

## **Chapter 2**

# **The International Trade in Hazardous Wastes and Its Economic Background**

Before providing an examination of the existing legal framework governing the transboundary movement of hazardous wastes by sea and prior to an assessment of the particular provisions of the Protocol to the Basel Convention, it is necessary to first outline the practical circumstances of the underlying problem area and the typical constellations of hazardous waste shipments by sea. Consequently, at the outset of this work a whole series of questions arise: What is the practical significance of hazardous waste movements and what amounts of wastes are shipped across the globe? What are the economic drivers and the interests of the parties involved? Which economic and political impulses influence States, economies and private players? How does “hazardous waste shipment” typically take place? And at what point might liability function as a trigger to correct possible misconduct by the parties involved? A brief introduction to these issues shall be given in this second chapter.

### **A. Hazardous Wastes: Properties and Economic Importance**

The basic substance at issue throughout this book is described by the term “hazardous wastes”. The meaning, properties and the economic importance of this substance shall thus be described at the outset.

#### ***1. Sources and Composition of Hazardous Wastes***

Wastes may appear in diverse forms and originate from various activities. Consequently, many descriptions of this term can be found in common parlance. A rather pointed but also appealing version describes wastes as “the wrong material

at the wrong time at the wrong place”.<sup>1</sup> The most typical description defines wastes as unusable or unwanted substances or materials remaining from any production or consumption process.<sup>2</sup> This general understanding of wastes shows that a definition of this term cannot be made by means of purely objective criteria, but needs to take into account subjective elements of the person in possession of the wastes. Accordingly, the legal definitions of wastes in most international conventions combine objective and subjective elements and, as a general criterion, are based on the actual, intended or legally required disposal (including recovery operations) of the substances or materials in question.<sup>3</sup>

The term hazardous wastes (generally used synonymously with the terms toxic or dangerous wastes) is commonly understood as denoting wastes that are actually or potentially harmful to human health or the environment due to certain adverse characteristics or specific components of the wastes. The definitions of hazardous wastes used in international conventions follow this approach and provide for detailed lists of categories of waste streams and hazardous characteristics.<sup>4</sup> The hazardousness of wastes is usually defined by a combination of two elements, (1) the category of the waste stream, which is determined either by its origin or by certain compounds, and (2) certain hazardous characteristics or properties of these wastes. While some definitions cumulatively require both elements,<sup>5</sup> others only require that either the one or the other element applies to the wastes in question.<sup>6</sup> Again other definitions make the hazardousness of wastes merely conditional on whether the wastes display certain hazardous characteristics.<sup>7</sup> Household wastes and residues of the incineration of household wastes are either included in this definition or they are legally placed on the same level.<sup>8</sup>

It follows from this sophisticated legal definition that the term “hazardous wastes” basically covers a wide range of substances and materials. Individual waste streams, which represent the major part of hazardous wastes, include oil

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<sup>1</sup> See the term “Abfall” (transl. “waste”), in the German Wikipedia as of June 2010.

<sup>2</sup> See e.g. “Abfall” in: *Brockhaus*, Vol. I, (21st ed. 2006); “Abfall” in: *Meyers Enzyklopädisches Lexikon*, Vol. I, (9th ed. 1971); “Waste” in: *The Oxford English Dictionary*, Vol. XII, (1978).

<sup>3</sup> Basel Convention, Article 2(1); Bamako Convention, Article 1(1); Waigani Convention, Article (1); OECD Council Decision C(2001)107/FINAL, A(1); EU Directive 2008/98/EC, Article 3(1); Izmir Protocol to the Barcelona Convention, Article 1(c); Tehran Protocol to the Kuwait Convention, Article 2(1).

<sup>4</sup> See also O'Neill, *Waste Trading Among Rich Nations* (2000), at 26–29.

<sup>5</sup> Basel Convention, Article 1(1)(a) in connection with Annexes I, III; Waigani Convention, Article 2(1)(a) in connection with Annexes I, II; OECD Council Decision C(2001)107/FINAL, A(2) in connection with Appendixes 1, 2; Tehran Protocol to the Kuwait Convention, Article 1(1)(a) in connection with Annexes I, III.

<sup>6</sup> Bamako Convention, Article 2(1)(a) and (c) in connection with Annexes I, III; Izmir Protocol to the Barcelona Convention, Article 3(1)(a) and (c) in connection with Annexes I, II.

<sup>7</sup> EU Directive 2008/98/EC, Article 3(2) in connection with Annex III.

<sup>8</sup> See Basel Convention, Article 1(2) in connection with Annex II; Tehran Protocol to the Kuwait Convention, Article 1(1)(b) in connection with Annex II.

mixtures, residues from industrial waste disposal, clinical waste, lead and lead compounds, tars, zinc compounds, paints and dyes, acids and asbestos.<sup>9</sup> But typical hazardous wastes are represented also by other remnants of chemical and industrial treatment processes associated with the production of, for example, pharmaceuticals, biocides, organic solvents, varnishes, resins, plasticisers and glues, as well as waste materials containing abstractly harmful components, such as certain metallic compounds, arsenic selenium and cadmium compounds, mercury, acidic and basic solutions, phenols, PCBs and PCTs.<sup>10</sup> Finally, hazardous wastes may display several characteristics and properties. They may, for example, be explosive, flammable, poisonous, infectious, toxic or ecotoxic, corrosive, oxidising or thermally unstable.<sup>11</sup>

## ***II. Volumes of Generated Hazardous Wastes***

The absolute amount of hazardous wastes generated annually around the world is unknown. It is, moreover, unlikely that reliable figures in this regard will ever be available.

This is to be explained by several reasons: On a global scale data regarding the generation of hazardous wastes are collected only by the Secretariat of the Basel Convention. However, the reporting requirement under the Basel Convention regarding such data is of a voluntary nature only.<sup>12</sup> Thus, only 37 States (about 20 % of all Contracting States) have reported data on the generation of hazardous wastes for 2009.<sup>13</sup> Further reasons for incomplete and unreliable data reports involve differences in the national definitions of hazardous wastes, deficiencies in national data collection, monitoring and enforcement capacities as well as missing explanations for large fluctuations in the reported data.<sup>14</sup> On a regional level, data and statistics regarding the generation of hazardous wastes are best available from the EU<sup>15</sup> and, to a lesser extent, also from the OECD. The data collected by the EU do not show the same deficiencies as those data collected by the Secretariat of the

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<sup>9</sup> Basel Secretariat (ed.), *Global Trends 1993–2000*, at 15.

<sup>10</sup> See for example the enumerations in Annex I of the Basel Convention. See also Gwam, ‘Adverse Effects of the Illicit Movement of Hazardous Wastes’, 14 *Fla. J. Int’l L.* (2001/2002), at 431–432; Krueger, *International Trade and the Basel Convention* (1999), at 7–8 and 99–106.

<sup>11</sup> See for example the characteristic listed in Annex III of the Basel Convention.

<sup>12</sup> Basel Convention, Article 13(3)(b).

<sup>13</sup> See the “Reporting Database” on [www.basel.int](http://www.basel.int).

<sup>14</sup> See for a detailed analysis: COP10 Doc. UNEP/CHW.10/INF/4, at 6; Basel Secretariat (ed.), *Global Trends 1993–2000*, at 1, 8–11; Friedrich-Ebert-Stiftung (ed.), *Zehn Jahre Basler Übereinkommen* (1999), at 14–15; Walsh, ‘The Global Trade in Hazardous Wastes’, 42 *Cath. U. L. Rev.* (1992/1993), at 108–110.

<sup>15</sup> See Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25.11.2002 on waste statistics.

Basel Convention or the OECD, which is to be explained by the fact that by means of the EU regulations, reporting obligations are compulsory and the Member States, which mostly rank among industrial countries, also possess sufficient administrative capacities.<sup>16</sup> Nevertheless, the statistics provided by the EU only display a part of the worldwide production of hazardous wastes and only represent countries with a certain economic capability. These data, thus, cannot simply be projected on a global scale.

Data on hazardous waste generation are available as of 1990, as far as the level of the EU is concerned.<sup>17</sup> In EU15<sup>18</sup> the amount of generated hazardous wastes increased by 5 % *p.a.* from 36 million tons in 1997 up to 40 million tons in 2000.<sup>19</sup> Between 2000 and 2005 this amount increased by 4 % *p.a.* in EU15 and by 2 % *p.a.* in EU25.<sup>20</sup> Finally, in EU27 the amount of generated hazardous wastes increased from 88.5 million tons in 2004 to 100.6 million tons in 2006, followed by a slight decrease to 97.6 million tons in 2008, which corresponds to an average increase of 5.2 % *p.a.* between 2004 and 2008.<sup>21</sup> The generation of hazardous wastes accounted for a share of 3.7 % of the overall production of wastes in EU27 in 2008.<sup>22</sup> In contrast to these data provided by the EU, OECD statistics regarding hazardous waste generation are of little significance. The only conclusion that can be drawn from these data is that there has been, similarly, an increase in the overall production of hazardous wastes in OECD countries in the period between 1990 and 2005.<sup>23</sup> According to a rough estimate the share of the OECD countries in the overall production of hazardous wastes accounted for approximately 75 %.<sup>24</sup>

Although it is not possible to obtain reliable figures on the absolute amount of hazardous wastes generated worldwide, it is nevertheless possible to identify global trends in development, based on the fragmentary data available. For the

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<sup>16</sup> As to the quality of the waste statistics provided by the EU see Report of the EC on waste statistics and their quality, EC Doc. COM(2011) 131 final.

<sup>17</sup> For an analysis of the data covering the period between 1990 and 1998 see European Environment Agency (ed.), *Hazardous Waste Generation in EEA Member Countries* (2002), at 14 *et seq.*

<sup>18</sup> The abbreviations EU15, EU25 and EU27 denote the number of Member States of the EU at that time.

<sup>19</sup> See Report of the EC, EC Doc. COM(2006) 430 final, at 6. See also the data provided in EC Doc. SEC(2006) 1053.

<sup>20</sup> Report of the EC, EC Doc. COM(2009) 282 final, at 5–6. See also the data provided in EC Doc. SEC(2009) 811 final, and European Environment Agency (ed.), *Transboundary Shipments in the EU* (2008), at 25–28.

<sup>21</sup> Data obtained from the database on hazardous waste generation on <http://epp.eurostat.ec.europa.eu>.

<sup>22</sup> European Union (ed.), *Eurostat Yearbook 2011*, at 481, 485.

<sup>23</sup> See OECD (ed.), *OECD Environmental Data, Compendium 2006–2008: Waste*, at 18–22; Basel Secretariat (ed.), *Global Trends 1993–2000*, at 11–12 and Appendix 3; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 10 and Annex 2.

<sup>24</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 6; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 8–10.

period between 1950 and 1985 it has been estimated that the total amount of hazardous wastes generated annually increased 35-fold.<sup>25</sup> Rough estimates suggest that the absolute amount of hazardous wastes produced worldwide in 1990 lies between 250 and slightly over 600 million tons.<sup>26</sup> As of 1990 the data available for the EU and the OECD show that there is a constant increase in the average annual production of hazardous waste amounting to approximately 4–5 %. Since there is no obvious reason that in non-OECD or non-EU States the increase of hazardous waste generation would be less significant, it must be assumed that also on a global level the production of hazardous wastes has increased by not less than 4–5 %.<sup>27</sup>

A constant increase in the global generation of hazardous wastes, one which may be placed in the range of 4–5 % *p.a.*, is the only reasonable data that can be drawn from the available data. Although there are some attempts to estimate absolute amounts of global hazardous waste generation, such estimations must fail due to the large amount of missing and unreliable data. A further conclusion that can be drawn from the available data is that the entry into force of both the Basel Convention as well as the numerous regional conventions and regulations has obviously had no significant impact on the ever-increasing production of hazardous wastes.

### *III. Forms of Waste Treatment and Disposal*

“Waste management” is used as an umbrella term to describe the entirety of all policies, research, tasks and measures related to the prevention, reduction, recovery and disposal of wastes. The particular tasks related to the handling and treatment of wastes include their collection and transport, the monitoring and collection of data, and the processing and disposal of waste materials. Waste disposal, in turn, comprises several methods.<sup>28</sup> The choice of the method used in a given case depends on various factors, like the amount of the particular waste stream, the availability of specialised disposal facilities, financial resources and the existing laws. Reliable figures on the respective disposal methods are available only at the level of the EU. According to this, landfilling and recovery are the most common disposal methods with a share of about 45 % each, while incineration

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<sup>25</sup> This was calculated according to the increasing production of organic chemicals, see Kummer, *The Basel Convention* (1995), at 4. See also Walsh, ‘The Global Trade in Hazardous Wastes’, 42 *Cath. U. L. Rev.* (1992/1993), at 110–111.

<sup>26</sup> Kummer, *The Basel Convention* (1995), at 4; Poulakidas, ‘Waste Trade and Disposal in the Americas’, 21 *Vt. L. Rev.* (1996/1997), at 873; Rutinwa, ‘Liability and Compensation’, 6 *RECIEL* (1997), at 8; Williams, ‘Trashing Developing Nations: The Global Hazardous Waste Trade’, 39 *Buff. L. Rev.* (1991), at 276.

<sup>27</sup> A moderate increase is also assumed by COP10 Doc. UNEP/CHW.10/INF/4, at 6; Basel Secretariat (ed.), *Global Trends 1993–2000*, at 11–15; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 8–10.

<sup>28</sup> A comprehensive list of disposal operations can also be found in Annex IV of the Basel Convention.

constitutes approximately 10 %.<sup>29</sup> But again here, one cannot simply assert that these figures claim global validity.

On a global scale, the most common method for hazardous waste disposal is geologic disposal at landfill sites. It is the least expensive option and, in the simplest case, it only requires a suitable storage ground. Therefore, it is the preferred disposal method especially in developing countries. On the downside, landfills that do not meet the technological minimum standards pose a significant risk of contamination of the ground and surface water. As can be seen in the case of the *M/V "Probo Koala"*,<sup>30</sup> this may lead to significant environmental damage and present a serious health threat for a large number of people.<sup>31</sup>

Marine disposal or dumping at sea, including shipboard incineration, is also a cheap and easy method of hazardous waste disposal, particularly where no international regulation applies to the respective flag State or State of origin. Since marine dumping is not locally bound and since the dumping vessel in most cases cannot be identified, marine disposal often takes place outside any legal control. Moreover, the adverse long-term effects of hazardous substances dumped into the sea are unknown and cannot adequately be anticipated.

Incineration of hazardous wastes aims at the final destruction of the wastes and the neutralisation of the harmful substances. Due to air emissions and highly toxic residues, it generally poses a significant threat to human health and the environment. This risk is significantly minimised by modern incineration plants specialised for specific types of wastes. However, since the operation of such plants involves high financial expenditure and requires a steady supply of the target wastes, it is often not economically feasible for smaller economies.<sup>32</sup>

Recycling and the recovery of hazardous wastes are also widely prevalent. It should be considered the most environmentally sound disposal method since a large portion of the harmful substances can be recovered and is not yet released from the production circle. A major obstacle, however, is presented by the unstable market price for recycled products and, thus, the resulting disparity between supply and demand.<sup>33</sup>

Finally, processing or (pre)treatment of hazardous wastes should be mentioned. It may reduce the hazard level of wastes and may encompass physical, chemical and biological processes. Pre-treatment may take place at the site of generation of the wastes or it may be conducted in specialised facilities.<sup>34</sup>

<sup>29</sup> European Union (ed.), *Eurostat Yearbook 2011*, at 486.

<sup>30</sup> See *supra*, Sect. "The Factual Perspective: Transboundary Movements of Hazardous Wastes by Sea" in Chap. 1.

<sup>31</sup> Louka, *International Environmental Law* (2006), at 425.

<sup>32</sup> Louka, *International Environmental Law* (2006), at 427; see also Avery, 'Our Rubbish: Someone Else's Problem?', 2 *Int'l J. Hum. Rts.* (1998), at 24–25.

<sup>33</sup> Louka, *International Environmental Law* (2006), at 427.

<sup>34</sup> See for instance the required reception facilities for ship tank washing residues according to Annex II of MARPOL 73/78 Convention; *infra*, Sect. "MARPOL 73/78 Convention" in Chap. 3.

#### IV. The Commercial Value of Hazardous Wastes

The economic value of wastes is not intrinsic, but depends on the extent the wastes can be processed or recycled.<sup>35</sup> Non-hazardous wastes can be utilised to a large extent for recovery or recycling operations, or they can be sold to incineration plants. Thus, they often have a considerable positive economic value and—from an economic perspective—are to be considered as standard tradable goods. Hazardous wastes, by contrast, generally have to be disposed of through costly treatment methods and, therefore, rather represent a negative economic value for their owner, who has to bear the costs of disposal.<sup>36</sup> From an economic perspective, non-hazardous and hazardous wastes hence differ significantly.<sup>37</sup>

Regarding the trade in standard goods, the interests of the parties involved are balanced such that both the shipper and the consignee seek to ensure that the traded goods finally arrive at the consignee's place. The shipper only receives payment if delivery of the goods is actually performed to the consignee.<sup>38</sup> The consignee, in turn, having decided to purchase these goods, thus, has a genuine interest in taking delivery. Both parties, therefore, have an intrinsic economic interest in a sound and safe transport and delivery of the goods. Since this consideration applies for all goods with a positive economic value, it is also true for most non-hazardous wastes that are sold for a positive price on the world market.

This consideration, by contrast, does not apply with regard to the sale of hazardous wastes. Hazardous wastes mostly embody a negative economic value and are associated with negative externalities.<sup>39</sup> This means in practice that the seller

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<sup>35</sup> van Daele/Vander Beken/Dorn, 'Waste Management and Crime', 37 *Env'tl. Pol'y & L.* (2007), at 36.

<sup>36</sup> See also Abrams, 'Regulating the International Hazardous Waste Trade', 28 *Colum. J. Transnat'l L.* (1990), at 806.

<sup>37</sup> Moreover, one could think about defining wastes and hazardous wastes according to their economic value for their owner. So long as the wastes can be sold on the world market for a positive price, also taking into account transaction costs (e.g. costs for transportation or brokerage fees), this would reflect that the consignee has an economic interest in these wastes, e.g. for recovery or recycling operations. In this case the wastes could be considered non-hazardous. On the other hand, as soon as the seller has to pay additionally for selling the wastes, this is a strong indication that the wastes do not contain recyclable or recoverable substances or properties and, thus, are unwanted goods even from an economic perspective. Based on the assumption that costs for disposal increase with the hazardousness of the wastes, the latter type of wastes could be considered hazardous. This definition, to be sure, functions only in a very schematic way.

<sup>38</sup> This, of course, disregards the issue of determining when the risk of damage passes over to the consignee, which is most commonly specified by means of INCOTERMS.

<sup>39</sup> The economic perspective of establishing civil liability with regard to public goods (such as the "clean environment") is outlined by Feess, *Umweltökonomie* (3rd ed., 2007), at 37–57, 151–183; Reis, *Compensation for Environmental Damage under International Law* (2011), at 132–145; An economic analysis of the transboundary movement of hazardous wastes is provided by Cassing/Kuhn, 'Strategic Environmental Policies', 11 *Rev. Int. Econ.* (2003), at 495 *et seq.*; Copeland, 'International Trade in Waste Products', 20 *J. Environ. Econ. Manage.* (1991), at 143 *et seq.*; Hansen/Thomas, 'The Efficiency of Sharing Liability', 19 *Int'l Rev. L. & Econ.* (1999), at

has to pay for the readiness of the consignee to take delivery of the hazardous wastes. For this reason, the interests of the parties involved are different. Since the shipper is obliged to pay for the hazardous wastes only if they are actually delivered to the consignee, it is in his genuine economic interest that these wastes never arrive at the place of destination. The consignee, by contrast, has an interest in taking delivery of the hazardous wastes, because only in this case is he entitled to claim payment. This interest, however, is not an interest in receiving the hazardous wastes as such, but rather in receiving the additional payment. Therefore, none of the parties involved has a genuine economic interest in a safe and sound transport and delivery of the hazardous wastes.<sup>40</sup>

This, of course, only applies in a non-regulated world that disregards non-economic interests. An indirect economic interest, however, is created by imposing liabilities on the parties involved. Rules of liability<sup>41</sup> create an additional financial obligation that is contingent on a certain negligent behaviour of the person in charge of the wastes. Hence, liability rules may create an incentive ensuring that the wastes in question are safely and soundly delivered to the consignee in order to avoid the incurrence of financial liabilities. Therefore, the crucial effect of liability is not the imposition of financial burdens, but rather creating legal certainty, namely guaranteeing that, as long as certain behavioural requirements are fulfilled, the person in charge of the wastes is discharged from any liabilities, i.e. additional costs.<sup>42</sup> The creation of such behaviour-correcting incentives is one of the prime legal aims of civil liability conventions.<sup>43</sup>

However, this legal technique for shaping the economic incentives of the parties also entails disadvantages and certain risks. First, if the liability provisions are too rigorous and require too high a capital expenditure for loss prevention in order to enjoy relief from liability, then this rather provides an incentive for the shipper to elude the official method of waste shipment and to favour illegal shipments and dumping. Second, liability does not create a positive economic incentive in the shipper for the delivery of the wastes, but rather works as a negative incentive that imposes liability in the sense of an economic sanction. Hazardous wastes, thus, incur a double negative

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(Footnote 39 continued)

135 *et seq.*; Kirstein, *Internationaler Müllhandel aus Sicht der ökonomischen Analyse des Rechts*, in: Eger/Bigus/Ott/von Wangenheim (ed.) (2008), at 443 *et seq.*; Rauscher, *International Trade, Factor Movements, and the Environment* (1997), at 91–121.

<sup>40</sup> See also Hackmann, 'International Trade in Waste Materials', 29 *Intereconomics* (1994), at 298–299; Marbury, 'Hazardous Waste Exportation', 28 *Vand. J. Transnat'l L.* (1995), at 259; O'Neill, *Waste Trading Among Rich Nations* (2000), at 34; Rauscher, *International Trade in Hazardous Waste*, in: Schulze/Ursprung (ed.) (2001), at 152.

<sup>41</sup> This basically applies to rules of fault-based liability, but may also apply to rules of strict liability, provided there are exclusions from liability in case of certain inevitable events.

<sup>42</sup> See Giampetro-Meyer, 'Captain Planet Takes on Hazard Transfer', 27 *UCLA J. Envtl. L. & Pol'y* (2009), at 77–84; Hackmann, 'International Trade in Waste Materials', 29 *Intereconomics* (1994), at 299–300.

<sup>43</sup> Lawrence, 'Negotiation of a Protocol on Liability and Compensation', 7 *RECIEL* (1998), at 250; Murphy, 'Prospective Liability Regimes', 88 *AJIL* (1994), at 62–63.



economic value that consists of not only the intrinsic negative value of the wastes as such, but also the attached risk of liability. The consequences are as follows: Since the shipper of the hazardous wastes cannot expect any positive financial return from delivering the wastes, but only bears the risk of additional liability, from a purely economic perspective there is no reason that the company performing the shipment remains operative. This creates a motivation to establish bogus firms that become insolvent in case of liability. A better solution, therefore, would likely be creating a positive economic interest in the delivery of the hazardous wastes, instead of imposing liabilities. However, due to the intrinsic negative value of most hazardous wastes, such a positive interest in hazardous wastes cannot be generated.

## ***V. Summary***

Wastes are commonly defined as substances or materials that are actually disposed of, intended to be disposed of, or are required by law to be disposed of. The hazardousness of wastes is usually defined by a combination of a particular waste stream and particular hazardous characteristics enumerated in comprehensive lists. The amount of hazardous wastes that are generated worldwide cannot be determined in absolute figures. Based on regional data it is, however, possible to identify trends in development. According to these figures, there are good reasons to assume that the volume of hazardous wastes generated annually is increasing by 4–5 %. The most common methods of hazardous waste treatment and disposal are geologic disposal at landfill sites as well as recovery and recycling. Incineration is also an important disposal method.

Since a positive economic value can be attached to non-hazardous wastes in most cases, the shipper has an intrinsic economic interest of the shipper to make sure that these wastes are shipped safely and soundly to the consignee's designated location. By contrast, such an incentive does not exist with regard to hazardous wastes. In such cases, it is rather in the shipper's economic interest that the wastes do not at all arrive at the final destination. Rules on liability may serve as an external corrective for this adverse economic incentive. However, imposing liabilities also poses risks. If liability is too stringent, it may have the opposite effect.

## **B. The Transboundary Movement of Wastes**

### ***I. Reasons for the Emergence of Hazardous Waste Movements***

Transboundary movements of hazardous wastes emerged as a mass phenomenon in the 1960s and 1970s. The reason for the increasing importance of this kind of waste management was as banal as inevitable: Economic and political conditions stimulated such shipments.

In consequence of the increasing number of hazardous waste transports, the number of environmental catastrophes involving hazardous wastes, especially in the late 1970s and 1980s, increased as well.<sup>44</sup> These incidents attracted broad media coverage and gave rise to a heightened public awareness and an ecological sensitisation of the population primarily in industrial countries. Environmental organisations like *Greenpeace* and the *World Wildlife Fund (WWF)* rose in popularity, and at the political level a consciousness for the need of environmental regulations evolved.<sup>45</sup> In the following years, tougher environmental laws were enacted which established higher requirements for the sustainable treatment and disposal of hazardous wastes as well as higher requirements for employee protection.<sup>46</sup> This, in turn, caused a significant rise in the costs of domestic waste management.<sup>47</sup> In light of approximate disposal costs in industrial countries of up to USD 2,000 and, by contrast, disposal costs of about USD 2.50 to USD 50 in developing countries,<sup>48</sup> hazardous waste movements to developing countries for disposal became a quite economical solution even when taking into account additional transport costs.

A further consequence of the mentioned ecological sensitisation was the so-called NIMBY-syndrome.<sup>49</sup> Because of the media presence surrounding environmental incidents, broad segments of the population in industrialised countries became aware of the deleterious and harmful effects that were caused by hazardous wastes. Their concern was to keep treatment and disposal facilities for hazardous wastes away from their immediate vicinity. Due to the population's resistance, primarily in the USA, plans for the construction of waste incineration plants and disposal sites could not be realised. Disposal capacities decreased while the volume of produced hazardous wastes further increased.<sup>50</sup> Instead of pursuing a sustainable policy of waste avoiding, the solution for that capacity overload was

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<sup>44</sup> Some examples are the "Seweso Disaster" in 1976, the case of the *M/V "Khian Sea"* in 1986 and the "Koko Beach Incident" in 1988.

<sup>45</sup> Friedrich-Ebert-Stiftung (ed.), *Zehn Jahre Basler Übereinkommen* (1999), at 9; Poulakidas, 'Waste Trade and Disposal in the Americas', 21 *Vt. L. Rev.* (1996/1997), at 877.

<sup>46</sup> Kummer, *The Basel Convention* (1995), at 6; Obstler, 'Toward a Working Solution to Global Pollution', 16 *Yale J. Int'l L.* (1991), at 78.

<sup>47</sup> The costs of hazardous waste in the USA increased from approximately USD 15 per ton in 1980 to approximately USD 250 regarding the disposal on landfill sites, or to approximately USD 2,000 for incineration, in 1988. See Friedrich-Ebert-Stiftung (ed.), *Zehn Jahre Basler Übereinkommen* (1999), at 9; Clapp, 'The Toxic Waste Trade', 15 *TWQ* (1994), at 506.

<sup>48</sup> Kummer, *The Basel Convention* (1995), at 6–7; Kitt, 'Waste Exports to the Developing World', 7 *Geo. Int'l Envtl. L. Rev.* (1994/1995), at 488.

<sup>49</sup> "NIMBY" is the acronym of "not in my backyard" and is also known as the "St. Florian's Principle".

<sup>50</sup> Friedrich-Ebert-Stiftung (ed.), *Zehn Jahre Basler Übereinkommen* (1999), at 9; Obstler, 'Toward a Working Solution to Global Pollution', 16 *Yale J. Int'l L.* (1991), at 76; Poulakidas, 'Waste Trade and Disposal in the Americas', 21 *Vt. L. Rev.* (1996/1997), at 877.

found by taking the “path of least resistance” and exporting those wastes to foreign countries with less stringent environmental rules.<sup>51</sup>

The fundamental economic and political conditions then prevailing in industrialised countries were accompanied by “ideal” framework conditions in the developing countries. At that time, the environmental and import regulations of most importing developing countries were weak and those countries often lacked sufficient enforcement capacities. Further relevant aspects included the prevalence of bribery, the need of foreign exchanges, and an undeveloped awareness of the population regarding adverse which hazardous wastes posed for human health and the environment.<sup>52</sup>

## ***II. Quantities and Typical Patterns of Hazardous Wastes Movements***

Data concerning transboundary movements of hazardous wastes, as far as the global scale is concerned, are best available from the Secretariat of the Basel Convention. Unlike the data collected by the Basel Secretariat on the generation of hazardous wastes, these data are quite reliable. This is to be explained by the fact that the reporting obligations under the Basel Convention are mandatory only in respect of transboundary movements of hazardous wastes.<sup>53</sup> Despite the mandatory nature of this obligation, there are, nevertheless, a large number of Member States which do not or only irregularly comply with the reporting duty.<sup>54</sup> In addition, differences in the national definitions of hazardous wastes and differences in the national reporting systems have a negative effect on the comparability of the collected data.<sup>55</sup> These deficiencies, however, can largely be overcome. This is due to the fact that the data submitted to the Basel Secretariat always contain information about the exporting and the importing country. By collecting and analysing the submitted data, missing data can in many cases be extrapolated.<sup>56</sup> In consequence, the statistics provided by the Secretariat of the Basel Convention can be

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<sup>51</sup> Kummer, *The Basel Convention* (1995), at 6; Obstler, ‘Toward a Working Solution to Global Pollution’, 16 *Yale J. Int’l L.* (1991), at 75–80; Poulakidas, ‘Waste Trade and Disposal in the Americas’, 21 *Vt. L. Rev.* (1996/1997), at 910.

<sup>52</sup> Anand, *International Environmental Justice* (2004), at 64; Friedrich-Ebert-Stiftung (ed.), *Zehn Jahre Basler Übereinkommen* (1999), at 9; Kitt, ‘Waste Exports to the Developing World’, 7 *Geo. Int’l Envtl. L. Rev.* (1994/1995), at 488–490; Kummer, *The Basel Convention* (1995), at 7–8.

<sup>53</sup> Basel Convention, Article 13; see also Article 16.

<sup>54</sup> Only 58 Contracting States (ca. 33 %) have reported data on imports and exports of hazardous wastes for the year 2009; see the reporting database on [www.basel.int](http://www.basel.int).

<sup>55</sup> As to the reasons for incomplete or incomparable data see COP10 Doc. UNEP/CHW.10/INF/4, Annex 3, at 24 *et seq.*

<sup>56</sup> This methodology is explained in COP10 Doc. UNEP/CHW.10/INF/4, Annex 3, at 25–26.

considered a reliable approximation of the absolute amounts of hazardous wastes that are shipped across international boundaries. This applies at least to transports that are conducted legally and within the regulative framework of the Basel Convention.<sup>57</sup> The data collected at the regional level, such as by the EU or the OECD, will thus not be the basis of the further examination conducted in this present inquiry.

The majority of hazardous wastes generated worldwide is disposed of domestically. Older statistics suggest that approximately 10 % of all hazardous wastes are subject to transboundary movement,<sup>58</sup> whereas today a tentative estimate would be that only 1.5–3 % of all hazardous wastes are shipped across international boundaries.<sup>59</sup> The total volume of hazardous waste shipments was estimated to be about 7 million tons in 1999.<sup>60</sup> Between 2004 and 2006 the amount of hazardous wastes subject to transboundary movement then increased from 9.8 million tons to 11.2 million tons, which equals an increase of 15 % (7.5 % *p.a.*).<sup>61</sup> As of 2009, this amount has again increased in the same ratio.<sup>62</sup> From this it follows that despite the political efforts to reduce hazardous waste generation and movements, the absolute amount of hazardous wastes shipped across international boundaries is constantly increasing, and this at a significant order of roughly 7–7.5 % *p.a.*

Another issue concerns the question whether a typical global pattern of hazardous waste movements can be identified. A review of the relevant data reveals that the vast majority (approximately 90 %) of hazardous waste shipments takes place among so-called “Annex VII countries”,<sup>63</sup> most of which are developed countries. Approximately 7 % of all hazardous waste shipments takes place among non-Annex VII countries, and shipments from Annex VII countries to non-Annex VII countries or vice versa represent only 1 and 2 %, respectively.<sup>64</sup> In general,

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<sup>57</sup> As to the significance of illegal shipments see *infra*, Sect. “Illegal Traffic and Shipments off the Official Path”.

<sup>58</sup> Kummer, *The Basel Convention* (1995), at 5; O’Neill, *Waste Trading Among Rich Nations* (2000), at 36; Valin, ‘The Basel Convention’, 6 *Ind. Int’l & Comp. L. Rev.* (1995), at 268.

<sup>59</sup> The 1980s estimation was based on an overall generation of 300–500 million tons. Given the increasing amount of generated hazardous wastes and the present estimations of transboundary movements as outlined in the following text, the 10 % estimation would only come to 112 million tons. See also Montgomery, ‘Reassessing the Waste Trade Crisis’, 4 *J. Env. & Dev.* (1995), at 4.

<sup>60</sup> Basel Secretariat (ed.), *Global Trends 1993–2000*, at 22.

<sup>61</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 7, 26; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 12.

<sup>62</sup> See the reporting database on [www.basel.int](http://www.basel.int), which, however, does not provide the evaluated and corrected data.

<sup>63</sup> Annex VII of the Basel Convention (which is not yet in force) comprises OECD Member States, EU Member States and Liechtenstein.

<sup>64</sup> These data are provided for 2006 by COP10 Doc. UNEP/CHW.10/INF/4, at 7–9; the same figures also apply for the following years; see the reporting database on [www.basel.int](http://www.basel.int).

more than 90 % of all hazardous waste shipments remain within the same region and take place between adjacent countries.<sup>65</sup> With regard to the intended form of disposal, it can be said that more than 80 % of the hazardous wastes subject to transboundary movements are destined for recovery or recycling operations.<sup>66</sup> Based on these figures it can be concluded that the main reason for transboundary movements is the different availability of specialised treatment capacities in the respective countries of export and of import. The level of wealth of the respective countries, in contrast, seems to be of no or only marginal significance.<sup>67</sup> This conclusion is furthermore confirmed by the fact that in comparison with the overall volume of movements, only negligible amounts of hazardous wastes are legally shipped from Annex VII countries to non-Annex VII countries.<sup>68</sup>

As a final remark, it should be stressed again that these figures and the resulting conclusions only take into account hazardous waste movements that are conducted in accordance with the applicable international law. Conclusions as to illegal traffic are not possible.

### ***III. The Involvement of Waste Brokers and Waste Dealers***

The central figures in the practice of transboundary hazardous waste shipments are waste brokers and waste dealers. Depending on the respective national regulations on waste management, the generator of hazardous wastes either enters into a contract directly with a waste broker or waste dealer, or he is obliged by law to deliver the wastes to a public waste management company. In the latter case this company may either perform the tasks of a waste broker or waste dealer itself, or it may sub-contract with a private waste broker or waste dealer.

In most cases, a waste broker is involved in the first instance. Waste brokers hold the function of an agent who is not buying the wastes itself, but who rather arranges on behalf of its principal for any task to be done with regards to the exportation of the hazardous wastes. Those tasks may involve, for instance, the packaging, collection, pre-treatment, separation, re-packing, marking or other preparatory operations related to the hazardous wastes. They also comprise the search for a buyer of the wastes or for a disposal or recycling plant, as well as the conclusion of the relevant contracts. Furthermore, the tasks of a waste broker encompass the organisation of the transport, including related tasks such as the organisation of the container packaging, customs clearance and insurance coverage. Waste brokers may

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<sup>65</sup> Basel Secretariat (ed.), *Global Trends 2004–2006*, at 17.

<sup>66</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 8; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 15.

<sup>67</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 8; Basel Secretariat (ed.), *Global Trends 2004–2006*, at 18.

<sup>68</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 9.

also arrange for the fulfilment of the legal requirements for export, such as the notification procedures, documentation, and other national licensing requirements.

Waste dealers, by contrast, do not act as agents on behalf of their principals, but rather buy and re-sell the wastes on their own behalf.<sup>69</sup> It is rather unlikely that hazardous waste generators would directly enter into a contract with a waste dealer. This might, however, be different with regard to generators or public management companies having a large amount of production.

In a typical waste export and disposal scenario, several waste brokers and waste dealers are involved. They may collect, store and re-mix wastes on their own or on behalf of others and sell the particular wastes to further waste dealers specialised in the particular waste stream. Waste brokers and waste dealers often consist of small companies or even of one-man businesses. There is, in general, no legal requirement setting a minimum financial budget for such companies. Particularly with regard to waste brokers, there is also no actual need for their possessing either significant assets or a logistic infrastructure of their own. However, it should be noted that due to an advancing globalisation of the waste trading and waste broking markets as well as increasing competition, smaller companies are increasingly being driven out of the market and a market concentration towards some larger companies with a predominant market position is ongoing.<sup>70</sup>

#### ***IV. Illegal Traffic and Shipments Off the Official Path***

An assessment of the data that have been reported by the Contracting States to the Secretariat of the Basel Convention certainly allows for some meaningful conclusions. The picture drawn by these data, however, is by far not complete and does not sufficiently reflect the actual volume of hazardous waste shipments and the global allocation of import and export roles. Shipments of hazardous wastes are often conducted illegally. A major incentive for illegal traffic is the low effort required and the huge profits that can be drawn in comparison with legal shipments.<sup>71</sup> Reliable data regarding the extent of illicit traffic are not available. However, some authors estimate that illegal shipments make up a large portion of hazardous waste shipments,<sup>72</sup> especially from developed to developing countries.<sup>73</sup>

<sup>69</sup> See e.g. Wynne, 'The Toxic Waste Trade', 11 *TWQ* (1989), at 130.

<sup>70</sup> van Daele/Vander Beken/Dorn, 'Waste Management and Crime', 37 *Envtl. Pol'y & L.* (2007), at 36; O'Neill, 'Out of the Backyard', 7 *J. Env. & Dev.* (1998), at 147.

<sup>71</sup> See e.g. van Daele/Vander Beken/Dorn, 'Waste Management and Crime', 37 *Envtl. Pol'y & L.* (2007), at 36.

<sup>72</sup> Kummer, *The Basel Convention* (1995), at 7; For a critical examination of the "tip of the iceberg theory" see Montgomery, 'Reassessing the Waste Trade Crisis', 4 *J. Env. & Dev.* (1995), at 13–20.

<sup>73</sup> An example of a recent instance of illegal dumping in the Czech Republic/Germany is given by Meßerschmidt, *Europäisches Umweltrecht* (2011), at 891.

Illegal traffic is deemed to be any transport that is conducted in contravention of the applicable rules governing the transboundary movement of hazardous wastes.<sup>74</sup> Such contravention may consist in circumventing the applicable rules, e.g. by shipping the wastes without any notification or approval, by mislabelling, mis-declaring or misreporting the wastes, or by breaching any other substantive requirement regarding the approval procedure or the actual shipment.

The typical procedure associated with an illegal shipment depends on the volume of hazardous wastes to be shipped. Where smaller amounts are shipped in packaged form, the cargo is often mislabelled and sent either to an intentionally incorrect or fictitious address where the cargo is unloaded. By the time the true content of the cargo is recognised, usually some time has passed and the original shipper will no longer be traceable. The larger the amounts of hazardous wastes to be shipped, the greater the efforts that need to be made. This may involve the payment of landlords to accept the storage of the wastes on their property, or the payment of bribes to local officials or other governmental decision-makers.<sup>75</sup>

In addition to the illicit traffic in hazardous wastes that takes place contrary to the relevant rules, there is also a certain “grey area”. Relevant obligations are often circumvented by mixing hazardous wastes with non-hazardous wastes in order that the concentration of the entire waste remains below a predefined threshold that determines the hazardous character of that waste.<sup>76</sup> Another strategy is “creative labelling”, which means the incorrect classification of wastes as products, recycling material or humanitarian aid, as well as “outright mislabelling”, which denotes the process of changing the nature of wastes by mixing or processing it so that it may be treated as a raw material or energy source.<sup>77</sup>

## V. Summary

The transboundary movement of hazardous wastes arose, ironically, as a mass phenomenon in the 1960s and 1970s as a consequence of the emergence of an ecologic awareness and a related political change in the political sentiment in the developed countries. In addition, increasing costs for domestic disposal creates the prospect of huge profits associated with the exportation of hazardous wastes to

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<sup>74</sup> Illegal traffic is defined by the Basel Convention as any transboundary movement of hazardous wastes that does not conform with the requirements of the Basel Convention, Article 2(21), 9(1). Similar definitions can be found in Article 1(22), 9(1) of the Bamako Convention and in Article 1, 9(1) of the Waigani Convention.

<sup>75</sup> See Liu, ‘The Koko Incident’, 8 *J. Nat. Resources & Envtl. L.* (1992/1993), at 126.

<sup>76</sup> van Daele/Vander Beken/Dorn, ‘Waste Management and Crime’, 37 *Envtl. Pol’y & L.* (2007), at 35–36.

<sup>77</sup> van Daele/Vander Beken/Dorn, ‘Waste Management and Crime’, 37 *Envtl. Pol’y & L.* (2007), at 35–37; Giampetro-Meyer, ‘Captain Planet Takes on Hazard Transfer’, 27 *UCLA J. Envtl. L. & Pol’y* (2009), at 76.

countries with less stringent environmental regulations. The volume of hazardous wastes shipped abroad for disposal, thus, has constantly increased over the years and today continues to do so at the order of 4–5 % annually. The vast majority of legal hazardous waste shipments takes place among OECD countries (approximately 90 %). Only approximately 1 % is shipped from OECD countries to non-OECD countries. More than 80 % of the wastes are shipped for recovery and recycling purposes. These data, however, do not allow for conclusions regarding illegal traffic in hazardous wastes. The actual extent and the significance of illicit shipments remain unknown, although it is presumed to be a considerable amount. Illegal trafficking is fostered by the lack of sufficient governmental structures and enforcement capabilities especially in developing countries and, above all, by the huge profits that can be made by the persons involved. A further common way to circumvent legal requirements regarding the transboundary movement of hazardous wastes is the pre-treatment of such wastes. By mixing hazardous and non-hazardous wastes or by selling wastes as products or raw materials, attempts are made to avoid trade restrictions and requirements.

## **C. The Interests Involved**

The transboundary movement of hazardous wastes is an exceedingly emotional and politicised topic. It does not comprise solely the economic activity of selling and shipping a tradable good from one place to another; rather it involves the fundamental issues of equal opportunity and equal treatment of humans around the world, a global allocation of responsibilities, the sharing of resources and economic benefits on a global scale, and the right to participate in global trade activities including the right to draw benefits.

### ***I. Private Parties***

Private parties are the main participants and factors in the field of hazardous waste shipments. The greatest share of transboundary movements are initiated and conducted by private parties; State owned companies play only a minor role. Private parties involved in hazardous waste shipments are the generators of the wastes, waste brokers and waste dealers, the carrier and the shipping company, and the disposer of the wastes. The terms notifier, shipper and consignee only denote specific functions of some of these involved parties.

The peculiarities of hazardous wastes as a tradable good have already been outlined above. The shipper has no genuine economic interest in the goods actually arriving at the place of final destination. The consignee is only interested in



receiving the funds, rather than receiving the hazardous wastes themselves.<sup>78</sup> The interest of the private parties involved, however, is not only influenced by the value of the wastes themselves. There is rather a multitude of surrounding factors that affects the decision of private parties to participate in a transboundary movement. The primary drivers are surely economic incentives; however, legal and political factors as well as personal aspects also play a significant role.<sup>79</sup>

As regards economic factors that prompt hazardous waste movements, three issues are to be mentioned: First, the gap between the demand for raw materials and the amounts of raw materials that are available locally. Developing countries and countries with economies in transition need large amounts of the cheap raw materials that they can primary recover from recyclable wastes mixed with hazardous substances—such as electronic waste or metal scrap<sup>80</sup>—through the use of informal low technology installations or inadequately protected manual labour. Second, the gap between disposal costs in developed and in developing countries is still significant, mainly due to lower labour costs resulting from low environmental, health and labour standards. And third, the gap between the amounts of wastes generated in a certain area and the disposal capacities locally available. In order to be operated in a cost-effective manner, a waste treatment facility needs sufficient and consistent inputs. Since not every State can operate a specialised installation for any particular waste stream, waste movements are necessary to keep those specialised installations in continuous operation.<sup>81</sup>

Legal factors involve ineffective national legislation as well as a lack of legal clarity. The implementation of effective national legislation that sufficiently transforms the provisions of the Basel Convention into national law and, furthermore, makes use of the legal opportunities given by the Convention<sup>82</sup> represents a major challenge for all States Parties. It requires existing legal and administrative structures, considerable financial capacities and the involvement of well-qualified personnel. But above all, it requires an awareness concerning the importance of this issue. If the contracting State's focus is laid on another topic deemed of greater political profile, the lack of effective national legislation fosters waste trade and treatment in contravention of the existing international laws.<sup>83</sup> A similar meaning is attached to the availability of sufficient enforcement provisions and capacities. The best law is only as good as it can be enforced in practice. This

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<sup>78</sup> *Supra*, Sect. “The Commercial Value of Hazardous Wastes”.

<sup>79</sup> A comprehensive examination of the reasons for movements of hazardous wastes was prepared by the Indonesian-Swiss Country-Led Initiative to Improve the Effectiveness of the Basel Convention, as annexed to COP10 Doc. UNEP/CHW.10/INF/4.

<sup>80</sup> As regards the application of the Basel Convention to the export of end-of-life ships for dismantling see Lagoni/Albers, ‘Schiffe als Abfall?’, 30 *NuR* (2008), at 220 *et seq.*

<sup>81</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 10–12.

<sup>82</sup> A Contracting State may, for instance, unilaterally ban any import of hazardous wastes with the legal consequence that the other Contracting States are obliged to ensure that no exports will be delivered to this particular State; see Basel Convention, Article 4(1)(b).

<sup>83</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 12–14, 17.

includes not only the workforce and technical capacities and infrastructures for border controls and controls inside the country, but also the qualification of the competent authorities and the personnel in charge.<sup>84</sup>

All these factors lead to the economically driven incentive to not dispose of hazardous wastes at the place of generation, but to move them to other States for disposal. However, the increase in the amount of transboundary movements of hazardous wastes is not the only consequence. Due to the strict laws on waste shipments, particularly in developed countries, the recent development shows that in fact entire production processes, which are very waste-intensive, are moved to developing countries with less stringent laws. Although the settlement of production processes in developing countries has the advantage of creating additional employment in the respective regions, this does not compensate for the disadvantage of having generated a significant threat to human health and the environment by eluding the Basel Convention's requirement of environmentally sound management in the State of import.<sup>85</sup>

## II. State Interests

Considering the adverse effects of hazardous wastes on human health and the environment, one could say that it is a harder question to determine why countries import wastes than to determine why they export them.<sup>86</sup> To give an answer to both questions, one should have a precise look at both varieties of States. Such an effort, however, is inevitably complicated by the common fallacy that waste exporting States are developed countries and waste importing States are developing countries, an assumption that fails to reflect the true picture of hazardous waste movements.<sup>87</sup> Rather, developed and developing countries exist on both the waste exporting and the waste importing side.

Based on the assumption that States predominantly act in the interest of their economies and pursue the concerns of their population,<sup>88</sup> State interests largely overlap with the private economic interests predominantly represented in that

<sup>84</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 14–16; Alam, 'Trade Restrictions Pursuant to MEAs', 41 *J.W.T.* (2007), at 1003.

<sup>85</sup> Giampetro-Meyer, 'Captain Planet Takes on Hazard Transfer', 27 *UCLA J. Envtl. L. & Pol'y* (2009), at 76; Hackmann, 'International Trade in Waste Materials', 29 *Intereconomics* (1994), at 297; Suttles, 'Transmigration of Hazardous Industry', 16 *Tul. Envtl. L. J.* (2002/2003), at 1 *et seq.*

<sup>86</sup> See O'Neill, *Waste Trading Among Rich Nations* (2000), at 4.

<sup>87</sup> See *supra*, Sect. "Quantities and Typical Patterns of Hazardous Wastes Movements". For the diverging positions of the EU and the USA, both of which have highly advanced economies, see Dreher/Pulver, 'Environment as "High Politics"?', 17 *RECIEL* (2008), at 308 *et seq.*

<sup>88</sup> This, of course, excludes any political activity that is driven by corruption, the acceptance of advantages and other personal interests of the involved decision-makers.

State. Political and other interests may play an additional important role.<sup>89</sup> A State's incentive to export wastes may be based in its lacking sufficient domestic disposal capacities, which may be due to the already mentioned NIMBY-syndrome in developed countries or, as far as economies in transition are concerned, may be due to strong growth in the national economy which has not been accompanied by a corresponding growth of specialised disposal capacities. A further incentive of States to advocate for hazardous waste trades is the need to operate specialised waste disposal facilities in a cost-efficient manner, thus requiring a steady and sufficient supply of the particular waste stream. Since specialised installations for any particular waste stream cannot be operated by every State, it is necessary that particular waste streams are imported or exported in order to keep the available installations efficiently operating.<sup>90</sup> Most OECD countries, therefore, rejected the idea of a total ban on the trade of hazardous wastes. Moreover, a trade ban was expected to encourage illegal waste traffic and less environmentally sound means of disposal at the final destination. The OECD countries rather supported the adoption of an international regime establishing a requirement of notification and prior informed consent (PIC) and also imposing an obligation to ensure that the wastes are disposed of in an environmentally sound manner (ESM) in the State of import.<sup>91</sup> After the adoption of the Basel Convention laying down these principles, the EU took a unique approach and unilaterally banned any hazardous waste shipments from EU to non-OECD countries. This solution allows for transboundary movements among EU and OECD countries and thus takes account of the economic need to share specialised disposal capacities among adjacent countries. On the other hand, it prohibits environmentally risky exports of hazardous wastes to developing countries. A further basis for this political initiative of the EU may be seen in the political awareness that multilateral leadership is no less required in respect of environmental concerns than as regards economic or security issues.<sup>92</sup>

Regarding countries that are importing hazardous wastes, one incentive for accepting wastes is seen in the generation of jobs, income and technical advancement.<sup>93</sup> In the end, however, these advantages may turn out to be of less value since they are only short-term effects and, in the long run, the negative effects on human health and the environment will prevail.<sup>94</sup> An actual advantage, by contrast, is the steady and cheap supply of recyclable wastes (e.g. electronic waste and metal scrap which also contain rare earth elements) that allow the

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<sup>89</sup> See also Rauscher, *International Trade in Hazardous Waste*, in: Schulze/Ursprung (ed.) (2001), at 157.

<sup>90</sup> See *supra*, Sect. "Private Parties".

<sup>91</sup> Johnstone, 'The Implications of the Basel Convention for Developing Countries', 23 *Resour. Conserv. Recycl.* (1998), at 4–5; Krueger, 'The Basel Convention', *YBICED* (2001/2002), at 45.

<sup>92</sup> Dreher/Pulver, 'Environment as "High Politics"?', 17 *RECIEL* (2008), at 311.

<sup>93</sup> Helfenstein, 'U.S. Controls on International Disposal of Hazardous Waste', 22 *Int'l Law.* (1988), at 788; Ovink, 'Transboundary Shipments of Toxic Waste', 13 *Dick. J. Int'l L.* (1994/1995), at 284.

<sup>94</sup> Poulakidas, 'Waste Trade and Disposal in the Americas', 21 *Vt. L. Rev.* (1996/1997), at 875.

recovery of raw materials, especially ferrous and non-ferrous metals. Depending on the respective demand for raw materials and the importance of the domestic waste recycling industry, countries with less-developed economies thus either advocate for less stringent rules on the transboundary movement of hazardous wastes, or they support national or regional import bans<sup>95</sup> and a corresponding export ban imposed on exporting countries.<sup>96</sup>

From all this it follows that exporting and importing States, irrespective of their economic strength, may have an interest in the hazardous wastes trade. Whether or not such an interest exist largely depends on their respective economies and either their dependence on an external supply of recyclable or recoverable waste or their possessing a surplus of such substances. The political reaction of adopting a unilateral or regional import ban or permitting hazardous waste imports is at the sole discretion of the respective State. From a legal perspective, hence, every State is sufficiently protected against unwanted hazardous waste imports.<sup>97</sup> It becomes obvious that the establishment of a total ban on hazardous waste shipments would exceed a reasonable and justifiable protection of vulnerable States and would only render impossible the necessary trade in hazardous wastes among countries having a comparable economic strength. A total trade ban would not eliminate illegal traffic and corruption, which is seen as the main cause of unwelcome damage to human health and the environment,<sup>98</sup> but it would rather intensify this phenomenon. Therefore, the proper answer can only be to reject any extreme form of interstate paternalism and to respect the sovereign interests of any particular State.<sup>99</sup> The PIC and ESM requirements of the Basel Convention in connection with regional political approaches, like the EU's ban on hazardous waste exports to non-OECD countries or the import bans of the Bamako and Waigani Conventions, thus represent a reasonable solution which serves to facilitate necessary trade among adjacent countries, on the one hand, and to prevent the abuse of economic imbalances between developed and developing countries, on the other hand.

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<sup>95</sup> The Regional Workshop Aimed at Promoting Ratification of the Protocol held in Addis Ababa, Ethiopia in August/September 2004 under the aegis of the Basel Secretariat revealed that most African countries have established import bans on hazardous wastes, see COP7 Doc. UNEP/CHW.7/INF/11, at 3.

<sup>96</sup> Johnstone, 'The Implications of the Basel Convention for Developing Countries', 23 *Resour. Conserv. Recycl.* (1998), at 3; Krueger, 'The Basel Convention', *YBICED* (2001/2002), at 45.

<sup>97</sup> See also Montgomery, 'Reassessing the Waste Trade Crisis', 4 *J. Env. & Dev.* (1995), at 12.

<sup>98</sup> See also Fagbohun, 'The Regulation of Transboundary Shipments of Hazardous Waste', 37 *HKLJ* (2007), at 850–851.

<sup>99</sup> See also Hackett, 'Assessment of the Basel Convention', 5 *Am. U. J. Int'l L. & Pol'y* (1989/1990), at 298.

### III. Hazardous Waste Trade as “Environmental Racism”?

The issue of transboundary movements of hazardous wastes has been criticised by some authors as a form of “environmental colonialism” or “environmental racism” comprising a part of the north-south-conflict.<sup>100</sup> It is not possible at this point to offer a detailed discussion of this emotionally charged theory which has involved a great deal of polemics and quarrelsomeness on both sides of the table. However, since this issue has consumed considerable space in public debate, its essential argument shall be outlined in brief.

The theory of “environmental racism” is understood by its supporters as an alternative or additional explanation for hazardous waste exports from developed to developing countries. It is based on the understanding that industrial countries are securing their superior economic position by consciously taking advantage of developing countries. Developing countries are used as supplier for raw materials and cheaply produced commodities. Once the lifetime of these products has expired, they are sent back to developing countries as “civil waste”. The driving force behind this exploitation of developing countries is attributable to “a racist and classist culture and ideology within northern communities and institutions that view toxic dumping on poor communities of color as perfectly acceptable”.<sup>101</sup> Developed countries, hence, are seen as being “willing to use developing countries as a dumping ground not because of cost or convenience but because of race and poverty”.<sup>102</sup>

The “environmental racism” theory, however, begins with a false assumption; and even if this assumption were once true, at least since the adoption of the Basel and Bamako Conventions the fundamental conditions no longer apply. It has already been stressed above that both developed and developing countries are both exporters and importers of hazardous wastes. Furthermore, the portion of hazardous wastes that are moved from OECD countries to non-OECD countries only amounts to approximately 1 % of the overall transboundary movement. The assumption that industrialised countries are using developing countries as dumping grounds for their civil wastes, therefore, is simply not correct.<sup>103</sup> This is, furthermore, underscored by the fact that the EU has unilaterally banned hazardous waste exports to non-OECD countries. Finally, by adopting the Basel and Bamako Conventions, an international legal regime has been established that provides an

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<sup>100</sup> Marbury, ‘Hazardous Waste Exportation’, 28 *Vand. J. Transnat’l L.* (1995), at 291–293; Pellow, *Resisting Global Toxics* (2007), at 9–10; O’Neill, ‘Out of the Backyard’, 7 *J. Env. & Dev.* (1998), at 142; see also Obstler, ‘Toward a Working Solution to Global Pollution’, 16 *Yale J. Int’l L.* (1991), at 80–81; Park, ‘An Examination of International Environmental Racism’, 5 *Ind. J. Global Legal Studies* (1997/1998), at 659 *et seq.*

<sup>101</sup> Pellow, *Resisting Global Toxics* (2007), at 9.

<sup>102</sup> See Park, ‘An Examination of International Environmental Racism’, 5 *Ind. J. Global Legal Studies* (1997/1998), at 660 with further references.

<sup>103</sup> Montgomery, ‘Reassessing the Waste Trade Crisis’, 4 *J. Env. & Dev.* (1995), at 3.

effective international instrument for the regulation of hazardous waste shipments and that allows for the recognition of a State's sovereign right to decide whether to ban or admit hazardous waste imports.

In summary, it must be stated therefore that, at least today, the theory of "environmental racism" has no validity as regards the transboundary movement of hazardous wastes.<sup>104</sup>

#### ***IV. Summary***

The factors accounting for the emergence and tremendous increase of hazardous waste movements in the 1960s and 1970s are today no longer prevailing. The main initiators of hazardous waste shipments at present are private persons and companies located in those importing States requiring large amounts of cheap raw materials which can be recovered from hazardous wastes containing recyclable components. The main industrial sectors in this context are energy recovery and ferrous and non-ferrous metal extraction from electronic wastes and waste metals. A further reason for transboundary hazardous waste movements is the allocation of specialised incineration and disposal plants among adjacent countries or countries of comparable economic strength. The cost-efficient operation of specialised installations requires a steady supply of the respective waste stream at a sufficient volume. Nevertheless, considerably lower disposal costs in less-developed countries continue to encourage transboundary waste trade, such commerce being promoted also by insufficient national legislation and enforcement capacities. Today, economic interests are still the main drivers for hazardous waste movements, although political factors must not be underestimated. Those political factors may include an appreciation of a global political responsibility for environmental concerns and the exercise of multilateral leadership in this regard.

In addition to the adoption of the Basel Convention, regional political initiatives, like the EU ban on hazardous waste exports to non-OECD countries or the Bamako and Waigani Conventions, have created a comprehensive legal framework that allows for the consideration of the respective interests of the particular States. It is ensured that the sovereign right of each State to either participate in the hazardous waste trade or to be protected from such imports prevails. The most remarkable conclusion, however, is that the north-south current of the hazardous waste trade no longer applies.

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<sup>104</sup> See also Park, 'An Examination of International Environmental Racism', 5 *Ind. J. Global Legal Studies* (1997/1998), at 700–702.

## D. The Risk Potential of Hazardous Waste Movements

In consequence of the increasing number of hazardous waste shipments, the risk of incidents releasing hazardous wastes into the environment and the risk of pollution due to insufficient treatment methods has increased as well. Particularly lesser developed countries often lack the technology, infrastructure and know-how necessary for treating hazardous wastes in an appropriate manner. The transportation by sea poses further risks. Often significant volumes of hazardous wastes are concentrated on one means of carriage, and such shipments sail through areas where the cargo is beyond any legal or actual control. In respect of hazardous wastes that are shipped illegally, there is the additional risk that these wastes are mislabelled and essential safety instructions are omitted such that the actual hazard cannot be recognised by the persons handling and processing those wastes.

Human health and the environment may be affected in several ways by hazardous wastes. Whereas a given workforce may be directly exposed to hazardous wastes, it is also the case that a local community may be indirectly exposed, e.g. by burning or releasing toxic substances without any treatment on dumping grounds or into surface waters.<sup>105</sup> Hazardous wastes may pollute ground and surface waters or may lead to atmospheric pollution and soil contamination, potentially causing damage to ecologically important habitats or entire ecosystems.<sup>106</sup>

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<sup>105</sup> A significant example of harm being caused to a great number of people by the release of hazardous wastes without any treatment into surface waters is offered by the case of the *M/V "Probo Koala"* in 1996; see *supra*, Sect. "The Factual Perspective: Transboundary Movements of Hazardous Wastes by Sea" in Chap. 1.

<sup>106</sup> COP10 Doc. UNEP/CHW.10/INF/4, at 30; Krueger, 'The Basel Convention', *YBICED* (2001/2002), at 43; Kummer, *The Basel Convention* (1995), at 12–16; Valin, 'The Basel Convention', 6 *Ind. Int'l & Comp. L. Rev.* (1995), at 270; Walsh, 'The Global Trade in Hazardous Wastes', 42 *Cath. U. L. Rev.* (1992/1993), at 105.

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