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REVIEW

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Waste, Product and By-product in EU Waste Law

Carlos da Silva Campos

1 Foreword: definitions and Roman wisdom

Wisdom sounds better when it is carried by irony. *Omnis definitio in jure periculosa est* - all legal definitions are dangerous - is a very common sentence in the legacy of Roman Law. This classic sentence is completed by "*parum est enim ut non subverti posset*"¹ - because there is little that cannot be subverted. As Julius von Kirchmann wrote, *drei berichtigende Worte des Gesetzgebers, und ganze Bibliotheken werden zu Makulatur* - three rectifying words from the legislators, and whole libraries can turn into waste paper². The above quotations came to my mind when the European Parliament voted to include a "by-product" definition in the Waste Framework Directive³. A few days later, the Commission came up with an "Interpretative Communication"⁴. Roman wisdom again: *Omnis innovatio plus novitate perturbat quam utilitate prodest*. Every innovation disturbs more by its novelty than it benefits by its utility. The purpose of this article is to find a way of exploring the "new" definition of by-products in order to find more utility than disturbance.

2 The literal waste definition

The legislative process for the future Waste Framework Directive started in late 2005 with a proposal from the Commission, which aimed "*to optimize the provisions of Directive 75/442/EEC whilst maintaining its essential structure and key provisions*". The 2006/12/EC Directive appeared as a re-codification of the previous Waste Directive⁵. The original 75/442/EEC Directive⁶ defined waste as "**any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force**". The word "*disposes*" was used in early times when "disposal" meant "*the*

collection, sorting, transport and treatment of waste as well as its storage and tipping above or under ground", together with "*the transformation operations necessary for its re-use, recovery or recycling*". This was before the fundamental division between "disposal" and "recovery". Later on, the 91/156/EEC Directive amended the previous 75/442/EEC Directive, replacing "dispose" by "discard", adding the "intention" element to the definition, and introducing a list of 16 "Categories of Waste" [Annex I, inspired on the "Table 1" of the OECD Council Decision C(88)90(Final)⁷] and Annexes IIA and IIB, for disposal and recovery, respectively. The essential sentence of the waste definition was kept in the 2006/12/EC Directive and will probably be kept in the future Waste Framework Directive. **In essence, the waste definition remains unchanged, based on the keyword "discard", as act, intention or obligation.** Not surprisingly, similar waste definitions can be found in most of the EU Member States and even outside of Europe. In the U.S.A., literal definitions are quite different and are more or less descriptive⁸. Despite all the criticisms, the literal definition has survived since the 75/442/EEC Directive. Most of the attempts to design "decision trees" or "check lists" failed. Due to the large amount of conditions and considerations, the attempts to apply "universal decision schemes" to very different cases can result in a "Pandora effect". A new case, a new example, opens up new questions and distinctions. Dictionaries don't help much, because common definitions tend to associate

¹ Digesto, 50.17.202. Latin text available at <http://www.thelatinlibrary.com/justinian/digest50.shtml>.

² Julius von Kirchmann (1848), *Die Wertlosigkeit der Jurisprudenz als Wissenschaft*. There is a recent edition from Manutius Verlag, Heidelberg, 2000.

³ The amendments voted by PE can be read at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//ep/TEXT+TA+P6-TA-2007-0029+0+DOC+XML+V0/EN&language=EN>. The Procedure File is available at <http://www.europarl.europa.eu/oeil/FindByProcnum.do?lang=2&procnum=COD/2005/0281>.

⁴ Available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0059en01.pdf.

⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:114:0009:01:EN:HTML>.

⁶ Original text available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31975L0442:EN:HTML>. Consolidated text (after several modifications) available at <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1975/L/01975L044220031120-en.pdf>.

⁷ The OECD Council Decision C(88)90/Final defines waste as "*materials, other than radioactive materials, intended for disposal for reasons specified in Table 1*" and disposal as "*any of the operations specified in Table 2*". Table 1 - "Reasons why material are intended for disposal" includes sixteen categories of waste specified in Table 1. The decision was adopted in 27 May 1988 and amended on 28 July 1994 by Council Decision C(94)152/Final (text available at [http://webdomino1.oecd.org/horizontal/oecdacts.nsf/linkto/C\(88\)90](http://webdomino1.oecd.org/horizontal/oecdacts.nsf/linkto/C(88)90)). In the amended version, Table 2 is a parallel of the Annexes IIA and IIB of the 91/156/EEC Directive.

⁸ The US Code (T.42, Ch.82, Sub-Ch.I-Gen. Provisions 6903,27) defines solid waste as "any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 1342 of title 33, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923) (42 U.S.C. 2011 et seq.)". See also the descriptive definition in the Code of Federal Regulations, Su-Ch. I, Part 243(1995).

waste with worthless, useless and thrown away things – and do not see it as a resource.

3 What is waste and what is not

For some authors, the waste definition remains elusive and does not cover all circumstances with certainty by far⁹. In any case, the controversy contributes to the development of the Waste Law. The so-called “case-by-case approach” is part of the law creation process. The actual waste definition is much more than the wording of the Directives and Regulations. It carries all the ECJ rulings (a list of the “EC Waste Definition Cases” can be found in the Annex of this article) and the doctrine produced on the matter¹⁰.

3.1 The irrelevance of “economic reutilization”

The distinction between waste and product seems easy if seen from an individual point of view. But “waste” questions always involve more than an individual. One man’s waste is another man’s treasure... In ancient times, waste was considered as valueless and out of the market. *Res derelictae* – abandoned thing. In this sense, today’s waste is no longer waste. Nowadays, all waste can be expressed

in economic terms: positive or negative value. The word “discard” is no longer opposed to “sell”. If the material is recyclable or usable as fuel, it might have economic value. From the recycler point of view, the recyclable waste is a genuine “raw material”, and so a market exists with its inherent supply and demand effects. The “waste market” is nowadays a complex reality with many more operators than the waste producer and the waste recycler. The waste-related businesses include service providers, managing companies, waste schemes, etc. The “invisible hand” behind the waste trade is not strictly based on the intrinsic value of the materials, but rather on its relative value. The waste trade reached its globalization era, with large amounts of waste being transported from industrialised countries to developing countries, adding a new dimension to environmental impacts in both parts of the world. As pointed out by Bontoux and Leone¹¹, the intrinsic value of waste increased but its relative value has decreased in “rich countries”. However, side by side with the commercial value of waste itself, there are further driving factors like the commercial value of waste management services. Therefore, in economic terms, waste is a “product”. Even the discarded objects are treated as objects of commerce. The distinction between waste and product cannot be based on economic considerations. Not surprisingly, the irrelevance of the economic value (as criteria to decide whether a material is waste or not) is the very first sentence we find in the European case law related to the waste definition. In its judgment on Joined Cases Vessosso and Zanetti (1990), the 1st Chamber of the European Court of Justice (ECJ) held that “*the concept of waste within the meaning of Article 1 of Council Directive 75/442 and Article 1 of Council Directive 78/319 is not to be understood as excluding substances and objects which are capable of economic reutilization*”¹². Similar sentences can be found in most of the waste definition ECJ cases¹³. **The irrelevance of the economic aspect of “discard” is undoubtedly well established in the case law.**

3.2 A waste list is not a definition

Waste lists are useful for classification purposes, not for defining waste. The inclusion of a specific material in a waste list does not mean it is always waste. On the other hand, if the waste list includes “residual

⁹ Stephan Tromans (2001), EC Waste Law – A Complete Mess?, in *Journal of Environmental Law* (Oxford University Press), Vol. 13,2, pp. 133-156.

¹⁰ Just a few examples: Jurgen Fluck (1994), The Term Waste in EU Law, *European Environmental Law Review*, 79, 81; Ilona Cheyne, M. Purdue (1995), Fitting Definition to Purpose: the Search for a Satisfactory Definition of Waste, *Journal of Environmental Law*, Vol 7, 2, pp. 149-168; Geert van Calster (1997), The EC definition of Waste: The Euro Tombesi Bypass and the Basel Relief Routes, *European Business Law Review*, May-June 1997, pp. 137-143; Laurent Bontoux, Fabio Leone (1997), The legal definition of waste and its impact on waste management in Europe, EUR 17716 EN, European Commission - Joint Research Centre, Institute for Prospective Technological Studies, Sevilla, <http://ftp.jrc.es/pub/EURdoc/eur17716en.pdf>, p. 6; Stephan Tromans (2001), EC Waste Law – A Complete Mess?, in *Journal of Environmental Law* (Oxford University Press), Vol. 13,2, pp. 133-156; Ilona Cheyne (2002), The Definition of Waste in EC Law, *Journal of Environmental Law*, vol. 14; pp. 61-73; Rosalind Malcom and Rosalind Clift (2002), Barriers to Industrial Ecology: The Strange Case of The Tombesi Bypass”, *Journal of Industrial Ecology*, Vol 6,1, pp. 4-7; Eva Pongrácz (2002), Re-defining the Concepts of Waste and Waste Management, Academic dissertation/Univ of Oulu, <http://herkules.oulu.fi/isbn9514268210/isbn9514268210.pdf>; David Pocklington (2003), Opening Pandora’s Box: The EU Review of the Definition of Waste, *European Environmental Law Review*, Vol 12, 7, p. 204-215; Ludwig Krämer (2003), The Distinction between Product and Waste in Community Law, *Environmental Liability*, vol. II, n° 1, pp. 3-14; Ludwig Krämer (2003), Member State’s environmental legislation and the application of EC Waste law-the classification of waste, *Environmental Liability*, 2003, vol. 11, n° 6, pp. 231-233; Nicolas de Sadeleer (2005), Waste, Products and By-products, *Journal of European Environmental & Planning Law*, vol. 1, n° 4, pp. 46-58; Nicolas de Sadeleer (2005), EC Waste Law or How to Juggle with Legal Concepts Drawing the Line between Waste, Residues, Secondary Materials, By-Products, Disposal and Recovery Operations, in *Journal for European Environmental & Planning Law*, 6/2005, pp. 458-476; Geert van Calster (2006), If ain’t broke, don’t fix it. Commission efforts to manage the definitions of waste, recycling and Recovery, and to switch from a waste streams to a materials approach, in *elni review*, 1-2/2006, pp. 18-22 (Environmental Law Network International); Vincent Brown et al (2006), The Legal Definition of Waste in the European Court of Justice – The Problem and the Law, Simple Fraser, Glasgow, http://www.simplefraser.co.uk/library/waste_briefings/legal_definition_of_waste_final_aug_06.pdf.

¹¹ Laurent Bontoux, Fabio Leone (1997), The legal definition of waste and its impact on waste management in Europe, EUR 17716 EN, European Commission - Joint Research Centre, Institute for Prospective Technological Studies, Sevilla, <http://ftp.jrc.es/pub/EURdoc/eur17716en.pdf>, p. 6.

¹² Vessosso / Zanetti Joined Cases, paragraph 9. See also paragraph 13 and Zanetti Case, paragraph 13. Complete reference of ECJ “waste cases” can be found in the Annex of this article.

¹³ Commission versus FRGermany, paragraph 22; Tombesi, paragraph 54; Wallonie, paragraph 31; Palin Granit, paragraph 29.

categories” (like “other materials...”), nothing is excluded. A list is just a list, not a definition. Materials do not become waste by simply being listed. On the contrary: the list (as all other legal provisions related to waste management) only applies if the material is waste. We can find this logic in the well-known “preliminary note” of the European Waste List (Decision 2000/532/EEC)¹⁴: “the inclusion of a material in the list does not mean that the material is a waste in all circumstances. Materials are considered to be waste only where the definition of waste in Article 1(a) of Directive 75/442/EEC is met”.

3.3 The so-called “Tombesi bypass”

In the Tombesi Case (C-304/96)¹⁵, the Advocate General Jacobs expressed the following opinion: “Thus the term ‘discard’ employed in the definition of waste in Article 1(a) has a special meaning encompassing both the disposal of waste and its consignment to a recovery operation. The scope of the term ‘waste’ therefore depends on what is meant by ‘disposal operation’ and ‘recovery operation’. [...] The difficulty therefore arises in interpreting and applying the Directive that the concept of ‘recovery operation’, upon which the definition of waste in part depends, is not exhaustively defined in the Directive and may be inherently difficult to apply in some cases. Moreover there is an element of circularity: whether there is ‘recovery’ depends on whether there is ‘waste’, which in turn depends on whether there is ‘recovery’. It seems to me that the way to overcome that difficulty is not to seek to lay down a comprehensive definition but to work by example, in other words to examine whether the holder of an object or substance consigns or intends to consign it to one of the operations listed in Annex IIB or to an analogous operation.”¹⁶ This passage from “discard” to the disposal/recovery operations and from a legal definition to “work by example”, was referred to by van Carlsster as “the Tombesi bypass”¹⁷. The ECJ dealt with a Waste Directive without definitions for disposal and recovery. The future Waste Framework Directive will probably include both, but when there is circularity in definitions – as Advocate General Jacobs pointed out – the added definitions (recovery, disposal) will not help much to clarify the pre-existent definition of waste.

On the other hand, the act or intention of discarding is not always a “consignment to a recovery or disposal operation”. According to legal provisions, the act of “discard” should be for disposal or recovery, but these operations are not essential to the waste definition¹⁸.

3.4 “Discard with care” versus “get rid of”

No one is free to get rid of undesired things, unless those things are properly discarded. Article 4° of the 75/442/EEC Directive refers to a compliant discard obligation. A suitable final destination, such as a disposal or a recovery operation should be assured and performed by licensed/authorised operators. This general obligation operates in different situations. First, when the waste holder is “required to discard”. Second, when he is not “required” but decides to discard. The expression “required to discard” refers to legal provisions, an administrative order or any other normative duty establishing that the specific material/object should be destined to disposal or recovery. But the “general obligation” of “compliant discard” operates even when there is no “specific obligation”: in the absence of specific provision, order or duty to discard, the holder is free to discard or not. However, if he decides to discard, he has to do it according to the law, and provide a safe disposal or recovery. In common terms, the word “discard” means “get rid of”. There is no reason to exclude this meaning from the legal definition of waste. The word “discard”, when referring to acts/intentions of the waste holder, includes both compliant **and** illegal acts/intentions. If the holder of an object simply “gets rid of it” (abandonment, dumping, illegal purpose), then the object/material is waste. Illegal discard acts (like abandonment or dumping) are, in general, voluntary acts. But waste can also result from accidental discards. As ruled in the Contaminated Soil Case¹⁹, the waste definition includes materials lost, dumped or spilled by accident, in order to apply legal provisions such as liability provisions. Therefore, **the legal compliance of the act or intention to discard is irrelevant to decide whether the material is waste or not waste.**

3.5 “Discard” as “diversion”

One of the possible ways consists in defining discard as an act of “diversion”: what makes a material being waste is the act/intention/obligation to divert it

¹⁴ <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2000/D/02000D0532-20020101-en.pdf>.

¹⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61994-J0304:EN:HTML>.

¹⁶ Paragraphs 50 and 55 of the Advocate General Jacobs opinion. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61994C0304:EN:HTML>.

¹⁷ Geert van Carlsster (1997), The EC Definition of Waste: The Euro Tombesi Bypass and the Basel Relief Routes, *European Business Law Review*, May-June 1997, pp. 137-143. See also Rosalind Malcom and Rosalind Clift (2002), Barriers to Industrial Ecology: The Strange Case of The Tombesi Bypass”, *Journal of Industrial Ecology*, vol 6,1, pp. 4-7.

¹⁸ As pointed out by the OECD Waste Management Policy Group, “In most cases the different definitions of waste, enacted by Member countries, appear not to hinge on the intended destination of a material. The notion of discarding appears to be the decisive factor in determining whether a material is a waste in the majority of these different definitions”. OECD Waste Management Policy Group (1998), Final Guidance Document for Distinguishing Waste From Non-Waste, ENV/epOC/WMP(98)/Rev 1, Paris, 23-24 April, 1998, paragraph 10.

¹⁹ Contaminated Soil, paragraphs 49 and 50.

from its present status, normal use, or purpose²⁰. This intuitive idea fits with some simple examples, but the act of discarding is not necessarily an “act of diversion” in many other cases. Defining “discard” as “diversion from the normal purpose” is not a real definition, but a semantic way of postponing the definition. Besides, the “normal purpose” is not easy to define. At this point, the word “discard” remains undefined. Economic value or utility, waste lists, final destination and purpose distinctions are not key elements for defining discard and waste.

3.6 The principle of “wide interpretation”

In several cases, the ECJ ruled that the waste definition cannot be interpreted restrictively. The judgment in the ARCO Chemie Case expresses this principle in clear words²¹. The EJC used the expressions “cannot be interpreted restrictively” and “obligation... to interpret the concept of waste widely”²² as equivalents. In any case, a wide interpretation is not necessarily an extensive interpretation. In the presence of a legal definition, and no matter how difficult its application may be, there is no need to establish a presumption such as “in case of doubt, it is waste”. First of all, the concrete situation should be compared with the legal definition (act, obligation or intention to discard). Then, the precautionary principle cannot be used as a simple or direct replacement for “required to discard”. According to the “Principle 15” of the Rio Declaration, the precautionary principle applies as follows: “*In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*”²³. Full scientific evidence is not required but precautionary measures should be taken only in the presence of “*threats of serious or irreversible damage*” – not a simple and vague risk²⁴. On the other hand, the

precautionary approach doesn’t mean the exclusion of factual and scientific evidence. The paragraph 35.3 of “Agenda 21” includes a comprehensive formulation of the principle²⁵. The precautionary measure is just one of three commandments: (i) to search for certainty, (ii) to act based on certainties, and (iii) to act without certainty when certainty is not reachable in time to avoid threats of irreversible environmental damage²⁶. These general considerations should be applied to waste definition questions. The waste classification should not be based on presumptions. Factual evidence should be required and provided. In the absence of certainty (whether the material falls in or outside of the legal definition), the precautionary decision (the classification of the material as waste) should only be adopted if the opposite decision poses a threat of serious or irreversible damage. The classification of objects or materials as waste is not a “general rule”. The “waste state” is “triggered” by the legal criteria (act, obligation or intention to discard). The environmental risk is not a “trigger” by itself, because objects or materials can pose environmental risks without being waste. In the absence of an act of discard, a legal obligation to discard or an intention to discard, the object or material is not waste. When the holder decides to discard, or if there is evidence of an intention to discard, the material is waste, no matter the level of environmental risk derived from that act or intention. The environmental risk has its

ing a conference organised by the Science and Environmental Health Network Foundation (Racine, Wisconsin, USA). <http://www.sehn.org/wing.html>.

²⁵ Agenda 21, paragraph 35.3, Rio Conference, Jan. 1992. http://www.sidsnet.org/docshare/other/Agenda21_UNCED.pdf.

²⁶ About the precautionary principle: Claudia Saladin (2000), *Precautionary Principle in International Law*, in *International Journal of Occupational and Environmental Health*, Vol. 6, n° 3, Out. Dez. 2000, pp. 270-280; Joel Tickner, Carolyn Raffensperger e Nancy Myers (2000), *The Precautionary Principle in Action – a Handbook*, Science and Environmental Health Network, <http://www.biotech-info.net/handbook.pdf>; Nicholas A. Ashford (2002), *Incorporating Science, Technology, Fairness, And Accountability in Environmental, Health and Safety Decisions*, http://mlt.edu/phrj/Ashford_Revised2_Bologna.doc, p. 3. Rosie Cooney (s.d.), *Precaution and Invasive Alien Species: Challenges at the Interface of the Trade and Environment Regimes*, <http://www.iucn.org/congress/documents/outputs/biodiversity-loss/precaution-cooney.pdf>; Devra Lee Davis (1999), *Environmental Health and the Precautionary Principle*, Massachusetts Precautionary Principle Project Kickoff Meeting de 15 May 1999, Framingham State College, http://www.healthytomorrow.org/pdf/dr_Davis.pdf, pp. 1-3; Devra Lee Davis (2002), *When Smoke Ran Like Water: Tales of Environmental Deception and the Battle Against Pollution*, Basic Books, New York; Peter T. Saunders (2000), *Use And Abuse Of The Precautionary Principle*, ISIS – The Institute of Science in Society, London; Cass R. Sunstein (2002), *Risk and Reason: Safety, Law and the Environment*, Cambridge Univ. Press, New York. Cass R. Sunstein (2002), *The Paralyzing Principle*, in *Regulation*, winter 2002-2003, pp. 32-37; Peter Van Doren (2003), *Letting Environmentalists’ Preferences Count*, in *Regulation*, Autumn 2003, p. 35; John N. Halthcock (2000), *The Precautionary Principle – An Impossible Burden Of Proof For New Products*, in *AgBioForum*, Vol. 3, N° 4, 2000, pp. 255-258; European Commission (2000), *Communication from the Commission on the Precautionary Principle*, COM (2000)1, Brussels, 2 Feb. 2000.; Laetitia De Jaeger (undated), *Management of Uncertainty And The Balance Between Precaution and Innovation: Towards New Strategies for a Sustainable Risk Management*, forthcoming in *Bio-Science Law Review*, Lawtext Publishing, http://www.netram.net/pdf/man_unc.pdf.

²⁰ A similar idea can be expressed by Jurgen Fluck (1994), *The Term Waste in EU Law*, *European Law Review*, 79, 81. Fluck defined discard as “*an action whose purpose is to desist from using a substance or object for its original purpose, to liberate it from that intended purpose, or to re-dedicate it, without immediately allocating it to a new intended purpose, certain recovery activities being necessary to make it fit once again for its former purpose (recovery), or the substance or object being definitely withdrawn from any further use (disposal)*”.

²¹ ARCO Chemie, paragraphs 37 to 40.

²² Palit Granit, paragraph, 36.

²³ The United Nations Conference on Environment and Development (1992), *Rio Declaration on Environment and Development*, Rio de Janeiro, 3 to 14 June 1992, <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=78&ArticleID=1163>.

²⁴ The Wingspread Consensus Statement on the Precautionary Principle includes the following principle: “*When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically*”. This is an example of a precautionary approach based on any risk. The Wingspread Statement was adopted in January of 1998 dur-

relevance when discard is not a decision or intention of the holder, but an obligation. It may be a direct legal provision concerning a specific situation or material or a general obligation derived from a legal principle.

3.7 The "further treatment"

The scope of the waste law is the environmental protection and, ultimately, the sustainability purpose²⁷. The reason for applying special provisions (waste provisions) to discarded materials or to materials intended or required to be discarded is the fundamental need to prevent and/or remediate health and environmental damages or impacts. Society cannot afford to tolerate the absolute freedom of "getting rid of" things. To ensure a sustainable economy and life, the acts of "discarding" should be compliant with legal provisions. Therefore, the notion of "discarding" can be expressed from a symmetrical perspective: **a material is considered as waste when it needs further treatment (other than the "normal use") to be useful and/or harmless, according to the legal provisions. "Further treatment" means disposal or recovery (valorisation, recycling, etc.). "Useful" means the readiness for a normal use or processing (the same or other). Harmless means no harm, or at least a minimised harm, for the health and the environment.** Before the "further treatment", the material is waste and should be safely discarded. "Further treatment" means a safe disposal (back into the environment) or a safe recovery (back into the market). The concept "further treatment other than the normal" is rather theoretical and unrealistic. There is no universal definition for this expression. Typical waste treatments can be as "normal" as any other treatments. In some cases, the technical details of the operation are the same for waste or non-waste. The so-called "mechanical recycling" of plastics often involves extrusion, but extrusion is far from being just a recycling process: it is the main process of converting plastics. Most of the operations listed in the Annex IIB of the 75/442/EEC Directive are technically similar or comparable to "normal" processing operations. What makes the operation be a "recovery" is not the operation itself, but the material involved in that operation. Therefore, the notions of "further treatment" or "readiness for a normal use or processing" should be used to decide whether a material is waste or product, but the "other than normal" requisite is an unnecessary – and rather difficult – distinction. The "further treatment" is required because the material is waste. But the inverse definition (the material is defined as waste

because it is submitted to a specific "further treatment") is illogical and false. The ECJ delivered the same conclusion in the ARCO Chemie Case²⁸. The ECJ also admitted the disposal or recovery operations as "indicators" of the "intention to discard", but not as "proof of existence of waste"²⁹. **The defining element of waste is not the treatment process or technology. It is, instead, the negative effect of the material on the environment or public health, before that treatment. Thus, a material is waste when a further treatment is needed or required in order to assure the public health and the environmental protection.** Assuming the legal compliance of the treatment, it can be different or similar to any other process or technology.

3.8 Mirroring the definition

Sometimes, the real meaning of a legal definition can be found beyond the case law rulings and doctrine writings. The Zero Waste America³⁰ defines waste as "*a resource that is not safely recycled back into the environment or the marketplace*". This is one of the most inspired waste definitions ever produced. It is a clever expression of fundamental ideas that can be developed as follows: (i) waste should be considered as a resource; (ii) the expression "safely recycled back" should be interpreted as a life cycle concept, (iii) the expression "back into the environment" can be read as describing "disposal" operations; (iv) "back to the marketplace" can be read as describing "recovery" operations. Unfortunately, the definition from Zero Waste America defines by exclusion (waste is something "that is not..."). A positive version might be the following: **Waste means any resource before being safely recycled back into the environment or the marketplace.** The expression "recycled back" is used in a broad sense (including disposal and recovery). To put this adapted definition in accordance with the European legal definition, we can suggest the following equivalent: **Waste means any substance or object before being safely disposed or recovered, according to legal provisions.** The final expression "according to legal provisions" has a double function. First, it can be read as "when a legal provision requires the disposal or recovery". In this sense, the expression replaces the mention of the "act, obligation or intention to discard". No waste exists before a discard act, intention or legal obligation to dispose or to provide a recovery. The second function refers to the legal compliance of the disposal or recovery operations. The above definition fits with the literal legal definition. The legal wording is focused on the

²⁷ Sustainable development and inter-generational justice are expressions of the "fundamental rule" of Environment Law, like *pacta sunt servanda* can be considered as a fundamental rule for Civil Law.

²⁸ ARCO Chemie, paragraphs 48 and 49.

²⁹ ARCO Chemie, paragraphs, 69 and 70.

³⁰ The Zero Waste America is an internet-based environmental research organization, based in Philadelphia. www.zerowasteamerica.org

moment when the material starts to be waste (the act, intention or obligation to discard). The “equivalent definition” is focused on the moment when the material ceases to be waste. Combining both, the (redundant) result is: **waste means any substance or object which the holder discards or intends or is required to discard before being safely disposed or recovered, according to legal provisions.**

4 The recovery and recycling definitions

Most of the efforts to define waste are based on a “static” perspective: “what waste is”. A “dynamic” perspective, focusing on “when” instead of “what”, might help to clarify how the definition applies. In fact, the literal definition focuses on the moment when the material becomes waste. Similar efforts at interpretation should clarify when the material ceases to be waste. A good part of the controversies around product/waste classifications derive from the “holder perspective” approach. The same material is useless for A and valuable for B. As pointed out by Eva Pongrácz, the individual perception of “waste” is useless for a legal definition³¹. Therefore, the classification as waste or product cannot be solved by the “holder approach”. The classification should result from the material itself and its effect on the environment and public health. That leads to the recovery and recycling definitions. Once recycled and back into the marketplace, the material is no longer waste and, in principle, the legal provisions concerning the waste management operations no longer apply.

4.1 “Recovery” and “substitution”

The 91/156/EEC Directive introduced the fundamental terms of “disposal” and “recovery” (operations listed in Annexes IIA and IIB, in the amended 75/442/EEC Directive). The European Waste Law survived for years without literal definitions of these words! The “recovery” definition, as voted by the European Parliament last February (2007), is the following:

“Recovery means a waste treatment operation that meets the following criteria:

- 1) *results in waste substituting for other resources that would have been used to fulfil that function or in it being prepared for such use;*
- 2) *results in waste serving a genuine purpose by that substitution;*
- 3) *meets certain efficiency criteria, established in accordance with Article 5 (2);*
- 4) *decreases the overall negative environmental impacts by using waste as a substitute for other resources;*

³¹ Eva Pongrácz (2002), *Re-defining the Concepts of Waste and Waste Management*, p. 69: “Waste is a value concept, culturally construed and subjective to the individual, be it the observer or de disposer. Consequently, if we associate waste with humans, we shall not ever be able to define waste objectively”.

5) *ensures that the products comply with the applicable Community safety legislation and Community standards;*

6) *gives a high priority to the protection of human health and the environment and minimises the formation, release, and dispersion of hazardous substances in the process.”*

Recovery involves the referred “further treatment” needed to convert waste into a (non-waste) product³². The difference between “recovery” and “disposal” is based on crucial aspects such as: the substitution (of other resources), the efficiency (used to distinguish between energy recovery and disposal by incineration) and the lower negative impact. Taking into account that disposal and recovery have different legal regimes, the inclusion of definitions for both operations seems to be a positive step. First of all, the lists of operations in the Annexes IIA and IIB of the Waste Directive are not definitions or “closed lists”. Other operations may be considered as disposal or recovery. Second, there are operations that can correspond to more than one of the operations listed. In the *Abfall Case*, the ECJ had to decide whether the deposit of slag and ashes in a disused mine was a disposal operation (D2 of Annex IIA) or a recovery operation (R5 of Annex IIB). Regarding the wording of the Annexes, both classifications were viable. In the absence of a definition, the Court ruled that such cases should be assessed on a “case-by-case basis” and ruled that “*such a deposit constitutes a recovery if its principal objective is that the waste serve a useful purpose in replacing other materials which would have had to be used for that purpose*”³³. The first lesson from the *Abfall Case* is the need for legal definitions of disposal and recovery. The second lesson is the central concept to define recovery: the “substitution”³⁴. As stated in Paragraph 1 of the EP proposed definition, the recovery operation does not need to complete the substitution itself. If the material is “prepared for such use”, the recovery is complete. Technically, the material is no longer waste. From the legal point of view, it can remain as waste.

4.2 Recycling definitions and the “material approach”

Recycling is one of the listed recovery operations. The Packaging Directive, 94/62/EEC³⁵ includes the following definition (article 3°, 7): “*recycling’ shall mean the reprocessing in a production process of the waste materials for the original purpose or for*

³² Sometimes, legal wording is lost in translation. The Portuguese version of this new definition (as published by the PE) suggests that recovery “originates a waste...”. This translation inverts the sense of the definition. *Trattatore, trattatore...*

³³ *Abfall*, paragraph 71.

³⁴ As pointed out by Prof. van Calster (2006), *If ain’t broke, don’t fix it*, in *elni review*, 1-2/2006, p. 19.

³⁵ <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1994/L/01994L0062-20050405-en.pdf>

other purposes including organic recycling but excluding energy recovery". The same wording can be found in Article 3°(e) of the WEEE Directive(2006/96/EC)³⁶ and in the Article 2° of the ELV Directive (2000/53/EC)³⁷. "Reprocessing" is another word for "further treatment". It does not necessarily mean the substitution itself. The recycling operation is completed when the material is in a condition to be used as a substitute (secondary raw material). This notion is widely accepted in legal and industrial texts³⁸. For the new Waste Framework Directive, the Commission proposed a "new" recycling definition (article 3° g): "recycling" means the recovery of waste into products, materials or substances whether for the original or other purposes. It does not include energy recovery". The expression "waste into products, materials or substances" is a good wording (to express the conversion and, consequently, the distinction). The Recycling Coalition³⁹ proposed a more complete wording, but kept the same expression: "Recycling" means the recovery of waste back into a material cycle by processing waste into products, materials or substances whether for the original or other purposes. It does not include, inter alia, energy recovery, processes for transformation into fuel, combustion or use as a source of energy, including chemical energy, for processes involving combustion⁴⁰. This is a "material cycle based definition". As the Coalition said, "a recycling definition should be material based so that a material remains available to undertake a new cycle giving birth to a new material, product or substance. Recyclability is the intrinsic property of a material to remain available for a "new" material cycle for producing products; this means that the input material is transferred either into the same or another material, maintaining a maximum of structural integrity". A similar "material cycle" concept was expressed by Eurofer⁴¹, another industry organiza-

tion, with the following notions: "Recyclability is an intrinsic property of a material in the same way as its density or its calorific value; Recyclability is the intrinsic ability of a material to stay in a "cycle" for producing goods; this means that the input material is being "stocked" and will be available to the current and future generations to produce goods necessary to preserve and enhance their prosperity; this means that the input material is transferred either into the same or another material and remains available for a "new" material cycle⁴². The ISO 14201 Standard defines "recycled material" as a "material that has been reprocessed from recovered [reclaimed] material by means of a manufacturing process and made into a final product or into a component for incorporation into a product"; and "Recycling" as "The intentional introduction of a recycled material for further use in a man-made material cycle"⁴³. The text proposed by the European Parliament, reflects the "material approach" but the original expression "waste into products" is lost: 'recycling' means the reprocessing of materials or substances in wastes through a production process whereby they produce or are incorporated in new products, materials or substances whether for the original or other purposes. It includes reprocessing of organic material, but does not include, inter alia, energy recovery, conversion for use as a fuel, processes involving combustion or use as a source of energy, including chemical energy, or backfilling operations⁴⁴. The essence of the definition remains the same. **The recycling operation is completed when the resulting material is, at least, able to substitute primary raw materials.**

4.3 "For the original or other purposes"

Recycling, as defined by EC Directives, necessarily involves a "reprocessing in a production process", but does not necessarily involve a "repetition". A material is considered "recycled" as soon as it is converted into its original state in order to be usable for an identical purpose. It is also considered as "recycled" as soon as it is converted into any other state in order to be used for any other purpose. The definition is extensive and comprehensive, as explained in the Mayer Parry Case⁴⁵. The boundaries of the concept are the "production process" requisite and the exclusions (energy recovery, use as a fuel or source of energy, backfilling), not the purpose. As

³⁶ <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2002/L/02002L0096-20031231-en.pdf>

³⁷ <http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2000/L/02000L0053-20050701-en.pdf>

³⁸ The Executive Order 13101, signed by President Bill Clinton in 14th of September of 1998, defines recycling as follows: "Recycling" means the series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion". Executive Order 12101, Section 207. Text available at <http://www.ofee.gov/eo/13101.htm>

³⁹ The Recycling Coalition is formed by several industrial European Associations: the Confederation of European Paper Industries (Cepi), the European Compost Network (ECN), the European Environmental Bureau (EEB), the European Tyre Recycling Association (ETRA) and the Groupement Européen de l'Industrie de la Régénération (GEIR).

⁴⁰ Recycling Coalition (2006), The 'Recycling Coalition's' reaction to the Commission proposal for a directive on Waste (COM (2005)667 final) - The need for a clear recycling definition in the Waste Directive - 27 April 2006. Text available at <http://www.eeb.org/activities/waste/Recycling-definition-joint-statement-final-270406.pdf>.

⁴¹ The European Confederation of Iron and Steel Industries.

⁴² Eurofer (2005), The recycling concept in the context of the revision of the Waste Framework Directive, May 2005, available at http://www.stahl-online.de/wirtschaft_und_politik/Umwelt_und_Energiepolitik/EU_Recyclingstrategie/RECYCLING_FINAL_EUROFER_POLICY_PAPER_20-MAY2005.PDF.

⁴³ ISO 14201 Environmental labels and declarations - Selfdeclared environmental claims (Type II environmental labelling).

⁴⁴ <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//ep//TEXT+TA+P6-TA-2007-029+0+DOC+XML+V0/EN&language=EN>.

⁴⁵ Mayer Parry, paragraphs 66 to 69.

pointed out by Pongrácz, “*the listed recovery and disposal operations, with a few exceptions, appear to be manipulating the structure and state rather than the purpose*”⁴⁶. The recycled materials can be “products, materials or substances”. Therefore, to consider the recycling operation as completed, the result may be, alternatively: (i) a product (in the sense of a “final product”), entirely based on recycled material; (ii) a product which incorporates a recycled material; (iii) a material or substance able to be used in a subsequent converting operation (production process) – namely a “secondary raw material”. The legal concept of recycling includes all of these possibilities and combinations of “state” and “purpose”. **The recycled material can have the same state as the original or a different state, can be usable for the same or other purpose and can be a product or a raw material.** Therefore, the legal concept of recycling should be interpreted widely.

4.4 Waste versus “secondary raw material”

There is a difference between a “recycled material” (or “recyclate”, or “secondary raw material”) and a product with “recycled content”. The “recycled material” must result exclusively from recovery/recycling process according to legal provisions (process listed, licensed recycler). The product with “recycled content” can result from any other production process. Even if both processes occur in the same place as an integrated process, the distinction remains valid. Legislators tend to adopt restrictive conditions when considering “secondary raw materials” as non-waste. The Netherlands legislation referred to by the Advocate General Jacobs in the Tombesi case require three cumulative conditions: (1) the material must be transported directly from the producer to the person who will make further use of it, (2) the material must be fully used in a production process, and (3) that process must be different to any process comparable to disposal or recovery⁴⁷. This is a very restrictive view with no solid grounds in European law. There is no special reason for a “direct transport” requisite. If the material is ready to be used as a substitute for primary raw materials, it means that no further recovery operation is needed and, technically, it is no longer waste. In such a case, the number of transporters is irrelevant. The third condition is also too restrictive: if the “further processing” must be different to any comparable recovery process, then the materials will be waste in most situations. In practical terms, the distinction between waste and “secondary raw material” is important in

order to identify who is the recycler. In legal terms, the producer (who buys the “recyclate” and combines it with primary raw materials to produce its products) is not a “recycler”. If the “recyclate” is bought ready for use as secondary raw material, the recycler is the supplier of that “recyclate”. This is rather relevant, for instance, when applying the licence provisions. The recycler needs a special licence to develop recovery/recycling operation (provisions in waste legislation). The producer “only” needs the regular licence for its industrial activity.

4.5 When does the material cease to be waste?

Taking all the above considerations into account, we can list four conditions for the classification of when material ceases to be waste:

Condition 1 – The recovery or disposal operation must be completed;

Condition 2 – The resulting material must be intended for further use;

Condition 3 – The recovery or disposal operation must be legal;

Condition 4 – The recovery or disposal operation must assure an environmental advantage.

These four conditions are logically intertwined but, for analytical purposes, they should be considered one by one.

Condition 1 – The recovery or disposal operation must be completed

Logically, if the disposal or recovery operation is not completed, then the material is still waste. In the Niselli Case, the decision was quite linear: a vehicle from an Italian company was carrying ferrous materials proceeding from “*the dismantling of machines and vehicles or from collecting discarded objects*”⁴⁸. It was clear that those discarded materials were merely collected and unable to be used as a secondary raw material for steel production. As the recovery processed was not completed, the materials were considered as waste. In practice, the notion of “completed” is difficult and interpretations can vary from broad to stringent. The Mayer Parry Case, ruled on 2003, provides a good example. The ECJ had to decide whether the material produced by Mayer Parry (a reprocessor of metal packaging waste) was still waste or a secondary raw material. The ECJ started from the evidence of the operations performed by the company: collection, inspection, testing for radiation, sorting, cleaning, cutting, separation and shredding (fragmentation). The resulting material (the so-called “grade 3B”) was suitable for use in substitution of iron ore. All this fulfils two requisites of the recycling definition: (i) the repro-

⁴⁶ Eva Pongrácz (2002), *Re-defining the Concepts of Waste and Waste Management*, p. 68.

⁴⁷ Paragraph 47 of the Advocate General Jacobs opinion, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61994J0304:EN:HTML>

⁴⁸ Niselli, paragraphs 20 and 21.

essing in a production process, and (ii) the ability of the process to produce a new material or to manufacture a new product. But surprisingly, the ECJ ruled that *“the production of Grade 3B material does not constitute reprocessing of metal packaging waste with the objective of returning that material to its original state, namely steel, and of reusing it in accordance with its original purpose, namely the manufacture of metal packaging, or for other purposes. In other words, the metal packaging waste reprocessed by Mayer Parry does not undergo reprocessing in a production process conferring on the Grade 3B material characteristics comparable to those of the material of which the metal packaging was composed”*⁴⁹. The expressions “original state” and “material characteristics comparable” were used to rule a stringent concept of recycling. To reinforce this restrictive interpretation, the ECJ added the idea of “direct use”: *“Grade 3B material cannot therefore be used directly for the manufacture of new metal packaging. It follows that Grade 3B material such as that produced by Mayer Parry cannot be regarded as recycled packaging waste”*⁵⁰. Based on these considerations, the ECJ ruled that the whole Mayer Parry operation cannot be considered as a full recycling operation”. The “truly” recycling operation was the subsequent process, where the “grade 3B” material is converted in ingots, sheets or coils or steel. Consequently, the “grade 3B” material is still waste, its production does not complete the recycling operation, and the subsequent company (the steel maker) is the “true” recycler. The material only ceases to be waste when converted in ingots, sheets or coils of steel⁵¹.

This restrictive interpretation is not in accordance with the recycling definition included in the Packaging Directive⁵². The ECJ based its decision in a completely different concept of recycling, where the “recycled material” has to have the “original state”, “comparable characteristics” and either suitability for “direct use”, but **none of these considerations can be extracted from the legal definition**. The narrow interpretation leads to wrongful classifications of materials and operators, putting the waste label onto recycled materials and the recycler label on the steel maker! The fact that the so-called “grade 3B” from Mayer Parry still had *“impurities which remain to be removed”* is a very weak and inconsequent “argument” because a similar situation can occur in many other industrial processes based on primary raw materials. The idea of recycling as a return to an “original state” is rather confusing and

misleading. In the Mayer Parry Case, the material in question was metal packaging waste, namely used cans. The well-known beverage cans are produced from aluminium or steel. The steel cans are produced from tin-plated steel, supplied to can makers in sheets or coils. What is the “original state”: the cans, the tin-plated steel sheets, or the “original” steel? If the recycling definition expressly admits the reprocessing for other purposes, then the recycled material may have different characteristics, suitable for that different purpose! Therefore, the recycled material does not have to have “comparable characteristics” to the original material. Packaging waste is a good field for testing the Mayer Parry reasoning. Glass bottle recycling is well developed in Europe. The used bottles collected by bring systems (“bottle banks”) or kerbside schemes are reprocessed in special industrial facilities, where the glass waste is crushed, cycloned (to remove papers and plastics), sorted (magnetic sorting for ferrous metals, eddy current for non-ferrous, other systems for stones and porcelains, manual post-sorting). The resulting “treated cullet” is then supplied to glass makers as a secondary raw material. Between the “bottle banks” and the sorting and treatment facility, the material is waste. The treated cullet is a recycled material, a secondary raw material suitable for the glass making furnaces. If the Mayer Parry criteria is used for the glass recycling chain, the treated cullet will remain waste and the recycler is the glass maker! Normally, glass makers combine primary raw materials (silica, sodium oxide, calcium oxide and other minor ingredients) with the glass cullet (mainly from cullet treatment facilities). If the ECJ criteria are followed and the treated cullet is considered as waste, then the raw material mix is also... waste! Again, the “original state” question is unanswerable. The “state” of treated cullet differs from sand and oxides mix. The “comparable characteristics” only occur in the glass melt! A similar sort of absurdity can be found in applying the same “recycling” notion to other packaging materials. The main purpose of wood packaging waste is the manufacture of wood panels. Between the original waste material (used pallets and boxes) and the final application (wood chip panels), there is an entire recycling operation which includes selection, grinding, screening, chipping, etc. The resulting material – the wood chip, a recycled material – is then supplied to wood panel makers. Plastics, with their impressive and increasing diversity, can be recycled by different processes and technologies. Operations such as sorting, washing, cycloning, metal detection, shredding, regrinding, extrusion, cutting, or others, can be “organised” in different combinations according to the final purpose of the recycled material. Sometimes, the plastic “recyclate” is an extruded granulate suitable to be used for the same purpose (films, bottles). In other cases, the same or other application can be manufactured com-

⁴⁹ Mayer Parry, paragraph 83.

⁵⁰ Mayer Parry, paragraphs 84 and 85.

⁵¹ Mayer Parry, paragraphs 87 to 91.

⁵² 94/62/EEC, article 3^o, 7: <http://eur-lex.europa.eu/LexUriServ/site/en/cons-leg/1994/L/01994L0062-20050405-en.pdf>.

binning primary raw material (“virgin plastic”) with sorted and regrind “recyclates” without extrusion. Even mixed plastic waste (from different plastics and different used products) can be reprocessed to obtain new plastic materials or products. The strict requisites of “comparable characteristics” and “original state” make no sense to plastics recycling. The difference between the “plastic waste” and the “plastic secondary raw material” lies in the suitability of substituting “virgin plastics” for the same or other purpose – just as is stated in the legal definition of recycling. To conclude, **the material ceases, technically, to be waste when, having been reprocessed in a production process, it is suitable to be used as a product or as a substitute for primary raw materials, for the same or another purpose. This “suitability for substitution” is not affected by the technical need for further pre-treatments in the subsequent production process** (even the “pure”, “virgin” and “primary” raw materials may need it). Therefore, the “comparable characteristics” requisite only fits with the legal definition of recycling if taken as a synonym of “suitability to substitute primary raw materials”. The “suitability” defines the moment when the material is technically non-waste. To pass from the “technically non-waste” to the “legally non-waste” state, the remaining conditions should be verified.

Condition 2 – The resulting material must be intended for further use

The readiness to be used as secondary raw material (or the “suitability for substitution”) is not enough to qualify the material as “product” (non-waste) if the material remains without purpose. Recycling is not a “shortcut” to avoid or bypass the waste provisions. **Even if the recycling operation is completed, the material remains as waste if the holder discards it or intends to discard it.** In pure logic terms, this is not a “new” condition. All objects or substances fall under the waste definition if the holder discards or intends to discard it. Therefore, if a company, after completing the recycling process, sends the material to a landfill, then the material is waste.

Condition 3 – The recovery or disposal operation must be legal

The disposal or recycling operation must be legal: if any legal provision states that a specific material should have a different destination (disposal, energy recovery, etc.), it remains “waste” until that final destination is completed. The same applies if, by law, the reprocessing of the material is required to include special operations or to reach special results (such as decontamination), or if the use of recycled material is forbidden for a specific purpose. The legal compliance applies to the operation and to the recycled material itself. As any other product, the recycled material should be of legal use.

Condition 4 – The recovery or disposal operation must assure an environmental advantage

The reason for classifying a material as waste is the same fundamental reason of the Environment Law: to assure a high level of environmental protection. In simple words: a material only ceases to be waste when it reached an “environmentally acceptable state”. The material only reaches that state when it is “safely recycled back into the environment [disposed] or the marketplace [recovered]”⁵³. The disposal or recovery operation must be environmentally advantageous. That means that the material only ceases to be waste if a positive balance results from the performed operation. The level of environmental protection should be emphasised in the interpretation and application of the legal definition of waste⁵⁴. In this context, the “waste management hierarchy” (reduction is better than recovery, recovery is better than disposal, recycling is better than energy recovery) is one of the most intricate debates. In fact the “hierarchy principle” cannot be taken as absolute or isolated from the “high level of environment protection” condition. If a specific recycling process causes more environmental impact than a safe disposal, the hierarchy does not apply. The “balance approach” is always needed. Back to case law, we can find some references to the “balance principle”. In the ARCO Chemie Case, the ECJ expressed the following opinion: *“If a complete recovery operation does not necessarily deprive an object of its classification as waste, that applies a fortiori to an operation during which the objects concerned are merely sorted or pre-treated, such as when waste in the form of wood impregnated with toxic substances is transformed into chips or those chips are reduced to wood powder, and which, since it does not purge the wood of the toxic substances which impregnate it, does not have the effect of transforming those objects into a product analogous to a raw material, with the same characteristics as that raw material and capable of being used in the same conditions of environmental protection”*⁵⁵. Again, we have to disagree with the ECJ opinion. Contaminated wood chips should be considered as waste, but not for the reason expressed by the Court. If toxic substances remain in the material, several reasons apply to consider it as waste. First, the holder is required to discard it. Second, the operation that does not remove toxic substances should not be a legal “recovery” operation. Third, the further use or purpose of the contaminated product should be illegal. The ECJ took a different line: the material is waste because it

⁵³ We quote again the inspired definition from ZeroWaste America. See section 3.8 of this article.

⁵⁴ As pointed out by Prof. Van Calster, *If ain't broke, don't fix it...*, in *elni review*, 1-2/2006, p. 18.

⁵⁵ ARCO Chemie, paragraph 96.

does not have the “*same characteristics as the raw material and [is] capable of being used in the same conditions of environmental protection*”. As pointed out before, the “same characteristics” is not a condition for it to cease being waste. And the “new” condition of “same conditions of environmental protection” expresses a distorted view of the “environmental balance”. The ECJ compared the recycled wood chips (contaminated) with primary raw material (not contaminated, presumably). But this balance has no basis in the recycling definition, neither on the “high level of environmental protection principle”. **The recycled product does not have to be as “environmentally friendly” as the primary raw material. It has to be environmentally better than waste.** Therefore, the balance should be made between waste and recycled product, not between the recycled product and the raw material it substitutes! The ECJ used the same doctrine of “comparable characteristics” in the Mayer Parry Case. Instead of comparing waste and recycled material, the ECJ compared recycled material and “*the material from which the waste was derived*”⁵⁶. The ECJ idea of “*same conditions of environmental protection*” leads to a very narrow concept of recycling and to a very wide concept of waste, far beyond the legal definitions. If the recycling is restricted to operations which result in a material with a comparable level of environmental protection than the material from which the waste was derived, then the recycling operations will be drastically restricted to a very few situations. The effect is the opposite of the scope of waste law: to promote recycling and the market of recycled materials. Therefore, the level of environment protection condition should be applied in accordance to the legal definitions: it only operates if, besides the recycling process, the resulting material poses an environmental impact or risk that determines an obligation to discard (to perform a further treatment).

4.6 Back to the legal definition

The conversion from waste to product is not a strict technical operation, but a combination of “physics” and purpose. **When the material is “ready to be used as secondary raw material”, and there is no discard option, intention or obligation, it is a “product”, not a waste.** It can be transported without special waste documentation, sold and processed as any other product. The condition of it falling outside of the waste definition is not the process itself, but its result: the material is able to be safely used or processed without causing harm to public health or to the environment.

To conclude, we can list the cumulative conditions to define recycling:

- reprocessing or “further treatment” of the material;
- readiness to be safely used as a product or processed as a secondary raw material, according to public health and environmental provisions;
- exclusions: energy recovery, conversion for use as a fuel, combustion or use as a source of energy, including chemical energy, backfilling;
- absence of “discard” obligation, option or intention.

5 The by-product

Last February (2007), the European Parliament proposed the introduction of a new by-product definition in the Waste Framework Directive. The proposed text is the following:

“1. In order to be classified as a by-product and not as waste, the following conditions shall be met by a substance or object resulting from a production process, the primary aim of which is not its production:

- (a) further use of the substance or object is certain;*
- (b) the substance or object can be used directly without any further processing other than normal industrial practice;*
- (c) further use of the substance or object is an integral part of a production process or there is a market for it as a product; and*
- (d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific application.*

2. By [Two years after entry into force of this Directive] the Commission shall, on the basis of the conditions set out in paragraph 1, put forward a legislative proposal specifying the environmental and quality criteria to be met by a substance or object in order to be classified as a by-product. The proposal shall include an annex with a list of substances and/or objects to be classified as by-products.

3. The list referred to in paragraph 2 shall be made easily accessible for the economic operators and the public (e.g. via the Internet).”

Anticipating the legislative task, the Commission came up with an “interpretative communication on waste and by-products”⁵⁷. The starting point of this communication is the following: “*In EU law, notions such as by-product or secondary raw material have no legal meaning – materials are simply waste or not*”. This is true. The introduction of a by-

⁵⁶ Mayer Parry, paragraphs 73 to 75.

⁵⁷ Available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com-2007_0059en01.pdf.

product definition does not constitute a substantial change in the EU waste law. The by-product, as defined in the proposed new Article 3°, is not a *tertium genus*. It is simply another defining provision to reinforce the distinction between product and waste. So, if by-product is not a third category, then it has to be included as a sub-category of waste, or as a sub-category of product.

5.1 Waste or product?

Unfortunately, the “interpretative communication” confuses more than it helps⁵⁸. Instead of a clear distinction, the authors of the communication gave very confusing “illustrative terms”:

“- *Product* – all material that is deliberately created in a production process. In many cases it is possible to identify one (or more) “primary” products, which is the principal material produced.

- *Production residue* – a material that is not deliberately produced in a production process but may or may not be a waste.

- *By-product* – a production residue that is not a waste”.

First of all, the use of the words “residue” and “waste” have no relevant utility. Rather, they just add more confusion, probably multiplied by the “translation effects”.⁵⁹ Second, there is an unsolvable contradiction in the so-called illustrative terms. If a “production residue” differs from a “product” and if the by-product is part of the “production residue”, the by-product is not then a product. On the other hand, the by-product is defined as “a production residue that is not waste”. Thus, the by-product is neither a waste, nor a product! It is a *tertium genus*! This stands in clear contradiction with the previous “waste or not” assertion and does not fit with the waste definition as stated and ruled. Following the mentioned “illustrative terms”, the Communication adds: “Therefore, the first question to be asked when determining whether a material is waste or not is did the manufacturer deliberately choose to produce the material in question”. The word “deliberately”, used to distinguish between product and “production residue”, leads to a misconception. In fact, the production of by-products or wastes is not

the “primary” intention of the producer. But that does not mean that waste and by-product are, by definition, “accidental” effects. The producer must know that the process causes by-products and/or waste. In this sense, the waste and by-products are “deliberately” produced. The word “deliberately” doesn’t fit with the expression “primary aim”, proposed by the European Parliament (“substance or object resulting from a production process, the primary aim of which is not its production”). There is no need to use this strange notion of “intention to produce the material”. The waste definition includes a totally different notion: the intention to discard. And this last one is sufficient to classify the material as waste! The “decision tree” included as Annex II of the Communication is inevitably contaminated by the “illustrative terms”. To define by-product according to the waste definition, we have to go back to the by-product definition proposed by the European Parliament. The proposed definition starts with a “substance or object resulting from a production process, the primary aim of which is not its production”. Before the verification of the subsequent conditions, this expression includes: (i) waste and by-products, accidental or not; (ii) substances or objects totally different from the “primary aim”, and (iii) non-compliant (or sub-standard) products (even if similar to the “primary aimed”). **A by-product is still a product.** The notion given by the European Parliament wording is enough to distinguish the by-products from other products and poses no special difficulty. The real question, and the purpose of the proposed Article 3°A, is to clarify the distinction between by-product and waste. It should be regarded as a further clarification of the distinction between product and waste.

5.2 Symmetrical definitions

Before applying the conditions expressed in the proposed article, we can test the general waste definition to find out if that definition is sufficient to distinguish between waste and by-product. The Directive wording is “any substance or object which the holder discards or intends or is required to discard”. Following this, and after a quick overview of the ECJ rulings, we concluded that a material is considered as waste when it needs further treatment to be useful and/or harmless, according to the legal provisions. To define a material as waste, only three “tests” are needed: (i) if the holder discards the material, it is waste. No other condition needs to be verified; (ii) if there is an obligation to discard, it is waste. No other condition needs to be verified; (iii) if the material needs a further treatment, other than the regular practice, in order to be useful and harmless, it is waste. Applying the above tests to any “non-intended” result from production or “non-compliant” object is enough to “isolate” waste from by-products. No further legal definition is needed!

⁵⁸ That is to say that the opinions expressed in this communication “do not represent a legal interpretation of the European Commission...”.

⁵⁹ The authors of the Communication used the same terms as several ECJ decisions (Palin Granit, AvestaPolarit, Petroleum Coke, Niselli). Most of the European languages have several words for “waste”. “Waste” and “residue” are frequently considered as synonyms. The corresponding words differ according to languages. In English, French and Italian, different expressions are used: “waste/production residue”, “déchet/residu de production”, “rifiuto/residuo di produzione”. In Portuguese and Spanish, same word is used: “resíduo/residuo de produção”, “residuo/residuo de producción”. For languages that use the same word, the expression “production residue” sounds like “production waste”. The idea of a “production waste” that is not waste is rather confusing...

The proposed Article 3°A follows the inverse method: defining by-product, instead of defining waste. By pure logic (assuming that the waste definition remains unchanged), the definitions should be quite symmetrical. The conditions proposed by the European Parliament are the following: (a) further use of the substance or object is certain; (b) the substance or object can be used directly without any further processing other than normal industrial practice; (c) further use of the substance or object is an integral part of a production process or there is a market for it as a product; and (d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific application. The symmetry is quite clear between test (ii) and condition (d), both related with legal compliance. The same occurs between test (iii) and condition (b), related to further treatment/processing. Test (i) has no symmetrical because, if the holder discards the material, there is no “by-product question”. Condition (c) refers to a further production process or a market. It means that the by-product must be suitable for a normal process (not a recovery operation) or acceptable “as a product”. It can be read as a redundancy (to be a by-product, it must be a processed or accepted as a product). Until this point, the proposed Article 3°A adds no substance to the general waste definition. The conditions to define a material as a product (or by-product) are exactly the inverse of the waste definition.

5.3 “Certainty condition” and “leftover rock cases”

The crucial point is condition (a) – “further use of the substance or object is certain”. The further use must be a certainty, not a mere possibility. The difference between possible and certain further use (as a product) is not easy to define, neither in general legal terms, nor in case ruling. The proposed Article 3°A calls for two “solutions”: a “*legislative proposal specifying the environmental and quality criteria to be met by a substance or object in order to be classified as a by-product*”, and “*an annex with a list of substances and/or objects to be classified as by-products*”. Both “solutions” can be ineffective and a source of further elusion. When establishing that the classification as by-product should be based on criteria to be specified by further legislation, the European Parliament is postponing the definition. On the other hand, a list is not a “defining solution”. The future list will not necessarily be a “positive list”. As is the case with the European Waste List, the classification as by-product will remain dependent on definition and criteria fulfilment. If the list contains “residual categories” such as “other substances...”, it will be an open list. Whatever the solution will be, there is no way of having absolute certainty of the “further uses”. In real cases, more questions arise. For how long can the by-product be kept before the

“further use”? Should the certainty condition be applied as a “time” condition? In the Avesta Polarit case, the ECJ referred to the following position of the Finnish Environment Centre: “*Since the residues and by-products resulting from the mine are not as such immediately reused or consumed, they are to be regarded as waste within the meaning of the Law on waste. In so far as the residues and by-products to be discarded are recovered immediately as such (inter alia by returning them to the mine), they are not regarded as waste*”⁶⁰. This statement identifies certainty with immediate reuse. The material in question was the leftover rock and ore-dressing sand resulting from the mining operation. Avesta Polarit submitted that those materials were by-products. The Finnish authorities considered the leftover rock and the ore-dressing sand as waste (and, consequently, the places where they were stored as landfills!). The Finnish Korkein hallinto-oikeus decided to stay the proceedings and refer the waste classification question to the ECJ for a preliminary ruling. The definition proposed by the European Parliament is notably inspired in Palin Granit and Avesta Polarit cases. Thus, the “leftover rock cases” should be reviewed in order to understand the by-product definition. The leftover rocks and ore-dressing sands are usually stored around the mining areas. Several uses exist for such materials: they can be used to fill the mine, to obtain aggregates, for public works (harbours, breakwaters, embankments), and/or for landscaping. The mining companies argue that they need those materials to fill the mine. On the other hand, the materials have to be stored for very long periods of time (decades), and only part of the material is really used for that purpose. Alternative purposes, like harbours and breakwaters, might be more of an eventual nature rather than being certain. Finally, the further use of leftover rocks is similar or equivalent to some operations listed in the Annexes IIA and IIB of the 75/442/EEC Directive. The ECJ ruling can be summarised as follows: first of all, the disposal or recovery of leftover rocks is not enough to classify the material as waste⁶¹. Second, and based on previous judgements, the ECJ excluded the relevance of the commercial value of the material⁶². Thus, the economic value of the leftover rocks and ore-dressing sands is not an argument for excluding the possible classification as waste. Then, and based on the principle of “*widely interpretation of the waste definition*”⁶³ the ECJ established the “certainty condition” to define the material as a by-product: “*the reasoning applicable to by-products should be confined to situations in which the reuse of the goods,*

⁶⁰ Avesta Polarit, paragraph 28.

⁶¹ Palin Granit, paragraph 27.

⁶² Palin Granit, paragraph 29.

⁶³ About this principle, see section 3.6 of this article.

materials or raw materials is not a mere possibility but a certainty, without any further processing prior to reuse and as an integral part of the production process. It therefore appears that, in addition to the criterion of whether a substance constitutes a production residue, a second relevant criterion for determining whether or not that substance is waste for the purposes of Directive 75/442 is the degree of likelihood that that substance will be reused, without any further processing prior to its reuse. If, in addition to the mere possibility of reusing the substance, there is also a financial advantage to the holder in so doing, the likelihood of reuse is high. In such circumstances, the substance in question must no longer be regarded as a burden which its holder seeks to 'discard', but as a genuine product" the reasoning applicable to by-products should be confined to situations in which the reuse of the goods, materials or raw materials is not a mere possibility but a certainty, without any further processing prior to reuse and as an integral part of the production process"⁶⁴. Therefore, this "certainty" is a crucial condition for deciding whether the material is waste or a by-product. If the reuse or further use is "certain", then the material doesn't have to be discarded and, consequently, it is not waste. Therefore, the "certainty" condition is not a "mere" case law creation, but a conceptual development which has a solid base in the legal definition of waste. Assuming certainty as an implicit condition for excluding the waste classification, the remaining question is how to define "certainty". The "leftover rock cases" posed a special situation where the materials remain stored for long periods of time before reuse. As referred to above, the Finnish Environment Centre stated that the materials only fall outside of the waste definition if they are immediately used. The ECJ ruled differently: *"the reuse is therefore not certain and is only foreseeable in the longer term..."*⁶⁵. **Certainty is not a time-based concept.** It is not the time, by itself, that makes the further use certain or uncertain. The waste definition may apply even if the material is "immediately reused". The ECJ also rejected criteria such as the place where the materials are stored or the conditions of storage⁶⁶. Uncertainty derives not from the amount of time, the place or storage conditions, but from several concrete circumstances, such as: (i) the absence of a permanent or continuous market for the material - it has to be stored until the mine, or part of it, is closed, or until the next harbour or embankment works; (ii) the absence of a determined, or determinable, period of time before the further use; (iii) the

possible environment impact or health risk of the long-term storage. The environmental impact of long-term storage is not dependent on the composition of the materials stored or its harmful characteristics⁶⁷. If the above-listed circumstances apply, the further use is uncertain, which indicates that the holder needs or is required to discard. Inversely, if the material is destined for a permanent or continuous market for further use, if the period of storage is, at least, determinable and if the storage is not, by itself or by the harmful characteristics of the material, a source of environmental impact or health risks, then the material falls outside of the waste definition and can be considered a product or by-product. In the Avesta Polarit Case, the ECJ ruled in the same direction and pointed out that the reuse of leftover rocks to fill the underground galleries of a mine is not an "act of discarding", but a normal practice. The holder needs those materials for his principal activity, and if there is no legal prohibition of such reuse, then there is no obligation to discard, and the material should not be considered as waste⁶⁸. All the mentioned circumstances, such as environmental impact, certainty of the further use and time considerations, have to be considered case by case. The Courts rule according to the evidence provided. Should the material holder show evidence of certain "further use" in order to manage the material as a by-product? Or should the burden of proof be on the authorities? In the absence of burden of proof provisions in the European Directives, the answer should be based on national law⁶⁹. The same occurs in the case of time considerations: in the absence of legal provisions establishing a maximum storage time before further use, the waste classification does not simply result from time⁷⁰. To conclude, **the certainty condition for classifying the material as a by-product is just the symmetric of the "discard condition" for classifying the material as waste.**

5.4 Further use other than normal industrial practice

The European Parliament proposal includes a second condition for classifying the material as a by-product: *"the substance or object can be used directly without any further processing other than normal industrial practice"*. This wording poses several interpretation questions, related to the concepts of "direct use" and "other than normal industrial practice". The fragility of normal/other than

⁶⁴ Palin Granit, paragraphs 36 to 37. See also Petroleum Coke, paragraphs 35 and 36.

⁶⁵ Palin Granit, paragraph 38.

⁶⁶ Palit Granit, paragraph 42.

⁶⁷ Palit Granit, paragraph 49.

⁶⁸ Avesta Polarit, paragraphs 36 to 39.

⁶⁹ ARCO Chemie, paragraph 70.

⁷⁰ Avesta Polarit, paragraph 39.

normal distinctions is evident⁷¹. In the Wallonie judgement, the ECJ faced the same difficult distinction⁷². The distinctive element is not the operation (recovery versus “normal”) but the environmental risk of the material and the applicable legal provisions⁷³. The intrinsic safety of the industrial process does not exclude the classification as waste. Before any further processing, the material is waste if it is discarded, intended to be discarded or required to be discarded. And it only ceases to be waste when a legal recovery or disposal operation is completed. If the material needs a further processing to be safely returned back to the market, then it is waste. It should be reprocessed by a legal recovery operation. But what makes the material waste is not the operation itself, but the negative effect of the material on the environment or public health before that treatment⁷⁴. The expression “*other than normal industrial practice*” may be misleading. Recovery operations are, or should be, as “*normal*” as any other industrial practice. The product, by-product and waste classifications don’t derive from the technology used, but from the material itself and its possible environmental impact. Therefore, the expression “*can be used directly without any further processing other than normal industrial practice*” should be interpreted as “not discarded, intended to be discarded or required to be discarded”. Then, the material that doesn’t fit with the primary aim of the producer is a by-product if ... it is not waste! By this reasoning, we conclude that the second condition proposed by the European Parliament is redundant.

5.5 The Petroleum Coke Case

The Petroleum Coke case, ruled in 2004, sheds some light on the criteria used to define by-product as non-waste. The material in question was the petroleum coke resulting from refining of crude oil and used as fuel to produce energy. To answer the question of what is waste and what is not, the ECJ began with the recognition that petroleum coke is not the primary aim of an oil refinery, and gave relevance to the fact that the refinery “*does not wish to discard, within the meaning of the first paragraph of Article 1(a) of Directive 75/442, but intends to exploit or market on terms which are advantageous to it, in a subsequent process, without prior processing*”⁷⁵. In addition to this “discard test”, the Court tested the “certainty condition”⁷⁶. Then, the ECJ applied a second condition: the further use without any further

processing. At this point, the ECJ referred to the traditional doctrine⁷⁷, but concluded that “*those elements are not necessarily conclusive, and whether something is in fact waste must be determined in the light of all the circumstances, regard being had to the aim of the directive and the need to ensure that its effectiveness is not undermined*”⁷⁸. The subsequent reasoning was a return to the “discard test”. The ECJ pointed out that, instead of an obligation to discard, the use of petroleum coke as a fuel for producing energy is normal practice, widely accepted and even recommended. On these grounds, the Court concluded that petroleum coke is not waste⁷⁹. Additionally, the ECJ pointed to the fact that the production of coke was “*the result of a technical choice... specifically intended for use as fuel*”, and not a material intended to be discarded. Then, the Court concluded that the further use of the material is irrelevant⁸⁰. The final conclusion (petroleum coke is not waste) was ruled without the need for distinguishing between product and by-product. The ECJ considered all the hypotheses: (i) if the primary aim of refinery is to produce refined oil, then the petroleum coke could be considered as a by-product; (ii) if the production of petroleum coke is an intended option, then the petroleum coke is a genuine product (and hence the primary aim of a refinery is to produce fuel from crude oil). Instead of discussing what is a “primary aim”, the ECJ got right to the essential point: the waste definition. Another point to remark upon in the Petroleum Coke case is the irrelevance of how the holder perceives the material⁸¹. From the Petroleum Coke Case, some “lessons” can be extracted: First, the waste classification should be based on the literal definition (act, obligation or intention to discard). Second, **the “certainty condition” should be tested within the waste definition, not as an additional condition**. Third, the further use (even when it is a “standard recovery process”) is irrelevant for the purpose of classification. And, fourth, **a by-product definition is not needed in order to decide whether the material is waste or non-waste**.

6 Conclusion

Most of the time, the over-regulation does not add certainty nor decrease the controversy. If appropriate answers are difficult to find, the solution does not

⁷¹ As pointed out by the Advocate General Jacobs in the Tombesi Case Opinion, paragraph 54. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61994C0304:EN:HTML>

⁷² Wallonie, paragraph 33.

⁷³ Wallonie, paragraph 30.

⁷⁴ See section 3.7. of this article.

⁷⁵ Petroleum Coke, paragraph 35.

⁷⁶ Petroleum coke, paragraph 36.

⁷⁷ “Other evidence of the existence of waste [...] may lie in the fact that the treatment method for the substance in question is a standard waste treatment method or that the undertaking perceives the substance as waste and from the fact that, in the case of a production residue, it can be used only in a way that involves its disappearance or that its use must involve special measures to protect the environment”. Petroleum Coke, paragraph 39.

⁷⁸ Petroleum coke, paragraph 40.

⁷⁹ Petroleum Coke, paragraphs 41 to 44.

⁸⁰ Petroleum Coke, paragraph 46, first part.

⁸¹ Petroleum Coke, paragraph 46, final part.

necessarily involve more definitions. The art of telling stories within stories may result in master epic poems like “Orlando Furioso”⁸² or “Os Lusíadas”⁸³, but the labour of making definitions over definitions has its limits and might be too complex to be practicable. The introduction of new wordings and concepts might be a symptom of forthcoming complexities. The administrative conflicts and the court cases will probably have to deal with complex definitions, distinctions and procedural questions. Instead of a clarification of its basic definitions, the EU waste law risks becoming more uncertain. Legal clarity does not result automatically from legal definitions. On the one hand, a wide interpretation of the waste definition can lead to excessive costs and to abuse of authority. On the other hand, a narrow interpretation can lead to unacceptable environmental consequences. As always, reason lies between these two extremes. After some decades of case-by-case ruling, we have to conclude that the legal definition, based on “act, obligation or intention to discard”, is workable without “corrective interpretation”. Besides, no alternative definition has arisen. Therefore, we have to agree with Prof. van Calster: “*The Commission at any rate would seem to have decided that the core definition of waste, with its focus on the notion of ‘discarding’, may be faulty but nevertheless lacks alternatives. Case-law of the ECJ in particular has left a degree of clarification which most likely would be difficult to meet by any possible alternative*”⁸⁴.

The legal definition of waste in the European waste law should stay as it is. This is “our” first conclusion. Second, and also resulting from case law, is the need for legal definitions for disposal and recovery at a European level based on the notions of a safe and efficient return of materials into the environment (disposal) or into the marketplace (recovery). The definition proposed by the European Parliament, grounded in ECJ rulings and coherent with the waste definition, seems to be a positive step ahead. It is time to replace the ineffective practice of “defining” disposal and recovery by simple reference to Annexes.

Our third conclusion concerns the by-product definition. Considering the waste definition resulting from legal wording and ECJ jurisprudence, the need for a by-product definition is far from being demonstrated. Before adding more definitions, criteria and lists, alternative and simpler solutions must be studied. If there are materials managed as by-products that should be managed as waste, then simpler ways should be found to solve the problem. Legislators

can adopt provisions such as: (i) maximum delay before further use as a product (the by-product converts to waste if it remains with no “further use” after a certain amount of time); (ii) discard (recovery, disposal) obligations. None of these requires a new definition. It is rather a question of making the existing definitions work.

⁸² The epic masterpiece of Ludovico Ariosto (1516).

⁸³ The epic masterpiece of Luis Vaz de Camões (1572).

⁸⁴ Gert van Calster (2006), If ain't broke, don't fix it..., in *elni review*, 1-2/2006, p. 22.

The ECJ “Waste Definition Cases”

Vessoso / Zanetti

Joined cases C-206/88 and C-207/88,
European Court reports 1990 p. I-01461
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61988J0206:EN:HTML>

Zanetti

Case C-359/88; European Court reports 1990, p. I-01509
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61988J0359:EN:HTML>

Commission vs. FRGermany

Case C-422/92; European Court reports 1995, p. I-01097
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61992J0422:EN:HTML>

Tombesi

Joined cases C-304/94, C-330/94, C-342/94 and C-224/95.
European Court reports 1997, p. I-03561
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61994J0304:EN:HTML>

Wallonie

Case C-129/96; ECr 1997, p. I-07411;
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61996J0129:EN:HTML>

ARCO Chemie

Joined cases C-418/97 and C-419/97; ECr 2000, p.I-04475
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61997J0418:EN:HTML>

Abfall

Case C-6/00; European Court reports 2002, p. I-01961
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62000J0006:EN:HTML>

Palin Granit

Case C-9/00; European Court reports 2002 p.I-03533
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62000J0009:EN:HTML>

Mayer Parry

Case C-444/00
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62000J0444:EN:HTML>

AvestaPolarit

Case C-114/01
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62001J0114:EN:HTML>

Petroleum coke (Saetti /Frediani)

Case C-235/02
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62002O0235:EN:HTML>

Contaminated Soil

Case C-1/03
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62003J0001:EN:HTML>

Niselli

Case C-457/02
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62002J0457:EN:HTML>

Food residues

Case C-195/05 (pending)
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62005C0195:EN:HTML>

Spanish Manure

Case C-416/02
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62002J0416:EN:HTML>

The Öko-Institut (Institut für angewandte Ökologie - Institute for Applied Ecology, a registered non-profit-association) was founded in 1977. Its founding was closely connected to the conflict over the building of the nuclear power plant in Wyhl (on the Rhine near the city of Freiburg, the seat of the Institute). The objective of the Institute was and is environmental research independent of government and industry, for the benefit of society. The results of our research are made available of the public.

The institute's mission is to analyse and evaluate current and future environmental problems, to point out risks, and to develop and implement problem-solving strategies and measures. In doing so, the Öko-Institut follows the guiding principle of sustainable development.

The institute's activities are organized in Divisions - Chemistry, Energy & Climate Protection, Genetic Engineering, Sustainable Products & Material Flows, Nuclear Engineering & Plant Safety, and Environmental Law.

The Environmental Law Division of the Öko-Institut:

The Environmental Law Division covers a broad spectrum of environmental law elaborating scientific studies for public and private clients, consulting governments and public authorities, participating in law drafting processes and mediating stakeholder dialogues. Lawyers of the Division work on international, EU and national environmental law, concentrating on waste management, emission control, energy and climate protection, nuclear, aviation and planning law.

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The University of Applied Sciences in Bingen was founded in 1897. It is a practiceorientated academic institution and runs courses in electrical engineering, computer science for engineering, mechanical engineering, business management for engineering, process engineering, biotechnology, agriculture, international agricultural trade and in environmental engineering.

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The Society for Institutional Analysis was established in 1998. It is located at the University of Applied Sciences in Darmstadt and the University of Göttingen, both Germany.

The sofia research group aims to support regulatory choice at every level of public legislative bodies (EC, national or regional). It also analyses and improves the strategy of public and private organizations.

The sofia team is multidisciplinary: Lawyers and economists are collaborating with engineers as well as social and natural scientists. The theoretical basis is the interdisciplinary behaviour model of *homo oeconomicus institutionalis*, considering the formal (e.g. laws and contracts) and informal (e.g. rules of fairness) institutional context of individual behaviour.

The areas of research cover

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elni

In many countries lawyers are working on aspects of environmental law, often as part of environmental initiatives and organisations or as legislators. However, they generally have limited contact with other lawyers abroad, in spite of the fact that such contact and communication is vital for the successful and effective implementation of environmental law.

Therefore, a group of lawyers from various countries decided to initiate the Environmental Law Network International (elni) in 1990 to promote international communication and cooperation worldwide. Since then, elni has grown to a network of about 350 individuals and organisations from all over the world.

Since 2005 elni is a registered non-profit association under German Law.

elni coordinates a number of different activities in order to facilitate the communication and connections of those interested in environmental law around the world.

Coordinating Bureau

The Coordinating Bureau was originally set up at and financed by Öko-Institut in Darmstadt, Germany, a non-governmental, non-profit research institute.

Three organisations currently share the organisational work of the network: Öko-Institut, IESAR at the University of Applied Sciences in Bingen and sofia, the Society for Institutional Analysis, located at the University of Darmstadt. The person of contact is Prof. Dr. Roller at IESAR, Bingen.

elni Review

The elni Review is a bi-annual, English language law review. It publishes articles on environmental law, focussing on European and international environmental law as well as recent developments in the EU Member States. It is published by Öko-Institut (the Institute for Applied Ecology), IESAR (the Institute for Environmental Studies and Applied Research, hosted by the University of Applied Sciences in Bingen) and sofia (the Society for Institutional Analysis, located at the University of Darmstadt). The Coordinating Bureau is currently hosted by the University of Bingen. elni encourages its members to submit articles to the Review in order to support and further the exchange and sharing of experiences with other members.

elni Conferences and Fora

elni conferences and fora are a core element of the network. They provide scientific input and the possibility for discussion on a relevant subject of environmental law and policy for international experts. The aim is to gather together scientists, policy makers and young researchers, providing them with the opportunity to exchange views and information as well as to develop new perspectives.

The aim of the elni fora initiative is to bring together, on a convivial basis and in a seminar-sized group, environmental lawyers living or working in the Brus-

sels area, who are interested in sharing and discussing views on specific topics related to environmental law and policies.

Publications series

- Access to justice in Environmental Matters and the Role of NGOs, de Sadeleer/Roller/Dross, Europa Law Publishing, 2005.
- Environmental Law Principles in Practice, Sheridan/Lavrysen (eds.), Bruylant, 2002.
- Voluntary Agreements - The Role of Environmental Agreements, elni (ed.), Cameron May Ltd., London, 1998.
- Environmental Impact Assessment - European and Comparative; Law and Practical Experience, elni (ed.), Cameron May Ltd., London, 1997.
- Environmental Rights: Law, Litigation and Access to Justice, Deimann / Dyssli (eds.), Cameron May Ltd., London, 1995.
- Environmental Control of Products and Substances: Legal Concepts in Europe and the United States, Gebers/Jendroska (eds.), Peter Lang, 1994.
- Dynamic International Regimes: Institutions of International Environmental Governance, Thomas Gehring; Peter Lang, 1994.
- Environmentally Sound Waste Management? Current Legal Situation and Practical Experience in Europe, Sander/ Küppers (eds.), P. Lang, 1993
- Licensing Procedures for Industrial Plants and the Influence of EC Directives, Gebers/Robensin (eds.), P. Lang, 1993.
- Civil Liability for Waste, v. Wilmowsky/Roller, P. Lang, 1992.
- Participation and Litigation Rights of Environmental Associations in Europe, Führ/ Roller (eds.), P. Lang, 1991.

ElNi Website: elni.org

On the elni website www.elni.org one finds news of the network and an index of articles. It also indicates elni activities and informs about new publications. Internship possibilities are also published online.