SOLID WASTE REGULATION IN BRAZIL: EUROPEAN OR GLOBAL INFLUENCE?

Ondřej Filipec, Lucas Santana de Medeiros

1. Introduction

The variables of industrial development and natural resource depletion follow similar paths since it is known that consumption is the main instrument for the movement of the global economy. However, growing and expanding economies have a significant environmental dimension, and arising environmental problems require the implementation of sustainable policies which are crucial for addressing negative impacts linked with increasing consumption. This article deals with solid waste regulation in Brazil – a country that is a dominant and fast-growing economic actor in South America and at the same time a country covering approx. 60 % of the Amazon rainforest. As a result, solid waste regulation in Brazil is of key importance as the country may act as the model for other countries in the region and set regulatory measures becoming a standard with a long-term environmental impact.

The transboundary nature of environmental problems often requires flexible and universal solutions transformed into policies and regulations. States touched by environmental challenges rarely have sufficient national capacities to effectively address emerging issues and are searching for inspiration abroad. In this sense, policies and regulations might be imported from foreign actors, including international organizations and communities. In this regard, the European Union is considered a regulatory superpower, providing direct or indirect inspiration to other countries. In various areas, EU values, norms, and procedures are exported and become part of national policies, far beyond the borders of the EU. The same is valid for systems of international governance and regulatory frameworks, which emerged because of globalization. The main aim of this article is to assess Brazilian solid waste regulation and track the EU or global influences to reveal the scope in which Brazilian architects of the regulation got inspired by foreign actors. Some previous studies have shown, that the EU is a relatively important source of the norms for Brazilian regulatory frameworks, and this case study might reveal significant influence in another area of solid waste regulation where standards were elevated due to a paradigm shift.

With the increase in the load of waste, environmental damage, and pressure linked to sustainability, the EU managed to go beyond its reduction policies, aiming to establish a new paradigm, as will be seen throughout the article. This new paradigm brings a new understanding of waste, the introduction of sustainable product labels, the obligation of selective collection, and others, aiming to control

the entire life cycle of waste. In Brazil, it was inspired by the Stockholm Declaration[1] of 1972 that the Brazilian Federal Constitution[2] adopted, in its article 225, the right to an ecologically balanced environment as a fundamental right. It is noted, in general, that Brazilian standards cover a clear inspiration in European directives, as they introduce their trajectory towards sustainability with Federal Law 12.305/10,[3] after 20 years of processing, evidently influenced by the Solid Waste Policy of the EU. In this way, National Solid Waste Policy was consolidated, whose principles are very similar to European guidelines, such as Extended Responsibility of Brazilian Producer and reverse logistics. However, in a way that such inspiration is attributed, it recognizes that the Brazilian community has also been working to build a healthy environment through its principles.

The following sections of the article will discuss external influences on Brazilian regulation, namely in the form of Europeanization and Globalization with a particular focus on the EU solid waste policy, which become the dominant source of inspiration in the Brazilian case. Finally, regulation in Brazil is introduced with a special part dedicated to similarities between EU and Brazilian regulation.

2. Europeanization or Globalization?

Treaties of Rome in 1957 laid down the foundations of the single market based on four freedoms. From the early beginning creation of the single market had a significant international dimension that rose over time. While several rounds of EC/EU enlargement and economic growth added significance, the deepening of integration and spread into the new areas linked to the market resulted in the EU being considered a regulatory superpower. Today, the EU is regulating a market covering an area of almost 5 million square kilometres including almost a half billion relatively rich consumers. A normative dimension of the single market is highlighted by the fact that EU institutions are required to produce regulation, which is under strong scrutiny by the EU member states, institutions, and stakeholders. As a result, the EU is in many areas considered a regulatory leader, providing direct or indirect inspiration to other countries around the world. Europeanization in many cases went beyond the EU's borders and is no longer only associated with the implementation of *acquis* by member states or candidate countries.

[1] Report of the United Nations Conference on the Human Environment. United Nations, Stockholm, 5-16 June 1972. Available at: https://docs.un.org/en/A/CONF.48/14/Rev.1 [cit. 20. 3. 2025].

[2] BRASIL. [Constituição (1988)] Constitution of the Federative Republic of Brazil [recurso eletrônico] : constitutional text enacted on October 5, 1988, with the alterations established by Revision Constitutional Amendments No. 1, 1994 through 6, 1994, by Constitutional Amendments No. 1, 1992 through 92, 2016, and by Legislative Decree No. 186, 2008. Brasília: Chamber of Deputies, Edições Câmara, 2016, 5th. ed. – (Série textos básicos ; n. 132 PDF)

[3] BRASIL. Lei n° 12.305, de 2 de agosto de 2010 (Law No. 12.305, of August 2, 2010) on Solid Waste National Policy. Available at: https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm [cit. 20. 3. 2025].

However, Europeanization is not the only source of influence, as some problems are solved on an international or global level. This process is caused by increasing dependence between states, the cross-border nature of the problems, and their simultaneous emergence. As a result on the international or global level, various regulatory measures and standards were created, which are being transformed and implemented into national policies and regulatory systems. This second source of influence is a side effect of globalization, creating sometimes an alternative to Europeanization. Nonetheless, the effect can have various interactions with Europeanization, from overlap, complementarity, convergence, divergence, partial effects, or no effects at all. For that reason, the effects of Europeanization may be sometimes mistaken for the effects of globalization and *vice versa*.

Despite to all the above-mentioned difficulties in the relationship, it is worth distinguishing between these two phenomena as waste is both a European and global challenge. The World generates approx. 2 billion tons of municipal solid waste annually with the expectation to sharp increase to 3,4 billion tons in 2050.[4] At the same time, a great proportion (extremely conservatively estimated to be one-third) is not managed in an environmentally sound manner preventing sustainability.[5] The EU is intensively working in the opposite trend by creating an extensive regulatory framework and presenting ambitious goals, which are summarized in the following part.

At the global level, waste management is closely related to UN Development Goals. Goal 12 is aimed at sustainable consumption and production which is further specified in targets. Among them, by 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse. Some targets are ambitious and aimed at the promotion of sustainable practices among states, companies, and people, including access to information and increasing awareness for sustainable development and lifestyles in harmony with nature. All targets are focused on the year 2030 which is from a contemporary perspective very close and ambitious deadline. However, targets are very general in nature and provide space for free interpretation. This is also the case of the target to "Support developing countries to strengthen their scientific and technological capacity to move towards more

[4] In this article we deal only with the municipal solid waste which is only a portion of total waste production. For example, as of 2022 the EU generated in total 2 233 million tons of waste out of which "only" 9 % counted for households, but 38 % counted for construction, 23 % for mining and quarrying, 10 % for manufacturing, another 10 % for waste water or 5 % for services. See: Eurostat, 2024. Generation of Waste by Waste Category, Hazardous and NACE 2 Rev. activity. In: *An official website of the European Union* [online]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics [cit. 20. 3. 2025].

[5] The World Bank, 2022. What a Waste 2.0. A Global Snapshot of Solid Waste Management to 2050. In: *The World Bank Group*. [online]. [cit. 7. 6. 2022] Available on: https://datatopics.worldbank.org/what-a-waste/trends_in_solid_waste_management.html.

sustainable patterns of consumption and production" which might be interpreted as a very general promise for improvement.[6]

Next to the UN Development Goals, there are various resolutions adopted by the UN Environment Assembly. In relation to waste, there is a Resolution to End plastic pollution: Towards an international legally binding instrument, a Resolution on an Enhancing Circular Economy as a contribution to achieving sustainable consumption and production, a Resolution on the Sound Management of Chemicals and Waste, a Resolution for a Science-Policy Panel to contribute further to the sound management of chemicals and waste and to prevent pollution or the Resolution text on environmental aspects of minerals and metals management. The principal position is also of the UN Regulation no 133 on Uniform provisions concerning the approval of motor vehicles with regard to their reusability, recyclability, and recoverability which has its roots in the Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

3. Waste Regulation in the EU

In the area of waste regulation, the EU created a very extensive regulatory system containing dozens of documents of various kinds from very general strategies to specific documents of technical nature. EU waste policy is a very important part of the EU environmental policy. As a result, its true nature is linked to resource depletion, climate changes, or contamination of the environment including soil, air and water, rivers, and seas, which is having an impact on the loss of biodiversity. Due to its interlinkages, the waste policy shall not be seen as a separate dimension, but as an interconnected policy area with many linkages and side effects.

Due to the division of powers and application of principles of the EU law[7] the system might be considered as of *sui generis* nature, having varying degrees of competencies for the EU and the member states. This is mainly dependent on the legal basis of the tools. While some tools[8] have an environmental legal basis in article 192 resp. 193 of the Treaty on the Functioning of the European Union (TFEU), other tools have a basis in article 114 TFEU related to the single market. This is very important, as tools anchored under Article 114 may be subject to total

[6] United Nationals, 2022. Sustainable consumption and Production. Global Development Goals. In: *United Nationals*. [online]. [cit. 23. 6. 2022]. Available at: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/.

[7] EU environmental law and policy is based on four core environmental principles contained in Article 191(2) of the Treaty on the Functioning of the European Union (TFEU): the precautionary, prevention, rectification at source, and polluter pays principles.

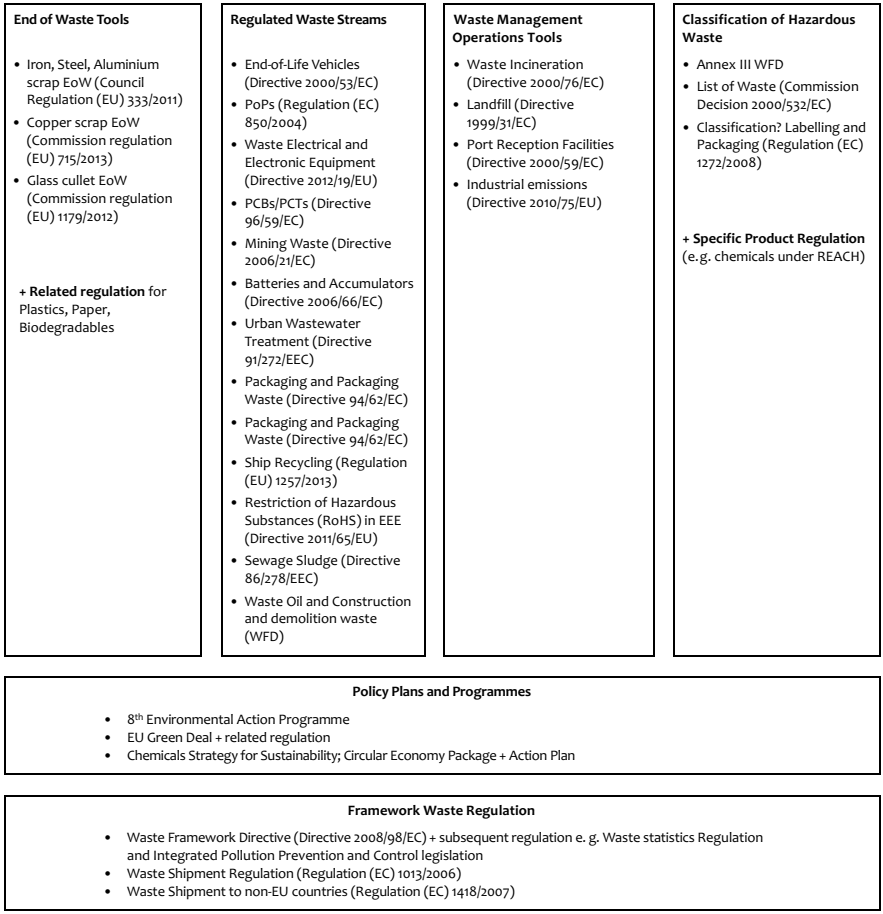
[8] Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (Text with EEA relevance). *Official Journal*, L 197/38, 24.7.2012.

harmonization and provide minimum space for the EU member states which is much greater under the environmental legal basis. Moreover, in some cases, the situation is complicated, as some tools have a dual legal basis.[9] However, this does not mean that its aims and mechanisms cannot be adapted within states beyond the EU and in some cases even Worldwide. From a certain point of view, policies are universal and it is mainly the institutional essence of the EU, which is providing another scrutiny – similar to the federal level within some states.

In the last two decades, the EU slowly turned into a regulatory ambitious giant. Next to the progressive political programs, resulting mainly from the implementation of the Environmental Action Programmes, the EU soon developed framework regulation and started to regulate various aspects of the "waste life". Next to the "end of waste" tools, the EU developed also waste management operations such as incineration or landfill and started to regulate individual waste streams: sewage, batteries, packaging, end-of-life vehicles to various chemicals. The last category was soon subject to a very demanding review based on probably the most complex and most controversial regulation in EU history. For a brief overview of the EU waste regulatory tools see Chart 1.

[9] Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (Text with EEA relevance). *Official Journal,* L 266, 26.9.2006, p. 1–14.

Chart 1: **EU Waste Regulatory Framework**



Source: Authors, based on 2025 status.

Despite there being many tools covering the subject of solid municipal waste, the EU's principal position is having a Waste Framework Directive which provides a basic definition and principles, on which waste management stands. The core of legal regulation is a definition of the subject covered, which is "the waste". But what is a waste? Part of the answer might be provided by the Waste Framework Directive, (Directive 2008/98/EC) which in Article 3(1) states that "'*waste' means any substance or object which the holder discards or intends or is required to discard*". It seems that the definition of waste was purposefully made very broad which on one hand provides the flexibility of application, but on the other side may produce doubts, especially when putting into consideration the word "discard". For that reason, interpretation was often the subject of the Court of Justice of the EU which specified what is a waste under regulation.[10] It is necessary to mention, that the court opted for an extensive interpretation of the word, highlighting the environmental protection purpose of the directive. This „waste doctrine" has been developed by various cases, among them mainly Joined Cases C-304/94, C-330/94, C-342/95, and C-224/95 *Tombesi,*[11] C-129/96 *Inter-Environnement Wallonie ASBL v. Region Wallonne*,[12] Joined Cases C-418/97 and C-419/97 *ARCO Chemie Nederland Ltd v. Minister van Volkshuisvesting,*[13] Case C-9/00 Palin Granit *Oy and Vehmassalon kansanterveystyon kuntayhtyman hallitus*,[14] Case C-1/03 *Vande Wallev Texaco*, Cases C-416/02 and C-121/03 *Commission v. Spain*, Case C-252/05 *The Queen on the application of Thames Water Utilities Ltd v. South East London Division, Bromley Magistrates' Court*, Cases C-194/05, C-195/05 and C-263/05 *Commission v. Italy,* Case C-*Commune de Mesquer v. Total France* and others.[15]

However, the "municipal waste" definition is lacking, and the term is present only contextually. As a result, the WFD of 2008 was modified by Directive (EU) 2018/851 which amended also the part of definitions. Here also "municipal waste" appears as: *"(a) Mixed waste and separately collected waste from households, including paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment, waste batteries and accumulators, and bulky*

[10] EDWARDS, Vanessa. A Review of the Court of Justice's Case Law in Relation to Waste and Environmental Impact Assessment: 1992-2011. *Journal of Environmental Law*. 2013, **25**(3), pp. 515–30. Available at: https://www.jstor.org/stable/26168498

[11] Judgement SDEU of 25 June 1997, *Tombesi and Others***,** in joined Cases C-304/94, C-330/94, C-342/94 and C-224/95 (ECLI:EU:C:1997:314).

[12] Judgement SDEU of 18 December 1997, *Inter-Environnement Wallonie ASBL v Région wallonne*, C-129/96 (ECLI:EU:C:1997:628).

[13] Judgement SDEU of 15 June 2000, *ARCO Chemie Nederland and others***,** in joined Cases C-418/97 and C-419/97 (ECLI:EU:C:2000:318).

[14] Judgement SDEU of 18 April 2002, Palin Granit Oy and Vehmassalon kansanterveystyon kuntayhtyman hallitus, C-9/00 (ECLI:EU:C:2002:232).

[15] TURUNEN, Topi and ALARANTA, Joonas. The Role of the CJEU in Shaping the Future of the Circular Economy. *European Energy and Environmental Law Review*. 2021, **30**(2), pp. 51-61. Available at: https://doi.org/10.54648/eelr2021006

waste, including mattrasses and furniture; (b) mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households; Municipal waste does not include waste from production, agriculture, forestry, fishing, septic tanks and sewage network and treatment, including sewage sludge, end-of-life vehicles or construction and demolition waste".

It would be wrong to consider Waste Framework Directive as a "non-effective" tool as there are provisions having legal consequences. For example, article 13 stresses that: *"Member States shall take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular: a) without risk to water, air, soil, plants or animals; without causing a nuisance through noise or odors; and c) without adversely affecting the countryside of places of special interest"*. This strong provision lays down the "general responsibility" of the member states which might be subject of the infringement procedure, sometimes preceding even the "lex specialis" Landfill Directive.

However, despite the EU's active infringements (see for example cases against Italy) and is having political ambitions in reducing…, both the Waste Framework Directive and Landfill Directive are criticized for being built on an "old consumer paradigm" which is based on production, consumption and discard. Both tools match and reflected the populous reality but with the increasing burden of waste, environmental damage, and linked pressure for sustainability it is evident that a paradigm shift is necessary. It is interesting, that already the Directive of 2008 set up the waste hierarchy including from the top-down: prevention, preparing for reuse, recycling, another recovery (e.g. energy recovery) and disposal (see Article 4) with a clear priority on waste prevention as the best waste is "zero waste" and products, that are circulating in the economy.

Next to the existence of existing tools, most of them were updated and refreshed by new policy goals, the EU went beyond and prepared new tools allowing a paradigm switch. Already in 2015 so-called "Circular Economy Action Plan" was presented, drawing the main lines toward a new understanding of waste. Within the old paradigm, waste was considered an unwanted outcome of consumption, causing environmental degradation as a result of responsibility lost in the system, the new approach to waste management is trying to change this perspective. Waste is seen as a profitable commodity, as it may be transformed into new things (recycling), reused for new purposes repaired, or even transformed into energy. A great part of the responsibility is transferred to the producers who are motivated to create sustainable products which are burdenless during the whole life cycle. Thus, the new approach builds on waste prevention in strengthening product policies.

There is a variety of new tools aimed at strengthening this new paradigm. One of the most important initiatives is to label sustainable products, which are distinguishable for consumers as products that are environmentally friendly.

Although there is no legal obligation to place only environmentally sustainable products on the market, there are various voluntary initiatives to make products attractive for users by using Ecolabel, Ecodesign or the Energy Framework Label. Similarly, most of the products on the EU market are not covered by the Extended Producer Responsibility, which makes producers responsible for the end phase of the product – e.g. waste. This obligation covers so far only specific goods like batteries and vehicles and since 2025 it will also cover packaging. In order to make recycling more effective, a new obligation for separate collections was established. Next to plastics, paper, glass and metal, there will be an obligation to also cover biowaste (since 2023) and textile and hazardous waste (since 2025). However, it is important to mention that many countries are matching these criteria even today, however, it is evident that plastics have limitations. That is why the EU adopted 2018 a new strategy for plastics in a circular economy, which is based mainly on product standards and collection tools. Despite the above measures, many countries in the EU are still not using the system of deposit for plastic bottles.[16]

The very recent framework is provided by the new Circular Economy Action Plan (sometimes also titled 2.0) which is further strengthening previous initiatives and is now subject to reception by stakeholders (see for example CEFIC 2020). The plan itself envisages more than 30 actions in various areas to make "systemic, deep, and transformative changes" to the economy, which will affect the EU and beyond (see European Commission 2020: 24). As for now, the EU is trying to meet very ambitious targets by 2030: At least 60% of municipal waste generated should be prepared for reuse or recycled (Waste Framework Directive) and the residual (non-recycled) municipal waste should be reduced by half (circular economy action plan and zero pollution action plan). The EU adopted an ambitious Green Deal, revised its Waste Framework Directive (2018), and modernized its Circular Economy Action Plan which sent an important signal abroad and provided inspiration to other countries beyond the EU borders.

4. Regulation in Brazil

The current Federal Constitution of Brazil is considered a long text, which addresses several fundamental themes for the organization and direction of the country. In the constitutional text, several fundamental rights of citizens are addressed, such as the right to freedom, work, housing, health, education, and not least, the right to a balanced environment. [17] Although Federal Law No. 6,938 had

[16] MCCARTHY, Niall. Which Countries Have Bottle Deposit Systems. In: *Statista* [online]. 22. 9. 2020. [cit. 23. 6. 2022]. Available at: https://www.statista.com/chart/22963/global-status-of-plastic-bottle-recycling-systems/

[17] Article 225. All have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations.

already established the National Environmental Policy in 1981, it took another 7 years until the right to an ecologically balanced environment was established and promoted in the Federal Constitution of 1988 within its article 225. The very wording of this article reflects the incorporation of international ideals elaborated in the Stockholm Convention of 1972[18] when predicting the right to an environment of a quality that permits a life of dignity and well-being and the duty to protect the environment for present and future generations.

In 1989, draft law number 203 was presented by Senator Francisco Rollemberg to regulate the packaging, collection, treatment, transport, and final destination of waste from health services and a few years later, after Brazil hosted the United Nations Conference on Environment and Development (UNCED), also known as the Rio de Janeiro Earth Summit, several Brazilian parliamentarians presented amendments to the original (Rollemberg) draft law No. 203/1989.

It is important to know, that this piece of legislation was a subject of frequent changes. For example, it is estimated that more than 140 draft amendments have been presented over the years, with the legislative process lying idle for more than a decade. It is important to emphasize that these dozens of amendments were presented with the aim of improving and expanding the regulation of the bill. After all, initially, it only concerned waste related to health services. At the end of the '00s, the National Congress returned to focus on the draft law, having been widely debated in several legislative commissions. New ideas were incorporated and updated, and several sectors of Brazilian society were heard.

In 2010, at the end of the debates, in order to replace all other projects and amendments already presented on the subject, a new draft law was presented by Senator Dr. Nechar, which was already born under the agreement of the majority of parliamentarians and represented the solution to the Gordian knot legislative that lasted for almost 20 years. A few months after approval in the Chamber of Deputies, the project was approved in the Federal Senate, and on August 3, 2010, it was signed by the President of the Republic, originating Federal Law No. 12,305, which establishes the Solid Waste National Policy (SWNP) a very complex national legislation. As put by Araújo and Juras (2011), the SWNP was responsible for systematizing and bringing together in a single legislative text "numerous legal provisions previously spread out in various normative instruments, such as resolutions and ordinances, in an organic and coherent way".[19] It is obvious, that

[18] Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. (Principle 01, Declaration of the United Nations Conference on the Human Environment, Stockholm, 1972).

[19] ARAÚJO, Suely Mara Vas Guimarães de and JURAS, Ilidia da Ascenço Garrido. *Comentários à Lei dos Resíduos Sólidos: Lei n° 12.305, de 2 de agosto de 2010 (e seu regulamento) [Comments on the Law of Solid Waste: Law No. 12,305 of August 2, 2010 (and its regulation)]*. São Paulo: Editora Pillares,

the Brazilian SWNP was designed at the same time in which also EU instruments were prepared. That is why it is worth exploring similarities between NPSW and EU legislation.

First of all, similarly to the EU legislation, the NPSW is addressing several basic principles and definitions which are introduced by the NPSW, in order to provide coherent application throughout the national territory. For example, the definition of the term *solid waste* is defined extensively as "material, substance, object or goods discarded as a result of human activities in society, whose final destination is carried out, supposed to be carried out, or must be carried out" (article 3, XVI). In turn, the "final environmentally-adequate destination" is "the destination of waste that includes reuse, recycling, composting, energy recovery and utilization, or other forms of destinations permitted by competent bodies (...), including final disposal" (article 3, VII).

As in the EU Directive of 2008, the Brazilian law indicates a hierarchy of postures to be taken (article 9): non-generation, reduction, reutilization, recycling, solid waste treatment, and final environmentally adequate waste disposal. Moreover, as with the European directive, the Brazilian Extended Producer Responsibility is being applied gradually, with reverse logistics as one of the main points. According to article 33 of SWNP, the following products must be the object of reverse logistics: pesticides, their residues, and packaging; cells and batteries; tires; lubricant oils, their residues, and packaging; fluorescent, sodium, and mercury vapor and mixed light lamps; electric-electronic appliances and their components.

However, SWNP does not indicate goals and plans for the application of reverse logistics, so these aspects are defined through regulations or sectoral agreements and terms of commitment signed between the government and the business sector. Thus, in order to guide these instituted reverse logistics systems and analyse the need to review sectoral agreements, regulations, and terms of commitment, the Guiding Committee for Implementation of Reverse Logistics Systems (CORI) was created.

That said, as all available waste treatment and recovery solutions are exhausted, SWNP will also include the definition of rejects, which is not explicitly found in the EU legislation. This residue will then be designated as "rejects", in accordance with article 3, item XV, which will be identified as "solid waste that, after all, treatment and recovery possibilities have been exhausted by available technological and economically feasible processes, does not present any other possibility but an environmentally adequate final disposal".

2011. JURAS, Ilidia da Ascenção Garrido Martins. Legislação sobre resíduos sólidos: comparação da Lei 12.305/2010 com a legislação de países desenvolvidos (Legislation on solid waste: comparison of Law 12.305/2010 with legislation in developed countries). *Consultoria legislativa da Área XI,* 2012. [online] Available at: https://edisciplinas.usp.br/pluginfile.php/4060084/mod_resource/content/1/AULA%207%20-%20RECOMENDADA%202012_1658.pdf.

Regarding the basic principles that encompass and sustain SWNP, one of them is the polluter pays principle. It is known that the European community was the first to, in fact, establish such a precept in its rules, by providing that costs of waste disposal and repair of damage caused to the environment should be supported by those responsible. In this environmental aspect, the Brazilian writer Luciana Cunha Lúcio (2018, p. 26), explains that this principle "(...) aims to protect the environment, forcing the polluter who, by his actions or his omissions, brings damage to the environment, regardless of fault, to repair the damage caused, also through criminal and administrative penalties". It can be noticed that there is a slight difference between the European principle and the Brazilian principle because Brazil has a high regard for the directives in effect in the European Union.

The preventive and precautionary tendency of this mechanism is also noteworthy since it stimulates environmental protection in an economical way by avoiding the whole community having to bear costs derived from the consumer market since profits and benefits are privatized and not socialized, even though the "cost" of uncontrolled degradation falls directly on society as a whole.

Therefore, in this same perspective, it is indispensable to mention that, as the pioneer in establishing the protector-recipient principle, another basic principle of the SWNP, the Brazilian community introduces it in the following aspects: since polluters must bear the costs of damage caused to the environment, in the same way, those who protect and preserve it must receive certain compensation, as an incentive for the service rendered. This shows a remarkable evolution and commitment of Brazil to stimulating the defence of natural resources.

Finally, on 7th January 2025, Law No. 15,088 was published[20] with the aim to ban the import of solid waste and rejects to Brazil, including paper, paper derivates, plastic, glass, and metal, by amending Article 49 of the Solid Waste Law. It was a vital amendment clarifying restrictions imposed by law 10,305 from 2010. However, it is important to mention that the amendment is bringing two exceptions, such as imports of waste used in the transformation of strategic materials and minerals, which will be allowed under regulation. These covers also waste metals or metallic materials or long-fiber paper scraps. Another exception is allowing the import of auto parts (except tires), allowing importers or manufacturers to import solid wastes derived from previously exported domestic products, exclusively for the purposes of reference logistics and full recycling.

Law 15,088 is another proof, that Brazil is on a good track to keep standards and continues to develop on the paradigm shift towards more sustainable waste

[20] BRASIL. Lei n° 15.088, de 6 de Janeiro de 2025 (Law No. 15,088, of January 6, 2025) on Solid Waste, altering the Law No. 12,305 from 2nd August 2010 on the National Policy. Available at: https://www2.camara.leg.br/legin/fed/lei/2025/lei-15088-6-janeiro-2025-796854-publicacaooriginal-174014-pl.html [cit. 20. 3. 2025].

management and the development of the circular economy. Moreover, the amendment is heading toward the direction of limiting waste in the country, which might theoretically help local ecosystems and indirectly support recycling and reversion of domestic products which might lead to the development of the recycling industry and potentially new jobs in the sector. On the other hand, the restriction may limit some enterprises depending on the import of specific materials, implementation of the slightly changed regulation may be costly in some cases and the existence of exemptions may lead to confusion or inequal application. The very first years in force will show, whether benefits prevail over potential disadvantages.

5. Conclusion

It was explained that consumption is the main instrument for moving the global economy, so variables of industrial development and depletion of natural resources tend to grow proportionally. As a result, environmental problems have developed causing a worldwide concern about climate change and, subsequently, about global warming, so it was necessary to insert sustainable policies to contain them. It was in this context that solid waste regulation emerged.

It was seen that European Union is considered a regulatory superpower, as it plays a significant role in imposing consumption standards. The inspiration that the EU promotes, as a result, generates a remarkable Europeanization of countless aspects that adjust and make up the global market. However, in the same way, it was exposed that certain problems are solved at an international or global level since globalization has transformed and implemented regulatory measures and norms with the purpose of instituting them in national policies and systems.

In the same sense, it was seen that the EU waste policy is an interconnected policy area with many links and side effects, forming a fundamental part of its environmental organization. It has been developed that their system has different degrees of competence, both for the EU and for its member states. In the course of the article, it was also presented that it sought to go further, in order to establish a new paradigm given the increase in the load of waste, environmental damage, and pressure linked to sustainability.

Through analysis and research, it was exposed by several instruments that this new paradigm brought an updated understanding of waste, the introduction of sustainable product labels, the obligation of selective collection, and other instruments that seek to control the entire life cycle of solid waste, from its origin as a product to the appropriate final destination, or, as well, promoting the reuse and extension of its useful life.

It was analysed that Brazil adopted the right to an ecologically balanced environment as a fundamental right, from the Stockholm Convention of 1972. In this way, it was developed that Brazilian norms are clearly inspired by European

directives since that introduces their trajectory towards sustainability with Federal Law 12.305/10, approved after 20 years of processing, evidently influenced by the Solid Waste Policy of the European Union. The new amendment from 7th January 2025 continues this trend.

Brazilian Solid Waste Policy then began to be consolidated with principles similar to European principles, such as the Expanded Responsibility of Brazilian Producer and reverse logistics. Thus, it was developed during the article that the institution of this Law established an advance in the deficiency of maintenance of solid waste. It was also presented that the Brazilian community has been working to build a healthy environment through its own principles.

According to the facts of the case, it is possible to conclude that the European Union is committed to the preservation of the environment and human life, since, as developed, it presents relevant progress in terms of directives and measures that are truly satisfactory. It is for this reason that Brazil was inspired by European directives, as it strives to reduce solid waste, through reuse, recycling, treatment, and environmentally appropriate final destination.

It was generally seen that both the European Union and Brazil, through their respective waste policies, have the potential to contain negative impacts of waste production, even though Brazil is taking its first steps towards a clean, healthy, and safe environment.

References

ARAÚJO, Suely Mara Vas Guimarães de and JURAS, Ilidia da Ascenço Garrido. *Comentários à Lei dos Resíduos Sólidos: Lei n° 12.305, de 2 de agosto de 2010 (e seu regulamento) [Comments on the Law of Solid Waste: Law No. 12,305 of August 2, 2010 (and its regulation)]*. São Paulo: Editora Pillares, 2011.

BRASIL. [Constituição (1988)] Constitution of the Federative Republic of Brazil [recurso eletrônico] : constitutional text enacted on October 5, 1988, with the alterations established by Revision Constitutional Amendments No. 1, 1994 through 6, 1994, by Constitutional Amendments No. 1, 1992 through 92, 2016, and by Legislative Decree No. 186, 2008. Brasília: Chamber of Deputies, Edições Câmara, 2016, 5th. ed. – (Série textos básicos ; n. 132 PDF)

BRASIL. Lei n° 12.305, de 2 de agosto de 2010 (Law No. 12.305, of August 2, 2010) on Solid Waste National Policy. Available at: https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm

BRASIL. Lei n° 15.088, de 6 de janeiro de 2025 (Law No. 15,088, of January 6, 2025) on Solid Waste, altering Law No. 12,305 from 2nd August 2010 on the National Policy. Available at: https://www2.camara.leg.br/legin/fed/lei/2025/lei-15088-6-janeiro-2025-796854-publicacaooriginal-174014-pl.html [cit. 20. 3. 2025].

Case C-129/96 Inter-Environnement Wallonie ASBL v Région wallonne, ECR I-7411, (1998) 10 JEL 194.

Case C-9/00 Palin Granit Oy and Vehmassalon kansanterveystyon kuntayhtyman hallitus, [2002] ECR I-3533, (2003) JEL 15(1) 89.

DA SILVA, Alexandra Fernanda and MATTOS, Ubirajara Aluízio de Oliveira. Logística reversa – Portugal, Espanha e brasil: Uma revisão bibliográfica (Reverse Logistics – Portugal, Spain and Brazil: A literature review). *Revista Internacional de Ciências*. 2019, **9** (1), p. 35–52. ISSN 2316-7041. DOI 10.12957/ric.2019.36108.

DE MORAIS, Carlos Eduardo. O princípio do poluidor pagador no Brasil e o equilíbrio econômico-ambiental. (The polluter pays principle in Brazil and the economic-environmental balance). *Risco legal* [online] Available at: https://vgriscolegal.com.br/blog/o-principio-do-poluidor-pagador-no-brasil-e-o-equilibrio-economico-ambiental/

Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (Text with EEA relevance). *Official Journal,* L 150/109, 14. 6. 2018, p. 109–140.

Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles. *Official Journal,* L 269/34, 21.10.2000.

Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and

repealing Directive 91/157/EEC (Text with EEA relevance). *Official Journal,* L 266, 26.9.2006, p. 1–14.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance). *Official Journal,* L 312, 22.11.2008, p. 3.

Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (Text with EEA relevance). *Official Journal,* L 197/38, 24.7.2012, p. 38–71.

Directive 94/62/EC of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste. *Official Journal,* L 365/10, 31.12.1994.

EDWARDS, Vanessa. A Review of the Court of Justice's Case Law in Relation to Waste and Environmental Impact Assessment: 1992-2011. *Journal of Environmental Law*, **25**(3), 2013, pp. 515–30. Available at: https://www.jstor.org/stable/26168498

European Commission, 2020. Circular economy action plan. In: *An official website of the European Union* [online]. [cit. 20. 3. 2025]. Available at: https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf.

Eurostat, 2024. Generation of Waste by Waste Category, Hazardous and NACE 2 Rev. activity. In: *An official website of the European Union* [online]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics [cit. 20. 3. 2025].

FARIA, Mônica Faria Baptista. A política de resíduos sólidos na União Europeia e no Brasil: estudo comparativo e análise quanto à efetividade. (The solid waste policy in the European Union and Brazil: comparative study and analysis regarding its effectiveness) *Fundação Getulio Vargas – FGV, SB* [online] 2014, **3**. ISBN: 9788563265289. Available at: https://bibliotecadigital.fgv.br/ojs/index.php/rpdue/article/view/68142

Joined Cases C-304/94, C-330/94, C-342/94 and C-224/95[1997] ECR I-3561, (1998)10 JEL193.

Joined Cases C-418/97 and C-419/97 ARCO Chemie Nederland Ltd v. Minister van Volkshuisvesting [2000] ECR I-4475, (2001) 13 JEL123

JURAS, Ilidia da Ascenção Garrido Martins. Legislação sobre resíduos sólidos: comparação da Lei 12.305/2010 com a legislação de países desenvolvidos (Legislation on solid waste: comparison of Law 12.305/2010 with legislation in developed countries). *Consultoria legislativa da Área XI,* 2012. [online] Available at: https://edisciplinas.usp.br/pluginfile.php/4060084/mod_resource/content/1/AULA%207%20-%20RECOMENDADA%202012_1658.pdf [cit. 20. 3. 2025].

MCCARTHY, Niall. Which Countries Have Bottle Deposit Systems. In: *Statista* [online]. 2020. Available at: https://www.statista.com/chart/22963/global-status-of-plastic-bottle-recycling-systems/ [cit. 20. 3. 2025].

MENDES, João Múcio Amado. *Responsabilidade compartilhada pelo ciclo de vida do produto na cadeia de resíduos eletroeletrônicos. (Shared responsibility for the product life cycle in the electro-electronic waste chain)*. Faculdade de Direito da Universidade de São Paulo, 2015. Available at: https://www.teses.usp.br/teses/disponiveis/2/2131/tde-01122015-142705/publico/Dissertacao_JOAO_MUCIO_AMADO_MENDES_REEE.pdf [cit. 20. 3. 2025].

Report of the United Nations Conference on the Human Environment. United Nations, Stockholm, 5-16 June 1972. Available at: https://docs.un.org/en/A/CONF.48/14/Rev.1 [cit. 20. 3. 2025].

ROCHA, Janile Gadelha and MAGALHÃES, Narjara Soares. Relação União Europeia/Brasil: a questão dos resíduos sólidos. (European Union/Brazil relationship: the solid waste issue.) *Revista Jus Navigandi*. 2021, **26**(6612). ISSN 1518-4862. Available at: https://jus.com.br/artigos/92248/relacao-uniao-europeia-brasil-a-questao-dos-residuos-solidos [cit. 20. 3. 2025].

The European Chemical Industry Council, 2020. Circular Economy 2.0. In: *CEFIC* [online]. Available at: https://cefic.org/policy-matters/innovation/circular-economy-package/ [cit. 20. 3. 2025].

The World Bank, 2022. What a Waste 2.0. A Global Shapshot of Solid Waste Management to 2050. In: *The World Bank Group* [online]. Available on: https://datatopics.worldbank.org/what-a-waste/trends_in_solid_waste_management.html [cit. 20. 3. 2025].

TURUNEN, Topi and ALARANTA, Joonas. The Role of the CJEU in Shaping the Future of the Circular Economy. *European Energy and Environmental Law Review*. 2021, **30**(2), pp. 51-61. Available at: https://doi.org/10.54648/eelr2021006 [cit. 20. 3. 2025].

United Nationals, 2022. Sustainable comsumption and Production. Global Development Goals. In: *United Nationals* [online]. Available at: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/ [cit. 20. 3. 2025].

United Nations. Declaração da Conferência das Nações Unidas sobre o Meio Ambiente Humano (Declaração de Estocolmo) [Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration)]. In: *United Nationals* [online]. Available at: https://sustainabledevelopment.un.org/milestones/humanenvironment [cit. 20. 3. 2025].

Acknowledgment

This article is part of the research conducted under the umbrella of the Institute of Czech-Brazilian Academic Cooperation (INCBAC) – the sponsor of the UNIGOU Programme.

About the authors:

Ondřej Filipec *is an Assistant professor at the Faculty of Law, Palacký University in Olomouc. His research interests cover various topics linked to the EU and security, especially under the framework of Europeanization. He published two books about chemical regulation REACH (Springer Nature and UP Press) and now is teaching courses on Energy and Environmental Security, Project Management, and Czech and EU Environmental Policy. He is a member of several scientific organizations, including the Jean Monnet Centre of Excellence in EU Law and the Czech Association for European Studies. Since 2024 he has been responsible for sustainability and environmental protection of sports events organized by the Czech Figure Skating Federation, including the 2026 ISU World Championship in Prague.*

Lucas Santana de Medeiros *is a Brazilian lawyer with a degree in Law from the Federal University of Goiás, Jataí regional campus. For the past five years, he has been a partner at Gustavo Görgen Advogados in Brazil, working to resolve civil law issues. His research interests cover environmental law and waste regulation. He attended in 2022 the Faculty of Law, Palacký University in Olomouc under the UNIGOU program under the INCBAC – Institute of Czech Brazilian Academic Cooperation.*

Abstract

This article aims to find European and global sources of influence on the modernization of Brazilian solid waste regulation. It offers international sources of the regulatory norms which are later tracked within Brazilian regulation, notably the Solid Waste National Policy (SWNP). Authors claim that the EU provides strong inspiration to Brazil in changing the paradigm of waste policy, especially in the area of consumption and transformation into the circular economy model. Next, the Europeanization research article provides an overview of the actual state of the art in EU legislation covering waste and its management and the overview of key aspects of Brazilian law.

Keywords: Solid Waste, Waste Management, Regulation, Europeanization, Globalization, Brazil