

**I. ARTICLES**

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**THE ECONOMIC CONSEQUENCES OF THE BASEL  
CONVENTION. CASE STUDY FOR POLAND**

Authors have presented some economic consequences of the Basel Convention for the Polish economy. They have made general characteristics of the problem of waste disposal and the results of ratification of the Basel Convention by Poland. They have showed macroeconomic and microeconomic aspects of waste management and trade in Poland, too.

**1. INTRODUCTION**

In Poland, the problem of waste disposal and dangerous waste disposal in particular is crucial. Poland is one of the largest waste producers in Europe. In the years 1975–1994 an average amount of industrial waste was 120–180 million tons (Fig. 1) and an average amount of municipal waste was about 25 000–45 000 dm<sup>3</sup>.

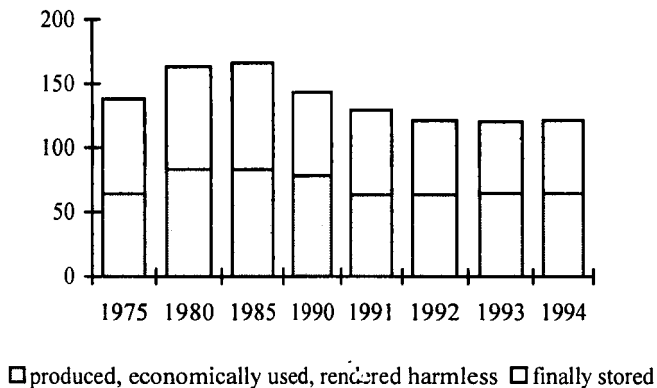


Fig.1. Industrial waste harmful to the environment in the years 1975–1994: generation, economic utilization and neutralization and final storage (millions of tons).

Source: authors' own elaboration on the basis of data supplied by GUS – Main Statistical Office.

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Most of the waste was stored on dumping grounds. Therefore, the amount of stored waste is bigger and bigger (Fig. 2).

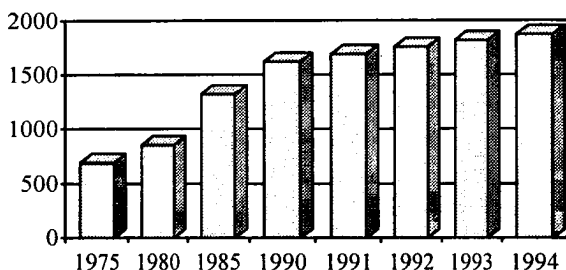


Fig.2. Industrial waste harmful to the environment, accumulated in the years 1975-1994 (millions of tons)

Source: authors' own elaboration on the basis of data supplied by GUS - Main Statistical Office.

The problem refers to dangerous waste as well. In 1994, 3,188,000 tons of this sort of waste were produced. Their generation is regionally diversified (Fig.3).

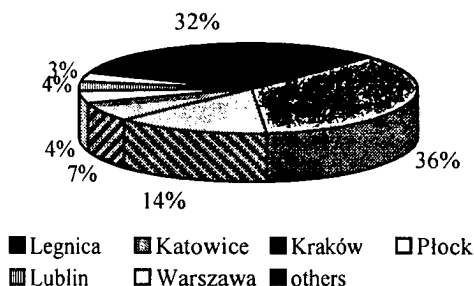


Fig.3. Structure of dangerous waste generation by regions, 1994 (% of the total amount)

Source: authors' own elaboration on the basis of data supplied by GUS - Main Statistical Office.

The problem of dangerous waste becomes an important international issue. More rigid environmental protection regulations and the lack of place to store bigger and bigger amounts of waste in developed countries have their reflection in an inclination to export waste, and dangerous waste in particular, to less developed countries. A basic reason was the lower cost of waste storage or waste removal in Central and Eastern Europe. The lower cost was connected, to some extent, with lower requirements as regards environmental protection and unawareness of the real danger.

A part of "export" undertakings has been illegal. The countries which are in the course of the system transformation and/or countries with an unstable internal situation are thought to be characterized by a lower control level (connected with the inefficient organization of civil service), which makes it possible to transport and leave the waste completely uncontrolled. In order to change this difficult situation some measures have been taken with the aim of controlling international dangerous waste trade by appropriate international conventions. The most important document which regulates the market of dangerous waste is the Basel Convention.

## **2. GENERAL CHARACTERISTICS OF THE PROBLEM OF WASTE DISPOSAL AND THE RESULTS OF RATIFICATION OF THE BASEL CONVENTION**

The characteristics of the problem of waste disposal with reference to the ratification of the Basel Convention by Poland needs pondering upon research problems regarding general conditions of the ratification of the Convention by Poland. Thus, it is necessary to fix a date of the ratification of the Convention, the reasons for its ratification and, first of all, expectations concerning the results and trade benefits connected with acceding to the convention.

On the other hand, the question whether a country has taken any measures to achieve the aims connected with signing the Convention should be asked. An important question is also the cost of development and transfer of process engineering connected with the implementation of the provisions of the Convention.

A fundamental problem is a procedure of implementing the Convention clauses into the system of national law and the national waste trade policy.

Another basic problem regards the characteristics of institutional structures and industrial and trade subjects which may be interested in the Convention at present or in the nearest future; especially the size, organizational form or type of ownership companies actually or potentially involved in the waste trade. The research of the results of acceding to the Convention by Poland should allow us to define its influence upon the change of the number of products which are being controlled. This research may also result in opening up the substitute market or the abandonment of the trade in question.

In order to give the answer to the above mentioned research problems, the following research is needed:

- 1) implementation path of the Convention and its compliance with the law which is currently in force in Poland,
- 2) identifying the implementation mechanism and monitoring both at national and international level,

3) estimating economic outcomes of the implementation of the Convention provisions in the sphere of trade and indicators of the achievement of environmental aims of the Convention,

4) identifying and estimating the size of the illegal trade and comparing its scale before and after signing the Convention. A fundamental question is whether the scale of illegal trade is a menace to the possibilities to achieve environmental aims,

5) examining whether the applied trade policy measures accelerated the achievement of specific environmental objectives and, on the other hand, if the application of these measures resulted in secondary (side) effects such as: shortages of goods, additional costs for receiving forbidden chemicals and waste materials. These secondary effects may also influence the extent to which environmental objectives are achieved.

One can accept a thesis that the accession to the Basel Convention implies specific economic and competitive results of macro- and microeconomic quality, both positive and negative. The results, in general, can be of two kinds: a) on the one hand, the membership in the Convention results in identifiable costs, b) on the other hand, one can expect positive economic and environmental results. Therefore, in order to fix economic and competitive results which are the consequence of the ratification of the Convention one has to ask the following research questions:

1. What costs, both in terms of their kinds and size, have to be borne by a country as the consequence of acceding to the Convention? It is important, from the research point of view, to distinguish fixed and variable costs, with taking into consideration the costs of creating institutional infrastructure to implement the provisions of the Convention and to monitor its performance. Another important group of costs are the expenses for purchasing the rights to apply necessary processing technologies, changes in the management structures and the costs resulting from the necessary limitation of production (if such a situation occurs).

2. What costs (if any) are involved in trade as a consequence of acceding to the Convention? This may refer both to the costs connected with the change in trade directions and alterations in exchange forms.

3. What secondary costs occur as the result of adaptation to the Convention?

Even a preliminary analysis is able to prove that the ratification of the Convention results in both micro- and macroeconomic costs. However, due to the lack of any research and statistical data it will be extremely difficult to give the answers to the above mentioned questions by means of concrete numerical data. Undoubtedly, the ratification of the Basel Convention has influenced the foreign trade directions. However, it is difficult to calculate the cost of respective changes. The ratification of the Convention brings also about secondary costs connected with the inability to transfer certain waste types abroad and subsequent necessity to store them in the country, which has its reflection in extra costs.

Another basic research problem is how to define economic benefits, especially savings resulting from acceding to the Convention.

An act of acceding to the Convention is directly linked to the problem of technology transfer. Therefore, it is important to specify economic constraints to the achievement of environmental objectives, especially those related to the implementation of technology, and to check whether the migration of “dirty technologies“ or/and sectoral changes connected with the Convention have taken place.

The Convention will probably have an impact on the market structure and its functioning, especially on the market of goods which are directly comprised by the Convention. Attempts to estimate these results will have to be undertaken.

Given the positive results of the Convention, the mechanism of their achieving and its effectiveness should be described. Specific benefits connected with economic mechanisms and incentives encouraging the development of trade of environmentally friendly substitutes, voluntary foreign direct investments and technology transfers can be surveyed according to the following scheme:

- a) differentiated patterns of reducing the difference in waste management between developed and developing countries,
- b) financial procedures,
- c) programs to establish the institutions which serve the conclusion of the project – if such programs exist,
- d) technology, procurement, development and transfer programs,
- e) small business participation,
- f) participation of particular sectors in mechanisms to stimulate the benefits implied by the Convention,
- g) locally available incentives to encourage public and private investments,
- h) other global or local mechanisms aimed at the improvement of waste technologies, trade, management etc.,

The above mentioned factors should be analysed from the standpoint of their contribution to the achievement of environmental goals of the Convention.

While comparing the effectiveness of protective and liberalized waste trade policy, the following issues should be addressed:

- a) a comparison of trade costs with the costs of application of other measures,
- b) a ratio of costs of applying the trade policy measures to monetary or other benefits resulting from Multinational Ecological Agreement (MEA, later on in the paper),
- c) an analysis of the necessity and effectiveness of the application of trade policy measures from a national perspective.

## 2. WASTE MANAGEMENT AND TRADE IN POLAND. MACROECONOMIC AND MICROECONOMIC ASPECT OF THE PROBLEM

### 2.1. Introductory remarks

According to the statement of the Chief Inspector of Environmental Protection, “in the second part of the 1980’s Polish authorities received a number of proposals from abroad to organize in Poland storage yards and incinerators for hazardous waste. These proposals included not only projects of a complete technical preparation of respective installations but also offers of transfer of large amounts of money.” (Transboundary waste transfer – June 1993 – December 1994, The Chief Inspector of Environmental Protection.) None of the projects was concluded, although some of them were taken into consideration by pertinent State administrative agencies.

The process of the transformation of the Polish economy into a market economy which started in 1989, and the signing by Poland of the association agreement with the European Communities as well, resulted in adopting the waste management principles which are consistent with those being accepted in the EU. These are: waste generation prevention, waste re-use (recycling) and environmentally friendly waste neutralization.

The previous economic and trade results of achieving environmental objectives in Poland are the results of many factors:

- process of transformation from the centrally planned to a market economy,
- liberalization of foreign economic co-operation and changes in the directions of foreign trade,
- Polish aspiration after acceding into the EU structures, which requires a necessity to adjust rules of law, and of ecological law in particular, to standards which are binding in the European Union,
- acceding by Poland to the Basel Convention,
- the growth of ecological consciousness of the Polish society and establishment of strong non-governmental ecological organizations (NGOs),
- putting greater stress on research connected with the implementation of environmental objectives and allocating more resources for the accomplishment of them,
- legal regulations within the country with the purpose of achieving proper environmental goals.

As a result of the emerging of different factors operating at the same time, it is difficult to univocally distinguish economic and trade results of Poland’s acceding to the Basel Convention.

## 2.2. The problem of waste disposal in the Polish system of ecological law

The problems of industrial and municipal waste, and hazardous waste in particular, emerged in the Polish economy and the Polish legal system at the turn of the 1970's and 1980's. The 1980 statute on shaping and protecting the natural environment was an attempt to regulate the issues of waste production, storage and utilization by economic subjects. The nature of environmental protection policy at that time made it impossible to take advantage of the existing law for improving the environmental quality and the institutions of State administration were not able effectively enforce this law. The ineffectiveness referred to was linked to the very nature of the command-and-control economy and, apparently, pertained to other spheres of economic and social life as well.

In the second half of the 1980's, the problem of hazardous waste was mooted in a good deal of programs of ecological movements. In the second part of 1988, the problem of the import of small amounts of waste from Germany and Austria emerged. The liberalization of rules of economic activity was abused and the waste was placed in small companies as raw materials which were supposed to be processed.

The sessions of the "round table" (the agreement between the communist government and the opposition) in 1988 are considered to be the first important step to efficiently increase the enforcement of existing environmental law within the whole system of the legal-economic system of environmental protection in Poland. It was the agreement between the ruling authorities and the political opposition which provided the grounds for an evolutionary transition to a democratic system.

An ecological team (the so called "green sub-table") was a part of the "round table". The team dealt mainly with the issues of environmental protection. It was provision no. 20 among its other provisions which had an impact on the future performance of the Basel Convention in Poland. It says, that "there is a ban on any waste import to Poland with the aim of its storage, processing and removal; perpetrators of this activity will be regarded as perpetrators who act to the detriment of the society and natural environment (with a possibility to prosecute them for such activity and to appeal to the court). Specific rules regarding the transit of toxic substances or substances dangerous for the environment will be issued". ("Aura" 1989, p.16)

In 1989 this provision had its reflection in an amendment to the statute of shaping and protecting the natural environment which is the framework environmental law in Poland. A new legacy was introduced: "The waste import is banned" (Dziennik Ustaw 1989, no. 26) 3. It was the first Polish rule of law

which touched upon the problem of international waste trade. Prior to this legacy, this question was not addressed by Polish law. It was a reaction to attempts (some of them successful) to export waste to Poland by developed countries. According to the State Inspectorate of Environment Protection, just after the ban on waste import had been put into force, by January 1991 Poland was offered to import 18,389,000 tons of waste. Only 61,000 tons of waste which could be utilised were imported.

The legacy of the Statute was very strict and it contained some deficiencies. First of all, there was no distinction between ordinary and hazardous waste. The ban included also the import of metallurgical waste, especially the scrap of non-ferrous metals which is the raw material for iron and steel industry, and waste paper. Also, the ban had a unilateral character – it made it possible to export the waste freely. Subsequently, the country was almost deprived of non-ferrous metal scrap and waste paper (a similar phenomenon can be observed in other post-socialistic countries). It is worth mentioning that in the case of some technologies the scrap constitutes of as much as 80% of the furnace charge. The situation changed in 1994 when the Government put into force a ban on export from Poland of non-ferrous metals scrap, especially those containing copper, zinc, tin and brass and bronze alloys. In 1994 a rule regarding the export of iron scrap was put into force; export quotas were established.

The Basel Convention was ratified by Poland on 20 March, 1992 and put into force on 5 May, 1992 in accordance with article 25 of the framework environmental law. The text of the Convention was formally published in an official gazette announcing the current legislation. This delay had an organizational character and did not influence the operation of the Convention concerned. The ratification of the Convention was published in an amendment to the statute on shaping and protecting the natural environment dated May, 1993 (Dziennik Ustaw 1996, no. 40). It obliged the Minister of Environmental Protection, Natural Resources and Forestry to publish a list of hazardous waste which is binding in Poland. The list was published in August 1993 (Dziennik Ustaw 1993, no. 76); it includes 106 kinds of waste regarded by law as hazardous ones. The ratification of the Convention was accompanied by pressures exerted by different lobbies which aimed at relaxation of rules regarding waste import.

According to current legal status, there is a complete ban on hazardous waste import to Poland. Dangerous waste is defined at present as: “waste which due to its origin, chemical or biological composition, other features or circumstances that are dangerous to human life or health or natural environment and which are included in the list of the Minister of Environmental Protection, Natural Resources and Forestry” (Dziennik Ustaw 1996, no. 49).



The import of other waste is allowed by permission of the Chief Inspector of Environmental Protection (who is a vice-minister of environmental protection). Waste can be imported to Poland provided that:

1) they are intended for secondary processing as raw materials in Poland or abroad,

2) it is impossible to find in Poland waste suitable for a given economic utilization or the amount of waste is insufficient,

3) waste imported from abroad and the way of its utilization will not bring about an increased hazard to the natural environment nor will it contribute to the growth of waste generation.

The Chief Inspector of Environmental Protection takes the voivod's opinion and the opinion of respective voivodship/municipal self-government bodies before he takes a decision allowing for bringing waste to a specific voivodship/municipality. Additionally, the Inspector can demand the opinion of experts from the Ministry of Environmental Protection, Natural Resources and Forestry regarding the fulfilment of conditions defined in point 3. The import of dangerous waste is liable to punishment of an up to five years imprisonment. The import of other waste without the permission of the Chief Inspector of Environmental protection is liable to punishment of up to three years imprisonment.

Dangerous waste may be exported. In this case, permission of the Chief Inspector of Environmental Protection is required. Permission may be granted if:

1) waste is exported abroad with the aim of its environmentally safe economic use,

2) respective agencies of the waste importing states and transit states will grant permission for the import and transit of waste,

If the disposal of waste exported from Poland not can be performed in accordance with the conditions of the contract or waste was exported without permission, the exporter is obliged to take back the waste.

The export of waste which is not hazardous does not require permission, however the Minister of Environmental Protection, Natural Resources and Forestry may – by way of resolution - impose an obligation of getting permits to export non-hazardous waste to other countries.

The transit of hazardous waste through the area of Poland requires the permission of the Chief Inspector of Environmental Protection. An additional requirement is to get the permission of the countries taking the waste and countries through which the waste will be transported (transit and taking permits).

A breach of the above mentioned rules is an offence. Both Polish citizens and foreigners can be perpetrators. The maximum punishment for hazardous waste export without permission is three years imprisonment.

A further adaptation of Polish law to the Basel Convention is connected with a new law on waste passed in August 1997. According to this law, the ban on hazardous waste export to Poland is still binding under consideration. An analogous situation takes place in the case of delivery of non-hazardous waste which implies the necessity to get the permission of the Chief Inspector of Environmental Protection. The conditions of getting the permit remain unchanged. The limitations no longer include – as far as waste import is concerned – the receipt of waste in waste collection/disposal facilities at air-ports, river and sea harbours which have been produced as a consequence of the routine operation of respective transportation means. Following the requirements of the Basel Convention, a hitherto obliging rule of the necessity to obtain the opinion of a voivod or relevant municipal body before granting a waste import permit has been cancelled.

The procedure of application for a waste import permit has been made more detailed. The application should include:

- a) description of waste to be delivered, especially its physical and chemical features,
- b) quantity,
- c) place of utilization,
- d) description of waste utilization technology and its environment impact assessment,
- e) name and address of the waste producer,
- f) justification of the necessity of waste delivery from abroad.

Also, it is possible for the Minister of Environmental Protection, Natural Resources and Forestry to make a list of waste whose delivery from abroad would not require getting any permits which have been previously binding. It refers to waste (metal scrap, paper) which is undoubtedly used as secondary raw materials.

To some extent, the rules regarding waste export have been changed. The legacy has remained that the waste is exported with the aim of its environmentally safe use and that it is necessary to get the permission of a waste receiving state. The requirements regarding an export application have been extended. The application should include:

- a) description of waste which is being delivered, especially its physical and chemical features together with the way of its generation,
- b) quantity,
- c) the route, means of transport and marking,

- d) the address of a receiver,
- e) description of the way of waste utilization abroad,
- f) justification of the necessity of export.

The transit permit should include: description of physical and chemical features, quantity, the route and the name of a receiver. Penal law sanctions for the breach of the above mentioned rules remain unchanged.

An element complementing the new waste law is a new classification of waste. It is adjusted to the European Classification of Waste and European Waste Catalogue accepted by the decisions of the European Union taken in the years 1993–1994.

This fact corresponds to the association agreement signed by Poland and the European Economic Union in 1991 which obligates Poland to adapt its ecological legislation to the law of the European Union within ten years. Of key importance are also the following regulations: the ordinance of the Council of European Union dated 1993 regarding transboundary waste transportation, including hazardous waste, directives concerning general principles of waste management, special directives related to hazardous and toxic waste management and the problem of hazardous and toxic waste. The latter includes, among other things, unified lists of hazardous and toxic substances.

In the aforementioned lists, the waste was marked by means of a six digit code which includes three groups of information:

- origin and characteristics,
- components and a description of the manufacturing process,
- chemical constitution.

The system that protects Poland from waste imports, including hazardous waste, was organised in 1990 taking into account actual executive possibilities of the State administration. It is based on close co-operation between the State Inspectorate of Environmental Protection, individual customs offices, Border Guard and the National Sanitary Inspection. The procedural law basis of co-operation is the agreement regarding the protection of Poland from waste import, signed on 29 August, 1990 by the Chief Inspector of Environmental Protection, the President of the Chief Customs Office and the Commander of the Border Guard Troops (at present – the Border Guard). The convention has not been modified since the limitations of waste import were put into force, as the issues within this sphere are registered in appropriate statutes, especially in the Law on Customs and the Law on the Border Guard.

Within the above mentioned system, the State Inspectorate of Environmental Protection plays the role of a professional advisor which gives an opinion on the type of goods in doubtful situations. The customs officers and border guards ask the National Inspection of Environmental Protection for help whenever they

intercept goods which may be suspected of containing waste and when the decision to send them back is made. The State Inspectorate of Environmental Protection submits information regarding possible waste imports or exports to the border guards. This information is compiled by means of:

- analysis of changes in the rules of law and economic phenomena which take place abroad (this situation took place after the re-unification of Germany when the rules regarding environmental protection became stricter which contributed to the increase in export of withdrawn pesticides);
- data exchange as a part of international co-operation;
- analysis of projects of undertakings extended by Polish economic subjects;
- analysis of data submitted by the border guards;
- supervision of Polish economic subjects.

Additionally, in June 1995 the Chief Inspector of Environmental Protection obtained access to data concerning international trade being compiled by the Centre of Foreign Trade Data Processing.

A basic instrument of controlling international waste trade is granting licenses for transboundary transportation. The system of international co-operation includes the unification of forms of admittance to international waste trade in which the general rule is to make granting of an export permit dependent on prior obtaining an import permit. It means that the principle of “control at source” is being applied. Several international agreements which regulate the issues of international waste trade, and hazardous waste in particular, are in operation all over the world.

These are the basic elements of the system of international co-operation in the field of waste management:

- the Basel Convention on the control of transboundary transportation of hazardous waste and its removal;
- the system of enforcement of the regulation no 259/1993 of the Council of European Union on the control of waste transportation within and into the Union;
- Interpol.

So far, there has been no investigations in Poland on the results of ratification and operating of the Basel Convention. There are no research reports or attempts at estimating both expenditure and results of the Convention itself and the achievement of its environmental objectives. It also pertains to the outcomes of signing the Convention to the State budget (macroeconomic dimension) and economic subjects (microeconomic dimension). Information on membership fees being paid to cover the costs of operation of institutions serving the conventions ratified by Poland is available. The fees for the Basel Convention are being paid by the Committee of Scientific Research which is a ministry dealing with organization and financing the R&D activities. The total

amount of rates intended for this aim which were paid by the Committee of Scientific Research amounted, in 1995, to 1,051,000 PLN (Polish zlotys). (This refers to international organizations which service: United Nations Environmental Program UNEP, the Ramsar Convention, the Helsinki Convention HELCOM, the Washington Convention, the Vienna Convention, Montreal Protocol and the Basel Convention).

To sum up: the waste management issues, including the problem of waste import and export regulated by the Basel Convention, emerged in the course of works on the reform of environmental law in Poland in the 1990's. The legal solutions which were implemented during that time are a bit stricter than the provisions of the Convention itself. On the one hand, it may contribute to better waste management (and trade), on the other hand, it may also bring about some dangers. These are connected, first of all, with:

- the still inefficient enforcement of the law;
- the lack of proper institutional solutions (a spectacular example of organizational and institutional inefficiency is that the Basel Convention is serviced by the Chief Inspectorate of Environmental Protection, though this additional duty has not been officially defined in any organizational and financial regulations.);
- a disordered market of secondary raw materials within the country;
- insufficient co-ordination between an existing (and designed) system of waste management and the technological, economic and financial possibilities of economic subjects with respect to waste utilization;
- insufficient level of social consciousness and the lack of appropriate behavioural patterns concerning waste management;
- the lack of a proper system of environmental monitoring.

### **3. MACROECONOMIC AND MICROECONOMIC CONSEQUENCES OF ACCEDING TO THE BASEL CONVENTION BY POLAND**

#### **3.1. Introductory remarks**

In general, one can say that acceding to the Basel Convention by Poland had its reflection in the results both for import and export. As regards import, Polish rules of law have been stricter than the regulation accepted by the Basel Convention. The act of acceding to the Convention had no additional results in the operating of economic subjects as far as import is concerned.

As regards export, the act of acceding to the Convention resulted in an implementation of new legal regulations concerning:

- control of hazardous waste transit,
- control of hazardous waste export.

### 3.2. Waste export

Constraints to hazardous waste have been effective from 3 September, 1993 at the moment of putting into force the regulation of the Minister of Environmental Protection, Natural Resources and Forestry dated 3 August, 1993 regarding the compilation of the list of hazardous waste. Hazardous waste export refers to its one category only, namely to the waste that is a source of non-ferrous metal recovery (metallurgical waste, used catalytic converters). Only one advanced trial of preparation of such export was reported. It was a case of the “Europol-Boschem” company from Łódź (in 1993) going to export to Ukraine completely useless paint waste and used condensers containing PCB.

Export directions are diversified. Beside importers from Western Europe (Austria, Belgium, France, Germany, Great Britain, Italy), the companies from Belarus, Kazakhstan, Ukraine, India and Thailand are also interested in waste from Poland. In the period of imposing control on the hazardous waste export, Polish companies intended to export about 80,000 tons of this type of waste. By the end of 1994, four cases of illegal hazardous waste export from Poland were recorded; in one case the Dutch authorities efficiently sent the transport back. The most hazardous undertaking was an export to Kazakhstan of about 50,000 tons of lead-bearing sludge from the “Legnica” Copper Mill (October, 1993 –September, 1994). Further export was stopped in Poland. An illegal transport of coppered debris to Slovakia was stopped at the border. In June 1995, the State Inspectorate of Environmental Protection, at the request of the authorities of Kaliningrad district, on the basis of article 53c paragraph 4 of the Statute on Shaping and Protecting the Natural Environment, enforced the sending back to Poland of around thousand tons of metallurgical slag exported from Poland in August and September, 1994 by the MUT company, a conglomerate enterprise from Szczecin.

The control of hazardous waste export gave rise to specific economic results connected with:

- 1) elimination of some hazardous waste trade in accordance with the Convention,
- 2) limitation of export of some waste which was the result of some trade barriers for economic subjects,

Elimination of export takes place due mostly to the creation of two barriers. These are:

- impossibility to export from Poland waste if the country of destination is not a member of the Basel Convention. This is the implementation of constraint to waste transportation resulting from the provisions of the Basel Convention into Polish legislation.

– introducing a ban on the import of specific groups of waste by means of internal regulations within some countries. These two types of barriers often co-exist at the same time (e.g. in Ukraine).

The following cases of waste export elimination illustrate the results of the barriers concerned.

1. The first case refers to an export of cadmium sponge which is the result of metallurgical processes. This waste is processed only to a limited extent in Poland, mainly due to the impossibility to sell recovered cadmium in the country and abroad. Polish companies have found a receiver in the Republic of Kazakhstan which is willing to purchase and process cadmium sponge. The contract, however, cannot be concluded as Kazakhstan is not a signatory of the Basel Convention.

2. The second case refers to lead-bearing sludge. As in the first case, its processing is limited in Poland due to the lack of sufficient recovery facilities. Moreover, one of enterprises which dealt with processing this sludge in the past was liquidated owing to economic reasons. Sludge export to a potential receiver in Kazakhstan is impossible as a consequence of the provisions of the Basel Convention.

3. The third case refers to the export of mercury catalysts to Ukraine. The possibilities of co-operation with a Ukrainian receiver were hindered because of two reasons. First of all, Ukraine is not a signatory of the Convention. Secondly, following internal regulations the Ukrainian government imposed a ban on hazardous waste import, including mercury containing waste.

Problems in waste export are the consequence of the following reasons:

1. A waste importing country must agree on taking and processing a specific amount of given waste. Sometimes, the authorities of countries of destination delay in answering or do not answer at all the questions directed to them by the authorities of the waste exporting country, despite the fact that foreign contractors are interested in waste reception. This refers, amongst others, to India, the Czech Republic, Italy.

2. The transit countries must univocally agree on the transit of waste through their territories. The Ministry of Transport of a given country specifies the route, period, conditions of transit and protection required. Sometimes the country of transit requires a “surety” for transit. This may be regarded as a specific form of insurance in case of possible disasters and environmental detriments resulting from transit. The rate of surety can constitute a financial burden, especially for small and medium companies. In order to get the transit permit one has to often wait for two to six months, which can adversely influence the possibility of signing and concluding the contract.

3. The delay in economic activity connected with the necessity to get an export permit from the Chief Inspector of Environmental Protection. The permit can be granted only when all the required documents are supplied.

The above mentioned difficulties negatively influence the scale and costs of activity of economic subjects within the sphere of waste export. An average period of completing legal procedures and getting a permit from the Chief Inspector of Environmental Protection to export waste is 4–6 months.

As far as the kinds and features of economic subjects acting as waste importers and exporters are concerned, their significant differentiation can be observed.

A waste export permit is, on average, granted to 20–30 economic subjects a year. The permits can be divided into two groups:

1. The first group are waste producers, especially those generating metallurgical waste. They are mostly large enterprises. For this group of enterprises, the disposal and utilization of industrial waste frequently becomes an important problem which is difficult to solve. In the case of these enterprises the significance of a transaction is limited as far as economic calculation is concerned. An income is rather low, and is on the verge of profitability. The main problem is waste utilization. As there are no receivers within the country, an export of this type of waste is the only way to get rid of substances – noxious for the company – which are the result of technology applied. This situation refers mainly to metallurgical industry and such waste as: zinc, copper and brass dross, dusts and ashes containing non-ferrous metal oxides, sludges. The export of this waste is often connected with the necessity to pay extra costs for its storage and packing, with a type of the package used and transport mode. Sometimes an enterprise is forced to implement a new technological line which guarantees a proper way of preparation of the waste for export. These are mostly the solutions which are more environment-friendly; for example, hermetic receipt of ashes containing metal oxides. A sale for receivers within the country would not require such procedures, so the costs would be lower and the profit on a transaction would be higher. However, in Poland there are limited possibilities of recovery of many groups of waste. This results from the lack of appropriate processing technologies by domestic enterprises.

2. The other group of exporters are companies which deal with waste trade and waste collecting from numerous small economic subjects. The latter are mostly small limited liability companies which specialise in the waste metal trade. In this case the formerly mentioned phenomenon of the internal market "clearance" from non-ferrous metal scrap took place. Its mechanism was as follows: a lot of purchasing centres of non-ferrous metal scrap came into being, the prices rose, of that socio-pathological phenomena were recorded and the theft of parts of equipment and devices which were made of non-ferrous metals and their alloys –



copper, tin, brass or bronze (e.g. electric traction wires, telecommunication and railway wires) was recorded. These phenomena became notorious. In 1992, about 60,000 tons of non-ferrous metals scrap were exported from Poland, which equals to 2.5 times the yearly demand of one of the largest companies in Poland which deals with its recovery. Such large state-owned companies were losing the market competition in the range of the purchase of non-ferrous metal scrap with companies which were established only to conduct the export activity. A reason was that state companies could not offer high purchase prices and they were less efficient in market activity than privately owned export oriented small companies. Large enterprises used domestic scrap, as its import was banned at that time and now it requires the permission of the Chief Inspector of Environmental Protection. Moreover, potential foreign suppliers (e.g. Ukraine, Belarus) imposed a ban on the export of non-ferrous scrap from their territories.

To sum up, one can talk about two basic problems connected with the implementation of a full control over hazardous waste export. The first one relates to a common, among environmental civil servants also, conviction that a limitation of waste export is pointless (a so-called NIMBY – not in my backyard syndrome). The other problem is that a readiness to take waste by a foreign contractor is regarded as a permission to export the waste. The contractors are not aware of the fact that there may be some administrative constraints to this waste trade. A specific hindrance is connected with a deficiency of definitions of some metal-bearing hazardous waste included in the regulation of the Minister Of Environmental Protection, Natural Resources and Forestry. On a list this regulation includes they are called “the waste containing a specific hazardous component”, which means that every time it is indispensable to analytically test the material. It refers for example to aluminium dross that typically contains fluorides and copper and lead compounds. In the regulation no 259/93 of the European Union the group of waste whose import to the Union requires a permit (a so-called “yellow list”) includes, among others, aluminium dross.

### 3.3. Waste import

As regards the reasons for operating and organization of waste import one can distinguish:

- large enterprises whose long term aim is to transport to Poland large amounts of waste which would be stored, removed, combusted etc. in Poland,
- smuggling, “at the opportunity” of single waste transport, being frequently done by companies which run a completely different kind of economic activity,
- enterprises whose aim is to purchase waste with a real economic value which can be used as secondary raw materials.

Polish enterprises were offered to import several million tons of waste (5.2 million tons officially, several million beyond control) between June 1993 and December 1994. Most offers referred to secondary raw materials (paper waste, metal scrap, plastics waste, textiles waste). There were also some offers to import industrial and municipal waste. The Municipal Office from Piotrków Trybunalski and the "Izdebski" Co. Ltd. from Bielsko-Biała were offered to import and store municipal waste. The "Premex" company from Liechtenstein offered the import and combustion of hazardous industrial waste in a facility that has been built for this goal in Brzeziny. There were also some offers to import debris to be stored in opencast/underground workings.

There are issued around 500 waste import permits a year. Some of these permits are valid for more than one year. Enterprises which are engaged in waste import are usually small, including one-person businesses. They may be divided into companies which specialise in imports of:

- scrap which is the raw material for metallurgical industry,
- post-sulphide lye which is used as a binding agent indispensable for copper production (The largest importer of post-sulphide lye is the Industrial Group of Copper Mining and Metallurgy "Polska Miedź" Inc. This company imports 130,000 tons of this substance a year.),
- cotton and flax waste which is the raw material for the cotton industry (This is a remainder of the co-operation within the Council of Mutual Economic Aid. At that time cotton producers from the former Soviet Union were not able (due to technological reasons) to utilise the raw material, so they collected it and sent it to Poland which specialised in its recovery and utilization as raw material in the cotton industry.),
- waste paper which is a raw material used in pulp and paper industry, (It is an import of marginal significance which constitutes 0.8% of waste paper consumption in Poland). The largest importer is Pulp and Paper Works "Celuloza" Inc. in Świecie which imports 40,000 tons of this kind of raw material. At present, waste paper supply is higher than demand which is connected with demand for waste paper substitutes. This results from an insufficient technological preparation of the works of pulp and paper industry to recover waste paper,
- second-hand clothes (about a half of all permits refers to this kind of activity). In Poland, they are segregated into clothes which can be further used. Subsequently, they are sent to popular retail shops (so-called "lumpex" shops). A remaining part of clothes is classified as unsuitable for further use. This latter group of clothes should be sent back to an exporter. One suspects, however, that a part of these clothes remains in Poland and is sent to refuse dumps (legal) where storage charges are

lower than in the countries of Western Europe. Sometimes this waste is also stored illegally (moonlight dumping).

There are also major importers of other waste. The most spectacular examples are such companies as: "Aspik" Co. Ltd. from Oława – 1.3 million tons of sewage sludge within two years, "Geoplan" Co. Ltd. from Opole – 1.4 million tons of debris within seven years, "Koopol Przemyski" Co. Ltd from Przemyśl – 0.5 million tons of used railway clippers within a year.

Every year almost a thousand single waste transports, including dozens of hazardous waste transports, are stopped at the border. The waste which is imported contains first of all used goods (clothes, different equipment, especially home appliances, car wrecks, used tyres). Despite the lack of permits, in 1994 over 4.4 thousand tons of waste, mainly plastics waste, were imported into Poland. This phenomenon is of a pretty constant character. The most attempts of hazardous waste import were recorded in 1991 and at the beginning of 1992, when the area of the former German Democratic Republic was cleared from old/withdrawn chemicals. At that time over a thousand tons of old pesticides, paint and varnish waste were successfully transported into Poland. It was only revealed during a control within the country. The part of waste was sent back to the place of origin. According to the Chief Inspector of Environmental Protection, between June 1993 and December 1994 only one transport of hazardous waste, a fuel named "industrial coal Carbo Plus" to be used by municipal heating plants took place. In fact it was a mixture of coal and cooking-chemical waste. (8,000 tons of the fuel containing 1,000 tons of waste were delivered to Poland.)

While granting the waste permits, the Chief Inspector of Environmental Protection takes into consideration the following directives:

- 1) is it possible to get a given waste in Poland?
- 2) is it possible to process this waste in Poland?

This falls in accordance with the rules of article 53a of the Statute on Shaping and Protecting the Natural Environment. Following this article, a permit may be granted if:

- there is an intention of secondary use of waste as raw materials,
- there is no possibility to get a proper amount of this kind of waste in the country,
- a given waste is not environmentally hazardous.

The permits issued are limited with respect to waste kind and quantity, as well as the time period within which the imports are to take place. There are no constraints concerning the origin of waste (both in terms of countries and supplying companies).

In order to illustrate the phenomenon under examination, one can reveal the following data. Between June 1993 and December 1994, the Chief Inspector of

Environmental Protection received 899 applications for granting waste import permits (there were 263 applications in 1993 and 526 in 1994). Their distribution by kinds of waste imported is given in the following diagram shown in Fig.4.

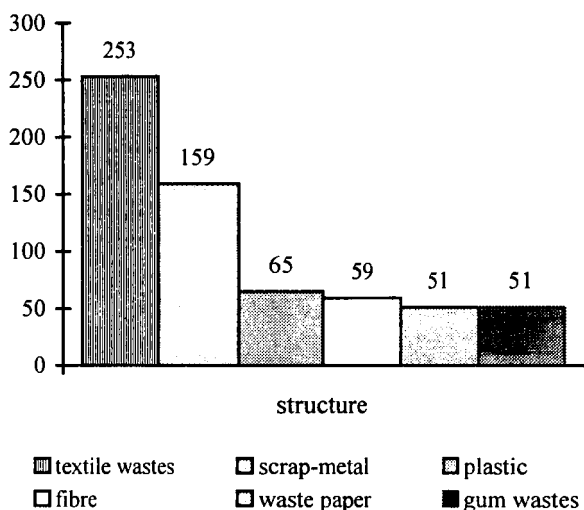


Fig.4. Applications for waste import permits in the years 1993–1994  
Source: data of the Chief Inspector of Environmental Protection

By the end of 1994, 160 permits were granted, 158 applications were rejected due to a hazardous type of waste. The following major import permits were granted:

- about 108,000 tons of waste paper intended for “Intercell” Co. Ltd from Ostrołęka, “Celuloza” Pulp and Paper Works Inc. from Świeck, International Paper Inc. from Kwidzyń, Kostrzyn Paper Works, Piechowice Paper Works,

- about 60,000 tons of non-ferrous metal scrap (copper and its alloys, aluminium) for Industrial Group of Copper Mining and Metallurgy “Polska Miedź” Inc., “Będzin” Ironworks, “Dziedzice” Metal Rolling Mill, “Skawina” Metallurgical Works, “Kęty” Light Metal Works Inc.,

- post-sulphide lye,

- plant fibre waste (cotton, flax).

Import permits were not granted if the waste disposal was environmentally arduous. This was particularly the case when bringing waste from abroad was connected with the potential or actual removal of a part of waste to dumping grounds or when the subject of waste import application was the hazardous waste. Due to the last reason, nine cases of import of used railway clippers intended for

combustion were stopped. In 140 cases the applicants gave up. About 200 procedures are suspended as the applicants did not reply to inquiries forwarded to them and there are no grounds for concluding the procedure.

The waste import permit related procedure lasts – on average – for about two months, depending on the requirement to take the voivod's and the commune's opinion and the application's completeness. The protraction of the procedure may be connected with the fact that an applicant asks for permits for several enterprises in different voivodships. A major problem is also the incompleteness of many applications.

Some applicants do not take advantage of all permits. This phenomenon may be illustrated with data presented in Table 1 below. The most spectacular examples are "Kęty" Light Metals Works, a joint stock company which did not import any aluminium scrap despite the fact that it had a permit to import 12,000 tons; the Industrial Group of Copper Mining and Metallurgy "Polska Miedź" Inc. which imported only 21 tons of copper despite the fact it had a permit to import 10,000 tons; finally, "Bawtex" Co. Ltd. from Łódź which imported only 81 tons of cotton waste although it was permitted to import 3,900 tons.

The liberalization of Polish law within the sphere of waste import is dependent on the following factors:

- technological possibilities of waste processing and recovery,
- increasing social acceptance of this type of economic (commercial) activity.

Table 1  
Import of selected groups of waste in 1994 (in tonnes)

Kind of waste	Applications	Permits	Import
Waste paper	126 355	101 805	38 452
Plant fibre waste	72 915	39 905	no data
Rubber waste	23 755	0	no data
Cullet	70 080	0	no data
Metallurgical waste	2 000	0	3
Non-ferrous metal scrap	182 034	67 102	1 536
Steel scrap	10 300	300	85
Plastics waste	70 020	316	3 634
Timber waste	599 974	0	no data
Municipal waste	115 510	0	no data
Debris	401 000	0	no data
Sewage sludge	708 300	0	No data

Source: data of the Chief Inspector of Environmental Protection.

A big problem which hinders the thorough recognition of the phenomenon of illegal waste import into Poland is the lack of respective estimates (statistics) of this phenomenon. Dozens of attempts of illegal waste import to Poland are officially recorded at the border. It is difficult to specify its real range. Some cases are revealed after a long time (perhaps after several years).

The Chief Inspectorate of Environmental Protection, the Border Traffic Control Authority of the Headquarters of Border Guard and the Chief Customs Office are engaged in the monitoring of the transboundary waste trade.

### 3.4. The transit of hazardous waste

The constraints to the transit of hazardous waste were put into force together with those of waste export on 3 September 1993. This transit has a minimal range because the control of hazardous waste export in Western Europe is becoming more and more rigid and the CEE countries have introduced import limitations. Until 1993, the natural environment in Poland was exposed to dangers connected with hazardous waste transit from the East to the West. This phenomenon diminished after several cases had been revealed and they had been labelled as having a political character in Germany and the Commonwealth of Independent Countries.

In 1994 a transit of oiled cleaner for combustion in the heating plant near St. Petersburg (without the consent of the Russian authorities) and a transit of old chemicals to Belarus (the import of which was hindered by the German authorities) were revealed.

*A posteriori*, two cases of the illegal transit of hazardous waste (metal-bearing waste) from the East to the West through the territory of Poland were revealed. An intensive transit of non-hazardous waste (rubber, plastics) from Germany to Lithuania, Latvia, Belarus, Ukraine, Georgia, Kazakhstan and Kirgisia is being observed in turn. Despite the fact that Polish regulations do not allow to control this type transit, it is known that the transit takes place at the consent of the authorities of the importing countries which is the fundamental principle of the transboundary waste transit.

## 4. FINAL REMARKS

The basic economic results of the Basel Convention can be divided into macroeconomic and microeconomic ones. The macroeconomic results are:

- changes in export and import directions,
- sectoral movements,
- changes in the total amounts of produced and exported/imported waste,

– technological changes consisting in the implementation of more environmentally friendly technologies.

Major microeconomic results are as follows:

- technological changes in individual companies,
- product mix modifications due to the lack of a sufficient amount of waste to be processed, increase in cost and changes in profitability,
- breach of some co-operative links,
- application of more environmentally friendly waste reception, packing and transport technologies,
- production cost increase as a consequence of:
  - implementation of new technologies,
  - implementation of new/improved waste reception and packing technologies,
  - price rise for raw materials which are waste at the same time
- the protraction of time which is necessary to conclude contracts of waste trade,
- a necessity to bear the cost of storage if it is impossible to export the waste.

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