

THE NECESSITY TO IMPLEMENT THE „ZERO WASTE” POLICY AT THE EU LEVEL

Ph.D. Georgiana CHI IGA, Researcher

“Victor Slăvescu” Centre for Financial and Monetary Research,
Romanian Academy, Romania
Email: georgiana_chitiga@yahoo.com

Abstract: *The research aims at the necessity to transition to the circular economy which has an opposite effect of linear economy, with increased prosperity and the future of human existence. The analysis shows and outlines that to be competitive means not only to properly use resources and to ensure their productive reuse, as well as the assuring the reduction/ elimination of waste deposits, the encouraging and supporting the current European policy - “zero waste” policy. By joining to the effects of pollution reduction and to reduce the demand for raw materials increasingly limited, the new objectives concerning the waste will bring substantial economic benefits: the recycling stimulation, ensuring the access to materials needed in industry, job creation and economic growth. It is a primordial and major necessity, but it will not happen without correct policies. EU intends to transform circular economy into reality and it is necessary to limit the environmental impact, improving, at the same time, the economic well-being. Targets are imposed to analyze the importance of innovation on the recyclable market of materials and measures to ensure new business models, ecologic projection and industrial symbiosis, that can sustain and support the building an economy and society zero waste.*

Keywords: *sustainable development, circular economy, waste, challenges, measures.*

JEL Classification: *Q56, Q57.*

1. European policy on waste – a „zero waste” policy

Encouraging and supporting “zero waste” European policy and, implicitly, sustaining the necessity of circular economy switching, take into account the following ideas:

- the setting up of an outlet market for the secondary materials recuperated from waste, so creating a legal and unitary framework, as well as ensuring equality of chance to all those who make full use and reintegrate in the economic circuit all these materials;
- the setting up and financing of infrastructures for waste treatment and storage, and operational management of waste streams – one of the biggest challenges;
- the fact that waste energy recovery is not sufficiently emphasized (in the case of non-recyclable waste), as a final stage of the waste recovery process; this would allow the fulfillment of the ambitious objectives all member states are being attributed, and at the same time consolidate the energetic independency of the European Union;
- sustaining the systematic and accelerate introduction of economic instruments in waste management by all member states, local and regional authorities.

The potential of these instruments to generate revenue is very important for the local and regional authorities, that can use it to compensate (a part of) the administrative costs that follow the application and application surveillance of waste objectives, as well as the allocation of funds for garbage collection, recycling and other environment projects.

Parliament’s Committee on the Environment supported mandatory measures to stimulate repairing, reuse, recycling, waste reduction and the dependence on resources, as part of the revised package.

- compulsory proposals for measurement the indicators of "footprint" for land, materials, water and carbon until 2018 – the first step towards resource efficiency;
- mandatory objectives concerning the prevention of waste generation until 2025;
- the necessity of establishing additional compulsory objectives for reuse, separated and specific to each waste flux, especially for furniture, textiles, as this type of objectives already exist in some countries at a national/ regional level;

- 70% recycling targets for municipal waste; they will be prohibited until 2030, and storage of waste on/in soil/ incineration will be subject to a severe legislation;
- objectives to increase the recycling volume of packaging waste, 70% plastic, and in the case of glass, metal, paper, cardboard, and wood – up to 80% until 2020;
- 50% reduction of marine waste until 2015;
- measures taken to massively reduce non- recyclable waste incineration after 2020, as well as removing any type of incineration subsidies (with/ without energy recovery);
- implementing a new recycling objective for bio-waste, in the perspective of a development of this sector and the establishment of a number of compulsory criteria concerning compost quality, the promotion and support of the bio-waste recycling market, environment protection guarantee;
- prohibiting the storage of recyclable and biodegradable waste up to 2020, or, at least, starting with 1st January 2025;
- analyzing the potential of construction and demolition waste recycling (CDW - construction and demolition waste); establishing specific targets for rare materials in constructions and demolitions, for, a singular objective in this domain is not sufficient to stimulate the collection, sorting and recycling of construction materials.

Again, as a major necessity, the idea of “sustainable buildings” must amend and improve, adding to energy consumption objectives, the life cycle of the materials used in buildings construction. The 40% percentage of the energy used in the EU is due to residential and office buildings, that represent 36% of CO₂ emissions at European level. At the moment, the construction field is dominated by costs, that, unfortunately, is primordial to sustainability and environment protection necessities (both by the way in which resources are obtained and waste growth). Basically, in construction, cheap products are being used, products that highly affect the environment when produced. The building renovations are rare, and often, leave aside energetic sustainability/ efficiency, and construction waste storage is much easier (especially in demolitions) compared with their recycling– things that lead to a penalty policy and creating a Europe-wide recycling infrastructure.

To joining to the effects of pollution reduction, the reduction of more and more limited raw materials demand, the new objectives concerning the waste will bring substantial economic benefits. The purpose is to sustain Europe’s transformation into a circular economy, recycling stimulation, ensuring the access to materials needed in industry, job creation and economic growth.

Unfortunately, the existence of incentives and the infrastructures in linear economy hold down an efficient resource usage. Objectives were imposed, analyzing the importance of innovation on the recyclable market of materials, new business models, ecologic projection and industrial symbiosis, that can sustain and support the rising of an economy and a society without waste.

The innovation and the research are two of the basic elements of circular economy, due to which recommended a common approach:

According to EU officials, there are the following underlying key elements:

- *cascade usage of resources*

The concept underlies an efficient usage of resources. It is considered that, resources exploitation must be made for products with high added value and by all the recycling processes, the resources must be utilized as many times as possible in other product categories.

- *the hierarchy of waste*

The objective is to sustain and reach the level of economy-type “zero waste”, one that would not generate waste and all materials and products shall be recyclable. Insuring

this hierarchy involves maximum efficiency for all processes, both from production cycles and recycling.

- *the growth of responsibility in production*

Despite the fact that, the producers will be held responsible for the obsolescence management, the waste production should be avoided, one that does not benefit from the possibility of reintroduction it in the circular economy cycle. Even currently, the products tend to have low life cycles, becoming waste in a relatively short period of time, at the same time accelerating the growth of the demand of new resources for new products.

A specific study concerning the extended responsibility of the producers, the - so called – EPR programs, they examine the best practices and cost effectiveness.

- *industrial symbiosis*

The concept implies producers' collaboration for utilizing secondary products derived from the main production activity; the waste from the production process becomes raw material for another process or can share a limited supply of the rare and expensive catalysts between the companies that employ them. A complementary dependency develops, with the role of waste elimination, one that will bring substantial intake for the producers' sustained development.

- *new business models*

As, the current business models determine the accelerate exhaustion of resources and the growth of waste quantities, like a necessity is to impose completely new strategies, so that resource efficiency to record high levels.

Leasing type economy, from the point of view of EU specialists, is an example of business model that favors resource efficiency, in which the client does not buy the product, but he/she pays a right to use, allowing specialized firms to carry out the sale of the utilization service and but also of all the maintenance and the repair of the product. At the end of the life cycle of the product (eliminating the hypothesis in which the client "throws away" the product that would become waste), the leasing firm has management responsibility of disposal of the product and to recycled it, in order to avoid waste.

In the case of leasing economy, the companies benefit from a constant income flow, but also increases the interest of both parties to the contract (the leasing company and the user) to keep the product in a good functioning state.

On the one side, the necessity of switching to circular economy is emphasized, on the other, the clarity of the proposals reduces uncertainty – encouraging the right climate for investments - and determining an active involvement of both companies and consumers.

These measurements could generate for European companies, net economies of more than 600 billion Euros, at the same time reducing greenhouse gas emissions. Additional measures of increase resource productivity with 30% until 2030, would lead to a GDP increase with approximately 1%, creating 2 million additional work places.

2. Challenges and measures taken to support "zero waste" policy

2.1. Challenges

A. Waste definition

1. to preserve a unique and clear definition of municipal waste that can be used by all member states, and local and regional authorities;
2. the existence of a common base by the use of which a comparison can be made, so that it would not be based on "who" collects waste, but on "what" is collected;
3. a change of the definition for what is considered ready for reuse and recycling concerning; to establish a unique calculation method of recycling performances and actual quantities recycled;

4. revision of definitions for collection and the selective collection revising, because they have various interpretations in the member states; it is recommended to define the sorting concept as well, due to statistic and reporting ground and also quality of materials – because many of the member states collect and report waste quantities containing up to 30% impurities delivered to sorting facilities.

B. An unique measurement unit

1. “output-oriented method” will support a better comparison of different results in EU, and will insure waste change to useful resources; a series of questions regarding the methods still persists;

2. achieving the targets can be a very difficult process with nowadays techniques.

In the given situation, The European Commission must:

- to expose clarifications concerning the definitions used/ calculation method;
- to propose adjustments for the method of calculation.

C. Prevention of waste generation

1. including specific measures of lowering food waste in national waste prevention programs, by all states and according to the new objectives;

2. mandatory targets must be proposed in order to prevent waste generation, accompanied by financial incentives, but also a full implementation of the principle “the polluter pays”;

3. to seek an objective that will introduce an obligation to prevent/to reduce the municipal waste at the European level, because, until 2020, the recorded municipal waste/ per inhabitant to decrease 12% compared to 2010.

D. Extended Producers Responsibility (EPR)

1. promoting ecologic products development and spreading of few to none waste technologies;

The necessity of switching to a circular economy does not concern only waste management, but also other domains related to design and manufacture of the products;

2. to compel, not just invite the member state to encourage eco-efficiency and ecologic projection of products, including technical durability and recycling capacity and also take into account the impact of the entire products life cycle;

3. the introduction of an objective what would stipulate the integration of a quota of at least 50% of the recycled materials in goods put on the market;

4. measures to ensure that the induced costs are not felt by the final consumers and that the profit is reinvested in waste management process.

It is granted that the principle of extended producers responsibility will be an efficient lever of the promotion policy for measures to prevent waste.

2.2. Measures taken to support “zero waste” policy

As part of a series of propositions meant to underline the necessity of a circular economy in Europe, that aims to maximize the value of resources we all use, the European Commission introduced a series of measures concerning the waste:

a) implementing and monitoring an adequate waste management

Even though the main waste objectives have compulsory juridical features, passivity until 2030 is not recommended, as we may then find that some members state did not achieve their goals.

Establishing clear objectives is a way of showing long term interest in Europe. Also, it should also contribute to avoiding situations in which EU investments would be blocked in infrastructures overtaken by a poor waste management. A better implementation and monitoring would help the EU countries reach their goals – waste be brought back in economy, as a valuable resource.

A monitoring and early warning mechanism has been introduced in proposals. In agreement with European Environment Agency, it developed a warning system that evaluate if the legal objectives of EU concerning the waste are being respected; it will help planning and evaluation of national strategies for waste prevention and management.

The first assessments appeared mid-2013. In every member state, the progress will be evaluated every five years. If they fall behind, the countries will prepare a “conformity plan” in order to improve the implementation based on best practice, to help them recover.

Also, the revised objectives include clearer definitions – in order to make sure the recycling rate improvements are being measured – as well as harmonized methods of calculation, so that they compare the results for the entire Europe.

b) the use of financial instruments to reduce waste

Europe’s objectives include the elimination of the term “waste”, maximum recycling and reuse and also a limited energy recovery for non-recyclable waste. In the case of EU experience, the combination of economic instruments will need a larger area of implementation, in order to ensure implementation of existing legislation and fulfillment of these objectives.

Three main routes can be identified:

- prohibition/taxation concerning landfills and incineration, proved to be highly efficient in lowering these practices by an increase in cost;

- payment schemes depending on waste generation (pay-as-you-throw – PAYT) prevent waste generation and encourage the citizens to reduce waste and take part in selective collection;

- schemes concerning extended producers responsibility (EPR), a way of collecting and redistribute funds in order to develop separate collection and recycling programs.

There are already on in 24 member states for packaging waste.

c) the removal of illegal transport of the waste

In the European Union, the common objectives refer to the handling of waste.. The evolution is clearly uneven. Six member states: Belgium, Denmark, Germany, Austria, Sweden and the Netherlands – throw in the city dump less than 3% of municipal waste, but the worst percentage for nine of the member counties is of more than 75%.

A great importance are the EU Waste Shipment rules, whereas, in recent years, the national inspections have proven that they are systematically broken.

The Commission presented a package of measures to address this problem and to stop illegal transportations. The inspections made in ports, on roads and companies have shown that almost 25% of EU’s waste transports do not follow the Shipment Regulation of the waste.

The problem is even bigger for dangerous waste, illegally exported in the developing countries in Asia or Africa, where they are discharged, they are treated more cheap than in Europe and in a less efficient manner. If only 1% of the waste shipments were illegal, that means 2.8 million tonnes annually.

Currently, all dangerous waste exports to the non-member countries and all refusal waste, outside Europe, are illegal and must be stopped when they are discovered. The member states must run checks on shipments of waste, being free to choose the manner of doing it. As a result, some countries developed inspection systems with positive results, whereas others run indulgent controls – attracting illegal waste exporters. For a gradual growth of general standards and illegal trade elimination, the Commission suggested the strengthening of the present legislation.

The proposition asked for member states to create annual inspection plans. These will be based on risk evaluations that cover specific types of waste and illegal transfer sources, helping the national authorities to target areas with the highest degree of danger.

The new law of the European Parliament and the governmental authorities (2014) ensures that operators of waste from EU are not affected by the illegal competitors. By this law, general environmental standards grew, offering a more powerful protection for third countries. Many good quality raw materials contained by waste could be recuperated and the member states will make great savings with the costs of returning and cleaning.

d) the benefits and opportunities of an adequate waste management

The reaching new EU waste targets also bring a series of advantages, such as:

- reducing greenhouse gas emissions with 443 million tonnes, thing that would lower the damages brought to fragile habitats and biodiversity – including oceans;
- fulfilling the objective of diminishing food waste by 30%, thing that would lower the agricultural land demand, energy and water, it would reduce fertilizers and nitrates pollution;
- improving productivity from the point of view of the resources used, and so, increasingly abandon costly imports and leading to new ecologic working places under circular economy.

Estimations show that successful implementing of waste legislation would ensure 400 000 work places and by its revision and the revision who it was proposed would create another 180 000 new work places.

Nonetheless, with all estimations, work places' potential for an economy with improved materials flux is higher; a lowering by 20% of the total demand for materials in industry at EU level, would ensure a GDP rising up to 3% and 2 million additional employment.

The purpose is to reduce waste, to encourage the recycling, bringing back to the circuit resources that were used, thus increasing competitively the European economy.

3. Conclusions

The main causes of waste are: unsustainability of production and consumption habits, inadequate waste management and the lack of public awareness and civic consciousness.

By ensuring the transition to the circular economy which has the opposite effect to linear economy will ensure a greater prosperity, but primarily, the future existence of the human society, it is not only possible, but also a primordial necessity – but it does not mean it will happen without the right policies.

The implementation of the circular economy requires the necessity and manifestation of a buffer period that, for sure, will record and negative effects at the beginning.

It notes the importance of avoiding waste production – the principal imperative that underlies of necessity to transition to the circular economy – which imposes with a higher importance than recycling and reuse.

A responsible policy in the waste hierarchy must have as a main target, first - restricting the negative impact of waste generation and their management on human health and on environment, as well as, reducing the consumption of primary resources and reintegration of the secondary resources in the circuit, who are contained in waste.

In present conditions, EU allocates large sums on technologic subventions and pollution sources, thing that imposes the redirection towards research and initiatives ensuring sustainability.

References

1. Blok, V., Zwier, J. i al ii, 2015. The Ideal of a Zero-Waste Humanity: Philosophical Reflections on the Demand for a Bio-Based Economy. *Journal of*

- Agricultural and Environmental Ethics*, 28(2), pp.353-374.
2. Braungart, M. and Donough, W., 2002. *Cradle-to-Cradle: Rethinking the Way to Make Things*. North Point Press.
 3. Charonis, G.K., 2012. *Degrowth, Steady State Economics and the Circular Economy: three distinct increasingly converging alternative discourses to economic growth for achieving environmental sustainability and social equity*. World Economics Association.
 4. Giljum, S., Hinterberger, F., Jäger, J., 2006. *New Environmental Concepts and Technologies and Their Implications for Shaping the Future EU Environmental Policies*. Final Report.
 5. Giurco, D., Littleboy, A., 2014. *Circular Economy: Questions for Responsible Minerals, Additive Manufacturing and Recycling of Metals*. *Revista Resources*, 3, pp.432-453.
 6. Huang Chenglei, H., 2015. *Developing Circular Economy Capability: Antecedents, Mechanisms, and Outcomes in Chinese Manufacturing Industry*. Dissertation University of Toledo.
 7. Pinjing, H., Fan, L., Hua, Z. and Liming, S., 2013. Waste as a Resource, capitol Recent Developments in the Area of Waste as a Resource, with Particular Reference to the Circular Economy as a Guiding Principle. *Environmental Science and Technology*, 37.
 8. Salomone, R. and Saija, G., 2014. *Pathways to Environmental Sustainability-Methodologies and Experiences*. Springer International Publishing Switzerland.
 9. ***Avizul prospectiv privind reexaminarea obiectivelor-cheie ale Uniunii Europene privind de eurile, 2013.
 10. ***Comunicarea Comisiei c tre Parlamentul European, Consiliu, Comitetul Economic i Social European i Comitetul Regiunilor, 2014. *Spre o economie circular : un program «de euri zero» pentru Europa*, COM.
 11. ***Propunerea de directiv a Parlamentului European i a Consiliului de modificare a Directivei 2008/98/CE privind de eurile, a Directivei 94/62/CE privind ambalajele i de eurile de ambalaje, a Directivei 1999/31/CE privind depozitele de de euri, a Directivei 2000/53/CE privind vehiculele scoase din uz, a Directivei 2006/66/CE privind bateriile i acumulatorii i de eurile de baterii i acumulatori i a Directivei 2012/19/UE privind de eurile de echipamente electrice i electronice – COM, 2014.