

Forum:	Environmental Commission (EC)
Issue:	Addressing the Environmental and Social Impacts of Linear Economies
Student Officer:	Georgianna Mitsia
Position:	Deputy President

PERSONAL INTRODUCTION

Esteemed delegates of the Environmental Commission,

My name is Georgianna Mitsia, I am a 9th grade student at Platon School, and it is my utmost honor to serve as one of the deputy presidents of the Environmental Commission (EC) in this year's PSMUN conference. The EC is truly a wonderful beginner committee which tackles serious modern-day issues concerning the environment and its protection. By being a part of this committee, you will be exposed to the challenges and threats that our planet faces every day; while you will also practice your leadership and public speaking skills.

The topic of "Addressing the Environmental and Social Impacts of Linear Economies" is, undeniably, of great importance. This study guide will help in your familiarizing with the topic and, eventually, you will be able to debate on it at the time of the conference. You will find information regarding background information of the issue, major countries and organizations involved in it, possible solutions to resolve it and much more in the following pages.

Of course, while this study guide is essential for your holistic understanding of the topic of linear economies, you are strongly encouraged to conduct your own research upon it. You are additionally going to have to search about your country's stance upon the issue, and find information about what measures it has taken to tackle it. I truly wish that you will have a great time in the PSMUN conference of 2024, and that you will be having a fruitful debate. Support your country's opinion, openly discuss all topics with the other delegates; and most importantly, have fun!

If you have any questions regarding the study guide, or any procedures that will take place during the conference, do not hesitate to contact me via email. Reach out to me in georgianna.mitsia@yahoo.com. I am looking forward to meeting all of you!

Yours truly,

Georgianna Mitsia

INTRODUCTION

The linear economy is an economic model which has been adopted by the majority of States around the globe. Also known as the take-make-waste economy, linear economy is a system in which raw materials and resources are extracted in order to make certain products which will be thrown away as soon as they are considered waste.¹

Linear economy is generally considered as a two-edged sword, since it has many advantages as well as drawbacks. A linear economy supports a nation's economic growth by increasing the profit that is gained from the consumption of products and supports numerous infrastructures in the context of businesses, but it is not at all environmentally friendly as it produces a huge amount of waste, and uses raw materials excessively. Therefore, while the linear system has its advantages, it does not go without the destruction of the environment. The impact that linear economies have on society is also to be taken into consideration. Such effects can involve changes in the supply and demand of products and their lifespan. A feeling of competitiveness is also created among companies, societies and people. There have been many attempts to carry out the goal of leaving the linear economy behind, although they all seem to fail due to how accustomed we are to the linear system.

Concerning the theme of this year's conference, which is "the Paradox of Process", it is important to point out how significant this topic is. In our modern society, development is taking place every day, everywhere. This may have positive and negative effects, which will have to be taken into serious consideration since they are the ones that eventually determine the future of humanity. Therefore, the paradox of process is a crucial thing which is totally linked to our lives in the upcoming years. It does not only refer to technological advances, but it represents the development and evolution of the things around us. In relation to the linear economy, the paradox of process plays a pivotal role in the way a state functions, and, therefore, how it evolves in today's modern society.

To be more specific, however, with the countless benefits of development comes the inevitable, rapid degradation of the environment. Biodiversity and ecosystems are lost, nonrenewable sources are finishing fast, forests are being felled, oceans are getting polluted, fresh water is drying up and the cycle of life is slowly getting destroyed because of multiple species that have gone extinct. Linear economies are systems that, regardless of their economic benefits, continue to be extremely unsustainable and pose a threat to our planet and whatever survives on it.

¹ Ellen MacArthur Foundation. "What Is the Linear Economy?" *Ellenmacarthurfoundation.org*, 2023, ellenmacarthurfoundation.org/what-is-the-linear-economy.

This is the reason why this issue requires the attention of our generation, as well as feasible solutions which will tackle it, such as the implementation of a circular economy which is another similar system which follows a different perspective and encourages recycling.

DEFINITION OF KEY TERMS

Linear economy

Linear economy is a system in which resources and raw materials are extracted to make products that eventually end up as waste and will be thrown away, without having been recycled or reused.²

Circular economy

Circular economy is a system based on the reuse of products so as to extend their lifecycle, aiming at reducing waste and producing sustainably. It is environmentally friendly and encourages recycling, minimizing the negative effects of mass production³. Many of the UN member states have already chosen to implement a circular economy lifestyle, while others are slowly progressing to it.

Environmental degradation

“Environmental degradation is a process through which the natural environment is compromised in some way, reducing biological diversity and the general health of the environment. This process can be entirely natural in origin, or it can be accelerated or caused by human activities.”⁴

Manufacturing technologies

The term refers to techniques and processes designed to improve manufacturing quality, productivity, including quality control, inventory management, worker training, as well as manufacturing equipment and software.⁵

² Ellen MacArthur Foundation. “What Is the Linear Economy?” *Ellenmacarthurfoundation.org*, 2023, ellenmacarthurfoundation.org/what-is-the-linear-economy

³ NEWS. *European Parliament*, 24 May 2023.

⁴ GEMET. “Environmental Degradation.” *Www.eionet.europa.eu*, 6 Dec. 2021, www.eionet.europa.eu/gemet/en/concept/15154.

⁵ “Definition: Manufacturing Technology from 10 USC § 2500(10) | LII / Legal Information Institute.” *Www.law.cornell.edu*,

Raw materials

Raw materials are resources that have not undergone any manufacturing so far and they are used to produce multiple supplies or goods. The raw materials are firstly extracted and, then, are processed, and finally made into a product for sale. Raw materials play a significant role in the context of the circular economy as it wishes to preserve, and not to consume these resources. On the other hand, they are also a big part of the linear system because they are being used systematically, and are getting more and more scarce.⁶

Overconsumption

Overconsumption is the excessive consumption of products or goods. It can have detrimental effects on the environment and the natural world and it plays a significant role in the linear economic model. An example of overconsumption could be purchasing new products without actually needing to do so.

Environmental footprint

The environmental footprint refers to the entirety of goods, supplies and the demand for them on our planet. It may also be called ecological footprint. It is a way of identifying the seriousness or amount of impact that consumers have on the environment.⁷

BACKGROUND INFORMATION

The causes of linear economy

To understand the nature and consequences of a linear economy, it is important to comprehend how exactly they work and what their impact is, not only on the environment but on society and the economy as well.

Linear economy, as mentioned before, is a system in which raw materials are directly extracted, manufactured and made into products that are purchased daily. The Industrial Revolution, which was the period during which the linear economy ideology started, began in Britain in the 18th century, at the time, due to the many advanced technologies that had just been created and presented to the public, mass production took place daily. People no longer focused on their needs exclusively, but also on what

www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=10-USC-1323066670-601268573&term_occur=2&term_src=

⁶ “Raw Materials.” *WallStreetMojo*, 7 Sept. 2021, www.wallstreetmojo.com/raw-materials/.

⁷ APLANET. “What Is the Environmental Footprint and How Is It Measured?” *APLANET*, 27 Oct. 2022, aplanet.org/resources/what-is-the-environmental-footprint-and-how-is-it-measured/.

they wanted to purchase to please themselves. Endless products seemed life-changing for them, and, thus, they started buying goods excessively.

The economy of multiple states has improved because of the linear system and the consumerism culture. Great amounts of money are gathered from the extreme consumption of products, which not only benefit the companies that make them but also the state because of taxes. Additionally, the majority of companies and businesses choose to locate their factories in Less Economically Developed Countries, a practice which, even though results in child labor and other detrimental effects, minimizes production costs. This, eventually, defines the profit earned by purchasing products even higher.

Products such as those in every linear economy, however, end up as waste as soon as they are considered dysfunctional or unneeded. No recycling, repairing, or sharing takes place whatsoever, so this is the reason many tonnes of waste are gathered annually. Even though people are aware of the negative effects of the linear economy, society does nothing to stop its implementation. This was how the take-make-waste mentality first started, and it certainly stigmatised today's economy.

Many things cause a linear economy. Linear economy results from business practices that ignore the detrimental effects of their practices and the general impact that they have on the environment. Raw materials are not infinite, in other words, never-ending, and the fact that this piece of information is being disregarded has clearly resulted in the take-make-waste mentality.⁸

Less Economically Developed Countries (LEDCs) statistically follow the linear economy for decades, as it is a traditional system which is easy to implement. It has been clear that LEDCs do not have adequate measures to change their economic model, so this is the reason why they stick to the linear system. All in all, Less Economically Developed Countries may lack strong political will and capital, technological advances and a stable economic status, and this undeniably affects how they handle financial changes.

Our modern-day society is truly accustomed to the linear economy due to its easy implementation and undeniable economic benefits.

The impact of linear economy

Environmental impact

⁸ Het Groene Brein. "What Are the Disadvantages of the Current Linear Economy? - Kenniskaarten - Het Groene Brein." *Kenniskaarten - Het Groene Brein*, 2017, www.kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/ce-disadvantages-linear-economy/.

Linear economies have, on multiple occasions, a direct impact on the environment. Undeniably, the biggest drawback of a linear economy is the environmental degradation it causes. The take-make-dispose system involves extracting raw materials and using natural resources and non-renewable sources to create products. Although the goods that our planet provides us with are not infinite, due to their extreme use in recent years, they have already started to get more and more scarce. The lack of the said materials obviously hurts the environment. The loss of natural resources directly means that the forms of life dependent on them will suffer. Humans, for instance, require such goods to sustain themselves and cover their basic expenses. Without petrol, humans will not be able to go from one place to another without spending big amounts of money on electric vehicles. Without iron ore, humans will not be able to produce machinery as 98% of it is used in the steel industry. Moreover and more importantly, the competitiveness for the acquisition of these products will become harsher than ever, and it may result in conflicts and wars among states.

Additionally, a linear economy contributes to climate change, which is a modern-day phenomenon that is very degrading to the natural world. Because of global warming, 150 species are becoming extinct every day, erasing a significant part of the world.⁹ Climate change is also responsible for water and ocean pollution which harms marine life. CO₂ gas emissions, high energy and water consumption, and the emission of toxic substances which pollute rivers and lakes are all results of global warming and climate change.¹⁰

Indirect environmental issues are created by the implementation of a linear economy as well. For example, a linear economy encourages excessive consumption, which eventually results in multiple megatons of waste being gathered annually. Waste is most certainly extremely harmful to the environment and interrupts the smooth flow of wildlife; not only by polluting ecosystems, but also by interrupting the chain of life as countless species are forced out of their natural habitats, and seek protection in dangerous places which are not capable of sustaining them.

⁹ Pearce, Fred. "Global Extinction Rates: Why Do Estimates Vary so Wildly?" *Yale E360*, 17 Aug. 2015, e360.yale.edu/features/global_extinction_rates_why_do_estimates_vary_so_wildly.

¹⁰ Het Groene Brein. "What Are the Disadvantages of the Current Linear Economy? - Kenniskaarten - Het Groene Brein." *Kenniskaarten - Het Groene Brein*, 2017, kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/ce-disadvantages-linear-economy/.

Moreover and more importantly, the linear economy encourages people to stop recycling, as it is not a part of this system. Purchasing random products once the previous ones are considered unneeded, is an act which does not, in any way, point out the significance of recycling or reusing. This undeniably has a negative impact on the environment due to the waste that is produced and ends up in landfills.

Finally, another disadvantage of a linear economy is the dependence that is created on non-renewable natural sources and raw materials. What is ignored by multiple businesses is that such goods are not infinite and that eventually, they will be extremely rare to use for the making of products.

Social impact

A linear economy also has significant social impacts. This dependence on natural resources also results in a huge demand for products, meaning such goods will be used even more often because an overwhelming number of people will be eager to find out what the next life-changing product will be. It has been clear that the lifespan of products has decreased dramatically over the last two decades, and, therefore, production companies manufacture increasing numbers of goods daily. This has a negative effect not only on societies but also on people who are being competitive to see who is capable of affording the newest goods.

Therefore, the most significant social effect that such an economy has on society is the fact that competitiveness, not only between manufacturing companies, but also among people, takes place. This is undeniably dangerous for the organization of communities and society in general, as it tends to shift away people from moral values and instead makes them eager to spend huge amounts of money for no specific reason.

Economic impact

A linear economy, characterized by the take-make-dispose model, has profound economic implications. One notable consequence is the inherent volatility in the prices of materials and natural resources, stemming from a demand that often surpasses the available supply. These fluctuations create challenges for consumers and businesses alike, as sudden spikes in prices can lead to increased costs for goods and services reliant on these resources. Industries dependent on raw materials may find it difficult to maintain stable production costs, affecting their competitiveness in the market.

Furthermore, the geopolitical dependence on specific regions or countries with abundant natural resources exacerbates the risks associated with a linear economy. Tensions, disputes, or disruptions in these resource-rich areas can ripple through global supply chains, impacting the availability and cost of resources on a broader scale. Such dependence introduces vulnerabilities that can have cascading effects on businesses and economies.

The risks associated with a linear economy extend to discouraging long-term investments in resource extraction industries. The unpredictability of raw material prices can deter businesses from investing in technologies or practices that enhance resource efficiency. This hesitancy may slow down innovation and impede progress towards sustainable development, hindering the transition to a more resilient economic model.

Consumers and businesses also bear the burden of environmental externalities associated with a linear economy. Neglecting the environmental costs of resource extraction and disposal leads to long-term consequences such as habitat destruction, pollution, and climate change. Over time, these environmental impacts contribute to additional economic burdens, including cleanup costs, health-related expenditures, and regulatory measures.

Linear economies and circular economies

Although there are no significant similarities between circular economy and linear economy, they do have some common points that ought to be mentioned. A common point between the two is that, despite the EU and the UN supporting the circular economy, the linear economy is also widely supported by many states, primarily Less Economically Developed Countries (LEDCs). Another similarity between the two is that they are both capable of strengthening a state's economic situation and boosting its economic growth. This is a positive point of both types of economy.

There are many differences between a circular economy and a linear economy. Firstly and most importantly, although the linear economy prioritizes profit over the environment, the circular economy chooses to promote sustainability and focuses on saving biodiversity and ecosystems. An additional difference between circular and linear economies is their perspective and their short or long-term revenue; a linear economy appears to have short-term revenue, while a circular economy has long-term revenue.¹¹ The reasoning behind this is simple; a linear economy is completely dependent on natural resources and raw materials, though a circular economy reuses them and expands their life cycle. Because such goods are becoming more and more scarce, the linear economy is not going to have any materials to produce goods with, whereas the circular economy will have reused the same materials multiple times and will continue to manufacture goods and give them a second life.

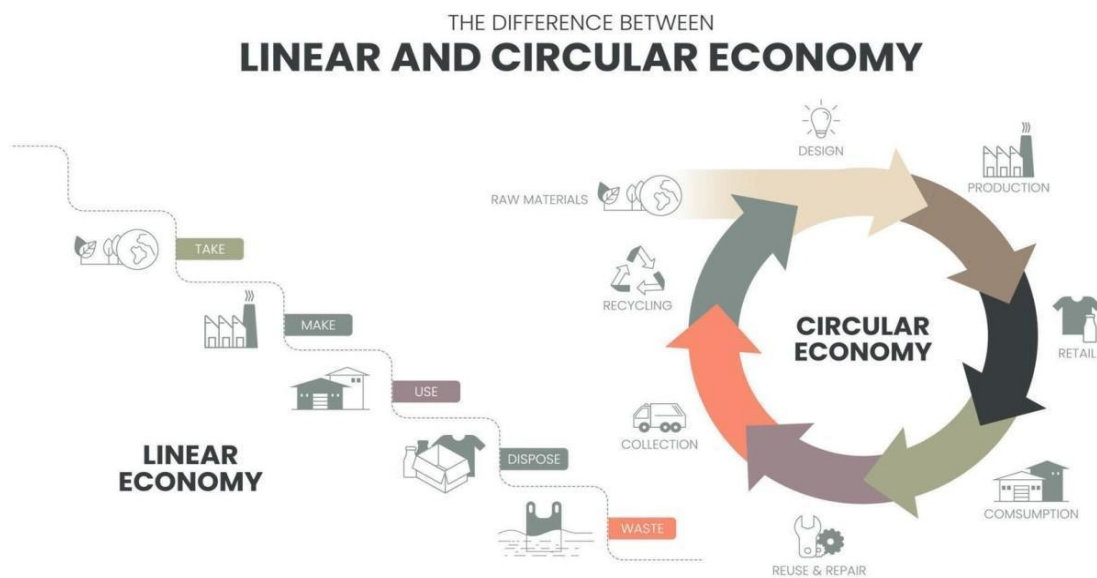


Figure 1: The difference between circular and linear economy.¹²

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

Australia

Australia is currently following a take-make-waste kind of economy which is considered unsustainable and not eco-friendly. Australia generated approximately 76

¹¹ anna.golowska. "Linear Economy vs Circular Economy: What Are the Key Differences and How to Make the Change." Contec, 16 Mar. 2023, contec.tech/linear-economy-vs-circular-economy-differences-how-to-make-the-change/.

¹² "The Shift from Linear to Circular Economy Is the Road to Sustainable Digitalization." *www.linkedin.com*, www.linkedin.com/pulse/shift-from-linear-circular-economy-road-sustainable-caroline.

megatons of waste during the period of 2020-21, posing challenges for waste management and contributing to resource depletion. Australia's environmental problems are worsened by the linear economy model because of the nation's unique ecosystems and vulnerability to climate change. Furthermore, the loss of habitats and the release of greenhouse gases are frequently linked to the exploitation of natural resources for commercial gain, especially in sectors like mining. In response, Australia is recognizing the need to shift to a circular economy, emphasizing waste reduction, material reuse, and product recycling for a more sustainable future.

Brazil

Brazil is the biggest country in Latin America and is widely and internationally known as a major global supplier of raw materials. The products, raw materials and the sources that this country exports have a great impact on the environment, and influence multiple markets and commodities.¹³ Additionally, it is the world's leading producer and exporter of tin, iron ore and phosphate, materials that it exports and are used for the production of countless products that people use in their everyday lives. Therefore, the linear economy is clearly supported by the exportation and trading of raw materials and natural resources.

China

Being the country with the biggest production rate, China has played a pivotal role in the application of both linear and circular economy. China adopted a circular economy to follow a more sustainable production of products. During the industrialization process, China was producing great environmental damage, which resulted in the country choosing to follow a circular economy. This plan has most certainly had countless beneficial points on the economy of China. Undeniably, companies and businesses based in China have been required to change their practices into more sustainable ones. Transitioning to a circular economy also increases the economic opportunities created for companies working in areas like green tech, waste management and recycling technology.¹⁴ Adopting a circular economy has also helped the country ameliorate its status concerning environmental degradation, meaning that it has started to be a cleaner, more sustainable State.

¹³ "Home." *Brazil Global Supplier*, brazilglobalsupplier.com/. Accessed 30 Sept. 2023.

¹⁴ Koty, Alexander Chipman. "China's Circular Economy: Understanding the New Five Year Plan." *China Briefing*, 16 July 2021, www.china-briefing.com/news/chinas-circular-economy-understanding-the-new-five-year-plan/.

France

France has a mixed economic system but is also making multiple attempts towards a circular economy by banning the destruction of unsold non-food products.¹⁵ Such products should be recycled or donated, which will be more than helpful to multiple individuals who cannot afford this kind of equipment. In this way, not only is no waste produced, but people in need are also going to be provided with some goods that will ameliorate their quality of life. Generally, France has tried to move to a circular economy to eliminate improper disposal of waste.

Nigeria

Nigeria has shown not to choose one of the multiple approaches to circular economy, and instead has followed a linear system of its economy. Although numerous other states have implemented circular economy systems, Nigeria is still one of the many states that follow the traditional method of manufacturing and producing. The above-mentioned states, however, which have implemented a circular economy have multiple common points which refer to an advanced economic status, strong political will and advanced technologies. Nigeria, being a Less Economically Developed Country (LEDC), cannot relate to such standards, and so remains to value linear economy.¹⁶ Generally, Nigeria faces issues concerning waste management, although it has the potential to follow a circular economy system. Less Economically Developed Countries (LEDCs) including Nigeria face problems regarding the implementation of a circular economy.

United States of America (USA)

¹⁵“<https://www.banqu.co/Blog/The-Circular-And-Solidarity-Economy-What-Countries-Are-Benefiting>.” *Www.banqu.co*, www.banqu.co/blog/the-circular-and-solidarity-economy-what-countries-are-benefiting.

¹⁶ Ezeudu, Obiora B., and Tochukwu S. Ezeudu. “Implementation of Circular Economy Principles in Industrial Solid Waste Management: Case Studies from a Developing Economy (Nigeria).” *Recycling*, vol. 4, no. 4, 21 Oct. 2019, p. 42, <https://doi.org/10.3390/recycling4040042>.

The American economy is linear. The USA extracts resources, processes them to make products and finally throws the products away in landfills whenever they are considered unneeded or useless. The American population, which is a mind-blowing number of 341 million people is one that generally consumes many products in short time periods. This means that since the state follows a linear economy, the waste that is gathered annually is extremely hazardous to the environment. During manufacturing processes, the patterns of production and consumption lead to emissions, energy consumption, and resource depletion. Due to the linear system's dependency on ongoing extraction and disposal procedures, limited natural resources are depleted and the carbon footprint is made worse.

ISWA (International Solid Waste Association)

The International Solid Waste Association is an international network consisting of waste professionals and experts who carry out the goal “To Promote and Develop Sustainable and Professional Waste Management Worldwide and the transition to a circular economy”¹⁷. ISWA is also responsible for producing detailed reports on certain practices and publishing its own scientific journal which is named “Waste Management and Research”. Undeniably ISWA is a great organization, capable of tackling the issue of linear economies, and actively promoting the circular economy system.

Greenpeace International

Greenpeace International is another strong movement of people who are willing to protect the environment by degrading human behavior. Greenpeace was founded in 1971 in Canada by a group of individuals who were extremely concerned regarding our planet. Today, Greenpeace is present in over 40 countries in the world and strongly moves on to defending the environment, and preventing its degradation.¹⁸ On the 4th of June, for example, Greenpeace International posted a manifesto which set out the recovery of the linear economy that took place during the Covid-19 pandemic, by implementing green transport, greener building, smart power and a circular economy system.¹⁹

¹⁷ *Who We Are* | ISWA. www.iswa.org/about-iswa/?v=f214a7d42e0d. Accessed 22 Aug. 2023.

¹⁸ Greenpeace. “About Greenpeace | Greenpeace UK.” *Greenpeace UK*, 2019, www.greenpeace.org.uk/about-greenpeace/.

¹⁹ “A Green Recovery: How We Get There - Greenpeace Sets out Plans for a Greener, Cleaner, Fairer Future.” *Greenpeace UK*, 3 June 2020, www.greenpeace.org.uk/news/a-green-recovery-how-we-get-there-greenpeace-sets-out-plans-for-a-greener-cleaner-fairer-future/.

TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
1800s	The industrial revolution begins, manufacturing technologies are developed and products were massively produced, marking the start of the linear economy model.
1975	Linear economy keeps developing & the linear economic model reaches its peak.
1988	The term “circular economy” is firstly used by Allan Kneese who points out that raw materials and natural resources are not infinite. ²⁰
2015	The first action plan on the circular economy is adopted by the European Commission.
March 4 th 2019	The European Commission adopts a detailed and comprehensive report on the implementation of the first action plan on the circular economy. ²¹
March 2020	The EU presents a circular economy action plan in order to move towards a more sustainable way of life.
June 4th 2020	Greenpeace International issues a manifesto (public declaration of policy) based on the recovery of the economy that emerged because of the Covid-19 pandemic, including the transition to a circular economy.
February 2021	The EU adopts a resolution on the action plan on circular economy and applies stricter measures to ensure sustainability.
November 2022	The EU-wide rules of packaging are established which aim at making all packaging in the EU market recyclable until 2030. ²²

²⁰ the, Is. “How the Circular Economy Creates a More Sustainable, Wealthier World.” *Autodesk.com*, 16 Feb. 2023, www.autodesk.com/design-make/articles/what-is-circular-economy.

²¹ “First Circular Economy Action Plan.” *Environment.ec.europa.eu*, environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en.

²² *Packing It Up: New EU Packaging Regulation to Replace Directive | Assent*. www.assent.com/blog/packing-it-up-new-eu-packaging-regulation/.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

European Union

Action plan on transitioning to the circular economy 2015

The European Commission was the one to launch the first-ever action plan regarding the transition to a circular economy. This action plan was launched in 2015 and it was the one to stigmatise the start of a sustainable world. The reason behind the creation of the said action plan was not only to transition to a circular economy, but also to boost sustainable economic growth via this system, generate new jobs and ameliorate global competitiveness.

The first action plan on the circular economy by the European Commission was aiming at very ambitious actions with multiple measures covering the life cycle of products from their production, to the waste management of them. The aforementioned action plan received a comprehensive report on its implementation on March 4th 2019.²³ By 2019, the first action plan on transitioning to a circular economy had been completed successfully. Out of its 54 actions and measures in total, all of them have been carried out, and the work on some of them continued in the later years.

Action plan on transitioning to the circular economy 2020

The European Union presented another circular economy action plan in March 2020 which aims at a more sustainable future of producing and consuming. More specifically, it promotes a more eco-friendly product design, and has also encouraged the empowerment of consumers by giving them the right to repair; which is a legal right for owners of devices and equipment to freely modify and repair their electronic products or machinery.

This action plan mostly focused on releasing the pressure on natural resources and raw materials. It additionally aimed at tackling the issue of waste management and the creation of more job opportunities. Finally, empowering consumers and public buyers was also one of the aims of the creation of the action plan. All 35 actions enlisted on the action plan will be taken out by the European Commission.

New Circular Economy Action Plan 2021

In February 2021, the EU adopted a resolution on the “new circular economy action plan” demanding and implying additional, stricter measures to ensure

²³ “First Circular Economy Action Plan.” *Environment.ec.europa.eu*, environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en.

sustainability, a toxic-free and fully circular economy by 2050. It also tightened the regulations regarding recycling rules.²⁴

EU rules on packaging 2022

In November 2022, the European Union proposed the EU-wide rules on packaging in order to tackle the issue of waste production and excessive consumption by customers. The rules include important guidelines concerning the adequate use of packaging of a product in order to ensure sustainability as well as proper hygiene. According to the EU, packaging is one of the most common things to be made by raw materials, with a mind blowing percentage of 40% of plastic and 50% of paper used for packaging.²⁵

The Sustainable Development Goals (SDGs)

The UN itself has also shown to support the transition from linear economy to circular economy and has pointed that out on multiple occasions.

Firstly and most importantly, we can spot multiple common targets and perspectives between circular economies and the Sustainable Development Goals (SDGs). SDGs are some certain goals that have been set by the UN and they have been set in order to ameliorate our world, and make it a better place. These goals ought to be completed until 2030; and are 17 in total. They may include principles such as ending poverty, ensuring that no gender inequality takes place, and preventing climate change and many more. Most of these goals are relevant to the transition from linear economy to circular economy. For instance, goal 12, which focuses on sustainable consumption and production, clearly plays a crucial role in the implementation of a circular economy. Additionally, goal number 8, which refers to decent work and economic growth, is also extremely applicable to the circular economy and its consequences as both the linear but also the circular economy focus on promoting and boosting a state's economic growth. Generally, most of the SDGs are somehow related to circular economy, its impact on society and economy, and its implementation.

²⁴ "Circular Economy: Definition, Importance and Benefits - EU Monitor." *Www.eumonitor.eu*, www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vknegugz7hwu?ctx=vjxzjv7ta8z1.

²⁵ "Circular Economy: Definition, Importance and Benefits - EU Monitor." *Www.eumonitor.eu*, www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vknegugz7hwu?ctx=vjxzjv7ta8z1.



Figure 2: The Sustainable Development Goals (SDGs)²⁶

Peru's Circular Economy Roadmap for Industry

Many Member States have also acted towards adopting a new model of economy, such as Peru. Peru has a "Circular Economy Roadmap for Industry" with the "Peruvian Agreement for a Circular Economy" which was signed in July 2021.²⁷ Peru is one of a few member states who strive to transition to a circular economy model. Even though the state faces multiple, common difficulties in the fields of waste management, energy transitioning, deforestation, water management and more, the said economic roadmap aimed at a total change on its economy. It currently has a lot of potential, as a state to become a well respected state in the field of circular economy.²⁸

Attempts made by companies and businesses

Many companies and businesses have also tried to combat the negative effects of the linear economy, one of which is the waste that is produced by it. As mentioned before, waste management has been an ongoing issue resulting from the linear economy, thus, such corporations have taken some measures to tackle the issue.

More specifically, food chains, one of which is Burger King²⁹ announced that from April onwards, they would charge customers an additional amount of money for the utensils that they would use; which include reusable cups, plates or forks, spoons and knives. Afterwards, customers would be urged to collect and return such utensils, and

²⁶ Rbeiz, John. "Exposing the Links between Circular Economy & Sustainable Development Goals (SDGs)." *Berytech*, 14 Sept. 2022, berytch.org/exposing-the-links-between-circular-economy-sustainable-development-goals-sdgs/. Accessed 31 Aug. 2023.

²⁷ Sara Castro de Hallgren, Alex Julca, Jose Palacin Lucio, Ruben Ferrufino, and Henrique Silva Pacini Costa. *New Economics for Sustainable Development Circular Economy*, www.un.org/sites/un2.un.org/files/circular_economy_14_march.pdf. Accessed 14 Aug. 2023.

²⁸ *REPUBLIC of PERU Multi-Annual Indicative Programme 2021-2027*.

²⁹ "Tackling the Linear Economy: What a Waste." *Portfolio Institutional*, 19 May 2022, www.portfolio-institutional.co.uk/esg-hub/tackling-the-linear-economy-what-a-waste/.

if they do so, they will be refunded for the specific amount of money they spent on such equipment.

While this technique could be a source of income for the food chains that implemented one such, its aim was and still is to reduce plastic waste produced from fast food restaurants or other such places.

Generally, containers, plastic utensils and plates which are thrown away generate huge amounts of waste that are harmful to the environment and the natural world. That is the reason why many food chains have started to implement such a principle, and, so far, this technique has shown to be very effective and easy to take out as a task.

POSSIBLE SOLUTIONS

Transition to circular economy

It is important that all member states decide to approach a circular economy, therefore, a circular model of economy that will be environmentally friendly and waste free. This includes multiple new regulations that will be implemented and stricter rules and measures that will ensure sustainability. Such a measure could be regular checks made by government representatives for controlled, minimized and sustainable production practices in factories; checks for recycling in restaurants etc. All member states are also to abide by the wide rules of packaging in order to minimize the waste that is being collected by the states that follow the linear economy model.

Cooperation with NGOs

Cooperation with some specific organizations, either Non-Governmental Organizations, or international Organizations is essential to combat the negative effects that linear economy has on the environment, natural habitats and biodiversity. The management of the waste gathered by the excessive production of products, the taking of action against environmental degradation, and the cleaning of seas and oceans are just some acts that should be taken out by relevant organizations. For instance, the International Solid Waste Association (ISWA) helps significantly in the management of the waste, and Greenpeace International's contribution to the issue is also crucial; being one of the biggest international organizations aiming at saving the environment.

Raising awareness upon the matter

Raising awareness is a simple, yet good solution in order to tackle the issue of linear economies. Raising awareness on this specific topic would include making the disadvantages of linear economy well known. For instance, the environmental

degradation that the linear system causes ought to be presented in the public. All consumers should also be aware of the fact that, even though the linear economy has a positive effect on building a state's economic growth, it can have other indirect drawbacks such as child labor. Therefore, raising awareness is completely significant. This goal can be carried out either by Non-governmental Organizations (NGOs) or Intergovernmental Organizations. Raising awareness can be implemented in multiple ways which could be online, through certain campaigns or by organizing certain events. Social media, TV shows, radios and other technological advances can be used in order to inform people of all ages about the pros and cons of a linear and circular economy.

Information on the environmental footprint on a product's label

The inclusion of information regarding the environmental footprint of a product on its label is an important solution that makes any customer aware of the harm that the production of the product he is willing to buy has caused to the environment. Additionally, the process of the production of this product will be included on the said label, which will help an individual understand and identify where and how the take-make-waste economy takes place. In this way, not only will each customer understand the meaning of the linear economy and where it takes place, but they will also consume more sustainably and consciously, knowing how the production of a product has harmed the environment.

Establishment of international organization

Finally, the establishment of an international organization is needed in order to combat the negative effects that linear economies have on the environment. Such an organization will only be responsible for dealing with the environmental, social and economic issues that linear economies have on the planet. This body will also be the one to either promote, or inform the public on these negative or positive effects in each concept. The said organization can deal with the issues that have arisen with the linear system in many ways, one of which could include the cooperation of the organization with member states for the organization of a campaign aiming to raise money and awareness in order to combat the social and environmental disadvantages of the linear economy.

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