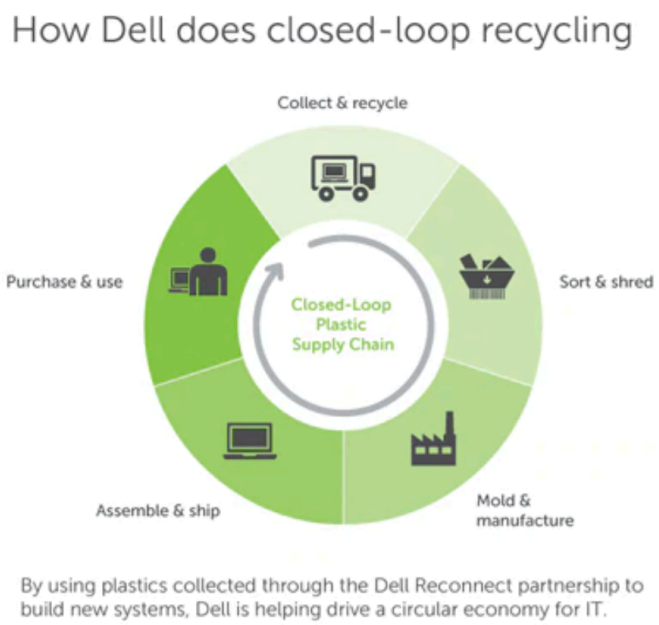

Fig 3: Dell's recycling concepts[18]

Chile's Circular Farming Plan

Agriculture is vital in Chile as it counts for 16.5% of its export, and circular farming is enhancing its sustainability. This approach includes practices like using organic waste as fertiliser, reducing reliance on chemical fertilisers, cutting down waste, and lowering greenhouse gas emissions.

The Chilean government supports this shift by providing policies and subsidies, promoting education and training for farmers, and investing in research for new technologies. These efforts have led to

[17] "Accelerating the Circular Economy: Dell USA." *Accelerating the Circular Economy | Dell USA*, www.dell.com/en-us/dt/corporate/social-impact/advancing-sustainability/accelerating-the-circular-economy.htm#anchor. Accessed 27 July 2024.

[18] *Plasticityforum*,www.plasticityforum.com/perch/resources/2uday-nandaneric-kanter-plasticity-materials4.21.2017vf.pdf. Accessed 9 July 2024.

significant impacts, such as a 20% increase in crop yields on farms using organic compost and improved soil quality. Circular farming in Chile is thus fostering a more sustainable and environmentally friendly agricultural sector.[19]

Fig 4: Chile's Circular Farming plan[20]

Link for further research:

https://www.circularinnovationlab.com/blog/categories/op-eds

Date	Description of the event
1988 - First mention of the concept 'Circular Economy'[21]	Allan Kneese demonstrates how resources are not infinitely renewable in "The Economics of Natural Resources" and uses the phrase "circular economy" for the first time in specific context in 1988.

[19] "Chile." *Holland Circular Hotspot*, 12 June 2021, hollandcircularhotspot.nl/chile/.

[20] "Roadmap for Circular Chile by 2040." *One Planet Network*, www.oneplanetnetwork.org/knowledge-centre/policies/roadmap-circular-chile-2040. Accessed 27 July 2024.

[21] "Natural Resource Economics." *Google*, Google, books.google.gr/books/about/Natural_Resource_Economics.html?id=ZAfsAAAAMAAJ&source=kp_book_description&redir_esc=y. Accessed 27 July 2024.

1989 - Introduction of the Industrial Ecology Concept [22]	The concept of industrial ecology became more popular with the publication of the article "Strategies for Manufacturing" by Frosch and Gallopoulos in *Scientific American*. This article highlighted the potential for industrial systems to function more like natural ecosystems, where waste from one process becomes input for another.
2002 - Introduction of "Cradle to Cradle" Concept[23]	Michael Braungart and William McDonough published their book "Cradle to Cradle: Remaking the Way We Make Things," proposing a new design philosophy focused on creating products that can be fully regained or reused.
December 2015 - First action plan by the EU[24] environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en	It contained initiatives to support Europe's shift to a circular economy, increase competitiveness internationally, promote sustainable economic growth, and create employment.
5-7 June 2017 - World Circular Economy Forum[25] https://www.sitra.fi/en/projects/world-circular-economy-forum-2017/#	It was the first World Circular Economy Forum, held in Helsinki, Finland. It brought together global experts to share best practices and foster international collaboration.

[22] *Strategies for MANUFACTURING1*, www.industrialecology.uni-freiburg.de/Content/IEooc_Background1_Reading3_Strategies_For_Manufacturing_Sci_American_1989.pdf. Accessed 27 July 2024.

[23] "Cradle to Cradle." *William McDonough*, 12 Jan. 2022, mcdonough.com/cradle-to-cradle/.

[24] "First Circular Economy Action Plan." *Environment*, environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en. Accessed 27 June 2024.

[25] "World Circular Economy Forum 2017." *Sitra*, 22 Aug. 2019, www.sitra.fi/en/projects/world-circular-economy-forum-2017/#.

1-12 November, 2021 - Global Commitment to Circular Economy Principles at COP26[26] unfccc.int/sites/default/files/resource/UGIH_COP26_Report.pdf.	Several nations and companies emphasised their commitment to using circular economy principles in their efforts to tackle climate change at the United Nations Climate Change Conference. Circular Economy was highlighted as an 'Ambitious Climate Action' and discussions between experts and enterprises were engaged. [27]
27 - 28 Feburary 2023 - European Circular Economy Stakeholder Conference[28] https://circulareconomy.europa.eu/platform/en	This annual conference focused on the progress and future steps of the EU Circular Economy Action Plan. The 2023 edition emphasised the importance of circularity in achieving the European Green Deal's objectives.

Major countries/ organizations and alliances

The Circular Economy Institute (CEI)

This organisation focuses on educating and certifying professionals and experts on the circular economy practices, and provides a platform for professionals to connect and collaborate on circular economy initiatives.[29]By having this community, everyone can be easily educated and be aware of the necessity of Circular as well as what to do. Many certificate holders include managers of major enterprises, universities researchers and professors, so as to further contribute their effort to create greater impacts on the global implementation of the circular economy.

More about the alumnus: https://ceinstitute.org/alumni/

[26] *COP26 Event Report | UN Climate Change Global ...*, unfccc.int/sites/default/files/resource/UGIH_COP26_Report.pdf. Accessed 28 June 2024.
[27] Page 85 of the COP26 even report cited above.
[28] "Supporting Policy with Scientific Evidence." *2023 European Circular Economy Stakeholder Conference: Recovery, Open Strategic Autonomy and Resilience | Knowledge for Policy*, Accessed 28 June 2024.
[29] "Book A Training Session." *The Circular Economy Institute*, 1 Aug. 2022, ceinstitute.org/.

European Union (EU)

The EU's comprehensive legislative framework sets a high standard for circular economy practices globally and strongly encourages all European countries to contribute. It proposed the 'Circular Economy Action Plan' (2015, 2020) and the 'European Green Deal'[30] (2019), which set powerful examples for other countries and regions aiming to achieve climate neutrality.

commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

China

As one of the world's major industrial centres, China's legislation has a crucial impact on global resource use and waste management practices. China introduced a number of programmes, including the "Circular Economy Promotion Law (CEPL)" in 2009, which resulted in a 26% increase in resource productivity between 2015 and 2020. Overall, water consumption per unit of GDP fell by 28%, and energy consumption per unit of GDP continued to fall significantly.[31]

circulareconomy.europa.eu/platform/en/knowledge/chinas-circular-economy-policies-review-and-reflection

France

France is a leader in the global adoption of circular economy methods because of its active legislative and regulatory initiatives to promote sustainability and reduce waste. France has implemented comprehensive EPR (Extended Producer Responsibility) schemes, making producers responsible for the end-of-life management of their products. This includes electronics, textiles, and packaging, encouraging manufacturers to design more sustainable products. France also actively participates in international forums and collaborations, advocating for the implementation of global circular

[30] "The European Green Deal." *European Commission*, commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en. Accessed 28 June 2024.

[31] *China's Circular Economy Policies: Review and Reflection*, circulareconomy.europa.eu/platform/sites/default/files/2023-08/China's Circular Economy Policies_ Review and Reflection.pdf. Accessed 28 June 2024.

economy practices. Its active role in the European Union (EU) strengthens regional policies and sets an example for other countries.

The Netherlands

The Netherlands' ambitious goal of achieving a fully circular economy by 2050 showcases its leadership in sustainable innovation and policy development. The Netherlands' Circular Economy Strategy starting in 2016 has had profound effects on the country's economy, environment, and society, and its success serves as a model for other nations seeking to implement circular economy principles and achieve sustainable development goals.[32] Some specific measures include investing in innovation and research to develop new technologies and processes that support circularity, providing financial incentives such as subsidies and tax breaks to businesses that implement circular practices, as well as addressing the flows of critical raw materials, which are essential for the Dutch economy. One achievement so far is that the country achieved a recycling rate of 80% for all waste streams, significantly higher than the EU average of around 47% by 2020

https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050

USA

The United States of America is the third-largest producer of food waste in the world, with over 60 million tonnes produced annually. The lost value of this food waste accounts for 2% of the country's GDP, and standard landfill disposal results in 170 million MT CO2-eq (170 million metric tons of carbon dioxide equivalent) annually, which is equal to the emissions of 42 coal-fired power plants.[33] As the world's largest economy, U.S. policies and corporate practices have a substantial impact on global markets and can drive significant changes towards sustainability. In practice, leading legislative actions, California has passed laws such as SB 1383, aiming to reduce organic waste disposal by 75% by 2025.[34] In New York, the state has implemented various recycling and waste reduction programs, including the Plastic Bag Reduction, Reuse, and Recycling Act. Even though these actions did not

[32] *OECD iLibrary*, www.oecd-ilibrary.org/sites/fdda19f3-en/index.html. Accessed 28 June 2024.
[33] Author links open overlay panelErinn G. Ryen a, et al. "The Role of U.S. Policy in Advancing Circular Economy Solutions for Wasted Food." *Journal of Cleaner Production*, Elsevier, 20 July 2022, www.sciencedirect.com/science/article/abs/pii/S0959652622027883.
[34] "SB 1383." *SB 1383 | Woodland, CA*, www.cityofwoodland.gov/1345/SB-1383#!rc-cpage=468799. Accessed 27 July 2024.

bring significant changes or effects, considering the massive population and the difficulty of regulating such a big country, these efforts were still crucial and made steps towards the aim of a complete circular economy.

https://www.sciencedirect.com/science/article/abs/pii/S0959652622027883

Jordan

As an LEDC (Less Economically Developed Country, Jordan still faces pollution issues with around 3 million tons of waste generated per year. Its government is seeking entrepreneurs to support local waste management projects, and is also encouraging opportunities for women, enabling individuals to start their own enterprises, acquire new skills, obtain jobs, and assume leadership roles in their communities so as to obtain more ideas and efforts from different perspectives.

https://switchmed.eu/country-hub/jordan/

Ellen MacArthur Foundation (EMF)

The Ellen MacArthur Foundation (EMF) was founded in 2010 by Dame Ellen MacArthur and is one of the most successful organisations in supporting Circular Economy. It aimed to promote and spread practical models of Circular Economy worldwide and runs several initiatives, including the New Plastics Economy and Circular Economy 100, which bring together businesses, governments, and academia to drive circular innovations.[35]

www.ellenmacarthurfoundation.org/

Previous attempts to solve the issue

United Nations Sustainable Development Goal 12 (SDG 12) 2015

The sustainable development goals comprise 17 goals and 169 targets aimed at addressing global challenges, including poverty, inequality, climate change, environmental degradation, peace and justice. Ensuring sustainable patterns of production and consumption is the primary focus of Goal 12.

[35] "It's Time for a Circular Economy." *How to Build a Circular Economy | Ellen MacArthur Foundation*, www.ellenmacarthurfoundation.org/ . Accessed 28 June 2024.

It requires states to help developing countries to implement sustainable practices, encourage resource and energy efficiency and build sustainable infrastructure, it specifically stresses the need of a circular economy and urges nations to attempt.[36] The implementation of this goal sets the foundation of sustainable development which later paved the way for more detailed and specific actions to be taken such as all the following attempts mentioned below and could be seen as very successful.

First circular economy action plan by the EU, December 2015

The first action plan for the circular economy was adopted by the European Commission in December 2015[37]. It contained initiatives to support Europe's shift to a circular economy, increase competitiveness internationally, promote sustainable economic growth, and create employment. One example of the initiative was to hasten Europe's transformation to circular economy by encouraging increased recycling and reusing products, which will "close the loop" on their lifecycles and benefit the economy and ecology. The plan set ambitious targets, like recycling 65% of municipal waste and 75% of packaging waste by 2030. And as a result, the EU countries collectively reached a recycling rate of over 47% by 2018, a significant and successful increase from previous years. Furthermore, several EU countries implemented national circular economy strategies inspired by the plan. For instance, France adopted its Circular Economy Roadmap in 2018, aiming to halve the amount of non-recycled plastic waste by 2025.

environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en

Basel Convention Amendment 2019

This is an amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal that specifically addresses plastic waste. It strengthened the control of international trade in plastic waste, promotes recycling and reduces environmental pollution which is a step in the technical cycle. This global agreement thus emphasises the

[36] "The 17 Goals | Sustainable Development." *United Nations*, United Nations, sdgs.un.org/goals. Accessed 28 June 2024.

[37] "First Circular Economy Action Plan." *Environment*, environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en. Accessed 27 June 2024.

importance of responsible waste management and encourages countries to improve their domestic infrastructure for recycling and waste reduction. However, it has not yet created a large impact and could not be seen as fully successful.

https://www.basel.int/TheConvention/Amendments/Overview/tabid/2759/Default.aspx

Possible solutions

Government regulations and programmes

In this process, it is crucial that governments engage a wide range of stakeholders across different value chains and stages to ensure that all voices are heard in the process, especially the most marginalised and vulnerable. To raise awareness and make companies realise the importance of a circular economy is not just empty concepts brought up by experts, but also real practices that will benefit their prosperity and slow down their developments.

Also, more products and services should be re-designed in a reusable way considering the main idea of Reduce, Reuse and Recycle. In similarity to Canon's attempts, more recycling and less waste of materials will be made when products are more durable and the components can be easily reused. However, this solution is highly likely to face certain financial issues: who will fund? Why should they fund? What will monitor? Who will take responsibility? How to ensure that people follow them?

Possible solutions may include to increase the indirect tax posed on such products and to shift more of the government's budget towards this project, but the opportunity cost and the negative impacts of doing so should also be considered. For example, when the government budget shifts more towards circular economy projects, other public sectors such as education, or healthcare will lose budgets. High indirect tax might lead to the decrease in demand of such products, so the industry may possibly decline, causing uncountable damages to the economy, unemployment may also rise. If these programmes are not planned to be implemented by the public sector, what can make private firms support it? Considering a firm's main aim is to maximise profit but funding such a type of environmental project will definitely give them less profit than just producing and wasting in short terms. Therefore, awareness is also an important aspect that can boost the implementation of regulations and circular economy projects. A more trustworthy and long-lasting monitoring system should thus also be made to ensure the transparency and accuracy of such actions.

Possibly, industries that produce massive amounts of pollution and waste that neglect this concept should be regulated. This means that the companies exceeding a certain set amount of waste produced would be fined seriously or be penalised.

Global Circular Economy Alliance

In order to construct a global framework that will influence all the nations, organisations or alliances must be formed to support and coordinate circular economy projects and to ensure that the measures are taken by different countries considering their different financial situations. Taking into account funding, Public-Private Partnerships are necessary to secure funding through partnerships with governments, private sector leaders, and philanthropic organisations. Thus, major countries with strong economic impacts such as the Netherlands, Sweden, France, and the USA, should be included in such alliances. By establishing a coordinated and cooperative international framework, these organisations can drive significant global change, promoting sustainability, economic growth, and environmental protection, shaping a more sustainable future. To be more specific, the formation of more circular economy organisations can lead to more inspiration and innovation on current technology. More people and experts will be contributing to its progression and better designs for the technical cycles or new methods of recycling could be brought up, which boosts the global development of this concept.

Challenges are still posed, organisations involve lots of people's participation to maintain functioning effectively, but different countries have varying economic capabilities and priorities, not everyone wants to or not everyone is able to participate, making it difficult to implement uniform circular economy strategies. Furthermore, differences in technological advancement and access to innovation can create gaps in the ability of some countries to adopt and benefit from circular economy practices.

Education, training, and awarenesses

A few concrete steps are incorporating the concepts of the circular economy into curriculum at universities and schools, providing green employment training, and starting media and community awareness campaigns. Developing online courses and certification programs can reach a broader audience. Government grants, foreign organisations, and collaborations with the commercial sector

are possible sources of funding. In order to ensure a widespread and successful transition to a circular economy, these programmes are crucial for developing an informed workforce, promoting innovation, and encouraging sustainable consumer behaviours. These initiatives may be strengthened even further via international cooperation and public-private partnerships.

Digital Platforms and Blockchain

Using blockchain technology can make supply chains more transparent and help create global online markets for recycled materials. Blockchain provides a secure and unchangeable record of transactions, ensuring that materials are tracked accurately. To make this work, we need to invest in new technology and get different groups to work together. Challenges include getting everyone to use the technology, keeping data private, and setting common standards. However, this method is essential for confirming where materials come from and how they are used, preventing fraud, and building trust among global partners. It's necessary for achieving a circular economy, promoting sustainability, and using resources more efficiently worldwide.

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