ROLE OF GOVERNMENTS IN PROMOTING THE TRANSITION TO CIRCULAR ECONOMY

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Abstract: *The transition to a circular economy has gained a special attention, being on the agenda of public authorities, the business environment, research institutes and non-governmental organizations. Thus, it is expected to bring about significant opportunities in creating new, better-quality jobs and contributing to a more sustainable economic growth. The process of transition to a circular economy is closely related to the reconsideration of unsustainable consumption and production models in order to determine future development opportunities. In Europe, there has been a real interest of the state governments for the implementation of programs and legislation measures on the circular economy. Government actions play a crucial role in making a circular philosophy a reality. This article reviews the efforts of the initiatives of some EU states in modernizing and transforming the European economy, in order to make it move in a more sustainable direction. At the same time, state policies from the experience of advanced countries are described, which can serve as a good example for countries that want to promote the circular economy. The analysis of the Circular Economy practices has proved the limits of its implementation. As a result, it can be concluded that to date there is no government that developed a comprehensive approach to develop the transition plan to circular economy.*

Keywords: *Circular Economy, sustainable economic growth, economic instruments, policy measures, sustainable development.*
Classification JEL: *O11, O13, Q57.*

1. Introduction

In the XX-th century a linear model of production and consumption dominated, in which goods were manufactured from raw materials, which were afterwards sold, used and then discarded or incinerated as waste. In conditions of rapidly growing signs of resource depletion, the need for a new economic model is getting a greater importance on the agenda of politicians. The necessity for a substantial improvement in resource performance has led Governments and businesses to explore ways to reuse products or their components and restore more of their precious materials, energy and labour inputs.

The transition to a circular economy will mitigate human health and environmental problems by reducing preassure on the environemnt. But this will require essential changes in the consumption and production systems, which will not only stop just at the efficient use of resources and recycling of waste. Overall benefits for the whole European continent could amount about 1.8 trillion EUR by 2030, increasing competitiveness, stimulating innovation, promoting economic growth and creating new jobs.

The process of transition to a circular economy is closely linked to the reconsideration of unsustainable consumption and production models in order to identify future development opportunities. In this regard, the implementation of the *2030 Agenda* for sustainable development, in particular the objective of sustainable development 12, brings to the fore the need for integrated promotion of environmental, social and economic elements (UN, 2015).

Like all major transitions in human history, the trasfer from a linear to a circular economy will be a turbulent one, but if the humanity will be persistant, the economy will return its path towards growth and sustainability. The whole society should play an active role. Governments should modify their tendering processes and implement requirements for circularity that can drive demand for new solutions. And since the circular economy is inherently systemic, it can only succeed if all participants co-design, co-create and co-own.

2. Theoretical background of Circular Economy

Lately, the perception of circular economy has experienced an ascending development through the active participation of all stakeholders. Thus, in the specialized literature there are over 100 definitions regarding the circular economy, which are concentrated around key concepts such as: sustainable development, the framework of 4R (Reduce, Reuse, Recycle, Recover), systemic approach (at micro, mezo, macro leels), or the waste hierarchy (Kirchherr, Reike and Hekkert, 2017).

Circular economy recycles the products at the end of their life cycle, with a minimal to zero waste production and use of resources. The main processes of circular systems reffer to the total decrease of produced waste, their re-usage, recycling, reproduction and repairing (European Commission, 2015).

The concept of circular economy was developed by the members of the Ellen MacArthur Foundation within the annual reports *Towards the circular economy* that were inspired in works of the researches M. Braungart and W. Donough. A circular economy represents an industrial system that is restorative by its intention and design. Unlike the linear model that is based on the principle „take-make-dispose", the circular model follows the optimization or reduction of resources used and energy consumed (Figure 1) and aims for the ejection of waste through the superior design of materials, systems and products (The Ellen MacArthur Foundation, 2013).

Figure 1. The functioning mechanism of the circular economy
Source: https://www.oecd.org/env/outreach/EC-Circular-econonomy.pdf

Based on researches conducted by the Ellen MacArthur Foundation, *three important basic policies for the optimal design of circular economic systems* can be defined (The Ellen MacArthur Foundation, 2013):

Principle of Inputs. Firstly, according to the circular economy approach the natural resource systems are preserved by continuously controlling the base materials' reserves, and adjusting the material flows of renewable energy resources.

Principle of Sustaining Cycles. In the linear systems, if the resources that are necessary for production can't be purchased, the economy will not be able to register progress. On the other hand, circular economic models insure that these resources are always disposable through the biological cycles (biological base materials and raw materials) as much as possible (The Ellen MacArthur Foundation, 2013). Thus, the base materials from material cycle processes are returned into the environment through the shortest possible cycles. The process of resources' reacquisition, or modernisation, repair of technological systems generate the new product cycles within circular economic models.

Principle of Outputs. The increase of the system efficiency must be realized by identifying and planning the processes, through which the negative and positive externalities are avoided as much as possible. This includes planned soil usage by avoiding water and noise pollution, preserving good health, avoiding the usage and generation of toxic materials, using the systems of local resource usage (Fogarassy, 2017).

McKinsey Centre for Business and Environment analyses the circular economy from the perspective of three guiding principles:

- conservation and consolidation of natural capital through controlling the finite stocks and applying a balanced approach to the flow of renewable resources;
- optimizing the efficiency of resources' use through the usage of components and materials to the highest possible levels;
- efficiency of the system by eliminating negative externalities.

Taking into account the specific objectives of this article, we opted for the definition of the circular economy proposed by the European Commission, respectively: "In a circular economy, the value of products and materials is maintained as much as possible; waste and resource utilization are minimized, and when a product reaches the end of its life, it is used again to create additional value" (McKinsey&Company, 2016).

Thus, a Circular Economy encourages sustainability and competitiveness in the long term. Another benefits it can bring to global economy:

- resources' preserving – including some, which are increasingly scarce, or that are subject to price fluctuation;
- costs' saving for industries;
- generation of new business opportunities based on innovative and resource-efficient activites, which are producing clean products and services around the globe;
- creating local low and high-skilled jobs.

3. Towards the circular economy in EU

Officially, on December 17, 2012, the European Commission declared its interest in the circular economy, through a document called *Manifesto for a Resource-Efficient Europe* (EC, 2012), which states that in a world with increasing pressures on resources and the environment, the EU has no choice but to make the move to a resource-efficient economy and eventually to a circular economy of regeneration. Due to the adoption of the European Commission's "*Package of measures on the circular economy*", there has been a real interest of the states' governments in the implementation of some programs and legislation package on the circular economy. The proposed package included legislative proposals regarding the reduction of land-filling and waste, and a broad range of actions in order to close the loops of product lifecycles during the whole value chain - from

production to consumption, repair and manufacturing, waste management and secondary raw materials that are returned back into the economy.

In 2015, the European Commission adopted an ambitious Circular Economy Action Plan, which includes measures to stimulate the EU transition towards a circular economy. *The EU Action Plan for the Circular Economy* provides an ambitious programme of action with concrete steps and measures covering the whole cycle: from production and consumption to waste management and the market creation for the secondary raw materials. The action plan also foresees a revised legislative proposal on waste management, as well as timeline for the actions to be completed. As stipulated in the Action Plan, the proposed actions will generate the product lifecycles' "*closing the loop*" by greater actions of recycling and re-use, finally generating benefits for both the environment and the economy. The proposals are supported by 54 actions, which are implemented within concrete strategies in numerous activities and economic sectors (Key elements of the action plan are shown in table 1).

Table 1. Summary of the EU 2015 Action Plan for the Circular Economy, with examples of specific policies

Area	Examples of specific policies
Production	➢ Eco-design: proposal to adapt the existing eco-design work plan (under Europe's Eco-Design Directive) to incorporate durability, reparability, and recyclability criteria. ➢ Cleaner manufacturing: R&D funding, knowledge centres.
Consumption	➢ Proposed introduction of product labelling for durability ➢ Pricing: member states are "encouraged" to use pricing instruments. ➢ Consumer protection rules: e.g., guarantee periods ➢ Various proposed measures to promote "innovative consumption," including ➢ collaborative consumption models based on leasing, lending, and sharing ➢ Adapting existing public procurement rules
Waste management	➢ New legislative proposals on waste and landfills, including new binding targets ➢ Proposed changes to extended produce responsibility rules to reward products that are designed for easier repair, remanufacture, or recycling. ➢ Direct funding support for "laggard" regions by cohesion policy.
Boosting markets for secondary materials	➢ Clarifying legal rules on definitions of "waste". ➢ proposed standards for various secondary materials to foster markets.
Priority areas:	➢ Five priority areas are identified: plastics; food waste; critical raw materials; ➢ construction/demolition waste; and biomass and bioproducts.
Innovation, investment, and "horizontal" measures	➢ Funding for research and innovation under Europe's Horizon 2020 program and also through the Cohesion Policy.
Monitoring progress:	➢ The action plan refers to the resource efficiency scoreboard and raw materials scoreboard, with commitments to develop new indicators for a range of CE topics. However, the action plan does not include any explicit indicators for the circular economy.

Source: McDowall et al., 2017.

As a follow-up to the Action Plan, the European Commission presented the *Eco-design Working Plan 2016-2019*, as part of the *Clean Energy for All Europeans Package*.

This Working Plan includes a broader exploration of the possibility to fix product requirements that are relevant for the circular economy such as durability, reparability, upgradeability, design for disassembly, information, and ease of reuse and recycling.

Simultaneously with the introduction of the Eco-design Working Plan, the Commission launched a platform comprising the European Investment Bank (EIB), financial market participants and businesses and the European Commission itself with the scope to increase attention, know-how and involvement by possible investors. Besides these initiatives, the Commission adopted several related policy initiatives, such as an updated *Guidance on Unfair Commercial Practices Directive – Action on environmental claims, and strengthened enforcement of the revised Waste Shipment Regulation.*

In 2018, the European Commission adopted other initiatives in the context of implementing the Circular Economy Action Plan:

- *A proposal for a Directive on the reduction of the impact of certain plastic products on the environment* - implementation of the EU Strategy for Plastics in the Circular Economy. The Directive proposes various measures for specific items made of single use plastics by taking into account the consumer behavior, as well as consumer needs and opportunities for business. Other measures include opportune labelling, awareness' raising, voluntary actions, and the formulation of Extended Producer Responsibility schemes that would also cover the costs for the clean-up of litter (EC, 2018).

- *Questions and Answers: New EU rules on single-use plastics Factsheet Impact assessment & Summary.*

- *A proposal for a Regulation on minimum requirements for water reuse* - the proposal is establishing minimum requirement to boost the efficient, safe and cost-effective reuse of water for irrigation and represents a deliverable of the Circular Economy Action Plan.

In 2019 the European Commission adopted an extensive *Report on the implementation of the Circular Economy Action Plan*, which presents the main performances under the Action Plan activites and stipulates future challenges for countries in transition to circular economy in their desire to follow a climate-neutral, circular economy in which burden on natural and freshwater resources is minimized. According to the deliverables of the report, the implementation of the Circular Economy Action Plan in EU helped in the process of job creation. Thus, for example, in 2016, sectors relevant to the circular economy employed more than four million workers, a 6% increase compared to 2012 (EC, 2019). Also circularity boosted new business opportunities, for example, in the EU in 2016, circular activities in form of repair, reuse or recycling generated around 147 billion EUR in value added out of 17.5 billion EUR as investments (EC, 2019).

4. Role of government measures in promoting the transition to Circular Economy

Circular Economy policies are attracting more and more attention all over the world as an increased amount of policies arise that stimulate the change for countries to become more circular.

Policies play an important role in the process of directing the private sector towards circular business transformation. The circular economy initiatives should not be voluntary or facultative. Strong policies, laws, regulations, and initiatives from governmental structures locally and globally are necessary to protect the environment and the way businesses function (Upadhayay and Alqassimi, 2019).

Taking into consideration the costs and difficulties faced when engaging in business model transformation, there are required incentives to facilitate the transition from linear to circular production patterns.

Some of the key measures aimed to support the transition to a Circular Economy are given below:

Regulatory measures are one of the most important policy instrument that are very efficient in achieving specific results. The circular economy addresses the environmental challenges that require strong Government intervention. Therefore, regulatory instruments such as bans are efficient in promoting transition toward the circular economy. Also, mandatory take-back schemes for packaging targeting waste/pollution, banning unsustainable products or materials can be applied.

For example, in 2016, *France* adopted a law acording to which all disposable utensils are banned. Starting in 2020, most plastic cups, plates and cutlery will be totally banned. The only exception will be for disposable items manufactured from biodegradable substances. This decision follows the country's total ban on plastic bags in 2015 in accordance with the *Energy Transition for Green Growth Act* and has the scope to transform France into an exemplary nation in terms of reducing its greenhouse gas emissions, diversifying its energy model and increasing the distribution of renewable energy sources.

Another good example is *Sweden*. In 2003, the EU adopted the *Waste Electrical & Electronic Equipment (WEEE) Directive* and all member states have implemented it. According to this Directive, all EU member states are obliged to reach a minimum of 4 kg WEEE collected per capita. The Swedes, however, collected a total amount of e-waste in 2013 of nearly 17.5 kg per capita, which is 77% of the whole amount put on the market. The Swedish government recognised that key drivers of success within the implementation of the Directive resulted from a close cooperation of producers and municipalities within the process of creating an efficient and competitively neutral collection of logistics' solutions. The Swedish regulation obliges producers to establish or finance an e-waste recovery system and stimulate consumers to bring their e-waste to collection points. The policy also acts as an incentive for manufacturers to produce more environmentally friendly products in order to diminish costs and reach reuse and recycling objectives (De Groene Zaak, 2015, p. 11).

Japan adopted the *Law for Promotion of Effective Utilization of Resources*, which represents a legal framework covering the entire lifespan of products from the plastic, electronic and electric, paper, packaging, automobile and raw materials processing industries, both upstream and downstream. It fixes standards for manufacturers regarding the generation of by-products and used products. Producers are obliged to use recycled resources and reusable parts in the process of new products' production. The law stimulates the design and creation of products that are easy to recycle and demands a voluntarily take back of products at end-of-life. Also, the Government of Japan promotes research and development activities, mass implementation of educational and publicity programmes for the buy-in of the public, and uses their procurement power in its efforts to stimulate the use of recyclable resources and reusable parts. Through this and other policies, 98% of all metals in Japan is recovered (De Groene Zaak, 2015, p. 13).

Economic instruments. Countries (at the level of region or city) can adapt funding instruments to support business – or citizen-led initiatives, which directly or indirectly facilitate the promotion of circular economy practices. This can be in form of direct funding including loans, subsidies and grants for projects promoted by business or citizens.

For example, the *Brussels* government launched some calls for projects which promote circular economy. One call for projects relates to financing and incubating

circular solutions, assigning grants for small enterprises in some sectors like sustainable food, personal care, ICT, eco-construction, waste and resources, and the energy sectors. Another call for projects focuses on promoting innovation through generation of cooperation between researchers and practitioners, with the financing of several projects related to green technology, resource efficiency and circular business models.

Using fiscal incentives or promoting specific types of businesses or investment in economic activities is very popular in supporting green economic activities. Regions and cities, within their local taxation system, can apply fiscal incentives to promote investment in circular businesses and technologies. For example, fiscal incentives to incorporate clean technologies in the production process are practiced in the Netherlands, UK, Basque Country, etc.

Financial incentives are efficient intruments in promoting circular business models in comparison to linear business models. Attention should be placed on diminishing taxes on labour and value-added tax on recycled products and, on the other hand, increasing taxes on virgin raw materials in favour of secondary raw materials. These incentives should also inspire increased production, extraction, and cascade composting of biomass and recyclable resources.

The incentives can be in the form of sustainable public procurement programs, taxes, fees, bonuses, and innovation grants. The categories of taxes available for Governments to reduce labour taxes and in general labour costs are: income tax, social contributions, profit tax and VAT. Within each category there can be used several options regarding the tax rates, deductions, exemptions and allowances.

For example, companies in the *Basque Country* that invest in environmental improvement projects benefit from a 15% corporate tax rebate. Also, companies that invest in equipment related to the so-called 'List of Clean Technologies' receive a 30% rebate. The List approved by the regional authorities prioritises 92 technologies because of their contribution to resource efficiency and environmental benefits (for radio-frequency identification, vacuum evaporator crystallisers, plastics and non-ferrous metal separators, briquetting press, etc) (Technopolis Group, 2019).

Governments could increase taxes on resources, as well as consumption and pollution costs, in general, by increasing taxes on air pollution, building materials, ecosystem services, energy, food production factors, fossil fuels, metals and minerals, traffic, waste, water and VAT.

In *Finland*, the following incentives were proposed to promote carbon-neutral circular economy goals:

- the introduction of a carbon price floor to tackle air pollution in the energy sector;
- the removal of diesel subsidies in the transport sector to gradually phase out the use of fossil fuels;
- the increase of electricity tax for bulk users and the removal of subsidies for energy-intensive industries;
- the introduction of air passenger and air freight taxes;
- the introduction of a waste incineration tax and nuclear waste tax;
- the introduction of natural resource taxes for water abstraction, and the extraction of metal ores and non-metallic minerals;
- the introduction of a pesticides tax in agriculture.

Other actions to promote the transition to Circular Economy can be mentioned as follows:

A. Reducing labour costs (labour taxes) for research and development of the use of circular resources. It aims to reduce the tax burden on labour for R&D employers (and, at

the same time, to promote job creation in innovative sectors), and to promote sustainable innovation.

B. Zero VAT rate for labour intensive services. The long-term objective is to introduce zero quota for labour intensive services. The purpose of this measure is to reduce the labour tax burden for employers in labour-intensive sectors (and, at the same time, to promote job creation in these sectors), to reduce the costs of labour-intensive services for consumers, and promote sustainable innovation. Zero VAT rate could be applied for:

1. the entire repair sector, including repair and maintenance of cars, electronics, machines, computers and shoes;

2. the enterprises that provide energy consulting and the installation of renewable energy technologies in social housing.

Economic incentives such *as a sustainable procurement policy or charges related to the use of raw materials* can also help in promoting the circular economy. Examples of measures to increase the producer responsibility might be in form of pre-cycling premiums and consumer-oriented price incentives, thus applying the *polluter pays* principle.

Green public procurement (GPP) or sustainable public procurement has been used for over two decades in the EU states, but at present it is gaining some updates to the regulations covering socially responsible and including green, procurement practices. Until now GPP criteria have been developed for 21 categories of products and services, to facilitate the inclusion of green requirements in public tender documents.

Sustainable public procurement means that governmental authorities declare sustainability a leading criterion within the procurement policy or tender process, by formulating clear sustainability goals and in this way challenging the market to produce the most sustainable and innovative solutions. A simple example of sustainable procurement is the obligation of the Government to give a preferential position to certain sustainable alternatives in the procurement process (De Groene Zaak, 2015).

For example, in the USA**,** all federal agencies are required to give preference to certain products that are bio-based. The BioPreferred Program is a USDA-led initiative that aims to assist in the creaton and expansion of markets for biobased products. The program was created by the 2002 Farm Bill (legislation), and expanded as part of the 2014 Farm Bill. T Thus, as it is determined by the Secretary of Agriculture, biobased products are commercial or industrial products (other than food or feed) composed wholly or in significant part of biological products including renewable agricultural materials (plant, animal, and marine materials) or forestry materials. The goal of the USDA BioPreferred® programme (by enforcing the mandatory procurement of bio-based products) is to reduce the country's dependence on petroleum, increase the use of renewable agriculture resources, and reduce the adverse environmental and health impact (De Groene Zaak, 2015).

According to the USDA Report released in June 2015, the biobased economy contributes around 369 billion USD to the U.S. economy each year, supporting 4 million jobs directly and indirectly by the biobased economy.

By using laws and regulations, offering financial support or applying penalties and using the purchasing power, government policies and actions are important in boosting the transition towards circularity. Although there is no unique action plan for governments to undertake while going circular, still, there can be given some general recommendations (figure nr. 2) that were undertaken from a study conducted by the Dutch sustainability Business Association in 2015 (De Groene Zaak, 2015):

Step 1: Understand the necessity of the circular economy. It is important to answer the question why the current model can't be sustained, and what are the fundamental

changes that need to take place to abandon the linear economy. Also, it is important to understand the opportunities that a circular approach will deliver to the whole country.

Step 2: Lead by example. The most powerful way to show the need for circularity is to start acting. Thus, the government gives a strong signal to the market that it takes the transformation seriously.

Step 3: Map circular economy principles to local context. There should be defined which sectors and policy areas are most affected, or that are bursting at capacity; materials that are susceptible to price and supply fluctuation; or overpopulation in urban areas causing traffic and high residential pressure. Based on this first local context assessment, certain strategic areas can be identified.

Step 4: Create a comprehensive vision or strategy. Although not all implications and changes will be clear at this stage, it's important to draw a long-term vision on circularity and to define long-term goals and a clear roadmap for the next years.

Step 5: Engage stakeholders. It is important to start the dialogue with all stakeholders in order to involve them in an early stage. Within this dialog important ideas will be delivered bring solutions and provide input for the overall vision, strategy and policy instruments. This will create involvement, buy in, and produce the most promising solutions on behalf of all actors involved in transformation process to circular economy.

Step 6: Choose instruments and Start initiatives. After the identification of the priority sectors and stakeholder engagement, the most effective policy instrument should be created to promote a circular economy. As mentioned before these can be in form of regulations, fiscal measures, grants, partnerships or public procurement. The government can decide which instrument is most efficient considering local context. Once it has been decided in which sector and with what instrument, the circular economy will be implemented, effective initiatives should be performed. At the beginning, the "Start Small, Scale Fast" approach can be used, or more simply, these can be in form of some standalone projects. It is important the results to be measured and evaluated over time.

Figure 2. Becoming a Circular Government

Source: De Groene Zaak, 2015, p. 28.

Step 7: Monitor, adjust and scale. The transition towards the circular economy will take several years, during which the progress should be measured and the roadmap adjusted. Initiatives that prove to be successful, will be implemented on large scale. Step by step the circular economy will be put in practice (De Groene Zaak, 2015).

Different countries have implemented diverse mix of policies to support the transition to a circular economy. Some have created policy initiatives that comprise a long-term and overarching strategy that is totally dedicated to developing a circular economy. This is the example of the Netherlands, which has opted for such an approach. Also, the Dutch government has committed to implement a circular economy in a holistic and long-term strategic way. On the other hand, other countries engaged to implement a circular economy as part of a general long-term strategy for the economy, or sustainable development or energy development. France and the regions of Catalonia and Flanders have such a general long-term strategic approach. The federal governments of Belgium and Germany have opted for other, more short-term types of inititatives, which are dedicated to supporting the implementation of a circular economy for 2019/2020.

Besides having different types of policies and varying time horizons, Governments also vary in visions of putting accents with regard to developing a circular economy. The emphasis varies from policy activities related to specific elements in the circular chain to measures focusing on the whole value chains. For example, the Netherlands has chosen to focus on implementing a circular economy throughout the entire value chain, without focusing on elements in the circular chain. The Government has designated five economic sectors in which at least 50% reduction of primary raw materials (minerals, fossil and metals) use should be accomplished by 2030, and which should become completely circular by 2050 (EEAC, 2017). This ambition applies to the value chain as a whole, including eco-design, consumption, waste separation and collection, waste policy, specific chains, finance and business models, knowledge and education.

The other countries like Belgium, France, Germany have a strategy focused on a variety of elements in the circular chain by providing eco-design strategies, introducing green public procurement, combating (food) waste, setting reduction and collection targets, introducing targets for resource efficiency (predominantly in the construction, water and energy sector). Although Hungary and Ireland have no overarching strategy, the policy focus of these countries does not differ much from that of France and Belgium, for example, focusing primarily on waste, recycling and resource efficiency. In both Hungary and Ireland, there has been a broadening of scope and an increase in the variety of initiatives and focus areas in several of these countries' policies regarding waste and recycling.

A transition to a circular economy nevertheless induces certain trade-offs that require careful consideration and administration on behalf of authorities. In the absence of a co-ordinated and strategic approach to the circular economy at national or international level, a risk might appear that some actors adopt harmful – activities under the umbrella of circularity, which in fact will bring about higher-value material use. For example, waste-to-energy initiatives using sub-standard burning practices might cause environmental and human health risks.

Challenges may also arise where circular actions involve serious shifts in resource-intensive economies. For example, circular approaches can produce risk job losses among those engaged in resource extraction and primary processing.

5. Conclusions

The transition to circular economic models promises important benefits in future for the global economy, considering the current and future challenges induced by the pressure exerted on global resources and growing insecurity supply. A circular economy in which everybody is responsible for using resources and energy more efficiently, as well as for consuming less in total, could represent the solution to the problems existing today in Europe and for the entire world economy.

Transition to a circular economy would reduce the global use of materials and energy, decrease the amount of hazardous chemicals, which contaminate the environment, and generate a variety of economic benefits through the creation of locally-based, stable employment for people. Many of these ambitious steps are achievable in the short-term, and the sooner they are implemented by Governments, the greater the benefits will be and the sooner the positive, cumulative effects of each of these changes will be multiplied, as well as economic, environmental and social benefits for communities.

The analysis of the Circular Economy practices has proved the limits of its implementation. As a result, it can be concluded that to date there is no government that developed a comprehensive approach to develop the transition plan to circular economy.

The vast majority of the governments are not yet convinced of the necessity of a circular economy. The (Northern) European and Asian governments are clearly ahead when it comes to forward steps in understanding and realisation, while elsewhere there is only a declaration of interest in circularity. The sense of urgency appears to be connected in the first instance to the level of import-dependence on raw materials (e.g., Japan, Europe) and environmental pollution (e.g., China). While emerging economies are still organizing the first steps in organizing waste reduction and resource optimizations programmes. In these countries, circular initiatives do exist but they are initiated and managed by the private sector. Also, governments give little attention to finance and fiscal mechanisms, as well as to technological and social innovations.

A circular economy will require Governments to promote policies that will favour the production of repairable, reusable and upgradable products. To encourage resource efficiency and zero waste, wasteful practices should be made more expensive in comparison with product service, maintenance and repair operations, which should become cheaper. This would require the Governments to use economic instruments in form of reduced taxes or tax allowances for repair, reuse and refurbishment businesses, and increased taxes on single-use and hard-to-recycle materials. Also, burning and landfilling recyclable or compostable materials should be banned. Public funding, including public procurement should be used primarily to fund prevention, reuse and recycling infrastructure. Deposit and refund schemes can be practical for educating citizens on the value of recycling and can be integrated within extended producer responsibility schemes.

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