

Resolving problems of fragmentation of environmental protection in European Union law?

An analysis of Life-Cycle Thinking in EU product legislation

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I. Introduction

Fragmentation of products' regulatory framework in the European Union (EU) hinders environmental protection. The emergence of an EU Integrated Product Policy (IPP) sought to address this issue, putting forward the need to adopt an approach encompassing the whole life cycle of a product. Effective preservation of the environment against harmful effects of products implies adopting such a comprehensive approach. How the law can take up this method to limit the inconsistency arising from a fragmented background is the focus of my analysis.

In this paper, I start with defining certain key concepts concerning Life-Cycle Thinking (LCT) and look at the first developments of LCT on products in the EU. I analyse how, by taking into account the whole product's life cycle in an integrated manner, EU product policy seeks to enhance the coherence of the regulatory framework (II). I follow with an analysis of what fragmentation means in and the different ways it appears in EU legal context (III). Next, I survey attempts to integrate LCT in product-related legislation. The findings illustrate that the influence of this original thinking varies greatly from one law to another (IV). I conclude with recommendations on how LCT can contribute to reducing the fragmentation of the regulatory framework, and thereby limit environmental damages caused by products (V).

II. Life-Cycle Thinking and EU product policy

Life cycle, LCT and LCA

The life cycle of a product is composed of five main stages – raw material extraction, manufacturing of a product or parts of a product, packaging and transport, use or service operation and end-of-life – which are consecutive and closely interlinked. To each stage correspond various environmental impacts referred to as “inputs and outputs”.¹ The energy used during the production process or the use phase, and the materials needed for making the product, are examples of such inputs. Inputs are subsequently transformed and result in outputs that are emissions and waste.

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¹ Chris Hendrickson, Arpad Horvath, Satish Joshi, and Lester Lave, *Economic Input-Output Models for Environmental Life-Cycle Assessment*, 32 *Environmental Science Technology* 7 (1998), 184

The idea behind introducing LCT is to consider all environmental impacts of a product across its entire life cycle to prevent and reduce them.² This means that actions taken to minimise the impact of a product at one stage of its life cycle must not merely shift the burden to a different stage or from one country to another, but achieve a net benefit for the environment.³

LCT is based on a scientific assessment called Life-Cycle Assessment (LCA), which is defined by the International Standard Organisation (ISO) as “a technique for assessing the environmental aspects and potential impacts associated with a product system or service”.⁴ In other words, it consists in the exploration of the inputs and outputs occurring at each phase of a product’s life cycle. LCA contributes to determining the environmental impacts of both inputs and outputs at each phase of product’s life and across all types of media (air, water, soil).⁵

Implementing LCT consists in a number of stages of analysis beginning with a definition of the goal and scope of the study.⁶ As part of this first stage, a unit of use should be defined as a basis for comparing the functions that each product fulfils.⁷ Then comes the inventory analysis that seeks to list all environmental interventions occurring at all relevant levels of the process chain – manufacturing, use and waste management – associated with the product’s function.⁸ In order to combine the data collected in the inventory phase, the next step requires undertaking an impact assessment. The values of environmental interventions are interpreted on the basis of their potential contribution to environmental impact.⁹ Finally, an analysis of opportunities to reduce the environmental impact of the product throughout its whole life cycle is performed.¹⁰

LCT received a lot of attention in the early 1990s with numerous publications dedicated to it, putting forward both its benefits and weaknesses.¹¹ Among the main benefits, the avoidance of problem shifting is particularly relevant. It also helps identifying where improvements can be made at lesser costs or with greater results. In some cases, using life cycle can also improve market conditions and open new markets.¹² The time and costs linked to LCT are usually put forward as important weaknesses. Moreover, because product development is based on a short-term cost/benefit model,

² UNEP Life Cycle Initiative defines LCT as “a way of thinking that includes the economic, environmental and social consequences of a product or process over its entire life cycle”. For the purpose of this Paper, I only look at environmental impacts of a product.

³ European Environmental Agency (EEA), *European Environmental Outlook 2010*

⁴ ISO 14040

⁵ Mary Ann Curran, *The Status of Life-Cycle Assessment as an Environmental Management Tool*, *Environmental Progress*, 23 *Environmental Progress* 4 (2004), 277

⁶ Arnold Tukker, *Life cycle assessment as a tool in environmental impact assessment*, *Environmental Impact Assessment Review* 20 (2000), 435

⁷ Jeroen B. Guinbe, Reinout Heijungs, Helias A. Udo de Haes and Gjalt Huppes, *Quantitative life cycle assessment of products, Part 2. Classification, valuation and improvement analysis*, *Journal Cleaner Production* 2(1993), 81

⁸ Tukker (2000)

⁹ Jyri Seppälä, *Life cycle impact assessment based on decision analysis*, *Systems Analysis Laboratory Research Reports A86*, University of Helsinki (June 2003), 3

¹⁰ Susan Svoboda, *Note on Life Cycle Analysis*, National Pollution Prevention Center for Higher Education (March 1995), 2

¹¹ See Helias A. Udo de Haes, *Applications of life cycle assessment: expectations, drawbacks and perspectives*, *Journal Cleaner Production* 1 (1993), 131; and Gregory A. Keoleian, *The application of life cycle assessment to design*, *Journal Cleaner Production* 1 (1993), 143;

¹² United Nations Environmental Programme/SETAC Life-Cycle Initiative, *Life Cycle Approaches - The road from analysis to practice*, Paris, 2005

the reasoning based on an entire life cycle and cross-generation was not well received by the industry.¹³

The Union took up the approach and, in 2003, established LCT as a key tool for decision-makers to create broader-based strategies.¹⁴ The Joint Research Centre, an in-house science service of the Commission, dedicates nowadays part of its activities to developing and improving the knowledge and use of LCT throughout the Union.¹⁵

EU product policy

The development of an EU product policy was a major step in recognising the importance of a broad policy approach based on LCT. Because traditional focus on production processes cannot respond to the growing concerns of negative environmental impacts caused by products, there is a growing consensus that one of the key features of product policy should not only be “market facing and integrated”, but also “life-cycle based”.¹⁶

The Commission commissioned a study, in 1998, which put forward the term ‘life-cycle’ as one of the three key aims of a product policy approach.¹⁷ In the final report of the IPP workshop organised by the Commission the same year, one of the main recommendations was to establish a life-cycle perspective as the leading principle of IPP.¹⁸

The Commission Communication on IPP aims at addressing the challenge of combining “improving life styles and well-being - which are often directly influenced by products - with environmental protection.” In order to achieve that objective, it encourages policy makers to integrate environmental considerations at each life cycle stage. Product-related policies have generally focused on large sources of pollution, such as industrial emissions or waste management issues. Although these policies remain essential, one that looks at the whole of the product’s life cycle, including the use phase, must complement them.¹⁹ An assessment of all inputs and outputs of a product provides for the opportunity of reducing its overall environmental impacts in the best and most cost-effective manner, without shifting the burden from one part of the life cycle to another.

Following the IPP Communication, the Commission published a Thematic Strategy on waste,²⁰ which sets out guidelines for reducing negative environmental impacts of waste management. The role of LCT is put forward in this context as an approach to identify more easily methods to maximise environmental benefits. Similar conclusions are reached in the Sustainable Consumption and

¹³ H. Kaebernick, S. Kara, M. Sun, *Sustainable product development and manufacturing by considering environmental requirements*, 19 *Robotics and Computer Integrated Manufacturing* 6 (2003), 461; Asiedu Y, Gu P, *Product life cycle cost analysis: state of the art review*, 36 *Int. J. Production Research* 4 (1998), 883

¹⁴ Commission Communication of 18 June 2003, *IPP - Building on Environmental Life-Cycle Thinking*, COM(2003) 302 final

¹⁵ See http://lct.jrc.ec.europa.eu/index_jrc

¹⁶ See Curran (2004)

¹⁷ Ernst & Young and SPRU, *IPP Study for the Commission* (1998), 9

¹⁸ Commission Workshop on IPP, *Final Report* (1998), 6

¹⁹ IPP Communication, 3

²⁰ Commission Communication, *Taking sustainable use of resources forward - A Thematic Strategy on the prevention and recycling of waste*, COM(2005) 666 final

Production and Sustainable Industrial Policy Action Plan,²¹ adopted in 2008. The Commission pleads in favour of a more integrated approach of policy instruments, in particular those addressing specific aspects of a product's life cycle. The ecodesign and labelling of products and regulatory incentives (e.g. public procurement) are particularly recommended actions.

Firstly introduced in IPP, LCT quickly spread over to broader product-related policies and led to the adoption and revision of various legal acts. Three of them will be the focus of my analysis because they address aspects identified as key by the abovementioned policy documents: the design of products, which is a direct application of LCT; public procurement, which contributes to green the use phase and incentivise the upstream²² level; and waste management, which addresses a remaining major products' output and aims at influencing both the upstream and consumer stages.

III. Fragmentation of environmental protection in EU product legislation

Fragmentation of the regulatory framework of environmental protection is, on the one hand, a horizontal problem. The way a product is regulated has implications on the environmental impact of the product. At EU level, few product-related laws have environmental protection as their primary objective. Legal instruments usually follow other policy objectives, such as market integration, competitiveness of industries or energy security, with an accordingly sector specific legal basis. The issue is how environmental concerns are supported and emphasised across sectors.²³ Incidentally, the sector division also affects environmental protection depending on how each relevant authority exercises its discretion.

On the other hand, vertical fragmentation arises from the existence of multi-level governance, where both the EU and its Member States have competences to legislate in specific matters. The concern is, firstly, that, where parallel competences exist, the legislation adopted does not lead to contradictions. Secondly, inconsistencies may arise where whatever decision taken at superior level of governance is not carried out uniformly at the lower levels.²⁴ Finally, the existence a hierarchy of instruments within the Union's legal regime may also create discrepancy.

Horizontal fragmentation: competing objectives and institutions

Each legislative instrument adopted at EU level must be based on a specific legal base provided, in most cases, by the Treaty on the Functioning of the EU (TFEU). The choice of the legal basis is not left to the discretion of EU institutions, but must be based on objective factors, in particular the aim and content of the measure.²⁵ It may happen, however, that an instrument pursues more than one purpose and that two different legal bases could apply. In such cases, the Court of Justice of the EU

²¹ Commission Communication on the *Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan*, COM(2008) 397 final

²² The term "upstream" is used to refer to all life-cycle stages intervening before consumption stage.

²³ Endre Stavang, *Some (In)consistencies in Environmental and Natural Resources Law*, In *Law and Economics – Essays in Honour of Erling Eide*, Cappelen Damm Akademisk (2010), 243

²⁴ Stavang (2010), 244

²⁵ Ludwig Krämer, *EU Environmental Law*, 7th Edition, Sweet and Maxwell (2011), 2-69; Cases C-155/91 *European Parliament v Council* [1993] E.C.R. I-939 and C-164 and 165/98 *European Parliament v Council* [2006] E.C.R. I-107 [1999] E.C.R. I-1139

(CJEU) provides for two alternative solutions: first, if one of the purposes can be identified as the predominant, the act should be solely based on that main purpose. That is referred to as a “single legal basis”. Secondly, in the event that one purpose cannot be considered secondary, the act can be adopted on more than one legal base. The use of a “dual legal basis” shall only occur in exceptional cases.²⁶

EU product policy has developed essentially under the auspice of the internal market. Article 26 TFEU establishes an area without internal frontiers in which goods, persons, services and capital can move freely without being subjected to trade barriers or discriminatory treatments. The Treaty contains, moreover, a provision allowing the European legislator to adopt measures outside the strict definition of the fundamental freedoms,²⁷ in order to achieve the objectives of the internal market. Article 114 TFEU aims at the approximation of national laws of the Member States relating to the establishment and functioning of the internal market. Although the provision expressly requires that any proposal pursue a high level of protection of the environment,²⁸ the main focus remains the internal market. The Union adopted several legal acts pursuing both economic and environmental protection objectives under Article 114. Two relevant examples are that of ecodesign requirements for energy-related products²⁹ and the use of chemicals by the industry.³⁰

The preservation, protection and overall improvement of the quality of the environment are among the objectives of the Union.³¹ It is also recognised as a fundamental part of the general interest of the EU, which the Union is responsible for,³² and must be taken into account when adopting any other policy.³³ Article 192 TFEU allows for the adoption of legal instruments in this area, but recourse to this legal basis for product-related legislation is hitherto limited to waste. Even in this realm, the internal market objective sometimes prevailed. The Union adopted two sister directives, one on electronic and electrical waste³⁴ and the other on hazardous substances.³⁵ The first was eventually based on Article 192, but Article 114 is the legal basis of the second.

Other Treaty provisions are used to adopt product-related legislation. This is the case of Article 194 TFEU, the new Energy provision, under which the recast of the Energy-Labeling Directive was conducted.³⁶ Article 207 TFEU, which give competences under the Common Commercial Policy, was

²⁶ Cases C-94/03 *Commission v Council* [2006] E.C.R. I-1 and C-178/03 *Commission v Council* [2006] E.C.R. I-107

²⁷ In the case of products, I refer to the free movement of goods and services (Articles 30 and 56 TFEU).

²⁸ Article 114(2) TFEU

²⁹ Directive 2009/125/EC of 21 October 2009 establishing a framework of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p.10 (Ecodesign Directive)

³⁰ Regulation EC 1907/2006 of 18 December 2006 on the **Registration, Evaluation, Authorisation and Restriction of Chemical Substances (REACH)**, OJ L 396, 30.12.2006, p. 1, seeks to protect human health and the environment and enhance innovation and competitiveness of the chemical industry. In the eyes of the Commission, the second objective prevailed and solely determined the legal basis.

³¹ Article 191 TFEU

³² See Case 240/83 *Procureur de la République v Association de défense des Brûleurs d’Huiles Usagées* [1985] E.C.R. 531, 13 ; see also Krämer (2011), 3-01

³³ Also known as the Principle of integration (Article 11 TFEU)

³⁴ Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE), OJ L 197, 24.7.2012, p.38

³⁵ Directive 2011/65/EU of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), OJ L 174, 1.7.2011, p.88

³⁶ Directive 2010/30/EU of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products, OJ L 153, 18.6.2010, p.1

used to conclude the agreement between the Union and the US on the Energy Star Programme aimed at improving the energy efficiency of office equipment.³⁷

The European Commission is composed of Directorate-Generals, which are individually responsible for ensuring the achievement of single sectors' objectives. Each weigh and balance their sector objectives against related environmental effects differently.³⁸ This discretionary power contributed to the disparity in content, approach and extent of environmental protection given by product-related legislation.

Vertical fragmentation: competing competences and instruments

The multiplication of competences between the EU, national, and sometimes regional,³⁹ levels results in a fragmented regulatory framework, which, in turn, puts at risk effective environmental protection from products' impacts. The TFEU establishes three main types of competences to the Union. Exclusive competences (Article 3) refer to situations where the Union is solely competent to adopt legislation, thereby limiting the Member States' competence to applying the acts (e.g. Common Fisheries Policy). Shared competences (Article 4) authorise both the EU and the Member States to adopt binding legislation in a specific sector. However, Member States may only legislate insofar as the EU has not exercised its own competence. A majority of areas are shared competences, including internal market, environment or energy. A final type is supportive competences (Article 6) whereby the Union can intervene to support, coordinate or complement the action of the Member States, but does not have any own legislative power (e.g. industry).

Both internal market and environmental competences are shared, but the way the Union and its Member States may exercise their respective powers differs. Under the free movement of goods, national measures affecting imports between Member States are generally prohibited and only few justifications are granted by the TFEU.⁴⁰ The CJEU developed an abundant jurisprudence in which it recognises mandatory requirements, including environmental protection, to justify certain trade restrictions imposed by Member States.⁴¹

Given that the aim of Article 114 TFEU is the harmonisation of laws, the Union may adopt provisions that can go far in exhausting the issue and set simultaneously minimum and maximum targets. In this case, Member States cannot adopt any measure going beyond EU rules.⁴² An exception is nonetheless given under Article 114(4)-(8) whereas Member States can adopt or maintain measures

³⁷ Council Decision 2003/269/EC of 8 April 2003 concerning the conclusion on behalf of the Community of the Agreement between the Government of the United States of America and the European Community on the coordination of energy-efficient labelling programmes for office equipment, OJ L 99, 17.4.2003, p.47

³⁸ Hans-Christian Bugge, *Environmental law's fragmentation and discretionary decision*, In Law and Economics – Essays in Honour of Erling Eide, Cappelen Damm Akademisk (2010), 63

³⁹ E.g. in Belgium, environmental protection is a federal competence, but it is the privilege of the Regions to adopt waste legislation.

⁴⁰ This includes the narrow concept of protection of the life of humans, animals and plants. See Articles 34 and 36 TFEU

⁴¹ Case 302/86 *Commission v Denmark* [1988] E.C.R. 4607 (guarantee of an efficient system of waste prevention); Case C-2/90 *Commission v Belgium* [1992] E.C.R. I-4431; Case C-131/93 *Commission v Germany* [1994] E.C.R. I-3303

⁴² Aaron Ezroj, *Extended Producer Responsibility Programs in the European Union: In Search of the Optimal Legal Basis*, 20 Colorado Journal of International Environmental Law and Policy 2 (2009), 203.

on environmental protection. The Treaty narrowly defines their margin of manoeuvre and the procedure is quite heavy. Member States must notify any measure to the Commission, which has the power to approve or reject the national provisions within six months.

On the other hand, under the environmental legal basis, the Union can enact only minimum targets EU.⁴³ This means that Member States generally retain substantial legislative powers. In case where a specific issue is exhaustively regulated by the Union, Member States have the possibility, following Article 193 TFEU, to maintain or introduce more stringent protective national measures. The procedure is less stringent than under Article 114, the obligation to notify the Commission not being subjected to a right of veto.

Directives are the preferred instruments in case of shared competences.⁴⁴ They are binding as to the result to be achieved, but leave to Member States the choice of form and methods.⁴⁵ As a result of this flexibility, the transposition of EU provisions and their implementation may vary from one country to another and endanger the coherence of the overall regulatory framework of products. The risk is particularly high where concepts are vague or provisions imprecise, as what often results from conciliating the interests of 27 countries.

Vertical fragmentation also results from the multiplication of instruments at a single level. EU secondary legislation (e.g. regulations and directives) may contain provisions attributing powers to the Commission to adopt quasi-legislative acts amending non essential elements of the main act – delegated acts⁴⁶ – or measures aimed at ensuring uniform implementation across the EU – implementing acts.⁴⁷ Adoption of these measures takes place under strict rules but the Commission benefits nonetheless from discretionary powers that may put at risk the uniformity of a particular legal regime.

IV. The emergence of LCT in EU product legislation

This chapter aims at analysing how LCT has been introduced in EU legislation and whether this contributed to reduce problems of fragmentation. My analysis focuses on three directives, each exemplifying a different way of integrating LCT in law. The Ecodesign Directive⁴⁸ is the most advanced, with the objective to green the whole life cycle of a particular product category through its design. With the recent Proposal for Public Procurement (PP) Directive,⁴⁹ economic considerations have led to the creation of a new type of life-cycle approach based on costs. Finally, in the Waste Framework

⁴³ Piet Jan Slot, *Harmonisation of Law*, 5 *European Law Review* (1996), 379

⁴⁴ This is in line with the principle of subsidiarity laid down in Article 5 of the Treaty on the European Union.

⁴⁵ Article 288 TFEU

⁴⁶ Article 290 TFEU

⁴⁷ Article 291 TFEU

⁴⁸ Directive 2009/125/EC of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p. 10

⁴⁹ Proposal for a directive on public procurement, COM(2011) 896 final; I leave the sister directive (2004/17/EC on procurement in the water, energy, transport and postal services sectors) out of my analysis, but the general line applies to it as well.

Directive (WFD),⁵⁰ LCT allows waste management priorities to be adjusted on a case-by-case basis, and justifies an extended responsibility for product's producers.

Before turning to the examination of each directive, an important fact to note is the different historical background of those laws. Whereas the Ecodesign Directive was adopted following the IPP Communication, the first versions of the PP Directive and WFD date back from 1971 and 1975, respectively. In spite of regular modifications, the current content and focus of the latter reflect the historical context, marked in particular by the internal market development. The Ecodesign Directive, on the contrary, is the first of its kind and was adopted at a time where Europe prospered and environmental protection was an imperative.

Ecodesign

The Union adopted, in 2005, the first Ecodesign Directive, which defines ecodesign as the "integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle."⁵¹ The success of the Directive led, in 2009, to a significantly enlargement of its scope: from regulating only *energy-using* products, it now encloses all *energy-related* products.

The legal basis of the Directive is Article 114 TFEU, and even if a strong emphasis is put on environmental concerns, trade objectives took precedence. The Directive illustrates, however, how the use of LCT contributed to reducing risks of horizontal fragmentation and greening product legislation. First, that adoption of the act was based on LCT considerations whereby "pollution caused during a product's life cycle is determined at [the design] stage, and most of the costs involved are committed then."⁵² The recourse to LCT allowed the legislator to address products' overall environmental impacts in a cost-benefiting manner for the industry.

Provisions of the Directive also potentially endangered environmental protection by delegating competences. The Directive does not establish direct mandatory requirements for each product, but relies on the adoption of implementing measures by the Commission.⁵³ From those measures depend the success of the Directive, and yet quantitative and qualitative criteria highly constrain their adoption. The criteria, anchored in an economic vision of product design, require that products (1) reach a certain volume of sales and trade, (2) significantly impact the environment within the EU, and (3) market forces fail to address the issue properly.⁵⁴ While the lack of clarity of the second criterion already puts the applicability of the provision at risk, the third refers to a doubtful event, thus leaving the door wide open for industry to convince the Commission not to use its prerogatives.⁵⁵

Where implementing measures are adopted, the multiplication of instruments could threaten the coherence and effectiveness of the Directive. That risk is nevertheless lessened by the requirement, in

⁵⁰ Directive 2008/98/EC of 19 November 2008 on waste (WFD), OJ L 312, 22.11.2008, p.3

⁵¹ Article 2(23) Ecodesign Directive

⁵² Preamble (4) and (7) Ecodesign Directive

⁵³ Article 15 Ecodesign Directive

⁵⁴ Article 15(2)(c)(i) Ecodesign Directive

⁵⁵ Rosalind Malcolm, *Ecodesign Laws and the Environmental Impact of our Consumption of Products*, 23 *Journal of Environmental Law* 3 (2011), 487

Article 15(4), that the Commission considers the product's life cycle in adopting implementing measures. By referring to a concept that not only framed the Directive, but also includes precise requirements of environmental protection, the legislator ensured that delegation of powers would take place in line with the aim of the Directive and contribute to reducing environmental impacts of products.

Public Procurement

The Proposal for a Public Procurement (PP) Directive, from December 2011 and amending the existing Directive 2004/18,⁵⁶ is currently under review by the European Parliament in first reading. The Proposal is based notably on Article 114 and the Commission always took a very economic approach, refusing notably integrate environmental concerns into the Directive. Green Public Procurement, a voluntary and non-binding instrument, serves as guidance for public authorities to determine the extent to which they could purchase environmental-friendly goods, services and works.⁵⁷

Contrary to the Ecodesign Directive, the PP Proposal is an example where the multiplication of objectives weakened environmental protection, the economic rationale trumping other concerns. If the text recognises the importance of a life-cycle approach, it prefers to develop the concept of "Life-Cycle Costing" (LCC) instead of LCT. LCC is defined in Article 67 of the PP Proposal as the internal costs of a product, service or work that are composed of the acquisition (production costs), use and end-of-life, and the external environmental costs directly linked to its life cycle, e.g. greenhouse gases and other pollutant emissions.

As the proposal currently stands, public authorities may only use LCC when determining the contract award criteria based on the lowest cost, and if they decide not to refer only to the price.⁵⁸ The role of LCC is therefore very limited in the award phase, but inexistent as far as the other stages of the PP procedure are concerned: determination of the subject-matter, choice of technical specifications, selection of candidate and contract performance.

A final risk of fragmentation arises from uncertainties around the exact shape of LCC. Debates within the European Parliament led to discussions on to the monetisation of externalities and costs associated with stages of the life cycle prior to purchase.⁵⁹ Thus, when Member States will transpose the Directive, and public authorities award decisions based on national laws, the already limited environmental protection given by LCC might further decrease.

Waste

The Union adopted several legal instruments aimed at regulating the management of specific waste streams, such as electronics, packaging or vehicle vehicles, and a cross-cutting directive. The WFD

⁵⁶ Directive 2004/18/EC of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, OJ L 134, 30.4.2004, p.114.

⁵⁷ Commission Communication, *Public procurement for a better environment*, COM(2008) 400 final

⁵⁸ Article 66 PP Proposal

⁵⁹ See e.g. Amendments 364-7 to Draft report of Marc Tarabella, PE483.468v01-00; see also ClientEarth, *Providing an enabling framework for sustainable public procurement: reflections on IMCO amendments* (2012), available at <http://www.clientearth.org/reports/life-cycle-costing-reflections-on-imco-amendments.pdf>.

covers many waste streams⁶⁰ and aims at protecting the environment “by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.”⁶¹

Adopted under the scope of Article 192 TFEU, the WFD pursues, as its main objective, environmental protection, but may only establish minimum requirements. This means that Member States retain important competences and can, in any case, go beyond what the Union set out. There are no provisions in the WFD that frame the action of Member States, such as to take LCT into account when adopting legislation. Inconsistencies could arise which might endanger the extent of the environmental protection despite all measures being adopted within EU environmental policy framework.

The last version of the WFD, from 2008, integrates LCT within its scope in two different manners. First, it is used to justify a derogation to the hierarchy of waste management contained in the Directive, whereby the prevention of waste should be the main priority, followed by re-use, recycling, energy recovery and disposal. This hierarchy is an authoritative principle applicable to all types of waste, provided that other measures may not deliver the best overall environmental outcome. Indeed, where, on the basis of LCT and for specific waste streams, the environment would be better off with another measure than provided by the hierarchy, derogation can be recognised.⁶² This may only be result from a case-by-case analysis. The hierarchy is deemed to establish a solution that is usually the best, but in some cases, there may be a better alternative. For example, the UK Department for Environment, Food and Rural Affairs (DEFRA) conducted an analysis on the management of waste wood and found that a specific type of wood is more suitable for energy recovery than recycling.⁶³ An important weakness of this approach is that there are no indications of how to use LCT in this context. The discretion left for the implementation of this derogation may weaken environmental protection, in particular if the issue of costs is given precedence. Moreover, the WFD recognises an additional flexibility whereby considerations of technical feasibility and economic viability may put in question the strict application of the hierarchy.⁶⁴

The second, though indirect, manifestation of LCT in WFD is the provision on “Extended Producer Responsibility” (EPR), which requires that the costs of disposing waste be borne by the producers of the product from which the waste came.⁶⁵ This obligation is the only direct mean of waste prevention – and uptake of LCT – contained in the WFD. The first priority of the hierarchy is indeed difficult to operate in the context of waste, as it actually requires actions to be taken at upstream level, before the product becomes waste. Annex IV offers examples of measures contributing to waste

⁶⁰ Article 2 WFD contains a list of all exclusions

⁶¹ Article 1 WFD

⁶² Article 4(2) WFD

⁶³ UK Department for Environment, Food and Rural Affairs (DEFRA), “Waste Wood as a Biomass Fuel, Market Information Report, Waste Infrastructure Delivery Programme”, April 2008, p. 11, available at <http://www.defra.gov.uk/environment/waste/topics/documents/wastewood-biomass.pdf>.

⁵¹ “Anaerobic digestion is the process where plant and animal material is converted into useful products by micro-organisms in the absence of air”, see <http://www.biogas-info.co.uk/index.php/what-is-ad-qa.html>.

⁵² UK DEFRA, “Guidance on the legal definition of waste and its application” [consultation closed; analysis ongoing], p. 33, available at <http://www.defra.gov.uk/corporate/consult/waste-framework-revised/20100708-waste-guidance.pdf>.

⁶⁴ Article 4(2), third paragraph, WFD

⁶⁵ Article 8 WFD

prevention, including the promotion of ecodesign measures, awareness-raising campaigns, and economic and fiscal incentives, but the WFD merely requires the adoption of soft measures.⁶⁶ In order to properly address the issue of prevention, measures should first be taken at upstream level, i.e. within the internal market or industry sector. EPR actually pursues that aim of encouraging greener design and production of goods, and more efficient use of resources during their whole life cycle.⁶⁷ By imposing financial obligations on the producer of the product,⁶⁸ the WFD reaches beyond the scope of waste *strict sensu* and seeks to incentivise producers to green the production phase to reduce impacts at end-of-life. EPR contains three types of obligations: physical obligations whereby producers engage directly in the management of their discarded products; financial obligations requiring that all waste management costs are paid for by producers; information obligations.⁶⁹ This far-reaching provision is, however, not authoritative and leaves Member States free to decide to implement EPR or not.⁷⁰ Some EPR obligations, which are binding, exist in most sector-specific waste directives.⁷¹

V. Recommendations

With the exception of the Ecodesign Directive, the role of LCT in EU legislation is so far merely accessory and not used consistently. To cope with persistent environmental problems, a more systematic and holistic approach is indispensable.⁷² In this final chapter, I make recommendations to respond to the various forms of fragmentation based on considerations of products' life cycle. First, horizontal fragmentation is addressed at EU level by the integration principle, but the application of that principle would benefit from the use of a life-cycle approach. Second, LCT should guide the activity of the legislators at all levels to lessen potential conflicts arising from the existence of multiple levels of competences. Vertical fragmentation should, thirdly, be addressed using LCT to frame the recipients' actions in implementing legal acts.

LCT as guidance for the integration principle

Inserted in the EU Treaty already in 1986, the integration principle is now anchored in Article 11 TFEU and requires the integration of environmental considerations into the definition and implementation of all policies. Integration may take the form of fusion or convergence between policies. In the first case, there is a risk of dilution of environmental requirements into broader policy objectives. If public authorities must satisfy a plurality of differentiated needs, the tendency is to give precedence to socio-economic policies to the detriment of the protection of intangible goods.⁷³

⁶⁶ Member States are required to conduct a detailed investigation of preventive measures and establish national waste prevention programmes (Article 29), the Union must submit progress reports (Article 9).

⁶⁷ Preamble (27) WFD

⁶⁸ WFD defines the producer as the "person who professionally develops, manufactures, processes, treats, sells or imports products"

⁶⁹ Noah Sachs, *Planning the Funeral at the Birth: Extended Producer Responsibility in the European Union and the United States*, 30 Harvard Environmental Law Review (2006), 62-63

⁷⁰ Article 8 WFD states : "...Member States **may** take legislative or non-legislative measures..." (emphasis added)

⁷¹ E.g. WEEE Directive contains financial obligations (Articles 12 and 13) and information obligations (Article 14-16)

⁷² Dirk Scheer, *Environmental governance and integrated product policy*, In *Governance for Integrated Product Policy*, Dirk Scheer and Frieder Rubik (eds.), Greenleaf Publishing (2006), 44

⁷³ Nicolas de Sadeleer, *Environnement et marché intérieur*, Commentaire J. Mégret (2010), 24

In the latter case, on the other hand, the convergence of policies ensures that each policy conserves its own identity. In such cases, environmental protection requirements are concretely taken into consideration in decision-making process of each policy.⁷⁴ In practice, however, convergence is difficult to reach because of political pressure or lack of clarity as to how to reconcile different interests. This is where LCT has a role to play, as it can both benefit the environment and identify business opportunities that are within easy reach.

In the case of the Ecodesign Directive, the choice of intervening at the design stage resulted from an assessment of where most benefits could be secured from an environmental and economic stance. The law seeks to reconcile conflicting objectives using LCT. The result of imposing efficiency requirements was not only the reduction of inputs (energy consumption) and outputs (longer life span), but also the creation of a new market, thereby allowing industries to remain competitive in the short term and reduce their costs in the long-term, while ensuring a high level of environmental protection.

The same considerations should preside the adoption of future product legislation. The integration principle, coupled with LCT, should guide the EU legislator in identifying the most adequate scheme to create business opportunities for industry within a framework that ensures that the environmental impacts of products are minimised.

LCT as guidance for a uniform regulatory framework

Fragmentation results in many cases from the existence of many actors competent to legislate in a particular sector. If the discretion for exercising those competences is wide, the risk is to have a multiplication of instruments that create an inconsistent legal framework and deficient environmental protection. These are the risks with the PP and waste legislation where the margin of manoeuvre of Member States is large.

LCT has a particularly relevant role to play in two situations: first, LCT can guide the actions of Member States in cases where Member States exercise the remaining legislative powers in a sector where the Union has partly legislated. In the case of an act based on Article 192 TFEU, more protective national measures can clearly be beneficial, but they can also threaten the coherence of the EU provisions. Compelling national legislators to consider systematically LCT when adopting product-related measures will contribute to create a consistent legal framework. The JRC is currently working on guidelines aimed at helping decision-makers and practitioners introducing LCT and LCA their activities.⁷⁵

A second situation concerns legislative powers exercised by the Union or the Member States following an attribution of competences contained in the secondary legislation. In the case of directives, in particular, Member States have an important role to play, because these acts require the adoption of implementing measures at national level.⁷⁶ A directive may refer to Member States to adopt legislation in a particular issue, such as the WFD for EPR obligations. Similarly, directives and regulations may delegate legislative powers to the Commission, as in the Ecodesign Directive,

⁷⁴ Idem

⁷⁵ See <http://lct.jrc.ec.europa.eu/assessment/publications>

⁷⁶ Article 288, third paragraph, TFEU

creating another level of competence. LCT should serve as guidance to ensure that the exercise of those responsibilities is consistent with the aim of the original text and in all Member States, and provide for an appropriate balance between environmental and economic considerations. The provision delegating powers should include as much details as possible as to what LCT entails in each particular context.

LCT as guidance for applying the law

Once a legal instrument is adopted at EU level, the implementation phase is crucial to ensure the effectiveness of the law. If Member States are the main recipients of a directive, other stakeholders also play an important role in applying the law in concrete situations. In that respect, the margin of manoeuvre left in a provision is determinant. Referring to LCT serves the purpose of guiding the application of the law in a systematic manner, without removing all flexibility for its recipients.

In the case of PP, if the final text endorses LCC for awarding contracts, public authorities will apply that concept in practice. Whether this results in better environmental protection or, on the contrary, merely reinforces the traditional cost-benefit analysis, might depend on how the concept is defined and how each authority understands it.

When drafting provisions, the Union and Member States should beware of vague or uncertain concepts, which may threaten the purpose of the law and reduce the environmental protection. Within the EU, the concept of LCT must be developed uniformly and referred to whenever considerations of a product's life cycle are envisaged.