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Taking Products Out of Waste Law: A (New) Legal Framework for the Circular Economy

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Abstract: At the heart of EU waste law lies the prevention principle. Preventive measures in environmental law aim to avoid and reduce the risk of environmental harm that can target both pollution sources and point of impact. The point of departure of waste law is that waste is a source of pollution, the unwanted outcome of the production and consumption processes, an environmental externality. The risk results from the actions of the holder of a substance or object from the moment where that substance or object is no longer wanted and (carelessly) disposed of. Preventing waste is hence about ensuring that a discarded object is disposed in the least environmentally harmful manner. It is also about much more than that. It is about everything that takes place before a product or material becomes waste, it is about extended product lifetime, repair and re-use, sharing and renting. The role of waste law might have consisted in avoiding landfilling, ensuring that collection and recovery schemes are in place, and that information flows between producers, consumers and waste managers. The rest, the prevention of products from becoming waste in the first place, could arguably have been pursued in another (more fitting) context. EU legislators, and the CJEU, saw things differently. A wide definition of waste captured in effect the major issues of prevention. As a result, waste recovery is facing today great regulatory challenges, such as stringent conditions about when waste ceases to be waste (i.e. 'end-of-waste') and abiding by the strict rules about chemical production (stemming from the REACH regulation).
This paper aims at critically examining the existing EU legal framework on waste, in particular on issues of objectives and scope and laying the foundations for a new legal paradigm in accordance with the goals of the Circular Economy. It is argued that the definition of waste needs to be narrowed to leave room for the 'circular' model to flourish. It follows that a (new) legal framework - focusing on products - shall be established in the vacuum left by a shrunken waste law.

Introduction

The European Union (EU) is committed to transitioning from a linear to a circular economy (CE) "where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised" (EU Commission, 2015). EU waste law is a major part of the EU's efforts to develop a sustainable and resource-efficient economy. It encourages recourse to the most environmentally sound processes to treat waste and divert it from landfills. The waste hierarchy establishes a priority order from prevention, preparation for reuse, recycling and energy recovery and finally disposal. The Waste Framework Directive (WFD) sets out ambitious targets for the preparing for re-use and the recycling of waste materials such as paper, metal, plastic and glass from households (Article 11(2)(a)). Moreover, in the CE, waste is a resource that has the potential to replace primary raw materials from traditional extractive resources. Despite continuous improvements in waste management, the Commission found that the EU is currently losing a significant amount of secondary raw resources (EU Commission, 2014). It estimated that out of the 2.5 billion tons of waste generated in the EU in 2013, 1.6 billion tons were not reused or recycled. The EU also found that approximately 600 million tons could be reused or recycled in the future, still leaving a large portion to waste recovery (in particular energy recovery) and disposal (landfilling). Thus, even if waste management must further increase and improve, the best way to mitigate pollution from waste is to prevent it from occurring altogether. Waste prevention includes measures to decrease consumption, design more durable and reparable products, use lesser resources in

production, extend the lifetime of products through maintenance and repair, and promote reuse.

Although the synergy of objectives between waste and CE policies may appear quite ideal, the first does not seem ideally fitted to promote the second. The Commission states that "the way we collect and manage our waste can lead either to high rates of recycling and to valuable materials finding their way back into the economy, or to […] potentially harmful environmental impacts and significant economic losses" (EU Commission, 2015). However, what the CE really seeks is to significantly reduce waste; the very broad scope of waste law means that whenever something is discarded, it becomes waste.

At both EU and national level, an increasing number of legal initiatives are being adopted that aim not only to regulate product design for durability and reparability, but also to inform consumers, ensure access to repair and repair tools, and providing tax incentives. These initiatives are showing that new thinking is possible, and this needs to be pursued further. Products need to start taking the front stage.

Waste: a problem of definition

The point of departure of waste law is that waste is a *source* of pollution. The *risk* of harm is not inherent to waste, but results from the fact that the holder of a substance or object it no longer wants might carelessly dispose of it (Cheyne, 2002, 62; Tromans, 2001, 135). The action that characterises the disposal represents a threat to the environment (Cheyne, 2002). Thus, the definition of waste developed as an *action-based* concept given the inherent risk of pollution arising from waste disposal and regardless of the toxicity of the original materials (Scotford, 2007; Cheyne, 2002). Initially, EU law defined waste as a substance or object that is 'disposed of' by the holder (Directive 75/442, Article 1(a)). However, the meaning of the term 'dispose' appeared ambiguous as to whether it aimed to cover not just normal disposal activities (tipping and incineration), but also recovery operations (Tromans, 2001, 141). An amendment to the Directive in 1991 changed the definition to include "any substance or object which the holder discards or intends or is required to discard" (WFD, Article 3(a)). The replacement of the verb 'dispose' by 'discard' confirmed the early interpretation of the definition by the CJEU (Joined cases C-206/88 and C-207/88 *Vessoso and Zanetti*, para 8 ff.). Discarding, i.e. getting rid of something no longer useful or desirable (Oxford Dictionaries), is meant to embody a comprehensive notion of waste that includes both recovery and disposal (EU Commission, 2012).

It is clear that the broad interpretation of the term 'waste' by the EU legislators and the CJEU (Joined cases C-304/94, C-330/94, C-342/94 and C-224/95 *Euro Tombesi*; Joined cases C-418/97 and C-419/97 *ARCO*; Case C-252/05 *Thames Water*; Case C-188/07 *Commune de Mesquer*, 39; Case C-1/03 *Van de Walle*; Case C-457/02 *Niselli*) aimed to prevent the threat of waste pollution by ensuring that virtually all 'substances and objects' would eventually fall within the scope of waste law and thus have to abide by its rules. However, as a result, the definition also encompasses materials that, although they may have no further use for the holder, constitute valuable resources for another user or production process. This all-encompassing definition of waste essentially defies the very core idea of the CE – that is, to do away with waste. The CE aims to extend useful lifetime through maintenance and repair, and ensuring the reuse of products and their recovery, while recycling is a less desirable option from an environmental point of view.

On waste or products?

Waste prevention is not, strictly speaking, merely an issue about waste. This is particularly apparent in the examples provided by the WFD of preventive measures that Member States shall establish as part of the development of their waste prevention programmes (WFD, Article 29). Annex IV refers to product eco-design, eco-labels and economic incentives for the efficient use of resources and for cleaner purchases. Clearly, none of these examples has anything to do with waste management or shall fall on Member States alone. In fact, the EU ended up legislating on some of those issues, among others adopting ecodesign and labelling requirements for energy-related products, and introducing some elements of sustainability in public procurement rules (Directive 2014/24/EU; EU Commission, 2008). These legal schemes now form an integral part of the EU's action plan for the CE.

Product maintenance, repair and reuse are key aspects of waste prevention that remain largely underdeveloped in EU legislation. Their potential for reducing environmental impact and resource use should make them a priority. The

Ellen MacArthur Foundation refers to the 'power of the inner circles': "The closer the system gets to direct reuse, i.e., the perpetuation of its original purpose, the larger the cost savings should be in terms of material, labour, energy, capital and the associated externalities, such as greenhouse gas emissions, water, or toxic substances" (2013, 33). Several barriers hinder repair, including legal and non-legal barriers to accessing repair, cost and complexity of repair, and consumer attitudes not favouring repair (Svensson et al., 2018; Riisgaard et al., 2016; Wieser, Tröger, 2018). Removing legal barriers from e.g. IP or competition laws is certainly fundamental, but establishing an environment in which repair becomes mainstream is also essential for realising the CE (Svensson et al., 2018).

The issue of reuse is one that is particularly telling of the tensions between waste law's aim to avoid pollution from unregulated waste management and the CE's objective to keep resources within the economy. The WFD defines *reuse* as a means of waste prevention. It is the process of using products again 'that are not waste' "for the same purpose for which they were conceived" (Article 3(13); EU Commission, 2012). This process is not directly included in the waste hierarchy, contrary to the preparation for reuse, which is the second priority. *Preparing for reuse* is referred to in Article 3(16) WFD as a waste management process whereby a product is checked, cleaned, repaired or recovered (that is, reconditioned and remanufactured, not recycled) so that it can be used again for the same purpose. The distinction between direct reuse and reuse following repair appears to depend on whether the product was discarded in the first place. Some municipalities or charitable organizations put up 'reuse containers' as alternatives to recycling bins, in particular for clothes. For the most part, however, consumers who want to get rid of their items have little choice other than to 'discard' them. Hence, for lack of better alternative, a majority of potentially reusable products will fall within the scope of waste law.

This is far from a trivial issue because, under the current system, the qualification of 'waste' has strong legal but also practical and psychological implications. When a product becomes waste, there is a specific set of legal rules that applies to it.

Chemical legislation does not apply to waste, but hazardous waste must be managed under strict conditions (WFD, Article 17). However, there is a current dichotomy between waste and chemical rules that may lead to hazardous substances being 'lost' when a product becomes waste, and information about toxicity not being adequately passed along to new manufacturers (Bernard, 2017).

EU waste law has progressively grown into an extensive legal framework governing industrial, commercial and household waste. At the heart of this framework today is the WFD, which defines key concepts, establishes core principles, and allocates responsibilities that apply across the board to the entire legal field. A number of sectoral directives regulate specific streams of waste (such as packaging, and electrical and electronic equipment (EEE)) or specific forms of waste management (including landfilling and transboundary shipments).

Waste versus non-waste: a new hierarchy

Current waste management practices are strongly influenced by the 'waste hierarchy', which is set out in the WFD (see figure 1). It consists in a priority order for waste management options based on assumed environmental impacts (Van Ewijk and Stegeman). The hierarchy establishes disposal (landfilling) as the least preferred option, followed by waste recovery notably for the production of energy, heat or fuels, and by recycling. The next priority is preparation for reuse (or product recovery), which promotes practices that allow products to fulfil their functions again after their first useful lifetime (J Hultman, H Corvellec, 2414).

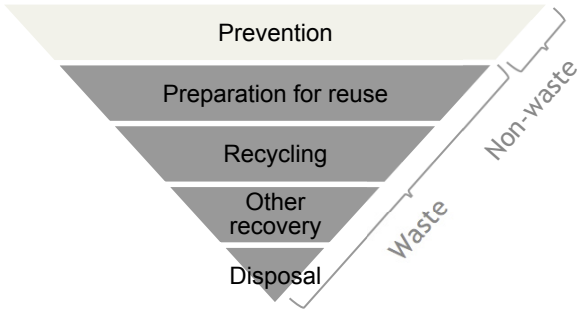

Figure 1. Waste management hierarchy (WFD 2008/98).

At the top of the hierarchy is prevention. Waste *prevention* encompasses measures aimed at avoiding waste that is by reducing either the amount of waste being produced (quantitative

reduction) or the content of harmful substances they contain (qualitative reduction) (Article 3(12) WFD and DG Env Guidance document (2012), 28). This includes design measures to extend the product's lifetime, maintenance and repair practices as well as second-hand retail.

The waste hierarchy is criticized for being insufficiently detailed (Gharfalkar et al.) and promoting diversion from landfill, but being unable to reduce natural resources consumption (van Ewijk and Stegemann). Moreover, the inclusion of 'prevention' in the hierarchy raises the question as to whether it is indeed a waste hierarchy. Gharfalkar et al. propose to rename it a 'hierarchy of resource use'. This denomination appears more in line with CE's objective of 'waste as a resource' and is thus adopted in this article.

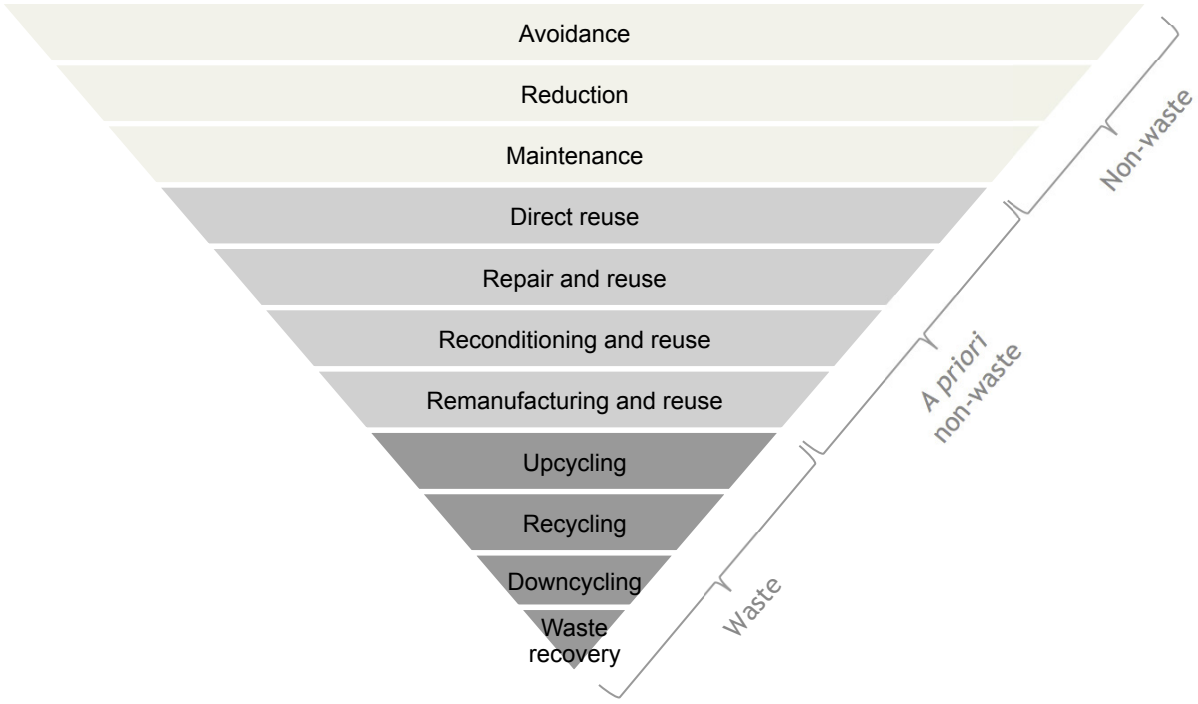

Figure 2. Proposed alternative hierarchy and new distinction between waste and not waste.

Current terminology and definitions as per WFD 2008/98 and waste hierarchy		**New terminology and definitions as per the proposed 'hierarchy of resource use'**	
Non-waste	**Prevention:** "measures taken before a substance, material or product has become waste, that reduce: (a) the quantity of waste, including through the re-use of products or the extension of the life span of products; (b) the adverse impacts of the generated waste on the environment and human health; or (c) the content of harmful substances in materials and products"	**Non-waste**	**Avoidance**: quantitative reduction in amount produced and consumed
			Reduction: qualitative reduction of the environmental impact of products (less materials, less harmful substances, more in-built durability and reparability)
			Maintenance: extending the product's useful lifetime by first user (including repair)
	Reuse: "any operation by which products or components that are not waste are used again for the same purpose for which they were conceived"	***A priori* non-waste**	**Reuse:** broad term that includes direct reuse and other forms of reuse described below
			Direct reuse: the use of a product by another user without repair process

Waste	**Recovery**: "any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy"		**Product recovery**: recovery processes that allow reusing products for the same purpose for which they were conceived
	Preparation for reuse: "checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing"		**Repair for reuse**: creating slightly inferior products for second-hand markets
			Reconditioning for reuse: same as repair but involving a more extensive recovery process
			Remanufacturing for reuse: extensive recovery to return the product to original specifications
	Recycling: "any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes"	**Waste**	**Reprocessing** (or **material recovery**):
			- **Upcycling**: reprocessing of waste materials into products, materials or substances of *higher* purpose and/or value than the original:
			- **Recycling**: reprocessing of waste materials into products, materials or substances of *same* purpose and/or value than the original;
			- **Downcycling**: reprocessing of waste materials into products, materials or substances of *lower* purpose and/or value than the original
	Other recovery: e.g. energy recovery		**Waste recovery**
	Disposal: "any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy"		**Disposal:** removed as a priority of the hierarchy

Table 2. Current versus proposed new terminology and definitions for the hierarchy.

A (new) legal framework for 'non-waste' products

The 2008 recast of the WFD introduced the concept of 'by-product' and turned into law jurisprudential developments and Commission guidelines from 2007. A by-product is defined as the residue of a production process that aim at producing another, primary product. Exclusion of such products from the waste definition depends on them meeting strict conditions about the lawfulness and certainty of further use without further processing, and about the product being an integral part of the production process.

The idea of developing a legal framework addressing the environmental impacts from products is not new (Dalhammar, 2007; Maitre-Ekern, 2015). A 1999 report from the Swedish EPA proposed to introduce such framework directive based on the Product Safety Directive as well as several daughter directives to lay out details product-specific requirements (SNV rapport). In 2004, the EEB put forward a similar proposal for a directive on the environmental soundness of products. The Commission did not follow that approach and preferred focusing on the adoption of a new directive on the ecodesign of energy-using products (2005/32/EC) that later evolved to cover all energy related products (2009/125/EC). The scheme, which aims at removing the worse performing products on the market, has also evolved in terms of its objective: at first, it focused on the energy efficiency of products, but it is developing to address other issues, such as resource efficiency, durability and reparability (Dalhammar, 2014b).

It is the author's view that the success and increasingly broad scope of the Ecodesign Directive should not hide the fact that it does not have the stature of a framework directive. Waste prevention goes beyond design. The European legislators justified the adoption of the Ecodesign Directive based on the affirmation that "the pollution caused during a product's life cycle is determined at [the design] stage". This vision is too limited. Reducing the environmental impacts of products is a matter not just of the product itself, but also of the structural forces that affect it (competition, prices, demand).

Conclusions

Policies on waste and the CE appear to go hand in hand. Waste law can contribute both towards boosting environmental sound waste management and avoiding contamination, and towards reducing our dependency on raw natural resources. However, waste law has developed at a different time and in a different context than the CE. The aim of the legislator and the CJEU was to avoid pollution from landfilling and other improper treatment that was a significant threat in the 1970s. This led to a broad definition of waste that encompasses anything that is being discarded. On the other hand, the CE aims to divert as many materials as possible from becoming waste to avoid the environmental impacts and loss of value that result from waste management. The CE intends to change the very functioning of the economy and particularly to establish new business models. New innovative regulatory schemes have developed under its auspices, such as the Ecodesign Directive, which imposes design requirements directly to the producers.

Preventing and reducing waste products requires in particular extending their lifetime through maintenance, repair, and reuse. The broad scope of waste often defeats this purpose.

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