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Johannes Hackmann\*

## International Trade in Waste Materials

*The general public views international trade in waste materials overwhelmingly with disfavour. Is this negative attitude justified? Professor Hackmann offers an allocative and an ethical assessment of this question.*

International trade in waste has generally been viewed with criticism, particularly if the trade takes place between industrial and developing countries. Indeed, as will subsequently become evident, there are good reasons for reservations regarding trade in waste between such trading partners. If there are grounds justifying trade in waste materials, they can most reasonably be applied to trade among industrial countries, or among the developing countries themselves. It is therefore of utmost importance in the discussion on the international waste trade to pay particular attention to the trade between industrial and developing countries. This is the objective of this paper.

A distinction can be made between more problematic waste and less problematic waste. Politically, more problematic waste – toxic or hazardous waste – deserves special attention. The same is true from an analytical point of view: if trade in hazardous waste can be advocated, then trade in less problematic waste cannot be harmful. Accordingly, the main concern of this paper is trade in hazardous waste. Hereby, the terms hazardous, toxic, and problem waste will be used interchangeably.

The general public views the waste trade overwhelmingly with disfavour. Opinions such as those found in a commentary from the *Süddeutsche Zeitung*<sup>1</sup> prevail: "International toxic waste tourism<sup>2</sup> is a disgrace to our civilization." The German federal and state ministers for the environment recently agreed upon a "package of measures designed to stem waste tourism."<sup>3</sup> In the "World Charter for Nature" which was passed by the General

Assembly of the United Nations in 1982, it was demanded that where the introduction of pollutants into natural systems cannot be avoided, "such pollutants shall be treated at the source".<sup>4</sup> Also, the Basel Convention defined the goal for pollutants as: ensuring their environmentally sound management... as close as possible to the source of generation.<sup>5</sup>

While the above demands refer to the exportation of all kinds of waste and to all potential recipient countries, a brochure published by the German Federal Ministry for the Environment<sup>6</sup> expresses a differentiated standpoint: exports of industrial waste to the Third World should not be authorized, and it is irresponsible that the European industrial countries dispose of problem waste in the countries of the Third World. This standpoint is widespread. Thus, in its 1990 report<sup>7</sup> the German Council

<sup>1</sup> Süddeutsche Zeitung, No. 44 from 21. 2. 1991.

<sup>2</sup> Instead of waste trade, the press occasionally speaks of waste tourism. This term is semantically a euphemism. Typically, in tourism, a country is visited by a tourist only for a limited period of time. The waste trade, though, is normally characterized by the fact that the object traded – waste – does not return to its country of origin. With the practice of reprocessing nuclear fuel, the relationships there (due to the obligation to repurchase plutonium) are perhaps depicted differently. In fact, a systematic classification of this trade is more difficult because the reprocessing of extracted plutonium does not necessarily have to do with waste, but perhaps with a good. The definition of the terms goods (valuable materials) and waste will also play a certain part in the course of this paper.

<sup>3</sup> Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit: Umwelt, 1992, No. 11.

<sup>4</sup> United Nations: Yearbook 1982, Vol. 36, p. 1024.

<sup>5</sup> UNEP (ed.): Register of international treaties and other agreements in the field of environment, Nairobi 1991.

<sup>6</sup> Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (ed.): Den Abfall in den Griff bekommen, Bonn 1990, p. 23.

<sup>7</sup> Cf. Rat von Sachverständigen für Umweltfragen (ed.): Sondergutachten Abfallwirtschaft, Stuttgart 1990, sections 464 and 583.

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of Experts on Environmental Questions advocated a complete ban on the transfer of waste to developing countries "from an environmental-policy point of view". Section 464 reads: As far as the developing countries are concerned, in the normal case there can be neither moral nor political arguments which justify such exports of waste.

This also corresponds to the ideas embodied in the Lomé IV Agreement, which came into effect in 1991. Accordingly, all direct and indirect exports of problem waste (hazardous waste and radioactive waste) to the former colonies of the EC countries in Africa, the Caribbean and the Pacific, i.e. to the 69 ACP countries, are forbidden.<sup>8</sup> The ACP countries also commit themselves, on their part, not to accept waste from other, non-EC, countries. Further important provisions were decided upon in March 1990, at the Basel Convention. This agreement does not forbid international trade in waste; however, written consent from the authorities responsible in the recipient countries will be required for the export of waste (prior informed consent).

Despite the negative attitudes towards waste exportation, it has taken place in the past and will continue to take place in the future. It holds true that the more individual countries raise their environmental standards or tighten their disposal regulations, the more incentive there is for exports. Waste exports are a means of avoiding domestic standards;<sup>9</sup> experiences in the last two decades provide ample evidence of this.<sup>10</sup>

The ban on waste imports by the ACP countries and the Basel Convention change the existing legal framework. No one can say for sure how this will take effect. Bans that are enacted will not necessarily be followed. At any rate, one thing can, however, be ascertained. As a result of bans on waste trade, the statistically registered international waste trade will decline, even if the actual trade in waste should further increase. The waste trade that takes place despite prevailing bans will simply not appear in the statistics.

How then can illicit waste trade be carried out? The waste will be declared as valuable material and valuable

materials are not subject to any authorization. A recent case from Germany is indicative of the situation. Pesticides which were banned there or were impure and no longer of use were to be transported as hazardous waste from the former GDR to Poland. The waybills, however, identified the waste as multivitamin compounds for plants. The swindle was uncovered when a customs official saw the skull and crossbones on the barrels of poison and made inquiries. Apart from re-declarations, conversions also occur frequently. In this manner, toxic waste has been used as fertilizer, building material, road surface, and filling material for the reclamation of land in ocean inlets.<sup>11</sup> The utilization of waste tainted by poison as thermal fuel is a further possibility. The conversion of toxic waste into "valuable material" can also be carried out by means of mixing materials with high toxic concentrations with untainted materials, thus lowering the toxicity, until they lose their hazardous waste character.

These examples admonish one to be careful when using the statistical data available. In general, waste trading parties also have an interest in obscuring the facts since the general public is sensitive about these issues and possible Greenpeace activities could be feared. The data, however, could also be exaggerated because such data can be used as cheap political propaganda.

From an economic point of view, the significance of the international waste trade should be inferred less from data on quantity than from data on value. We have not found more differentiated information on this point. Isolated data can be found, though, in the literature. Thus, in 1988 the government of Guinea-Bissau was offered imports for a period of 5 years whose value would have been four times that of the country's annual gross national product.<sup>12</sup> According to Logan,<sup>13</sup> the cost of waste treatment in developed countries can range from \$160 to \$3,000 per ton depending upon the degree of toxicity, compared to an estimated average price of \$2.50 for disposal in African countries. According to another source<sup>14</sup> a higher price for disposal in Africa is given, but here too, it is only about \$40 versus a maximum price of \$2,500 in the USA for regular disposal of particularly problematic waste. Obviously significant trade margins are involved in waste trade.

<sup>8</sup> Art. 39 of the "Fourth ACP-EEC Convention", in: *The Courier*, No. 120, March-April 1990.

<sup>9</sup> Cf. Rat von Sachverständigen für Umweltfragen, op. cit., illustration 2.5.2.; W. Reichold: *Industriemüll – Beipack zur Entwicklungshilfe*, in: *Internationales Afrikaforum*, 1988, Vol. 24, pp. 277-280; B. J. Logan: *An Assessment of the Environmental and Economic Implications of Toxics-Waste Disposal in Sub-Saharan Africa*, in: *Journal of World Trade*, 1991, Vol. 25, p. 63; and A. Bernstorff: *Der Müllkolonialismus verändert sein Gesicht: Neue Entwicklungen im weltweiten Abfallhandel*, in: W. Hein (ed.): *Umweltorientierte Entwicklungspolitik*, second extended edition, Hamburg 1992, p. 413. Extensive references can be found as well in: J. Valette and H. Spalding (ed.): *The International Trade in Wastes*, A Greenpeace Inventory, fifth edition, Washington 1990.

<sup>10</sup> A. Bernstorff, op. cit.

<sup>11</sup> Ibid.

<sup>12</sup> A. Bernstorff: *Der neue Giftmüllkolonialismus, Abfallexporte der Industriestaaten*, in: *Wechselwirkung*, No. 62, December 1991.

<sup>13</sup> B. J. Logan, op. cit., p. 64.

<sup>14</sup> B. D. Huntoon: *Emerging Controls of Transfers of Hazardous Waste to Developing Countries*, in: *Law and Policy in International Business*, 1989, Vol. 2, pp. 247-271.

The reported attitudes towards the waste trade do not fit classical liberal economics. According to the latter the free exchange of goods and the free negotiation of contracts are, basically, in the common interest. No doubt occasionally some individuals are better off due to restrictions or bans on trade. But this superior standing is, in principle, tied to a collective, self-inflicted impairment: the disadvantages which result from the restrictions on free trade outweigh the advantages of the beneficiaries; potential opportunities for welfare increases are not taken advantage of. Moreover, because of the reactions of the other trading partners, as a rule the costs of trading protectionism return to their initiator. An economist schooled in neoclassical or liberal thought will thus ask himself whether that which generally applies to trade does not also apply to waste trade.

This question must be dealt with first before international waste trade can be assessed from an allocative point of view. According to this author's understanding of ethics, we must also deal with this question if the international waste trade is to be evaluated morally. This is because there is a kind of harmony between the assessment of the international waste trade from an ethical point of view and from an allocative one: fundamentally, human welfare provides the standards for ethical evaluation as well as for an allocative assessment.

A further point to be explained is why bans on international waste trade have so many advocates. Can bans on waste exports or imports perhaps be seen similarly to non-tariff trade restrictions through which individual countries seek to gain advantages for themselves or for their domestic industry at the expense of others? One can naturally also try to interpret the countries' policies on international waste trade from an idealistic point of view. Do the relationships involved here allow such an interpretation at all? Besides, it would be somewhat unusual to view the motives of international trade policy in such a manner. Historical experience gives reason to believe that international trade policy is determined by the self-interests of the countries which pursue these policies. What are, therefore, the self-interests of these countries when it comes to their waste trade policies, and how do the political experiences of the previous years fit in here? This kind of question will also be discussed below.

### The Free Trade Argument

It is noticeable that in the relatively extensive scientific grey literature there is little discussion – if any at all – of the advantages of international waste trade. The renowned World Bank economist, Summers, is said to have

advocated a greater location of dirty industries as well as the increased export of environmental pollution to countries of the Third World.<sup>15</sup> When this became known through an indiscretion at the beginning of 1992, there was an outcry of indignation. After excerpts were printed in *The Economist*, Summers made a *démenti* to the effect that his arguments had been quoted out of context and therefore misinterpreted. According to the *Economist* article, among other things Summers argued that the industrial countries are burdened by certain pollutants to a greater extent than the developing countries, and this, in the sense of an equal distribution of environmental pollution, would speak in favour of more migration of the dirty industries to the LDCs and of an increased exportation of waste from the industrial to the developing countries. Some would understand this to be an entreaty that the developing countries should receive the filth of the industrial countries thus adding to their poverty. *The Economist* even gave its report the title, "Let them eat pollution". Indeed, economically seen, the question may have to be put as follows: what about the possibility of reducing poverty by accepting environmental pollution; specifically, the developing countries' decreasing poverty by themselves without having to be dependent upon the benevolence of the industrial countries.

The fact that international waste trade can be reciprocally advantageous to all those involved results from the same reasons that speak in favour of free trade. The international trade in goods can be explained by regional or international differences. First of all, the well-known regional comparative advantages in the production of certain goods should be mentioned. There can also be some other relative advantages due to local availability which are not traditionally considered by the theory of comparative costs. Examples of this are the trade in a range of raw materials as well as trade that results from technology leads in the development of products and in production methods. Moreover, advantages due to specialization – economies of scale – as well as differences in preferences or welfare levels can generate international trade. Since the latter aspect is of particular importance with reference to our topic, it should be pointed out that, *ceteris paribus*, a tendency exists for inferior goods to flow from the wealthy to the poor and vice versa.

All the reasons why trade in goods can be mutually advantageous can also apply to international trade in waste. Consequently, waste trade can be justified for the same allocative reasons as trade in goods. I would like

<sup>15</sup> In an internal working paper of the World Bank. Cf. *The Economist*, 8.-14. 2. 1992.

briefly to exemplify this. Which non-monetary advantages could be associated with international waste trade and where do they come from?

### Differences in Regional Capacities

There are regional differences in the capacity to absorb. These stem in particular from differences in hydrogeological conditions. Thus, loamy or clayey soils are better suited for locating waste dumps than sandy soils for reasons of groundwater protection. Areas with little rainfall and deep groundwater levels have advantages over areas with heavy rainfall where – like the tropics – in large areas the surface and the groundwater are connected. Atomic waste is presumably stored better in rinsed out salt caverns than in the Kara Sea or in the Arctic Ocean, which the Soviet Union used for disposal. Areas with deep-lying porous rock stratum are probably suitable as deep underground depositories for liquid waste and possibly even toxic or radioactive wastes. Regions with a higher population density are basically less suitable for waste disposal than less densely populated areas. Summers' argument is also to be brought in here: in many cases, the harm environmental pollution causes increases disproportionately with the amount of physical damage; thus, moderately polluted regions normally have a higher absorption capacity than more heavily polluted regions.

The examples can be multiplied, but from an economic point of view this is not even necessary. It is, namely, not the business of economists to prove in detail the existence of regional differences in capacities to absorb. If we, like von Hayek, understand competition to be a method of discovery, then it is the task of the persons whose actions constitute the functioning of the market forces to find out such differences. For the economic argumentation, it suffices to point out the possibility that regional differences in the capacity to absorb exist. The few examples above prove that, in this connection, significant regional differences can be reckoned with. Whoever opposes international trade in waste must then be able to present significant counter-arguments.

The conclusion just drawn is valid if we consider just the differences in regional absorption capacities. However, that is not the whole story. More allocative arguments can be presented in favour of waste trade. As a rule, it can be assumed that there are international differences in capacities to dispose of and to recycle waste. Reprocessing plants for atomic waste – in particular the example of France's – illustrate this. These international differences in capacities could arise from economies of scale and existing economies of scope to other industries. This makes specialization possible with the result that for

an equal disposal performance worldwide, fewer resources (including the environment) have to be employed. Specialization could also be the result of comparative differences in factor prices. For certain recycling methods perhaps a lot of unskilled labour is needed. Countries abundant in such labour could then have a comparative cost advantage in the use of these recycling methods.

### Differences in Preferences and Welfare

Regional differences in preferences and welfare can also allocatively account for waste trade. If the general population of a country is bothered less by waste dumps than that of another, then much can be said for a greater allocation of waste dumps in the former country, in exchange for adequate compensation payments of course. This statement may evoke antagonism because more or less strongly expressed inclinations towards the ruining of landscapes through waste dumps are typically associated with the wealth or the poverty of a population.

This is in itself not the contention that differences in preferences exist but rather the argument that the direction taken by international waste trade should also be determined by differences in welfare. The poorer countries should, therefore, receive the waste of the wealthier countries – naturally in exchange for payment – because the wealthier countries are more willing to pay for an unpolluted environment. Unreflected feelings of justice are stirred here. In addition to their poverty, which some trace back to trade with the industrial countries, the developing countries are also to be burdened with the industrial countries' filth. That is exploitation to the highest degree; such an exploitation can surely only engender indignation.

Such indignation, however, is unfounded. It is generated by irrationality and a lack of reflection. This conclusion is to be drawn even when there are good reasons to depict the relations between the wealthy and the poor countries as exploitative at the expense of the poor countries. Whether this is the case, is a question in itself.<sup>16</sup> Let us assume for the moment that exploitation would predominate. What would follow morally? For the present: abolish the exploitative proceedings! And what conclusion can be

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<sup>16</sup> The agrarian policies of the industrial countries and the possible consequences for the terms of trade which could result have perhaps the nature of being (subtle) tools of exploitation. Also, the fiscal policies of the industrial countries and the resulting influences on the world economy's interest rates can have an exploitative nature. For the latter, cf. J. Hackmann: Totalanalytische Implikationen einer Einkommensteuer mit Sofortabschreibung, in: Finanzarchiv, new series, 1990, Vol. 48, No. 1, pp. 52-76.

drawn for waste trade if this does not, for whatever reasons, occur? If, regarded by itself, the waste trade between the industrial countries and the developing countries affects the developing countries advantageously, a ban on this waste trade would make the developing countries even worse off. Such a ban would, therefore, make no sense; it would from a moral standpoint – from the perspective of an ethic of responsibility – have to be rejected as long as it affects the poorer disadvantageously.

### Effects of a Ban

Up to now, international waste trade was examined while the arguments which speak for international trade in goods (products) were used as a reference. It was shown that the arguments maintained for trade in goods also apply to waste trade. From the theory of international economics, it is known that despite the possibility of mutually advantageous trade in products, trade restrictions can be in the interest of some countries. A discussion of the possibilities of how countries or some groups within countries can benefit from trade restrictions at the expense of others is beyond the scope of this paper. Accordingly, the whole range of possibilities cannot be probed here, such as how a country or a special interest

group within a country can perhaps affect trade policy, thus creating advantages for themselves through bans on waste exports or imports.<sup>17</sup> Three situations, though,

<sup>17</sup> In static analysis, in particular, it should be remembered that countries may try to influence the terms of trade in their favour. How can this possibly occur through the hindrance of waste exports or imports? A country which forbids waste imports ties up resources in the potential waste exporting countries. Thus these resources are not available for domestic production there. This can mean a shortage on the international market so that the resulting international prices are favourable to the country forbidding imports. In order for it to be worthwhile for a country to impose bans on imports, the potential waste exporters must be competitors of the waste importing countries on the international market. Conversely, perhaps through bans on waste exports, potential waste exporting countries could influence the utilization of resources in the various sectors of the potential waste importing country. Thus, from the start, the possibility must be considered that through the ban on waste exports employment in the raw material and agrarian sectors in the potential waste importing countries will increase. Consequently, prices for agricultural products and for raw materials will be lower on the international market. Bans on waste exports would then intensify the beneficial effects on the terms of trade in the same manner as agrarian protectionism on the part of the industrial countries. Naturally, export and import countries cannot have a founded interest in bans at the same time. This does not exclude, though, that potential exporting countries forbid exports while at the same time potential importing countries forbid imports. In order to assume such a harmonious policy, despite opposing interests, one must only presuppose that one of the parties involved is not aware of its true interests. For instance, because of injured feelings of self-worth, they would not like to play the part of dustbin of the world. In addition, whether a ban on trade in waste affects the banning countries advantageously or not naturally depends in particular upon the relevant elasticities of supply and demand. Without a knowledge of these elasticities, these reflections are merely speculative.

Helen Winter

## Interdependenzen zwischen Industriepolitik und Handelspolitik der Europäischen Gemeinschaft

It is worth analyzing the various and often subtle connections between industrial policy and trade policy, because these policies are becoming more important and they are used as substitutes or as complements to one another.

After defining both policies and their relationships, the study examines the industrial and trade policy of the EC as a whole.

The key targets of industrial policy are to prevent or promote structural change and to improve international competitiveness. The various instruments of European industrial policy are designed to deal with international problems, but they also influence the trade relationships between other countries.

In addition to that, the EC uses trade policy instruments as some kind of industrial policy, or to protect industrial policy. This is sometimes cheaper as subsidies. But in some cases industrial policy substitutes trade policy because the application of traditional trade policy instruments is restricted by international agreements.

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deserve special consideration. Bans on waste exports influence – even under static conditions – the extent and the way the environment is used. They also affect industrial structure and technological development. Finally, they influence the institutional conditions of economic systems and the attitudes of the persons living within these systems. The basic logic which has been known to us since Friedrich List and his argument in favour of an educational tariff deserves special attention: what industrial and political consequences result from bans on waste trade?

Bans on waste trade increase the price of the waste in the net waste exporting countries<sup>18</sup> and decrease the price of it – if the waste disposal management is not characterized by economies of scale – in the net importing countries. This has consequences at first for disposal behaviour. In the potential importing countries incentives for illegal disposal will become weaker.<sup>19</sup> Even with legal disposal, a country which does not solve its waste problem well can increase its welfare through the second-best-strategy of waste import bans. This possibility has to be considered in all the cases where a country does not provide for the internalization of the external costs associated with waste. Nonetheless, potential welfare increases are given away; the allocatively better way would be the internalization of these external effects. While bans on waste trade in the import countries lessen the incentives for illegal disposal, they increase the incentives for illegal disposal in the export countries. Here too, the basic consequence is a decrease in welfare.

The change in the relationship of the prices for disposal between the potential importing and exporting countries as a result of the bans on waste trade also has an effect on worldwide industrial structure. The incentives to locate in countries with lower costs for disposal are intensified for industries with relatively high disposal costs. Based on the conditions made, bans on waste trade in the waste exporting countries tend to cause the waste intensive industries to be replaced by less waste intensive ones; the opposite occurs in the potential waste importing countries. Despite existing bans on waste trade, the waste, nevertheless, has the tendency to flow into the countries with relatively lower prices for disposal by means of such

industrial relocation. This would normally suit the waste importing countries if, through the bans on imports, they could lure not just the waste alone into their country but also the waste producing industries as well. Thus, the possibility to consider is that bans on waste imports will be used as tools of industrial location policy.

Naturally, not just industrial relocation into the waste importing countries will occur. Certain waste intensive industries are not suited at all for relocation due to the necessary proximity to the places of consumption. In these cases – but also in others – the increase in prices for the products of waste intensive industries will cause various substitution processes. For one, fewer waste intensive products will be produced; for another, production methods which create less waste will be employed.

If bans on waste imports can encourage industrial location, then one could suppose that bans on waste exports must necessarily be the opposite of a policy for industrial promotion. This is not necessarily so. Certain types of waste disposal policies call for the employment of advanced technical methods and for the development of first-class technologies. The technologies of waste disposal, in particular recycling and the development of low-waste production methods, have the nature of being advanced technologies for which expanding markets exist. An industrial country which enacts bans on waste exports thus puts pressure on its industries and their technical intelligence to develop these advanced technologies and to gain a corresponding technological lead over other countries. German environmental policy could possibly be interpreted in this light, and many German companies may see it this way, too. Bans on waste exports and high domestic environmental standards can, thus, have the nature of being an industrial policy through which domestic industry can secure markets of the future.

According to the educational tariff argument, bans on waste trade can only be temporarily advantageous. Bans which are effective in the long run will generally affect all trading partners disadvantageously sooner or later. The advantages of international orientation no longer exist.<sup>20</sup> Decreases in welfare in the developing countries – this deserves attention – have, on their part, consequences for

<sup>18</sup> One could be of the opinion that these assertions are only valid if increasing returns to scale for waste disposal do not exist. On the average, such an opinion – for an individual country it may be different – is not correct because with the existence of a free market economy, it has to be assumed that markets tend to take advantage of economies of scale. The exportation of waste does not take place with favourable starting conditions or locations even without bans on exports; with less favourable starting conditions, other locations for the industries concerned would prevail with the possible effect, though, of lower prices for disposal.

<sup>19</sup> For a more precise analysis of this and of the following aspect cf. B.R. Copeland: *International Trade in Waste Products in the Presence of Illegal Disposal*, in: *Journal of Environmental Economics and Management*, 1991, Vol. 20, pp. 143-162.

<sup>20</sup> For an evaluation of the importance of "openness and competition" for development cf. World Bank: *World Development Report 1991, The Challenge of Development*, Oxford University Press 1991, pp. 88 ff.; and R. Dornbusch: *The Case for Trade Liberalization in Developing Countries*, in: *The Journal of Economic Perspectives*, 1992, Vol. 6, pp. 69-85.

the environment. Indeed, the waste of affluence grows with increasing prosperity. Opposing this is the fact that the unpolluted environment has the nature of being a superior good: with increasing prosperity, having a clean environment becomes more urgent. It cannot, therefore, be ruled out that, in the end, bans on waste imports worsen the environmental situation in the developing countries because with diminished prosperity, the efforts to maintain good environmental conditions will decrease.

Bans on waste trade not only influence the amount of resulting waste, industrial structure, technological development and the appreciation of the environment. They will also affect the institutional framework of nations. The external effects typically associated with waste create pressure for their regulation. The more problem-plagued the waste, the greater this pressure. Bans on the waste trade relieve the potential waste importing countries. The socio-economic pressure to take measures to internalize external effects as well as to set up an efficient – incorruptible – administration will become weaker. The experience in handling dangerous pollutants in a controlled manner will be gained only to a lesser degree. Possible incentives for economic development due to equilibrium disturbances or discontinuities will not be present.

### Possible Disadvantages

There are obviously fewer reservations concerning international free trade in goods than international trade in waste. Considering the statements made so far, which maintain that all the arguments which can be made in favour of international trade in goods from an allocative point of view are also valid for the waste trade, one is induced to look for an explanation of this finding. Are there actually no allocatively relevant differences between both objects of trade? Does the previous analysis not go far enough or does the resistance to international waste trade, which exists above all among the public and is, in particular, voiced by Greenpeace, not have a rational core? Seen objectively, should Greenpeace's campaign against international waste trade be judged perhaps as a subtle strategy by the industrial countries to obtain advantages at the expense of the developing countries? Must the obliging idealists of Greenpeace then be seen as idiots useful in carrying out a disguised and exploitative trade policy? Even if such a viewpoint does not do justice to the activities of Greenpeace, the topic of this paper enjoins one to ask such questions. Namely, it cannot be ruled out that in the longer run – despite the continuing need for further analysis – international bans on waste trade affect the developing countries negatively in the manner described. Nevertheless, there are important reasons

which speak against such a view. One possible reason was already dealt with: bans on waste imports may promote industrial settlement. Even more important reasons, though, can be found. These will be discussed below. In this connection, allocative attributes of the waste trade are to be dealt with which, as far as to known to this author, have not as yet been elaborated upon sufficiently elsewhere.

### Peculiarities of Waste

What distinguishes trade in goods from trade in waste? If one were to consider in particular trade in hazardous or toxic waste, then the presumption arises that there are typically larger risks associated with the waste trade than with trade in goods. Waste trade implies the transportation of waste, and the transportation of toxic waste is associated with exceptional risks which possibly are not duly embodied in normal transportation costs.<sup>21</sup> If one looks more closely at trade in goods, doubt arises whether the greater dangerousness of the object traded really is the relevant differentiating feature between goods and waste. With goods there may also be immense transportation risks. If it is not the dangerousness of the traded object, what kind of difference then exists between trade in waste and trade in goods?

In fact, the difference does not have to be found primarily in the tangible chemical or physical differences between the traded objects. The difference is, however, of a genuine economic nature: goods are good; waste, on the contrary, is bad material. With goods, as a general principle, there is always someone who is willing to take responsibility for them; whereas everyone would like to be rid of the responsibility for waste. With goods, there is the incentive of being authorized to dispose of them; with waste, on the other hand, this responsibility is a burden.

This difference is economically of fundamental significance. It invalidates a condition for the allocative functioning of free markets. A basic requirement for free markets is private property. Private property is so important because it is the lever with which an owner's self-interest is mobilized into economically responsible behaviour. Private property is the prerequisite for the "invisible hand" (Adam Smith) to take effect. Self-interest causes an owner to handle the objects he owns responsibly; he will take care that the objects concerned are not used inappropriately, that they do not get lost and the like. This also applies to toxic substances if they have the nature of goods. Governmental or trade regulations for

<sup>21</sup> This, then, could also explain why many authorities require waste disposal to take place as close as possible to the source of generation.



cautious treatment of them supports, as a rule, only self-interest. In principle then, society does not need external controls for owners to handle their goods frugally and economically. Self-interest suffices; by and large, with the existence of private property, society can rely on the owners' self-control.

Waste is associated with negative external effects. While positive external effects result from non-excludability or high exclusion costs, negative external effects associated with waste typically result from waste materials being bads. It is not primarily the impossibility of the owner's avoiding externalities, but his lack of interest in appropriating them, which generates the negative external effects of waste. Thus, fundamentally the differences between goods and waste materials originate from the fact that the former are "goods" and the latter are "bads".

Nevertheless, the externalities of waste require special government action.<sup>22</sup> Waste trade means trading such external effects, or trading environmental quality. In order for this trade to be welfare-enhancing, governments must employ suitable methods for internalizing the externalities in question. Because this is done well neither in industrialized nor in developing countries there may be good reason to ban trade in waste as long as appropriate measures for internalizing externalities are not taken. But this does not justify a general ban. Even if external effects are not yet dealt with in an ideal manner a ban on waste imports does not necessarily follow. It has to be taken into account that bad experiences with trading the externalities of waste will exert pressure to improve the institutional framework for handling externalities. Without such pressure due to waste trade environmental conditions may well be worse in the long run.

Waste trade can be interpreted as trade in land though – e.g. in the case of recycling – this is not always the case. Logan stresses the point that waste trade means trade in land.<sup>23</sup> As far as land is traded, long-lasting effects are involved. Connected with incomplete knowledge and discordances between benefit and cost flows – the monetary returns from waste trade result immediately, but the costs are incurred in the future – situations of "informational collapse" may emerge "in which the market ceases to act as an effective arbitrator". From this, Logan

concludes that, "it is short-sighted policy ... to consider toxic-waste dumping to be an economic development strategy". This view appears to be too short-run and pessimistic because it neglects dynamic interdependencies and the importance of learning for the development of efficient institutions (including markets). Nevertheless, Logan is right in not pleading for generally banning waste trade but for "comprehensive environmental impact assessments" as a prerequisite for waste exports to developing countries or – from the point of view of these countries – for waste imports.

### The "Sorting Out" Effect

The decisive feature of waste originates from waste materials' being "bads". Because of this, a basic requirement for the functioning of free markets is missing with waste: an interest in its cautious and responsible handling on the part of those persons responsible exists, at best, to the extent that they themselves are negatively affected. While with products it lies in principle in everybody's own interest to be able to dispose of the products at will, the opposite holds true for waste. The right to dispose is a liability. If someone, e.g. as a producer of waste, is responsible for waste in the sense of being legally obliged to dispose of it or to take the necessary steps for its disposal, then he is interested in giving up these responsibilities. If the person responsible is not threatened by penalties for irresponsible handling he must, therefore, have positive moral qualities for irresponsible handling not to occur. All this means is that waste cannot possess the allocatively decisive property features which goods possess.

Due to the non-existent property features of waste, a pulling effect on waste unfolds under free trade: whoever is in charge of waste will try to give up this responsibility – even at a price. Not only persons who have better disposal opportunities or capacities make offers to take over these responsibilities at a favourable price. *Ceteris paribus*, in order to offer lower prices, there are also those who are more willing to take a risk, are less scrupulous, and if necessary, also do not have any misgivings about violating the prevailing legal or moral standards for disposal. In other words: in free market systems the tendency regularly associated with free trade and private property is that the products reach the allocatively better proprietors; with waste, precisely the opposite tendency exists – a systematic sorting out of waste, placing it in the hands of

<sup>22</sup> The general civil liability or compensation law does not suffice. The external effects of waste are not normally simple neighbourhood consequences. Potentially, there are many injured persons, and damages extend far into the future. They can often only be recognized after a long time-lag and the imputation of the occurring damages to the individual source is difficult. Civil law rules for indemnity cannot – transaction costs are too high – cope with such situations in an allocatively efficient manner. In addition, there are the problems which result from the limits of liability capital.

<sup>23</sup> Cf. B. J. Logan, *op. cit.*, p. 73: "From a theoretical perspective, ... waste transfer is an international trade activity which is not a commodity exchange but a transactional trade in which a ... country leases land ... for a specific purpose for a specified period of time."

the allocatively inferior proprietors. Therefore, not only the negative external effects associated with the mere existence of waste require special governmental regulation. The waste trade itself has such a special need – a need which does not exist for trade in products. Without regulation, for trade in waste, allocative market failure has to be ascertained.

The tendency to sort out waste and place it in the hands of allocatively inferior proprietors by means of waste trade can cause governments with high environmental standards to call, out of self-interest, for bans on waste exports. The waste will, namely, flow into the countries with the lower disposal standards. If through waste disposal pollutants become airborne (via combustion processes), it can be the case that, because of the prevailing wind direction, the pollutants (against which the waste exporting country through its high environmental standards wishes to protect itself) are carried back to the country of origin. This kind of interaction in the case of waste trade between neighbouring countries with environmental standards of differing stringency – for example, France and Germany – deserves particular attention. Similar problems arise if the exporting countries run the risk of the exported waste's being re-imported disguised as other materials and perhaps in an even less desirable form.

Special significance should also be attributed to the "negative sorting of waste" in the case of waste exports from industrial to developing countries. Here, too, it cannot be ruled out that perhaps through global interdependencies (destruction of the ozone layer) a retro-active undermining of the environmental standards which the exporting country wants to achieve for itself will result. Another case is even more important. A feature of developing countries is their lower level of administrative control.<sup>24</sup> The fact that less effective controls can be expected in the developing countries has, firstly, to do with the fact that there are not enough qualified technical experts. The experience necessary to carry out the controls is lacking. Furthermore, less effective controls can be traced back to greater susceptibility to corruption, which is in itself a feature of less development. Since waste trade, as was previously pointed out, should be subject to special controls due to its intrinsic peculiarities, the lower effectiveness of control in the developing countries implies that a tendency towards waste exports to the developing countries must even be reckoned with when there is no allocative justification for trading waste.

<sup>24</sup> The literature on the subject also refers regularly to this and to the aspects which will be mentioned later. Cf. in this connection B. J. Logan, op. cit., as well as B. R. Copeland, op. cit.

The example of the sub-Saharan African countries can serve as evidence of this. A number of these countries have a relatively high population density; they are situated in the tropics, i.e. in regions with high precipitation. Also, the natural soil conditions and the flow of both the surface water and the groundwater do not suggest that these countries are particularly suited for waste disposal. Nevertheless, in the 70s and 80s, they were special candidates for the disposal of the industrial countries' problem waste.

### Conclusions

Externalities, the trading with land which is involved, informational problems and discordances between benefits and costs make governmental regulation of waste trade a necessity. Nevertheless, externalities and so on are also connected with normal goods; they are not peculiarities of waste and waste trade. The distinctive feature of waste materials is their being "bads". Because of this a careful treatment of waste motivated purely by self-interest cannot be expected. Without governmental intervention the sorting out of waste will occur. Unregulated waste trade cannot be recommended; specific regulations are needed. The goal of these regulations must be, above all, to counteract the tendency of waste to be sorted out. It must be made impossible for the producers of waste to free themselves of their responsibility if an equivalent acceptance of responsibility does not ensue. Whoever has the responsibility for waste must also be made responsible for the passing-on of this responsibility – hence, for the choice of the waste-taker.<sup>25</sup>

Since national sovereignty rights cease at a country's borders, this assessment leads one to consider, due to reasons inherent to the system, the possibility of bans on trade in waste and, in particular, on waste imports. From this, the dilemma arises that bans on waste trade, nevertheless, mean allocative disadvantages. The non-commodity characteristic of waste materials of being "bads" does not cancel the validity of the reasons for trade in waste which were presented previously. Bans on waste trade mean that a welfare potential is given away and the question becomes urgent whether bans on waste trade are the instruments best suited to prevent the allocatively

<sup>25</sup> In the bill of exchange law, there is the legal institution of the direct liability of former billholder. If a bill is dishonoured, the creditor can turn to any of the previous owners of his choice in order to satisfy his claims. Similar far-reaching liabilities in the case of damages from traded waste would doubtlessly be allocatively too far-reaching. Whoever stands in an earlier position of the waste trade chain should have the possibility to free himself of liability if he complied with his information duties and applied the necessary care in choosing his partner with whom he traded in waste. It would be wise, though, that the one who passes on the responsibility for the waste carries the burden of proof that the above-mentioned duties have been met.

negative tendency of waste to be sorted out and placed in the hands of allocatively inferior proprietors.

Concerning trade with developing countries, particular attention has to be paid to the negative tendency of waste to be "sorted out" because of the lower administrative efficiency in these countries. This "sorting out" may be seen as a justification for bans on trade in waste with developing countries. But such a justification has to be questioned. Whether bans on waste trade are suited at all for the prevention of a negative "sorting out" of waste across borders is highly uncertain. Such prevention requires that bans on exports and imports can be controlled effectively. Is the capacity of the administrative authorities in the developing countries sufficient to at least control these bans?

One may argue that it is easier to enforce bans than it is to decree and control regulations which call for a differentiated treatment of waste depending on its harmfulness. A lot can be said for this, especially in the short term. Such a judgement, though, is not reliable. One must not forget that bans on trade are accompanied by the tendency for the price of waste to increase, i.e. incentives to circumvent these bans increase at the same time. The economic logic involved is known well enough from the effects of bans on the alcohol and drug trade.<sup>26</sup> The trade is carried out despite the bans although, as would be expected, in lower volume. In any case, with less competent authorities it is unavoidable that even those controls which can be conducted in the absence of bans are no longer possible if waste trade is made illegal. More important than this might be another implication of bans on waste trade which has been mentioned earlier. Trade bans cause many countries – at least in their legal economic sectors – to gain less experience in handling waste. Consequently, trade bans impede the learning process and create incentives not to specialize in waste disposal.<sup>27</sup> Since modern industrial countries need such learning experiences, such bans hold the risk that the capabilities which bring about prosperity and a high standard of living, are not developed at all.

Seen on a global scale, effective long-term bans on waste trade mean a loss of welfare potentialities. Perhaps they diminish some of the risks involved in the irresponsible handling of waste, but even this is not certain because an effective enforcement of the bans cannot be assumed. Also, the substitution of production processes possibly causes problem waste to accumulate in those regions or countries which, for technical or administrative reasons, do not have the prerequisites for handling the waste responsibly. In order to illustrate this an example may be helpful: we close down our relatively safe nuclear

power stations and increase, instead, our demand for fossil fuels, thereby raising their price on the world market. This creates incentives to run Chernobyl-type atomic reactors under Chernobyl conditions somewhere else in the world.

What political conclusions are to be drawn from the analysis made so far? In this author's opinion there should be no undifferentiated general bans on waste imports and waste exports despite the indisputable risks involved. They can be justified, however, as a short-term emergency brake. Perhaps selective bans for certain toxic substances make sense if (or as long as) individual countries do not feel capable of handling them.

Based on the analysis made, such bans are advisable in any case as long as the waste suppliers generally try to free themselves of their responsibility. The suppliers must be made responsible for their choice of buyers, and the countries in which the suppliers are located must offer effective help in the enforcement of claims resulting from negligence. Because of existing global environmental interdependencies and because of the risks of re-importing such help is often in the suppliers' own interest. Ensuing sound disposal reduces such risks. Furthermore, the exporting countries should be obliged to assist in the disposal of waste which has been exported illegally from their territory.<sup>28</sup> The importing countries are well advised to demand securities from the suppliers in the form of adequate liability capital or existing insurance. Such regulations will create incentives to reduce international trade in waste. The difference from general trading bans, however, is that these incentives arise due to the nature of the matter. They should not be avoided; they result from the distinctive features which differentiate the trading object waste from the trading object good.

### The Ethical Point of View

The topic of this study also calls for an examination of waste trade from an ethical point of view. Following the analysis presented so far, the shift to the ethical point of

<sup>26</sup> Note the difference: with drugs there is the risk of addiction. Drugs are "bads" from a merit point of view, not from the point of view of drug demand.

<sup>27</sup> As long as trade bans also exist between the developing countries, they likewise impede the specialization in individual kinds of waste on the part of a particular country. Instead of the disposal process appropriate for the type of waste, unspecialized disposal will occur. From this aspect, bans on waste trade would only then be of no problem if upon their formation different toxic substances were to be designated for specific countries. This cannot be assumed, though.

<sup>28</sup> The German Länder Secretaries of State for the Environment signed a corresponding agreement on 14. 9. 1992. For similar and other provisions see also the German law of approval and accession to the Basel Convention. Cf. Handelsblatt, No. 82, 29. 4. 1993, p. 4.

view can take place quickly if the implications of the properly understood allocative point of view differ only negligibly from those of the ethical viewpoint. Whether such a harmonious conception of both viewpoints is admissible depends naturally upon what they are characterized by. Generally, a recommendation from an allocative viewpoint implies a uniform expansion of the utility possibilities for all individuals: any losers must be able to be adequately compensated by the winners, without the winners' thereby becoming losers themselves.<sup>29</sup> As far as the ethical point of view is concerned, it is obvious – at least to economists – that we mean the point of view of “responsibility ethics”.<sup>30</sup> An ethical judgement of waste trade, therefore, calls for the measurement of the consequences resulting from this trade for people's welfare, not just for those persons now living on the earth, but also for all those who have not yet been born. Also belonging to an ethical viewpoint is that the well-being of the weaker deserves more attention than that of the less weak. Expressed economically: basically a coin in the pocket of a poor person is ethically more valuable than the same coin in the pocket of a rich person. The allocative viewpoint does not include the latter argument; the orientation towards the well-being of all persons living today and in the future is, however, a characteristic of it. In the understanding presented there is no fundamental difference between the allocative viewpoint and that of an ethic of responsibility. The conclusions drawn from the allocative viewpoint are generally valid for the ethical one.<sup>31</sup>

If the topic were only to be discussed from an ethical point of view, it would have been more appropriate to have developed the relevant relationships in another manner despite the harmony between the ethical and allocative viewpoints. From an ethical point of view it should above all be emphasized that waste exportation to the developing countries can be used there as an instrument for the

further exploitation of the poorer classes by the wealthy and the political élite. Perhaps only those who are already wealthy make money out of this trade. Thus, the disposal of waste may be conducted in such a way that the poor are not only affected directly by the negative external effects, but in addition they might not receive any compensation for this.<sup>32</sup>

From an ethical point of view, it would especially also have to be pointed out that waste trade may lead to the exploitation of ignorance. Experience in international waste trade clearly shows this. Barrels of poison have been transferred to Rumania or to Côte d'Ivoire and left to rust through without the owner's of the site, who consented to their storage, even knowing what he had traded in. And even if someone who lived safely in Europe had purchased the plot of land at a good price and had brought the poison shipments only to his own property abroad, this would – due to the negative external effects involved – not change the situation of exploitation of ignorance or of unjust laws.

The exploitation of ignorance is ethically to be spurned. Whereto does this judgement lead? Ignorance cannot be forbidden and it cannot be prevented that ignorance is immorally taken advantage of. What follows politically from the fact that international waste trade takes place in a manner that cannot ethically be approved of? Does a ban on waste trade, to which some rigorously moral persons are inclined, follow from this ethical viewpoint? It is an old ethical maxim, however, that a possible misuse does not exclude the correct use: *abusus non tollit usus*. If, from an ethical point of view, this has been accepted, we quickly end up in the track of thought which up to now was associated with the allocative point of view.

The conclusions drawn here from an allocative point of view do not necessarily have to be shared by everyone. They express a certain willingness to take risks or a certain fundamental optimism: taking advantage of chances for improving people's living situation is not immoral if along with the attempt to take advantage of these chances there is a risk of missing them. That international waste trade carries risks for people cannot be denied; the chances, however, are to be rated higher. This is of course a question of judgement for which there does not necessarily have to be consensus.

<sup>29</sup> From the allocative point of view it suffices to demonstrate that compensations are feasible and without contradictions. If such compensation payments resulting from free trade with waste are possible, such trade can be conditionally recommended based on the Pareto value judgements, the normative content of the Pareto criterion and Pareto optimality. An actual improvement of the position of everyone is, however, not necessary. In contrast to what is often wrongly maintained, based on the Pareto value judgements, actual improvements for everyone do not allow further-reaching recommendations than potential improvements. For comments on this cf. also J. Hackmann: *Zulässige und unzulässige Schlußfolgerungen nach dem Pareto-Kriterium*, in: *Wirtschaftswissenschaftliches Studium*, 1978, Vol. 7, pp. 557-561.

<sup>30</sup> In German “Verantwortungsethik” (ethical evaluation according to the consequences of one's actions), as opposed to “Gesinnungsethik” (ethical evaluation according only to one's intentions).

<sup>31</sup> For a closer discussion of some of the principle questions involved here cf. also J. Hackmann: *Die normative Basis der paretianischen Wohlfahrtsökonomik*, in: J. H. Müller, (ed.): *Wohlfahrtsökonomik und Gemeinwohl*, Paderborn 1987, pp. 9-27.

<sup>32</sup> Here too the conclusions to be drawn from this should be considered. It is highly probable that the excessive use of the kind of exploitation practices described will rouse political opposition and thus improve the political-institutional framework. However, the weight of the above objections cannot only be lessened by a corresponding sensitivity of the political system. Moreover, because the aggravating negative external effects which are associated with problem waste are mostly not confined to a particular area, the political élite cannot escape their threat. Thus, reserving the negative effects especially for the poorer classes can only succeed imperfectly. If this assessment is correct, then the wealthier classes would also have an interest in the responsible handling of the imported waste.